



# CITY OF REDMOND

## Community Development Department

411 SW 9<sup>th</sup> Street  
Redmond, OR 97756  
541-923-7724

[www.redmondoregon.gov](http://www.redmondoregon.gov)

## REDMOND URBAN AREA PLANNING COMMISSION

411 SW 9<sup>th</sup> Street-COUNCIL CHAMBERS Redmond, OR 97756

**Wednesday, April 24<sup>th</sup>, 2024 5:30 pm**

Oral comments can be provided in-person or virtually. For those who plan to provide oral comments virtually during the meeting, pre-register at [planredmond@redmondoregon.gov](mailto:planredmond@redmondoregon.gov) (must pre-register before 3:00 p.m. on April 24<sup>th</sup>)

Stream the meeting live at: <https://www.redmondoregon.gov/government/city-council/council-meeting-info/meeting-agendas-minutes-and-video>

## Agenda

### UAPC Members

Ben  
Schimmoller,  
Chair

Norman  
Schultz, Vice-  
Chair

Heather DeWolf

Joseph  
Zampko

Mercedes  
Cook-Bostick

Michael Rogers

Tom Kuhn

Ex-Officio  
Ray Randall

#### I. CALL TO ORDER / INTRODUCTIONS

#### II. CITIZEN COMMENTS FOR ITEMS NOT ON THE AGENDA

#### III. PUBLIC HEARING

- a. Central Oregon Ready, Responsive, Resilient (CORE3): Comprehensive Plan Text Amendment, Urban Growth Boundary Expansion, Master Development Plan, and Zoning Map Amendment (File Nos. 711-23-000146-TA, 711-23-000147-UGB, 711-23-000148-MD, and 711-23-000149-ZMA)

#### IV. Next Meeting – May 1, 2024

#### V. COMMISSION MEMBER COMMENTS

#### VI. ADJOURN

Please note that these documents are also available on the City's website [www.redmondoregon.gov](http://www.redmondoregon.gov); click on City Government, hover on Commissions and Committees, click on Urban Area Planning Commission. You may also request a copy from City Records Office 541-923-7751 or email [kelly.morse@redmondoregon.gov](mailto:kelly.morse@redmondoregon.gov)

The City of Redmond encourages all citizens to participate in its programs and activities. This meeting location is accessible to people with disabilities. Requests for accommodation may include sign language interpreter service, assistive listening devices, materials in an alternate format or any other accommodation. If any accommodations are needed, please contact the ADA Coordinator at 541-504-3036 or [access@redmondoregon.gov](mailto:access@redmondoregon.gov). Requests should be made as soon as possible, but at least 3 business days prior to the scheduled meeting. The City of Redmond does not discriminate on the basis of disability status in the admission or access to, or treatment, or employment in, its programs or activities.



City of Redmond  
Community Development Department  
Planning Division  
411 SW 9<sup>th</sup> Street  
Redmond, OR 97756

Staff report document for the application package containing five applications, including:

711-23-000146-PLNG (TA) – Comprehensive Plan Text Amendment  
711-23-000147-PLNG (UGB) – Urban Growth Boundary Expansion  
711-23-000148-PLNG (MD) – Master Development Plan  
711-23-000149-PLNG (ZMA) – Zone Map Amendment  
711-23-000150-PLNG (ANN) – Annexation

Project Name – “Central Oregon Ready, Responsive, Resilient (CORE3)”

Published: April 17, 2024

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**Glossary of Terms**

| <b>Acronym</b> | <b>Term</b>                                   | <b>Definition</b>                                                                                                 |
|----------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 146-TA         | “711-23-000146-PLNG”                          | A shortened reference to the Comprehensive Plan text amendment application evaluated in this application package. |
| 147-UGB        | “711-23-000147-PLNG”                          | A shortened reference to the urban growth boundary amendment application evaluated in this application package.   |
| 148-MD         | “711-23-000148-PLNG”                          | A shortened reference to the master development plan application evaluated in this application package.           |
| 149-ZMA        | “711-23-000149-PLNG”                          | A shortened reference to the zone map amendment application evaluated in this application package.                |
| 150-ANN        | “711-23-000150-PLNG”                          | A shortened reference to the annexation application evaluated in this application package.                        |
| AC             | “Acres”                                       | A unit of measurement for land area.                                                                              |
| BLM            | “Bureau of Land Management”                   | An agency of the federal government.                                                                              |
| COIC           | “Central Oregon Intergovernmental Council”    | A council of governments; the applicant for this application package.                                             |
| COID           | “Central Oregon Irrigation District”          | A municipal corporation.                                                                                          |
| CORE3          | “Central Oregon Ready, Responsive, Resilient” | The name of the facility proposed by the applicant and subject to review in this application package.             |
| DEQ            | “Department of Environmental Quality”         | An agency of the federal government.                                                                              |
| DIAL           | “Deschutes Interactive Access Line”           | A database of property information maintained by Deschutes County.                                                |



|       |                                              |                                                                                                                                            |
|-------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| GIS   | “Geographic Information Systems”             | A system of data management and field of study.                                                                                            |
| JMA   | “Joint Management Agreement”                 | The City of Redmond and Deschutes County Joint Management Agreement which governs shared land use regulations and responsibility.          |
| OAR   | “Oregon Administrative Rule”                 | Rules created by the State of Oregon which have the force of law.                                                                          |
| ODOT  | “Oregon Department of Transportation”        | An agency of the State of Oregon.                                                                                                          |
| ORS   | “Oregon Revised Statute”                     | The laws of the State of Oregon.                                                                                                           |
| RDC   | “Redmond Development Code”                   | Chapter 8 of the City of Redmond Code, containing standards for development within the City.                                               |
| RUAPC | “Redmond Urban Area Planning Commission”     | An appointed advisory body of the City of Redmond.                                                                                         |
| TIA   | “Transportation Impact Analysis”             | A study of the potential impacts to the transportation system for a particular development.                                                |
| TSAA  | “Transportation System Analysis Application” | A type of application reviewed by the Engineering Division for compliance with transportation criteria.                                    |
| TSP   | “Transportation System Plan”                 | A document which studies a transportation system, including existing conditions, future conditions, and necessary projects and policies.   |
| ROW   | “Right of Way”                               | An area of land legally dedicated to use by the public, managed by governing agencies.                                                     |
| UGB   | “Urban Growth Boundary”                      | A legal designation for properties identified as potentially eligible for inclusion into the city limits, subject to review and agreement. |
| URA   | “Urban Reserve Area”                         | A legal designation for properties identified as first priority for future inclusion into the UGB, subject to review and agreement.        |

### **Section 1 – Property Description**

According to Deschutes County DIAL, the subject property (T15S, R13E, Tax Lot 103) is located at 1805 E Highway 126 and contains two additional addresses: 1002 NE 17<sup>th</sup> Street and 2400 NE Maple Avenue. The subject property is approximately 1,556.9 acres in size and is part of a larger tract of three (3) contiguous properties totaling approximately 1,732.1 acres in size (T15S, R13E, Tax Lots 103, 131; T15S, R13E, Section 10A, Tax Lot 1900).

The subject property is a legal lot of record pursuant to the Redmond Development Code (RDC), as evidenced by Partition Plat 2023-28 (described as “Parcel 2”) recorded in Deschutes County Official Record 2023-31682 (County Survey 21231), dated December 28, 2023. The subject property has not yet been conveyed in its current size and configuration and is currently described in Land Patent 36-66-0010 issued to Deschutes County by the Bureau of Land Management (BLM) on July 27, 1965 (BLM Serial Number ORORE 0013601FD and ORORE 0013601FD01).

According to City of Redmond and Deschutes County Community Development Records, the subject property is vacant except for the Negus Transfer Station and Recycling Station which is located in the central portion of the property and Oasis Village which is located in the southwestern portion of the property. Additionally, the subject property contains gas pipelines, powerlines, and multiple frontages along public rights-of-way (ROW): Highway 126 (ODOT) along the southern property line, NE 17<sup>th</sup> Street (City), NE Kingwood Avenue (City), NE Maple Avenue (County), and NE Negus Way (County) along the western property lines, NE Upas Avenue (County) along the northern property line, and E Antler Avenue (County) bisecting the center of the property and running east-west. There are no Central Oregon Irrigation District (COID) facilities or water rights associated with the subject property, and based on staff review of Google Earth 2024 Aerial Imagery, the subject property consists of varied terrain, is primarily covered by native vegetation including juniper trees and grasses, and does not appear to be irrigated or used for farm activity of any kind.

**Current Land Use Designations:** Currently, approximately 79 acres of the subject property is located within the City of Redmond jurisdiction and the remaining 1,477.9 acres is located within Deschutes County jurisdiction. Specifically, approximately 79 acres of the subject property is located with City Limits and the Redmond Urban Growth Boundary (UGB), approximately 1,361.9 acres are located within the Redmond Urban Reserve Area (URA), and approximately 116 acres are located within County jurisdiction without any urban or urban-adjacent designations.

Figure 1.1 – [not included in this document]

Additionally, the subject property is located within various City and County comprehensive plan, zoning, and overlay designations. Of the 79 acres within City jurisdiction, approximately 63.6 acres are located within the Light Industrial (M-1) Zoning and Comprehensive Plan designation, approximately 2.4 acres are located within the Heavy Industrial (M-2) Zoning and Comprehensive Plan designation, and approximately

13 acres are located within the Limited-Service Commercial (C-4A) Zoning and Comprehensive Plan designation.

According to DIAL, of the 1,477.9-acre portion of the subject property within County jurisdiction, approximately 319 acres are located with the Surface Mining (SM) Zoning and Deschutes County Comprehensive Plan designation, and approximately 1,158.9 acres are located within the Exclusive Farm Use Alfalfa Subzone (EFUAL) Zoning and Deschutes County Comprehensive Plan designation. Additionally, portions of the subject property are located within the Surface Mining Impact Area (SMIA) and Airport Safety (AS) combining zones.

Figure 1.2 – [not included in this document]

**Property History:** When the subject tract was first conveyed via BLM Land Patent 36-66-0010 to the current property owner, Deschutes County, it contained approximately 2,200 acres. Overtime, the tract was developed with a shooting range, a lumber mill, a telecommunication facility, and the High Desert Sports Complex, all of which have since been removed or conveyed separately and are no longer part of the subject tract.

Before the City of Redmond adopted Resolution 2005-06 to annex all existing UGB land into City Limits, the subject tract contained one (1) property that was located entirely within County jurisdiction and was approximately 1,732.1 acres in size, a result of executing a City of Redmond property line adjustment authorization, planning file LLA 04-06(D), as evidenced by the recording of County Survey 15976 on July 23, 2004. Upon execution of this 2005 annexation, the southernmost 215 acres of the subject tract was annexed into City Limits.

Figure 1.3 – [not included in this document]

After an urbanization study and community engagement process led by the City, Deschutes County adopted Ordinance 2005-023 on September 7, 2005, which had the effect of establishing the current URA boundary containing 5,661 acres. At the time of writing, the URA boundary has never been modified. The URA boundary included 1,401.1 acres of the subject tract, excluding southeasternmost 116 acres and that portion located within City Limits at the time, as shown in Figure 1.1 above. Later, Deschutes County adopted Ordinance 2006-018 on August 23, 2006, which had the effect of including 2,299 acres of the URA into the UGB. This UGB expansion did not include any portion of the subject tract into the UGB. Since this 2006 UGB expansion, the subject tract has been reconfigured and redesignated twice.

The first reconfiguration and redesignation occurred as a result of the City of Redmond and Deschutes County coordinating a UGB land exchange. Deschutes County adopted Ordinance 2020-002 on February 26, 2020, which had the effect of removing a 156-acre portion of the subject tract that was located within City Limits from the UGB, and in exchange, including a different 156-acre portion of the subject tract that was within the URA into the UGB. The City of Redmond subsequently adopted Resolution 2020-08 on

June 23, 2020, to effectuate an equivalent exchange of lands into and from City Limits. The subject tract was then partitioned as evidenced by Partition Plat 2022-17 recorded in Deschutes County Official Record 2022-19116 (County Survey 20808), dated May 10, 2022, resulting in the creation of one (1) property approximately 1,596.2 acres in size, and one (1) property (T15S, R13E, Tax Lot 131) approximately 135.9 acres in size and located entirely within the newly expanded UGB and City Limits area.

Figure 1.4 – [not included in this document]

The second reconfiguration and redesignation occurred as a result of the State of Oregon's Affordable Housing Pilot Program, which allows for selected jurisdictions to expedite a UGB expansion in order to facilitate the development of affordable housing. The Affordable Housing Pilot Program and the City of Redmond's participation in the program was authorized as a result of the passage of House Bill 2336 (2019 Session) and House Bill 4079 (2016 Session). Deschutes County adopted Ordinance 2021-005 on June 16, 2021, which had the effect of including approximately 40 acres of the subject tract that was within the URA into the UGB. The City of Redmond subsequently adopted Resolution 2021-32 on October 26, 2021, to annex the same area of land into City Limits. The 1,596.2-acre property within the subject tract was then reconfigured, as evidenced by Partition Plat 2023-28 recorded in Deschutes County Official Record 2023-31682 (County Survey 21231), dated December 28, 2023, bringing the subject tract and the three (3) contiguous properties contained within to their current sizes, configurations, and designations.

## **Section 2 – Description of Proposal**

The applicant, Central Oregon Intergovernmental Council (COIC), has submitted six (6) applications to the City of Redmond and three (3) applications to Deschutes County. Of these, seven (7) are to be reviewed concurrently between both jurisdictions. The applications being reviewed separately include two (2) partition applications, which are explained in further detail below. The five (5) applications submitted to the City of Redmond for concurrent review are henceforth referred to collectively as the ‘application package’ and are the only applications evaluated in this staff report document.

The applicant proposes to develop the southernmost portion of the subject property with a regional emergency preparedness and training facility, called Central Oregon Ready, Responsive, Resilient (CORE3). The CORE3 facility is proposed to include academic and administrative facilities, including specialized training facilities such as vehicle operation courses, wildfire/aircraft/train derailment props, shooting and simulations facilities, classrooms and conference rooms, trainee/instructor services, and auxiliary structures necessary to ensure continued and rapid responsiveness during an emergency event. To realize this proposal, the applicant has requested to amend the Redmond Comprehensive Plan (711-23-000146-PLNG), to expand the Redmond UGB (711-23-000147-PLNG), to annex territory into Redmond City Limits (711-23-000150-PLNG), to apply City zoning (711-23-000149-PLNG), and to establish a master development plan (711-23-000148-PLNG). The proposal and each individual request included within requires review for compliance with applicable criteria. The findings and analysis for each request are included in Section 3 of this document.

Figure 2.1 – [not included in this document]

**Individual Applications:** Below is a description of each application.

### *711-23-000146-PLNG (TA) – Comprehensive Plan Text Amendment*

Herein after this application shall be referred to as “146-TA”.

Application 146-TA is a request to amend the Redmond Comprehensive Plan to incorporate the need for the CORE3 facility and specific site requirements. The deciding body for this application is the Redmond City Council and a decision of approval would be adopted via ordinance, subject to appeals and acknowledgement by the State. The Redmond Urban Area Planning Commission (RUAPC) will adopt a recommendation for the Redmond City Council to review prior to deciding. The applicant proposes to include the following language into the Redmond Comprehensive Plan:

*“Public Facilities and Services Policy 11-1-7:*

*To implement the Central Oregon Emergency Services Center Viability Assessment and the related Strategic Business Plan, the City has determined a need for a suitable site for the Central Oregon Ready, Responsive, Resilient (CORE3) regional public facility as a new community element. The CORE3 facility requires the following site and locational characteristics:*

- *300 contiguous acres of suitable vacant land;*

- *Within one-quarter mile of the Redmond Municipal Airport; and*
- *Direct access to a state highway without the need to travel through designated residential or commercial areas.*

*Any land brought into the Urban Growth Boundary to meet public services and facilities site needs identified through this policy shall be limited to Public Safety, Emergency Services, Training and Coordination Facilities.”*

**711-23-000147-PLNG (UGB) – Urban Growth Boundary Expansion**

Herein after this application shall be referred to as “147-UGB”.

Application 147-UGB is contingent upon approval of application 146-TA and is a request to expand the Redmond UGB to include approximately 228 acres of the subject property, which are currently located with the URA, and to assign the Public Facilities Redmond Comprehensive Plan designation. Approval must be granted by both the Deschutes County Board of Commissioners and by the Redmond City Council. A decision of approval would be adopted via ordinance by both governing bodies, subject to appeals and acknowledgement by the State. The RUAPC and the Redmond City Council will each adopt a recommendation for the Deschutes County Board of Commissioners to review prior to deciding.

Figure 2.2 – [not included in this document]

**711-23-000150-PLNG (ANN) – Annexation**

Herein after this application shall be referred to as “150-ANN”.

Application 150-ANN is contingent upon approval of application 147-UGB and is a request to annex the same 228-acre portion of the subject property into Redmond City Limits. The deciding body for this application is the Redmond City Council and a decision of approval would result in the signing and recording of an annexation agreement, which would subsequently be executed by the adoption of a resolution, subject to review by the State.

Figure 2.3 – [not included in this document]

**711-23-000149-PLNG (ZMA) – Zone Map Amendment**

Herein after this application shall be referred to as “149-ZMA”.

Application 149-ZMA is contingent upon approval of application 150-ANN and is a request to change the zoning and comprehensive plan designation of the same 228-acre portion of the subject property from Urban Holding 10 (UH-10) to Public Facilities (PF). The deciding body for this application is the Redmond City Council and a decision of approval would be adopted via ordinance, subject to appeals and acknowledgement by the State. The RUAPC will adopt a recommendation for the Redmond City Council to review prior to deciding.

Figure 2.4 – [not included in this document]

**711-23-000148-PLNG (MD) – Master Development Plan**

Herein after this application shall be referred to as “148-MD”.

Application 148-MD is contingent upon approval of application 150-ANN and 149-ZMA and is a request to establish a master development plan authorizing the CORE3 facility on the same 228-acre portion of the subject property. The deciding body for this application is the Redmond City Council and a decision of approval would be adopted via ordinance, subject to appeals and acknowledgement by the State. The RUAPC will adopt a recommendation for the Redmond City Council to review prior to deciding.

Figure 2.5 – [not included in this document]

**Related Applications:** The following applications are related to the development proposal but are not evaluated as part of this staff report document.

*County Applications*

*247-23-000543-PA / 247-23-000544-ZC – Plan Amendment and Zone Change*

These applications are being reviewed concurrently with but are not a part of this application package, nor are they evaluated in this staff report document. The reviewing body for these applications is Deschutes County and will be decided upon by the Deschutes County Board of Commissioners. A decision of approval would be adopted via ordinance, subject to appeals and acknowledgement by the State. These applications are a request to change the Deschutes County Comprehensive Plan designation of the same 228-acre portion of the subject property from Agriculture (AG) to Redmond Urban Growth Area (RUGA) and the Deschutes County Zoning designation from Exclusive Farm Use Alfalfa Subzone (EFUAL) to Urban Holding 10 (UH-10) in preparation for the proposed UGB expansion request. The Deschutes County Community Development Department can provide additional information regarding these applications.

*Partition Applications*

*City Application 711-23-000145-PLNG (RMP) / County Application 247-23-000545-MP*

These applications are being reviewed or have been reviewed independently from the application package. Both applications contain the same request for tentative partition approval to divide the subject property into three (3) parcels. Parcel 1 would contain approximately 300 acres, Parcel 2 would contain approximately 1,185.9 acres, and Parcel 3 would contain approximately 71 acres. Because the subject property is located within both jurisdictions, approval by both jurisdictions is required before the partition could be executed by the recording of a final plat. The Community Development Department of each jurisdiction can provide additional information on their respective applications. At the time of writing, County Application 247-23-000545-MP, was approved subject to conditions on October 13, 2023, and became effective October 25, 2023.

**Proposed Outcome:** In the event that all nine (9) applications currently under review by both jurisdictions are approved and executed, the final result would be a reconfigured and redesignated subject tract, as well as a master development plan authorization for the CORE3 facility. The subject tract would contain five (5) contiguous properties under common ownership, of which approximately 116 acres would be located entirely outside

of the URA, approximately 1,133.9 acres would be located with the URA, and approximately 482.2 acres would be located simultaneously within the UGB and City Limits. Although the applicant would have the master development plan authorization, additional land use and permits authorizations would be required before development could begin.

Figure 2.6 – [not included in this document]

**Procedural Review:** The entire application package will be reviewed by both the RUAPC and the Redmond City Council in a series of public hearings. Application 147-UGB will also be reviewed by the Deschutes County Board of Commissioners. This application package is being evaluated and processed in compliance with Oregon Revised Statute (ORS), Oregon Administrative Rule (OAR), and the provisions of the City of Redmond and Deschutes County Joint Management Agreement (JMA), as well as with the Redmond Development Code (RDC) provisions that were in effect at the time the application package was submitted pursuant to ORS 227.178.

The application package was submitted to the Redmond Community Development Department on June 30, 2023, and notice of application was sent pursuant to RDC 8.1310 on July 10, 2023. The application was deemed incomplete and notice of incompleteness was sent pursuant to RDC 8.1015 on July 31, 2023. The applicant later submitted additional information, and the application package was deemed complete on December 21, 2023.

Pursuant to RDC 8.1335, the JMA, and ORS 197.797, notice of public hearing for RUAPC review was sent to surrounding property owners within 500 feet of the subject property on March 5, 2024, was posted on the subject property on March 21, 2024, and was published in the *Bend Bulletin* on April 4, 2024. This staff report document will be published by April 17, 2024, and the RUAPC public hearing will be held on April 24 and May 1 of 2024. As of the time of writing, the public hearing dates for the City Council and Board of Commissioners have not yet been set.



### **Section 3 – Review and Analysis**

Each application in this package is subject to different criteria; however, the entire application package is subject to review for compliance with ORS, OAR, the JMA, the RDC, the Redmond Comprehensive Plan, and the Statewide Planning Goals. This section contains a summary of the comments received prior to the publishing of this document, the applicable criteria listed by application, as well as staff findings and analysis.

**Comments:** Full comments can be found in attachment B. Comments included in attachment B only include those comments submitted prior to April 17, 2024.

Oregon Department of  
Transportation (ODOT)

The subject property contains an existing public approach along Highway 126, located approximately where SE 21<sup>st</sup> Street is proposed to be, and a temporary approach further west.

**Applicable Criteria:** The City of Redmond adopted new RDC provisions when Ordinance 2023-07 was adopted on December 19, 2023. These new provisions went into effect on January 18, 2024. This application package was submitted prior to when the new provisions went into effect and thus is being evaluated for compliance with the provisions that were in effect at the time the application package was submitted in accordance with ORS 227.178.

Criteria applicable to the entire application package:

- ORS 197.175(1-2) Cities' and counties' planning responsibilities; rules on incorporation; compliance with goals.
- RDC 8.0065 Establishment of Zones and Districts.
- RDC 8.0385 Neighborhood Meeting.
- RDC 8.0750 Authorization to Initiate Amendments.
- RDC 8.0760 Criteria for Amendments.
- RDC 8.0765 Tentative Approval.
- RDC 8.2815 Transportation System Analysis.
- Redmond Comprehensive Plan
- Statewide Planning Goals

Criteria only applicable to 147-UGB:

- OAR 660-021-0060 Urban Growth Boundary Expansion.
- OAR 660-024-0020 Adoption or Amendment of a UGB.
- OAR 660-024-0040 Land Need.
- OAR 660-024-0050 Land Inventory and Response to Deficiency.
- OAR 660-024-0065 Establishment of Study Area to Evaluate Land for Inclusion in the UGB.

- OAR 660-024-0067 Evaluation of Land in the Study Area for Inclusion in the UGB; Priorities.
- OAR 660-024-0070 UGB Adjustments.
- JMA(6)(C). RUGB Amendments and RURA Boundary Designations.
- JMA(8)(A). Area of Mutual Interest.

Criteria only applicable to 150-ANN:

- JMA (10)(A). Special Provisions.
- RDC 8.0130 Urban Holding UH-10 Zone.

Criteria only applicable to 149-ZMA:

- RDC 8.0070 Location of Zones.
- RDC 8.0075 Zoning Maps.
- RDC 8.0080 Zone Boundaries.
- RDC 8.0085 Zoning of Annexed Areas.

Criteria only applicable to 148-MD:

- RDC 8.0220 Table E, Permitted Uses.
- RDC 8.0270(1-2) Master Development Plans.

**Staff Findings:** Findings of this section are divided into the following subsections:

Subsection 3A. Oregon Revised Statute (ORS)  
Subsection 3B. Oregon Administrative Rule (OAR)  
Subsection 3C. Joint Management Agreement (JMA)  
Subsection 3D. Redmond Development Code (RDC)  
Subsection 3E. Redmond Comprehensive Plan  
Subsection 3F. Oregon Statewide Planning Goals

***Subsection 3A – ORS***

**ORS 197.175(1-2) Cities' and counties' planning responsibilities; rules on incorporation; compliance with goals.**

1. Cities and counties shall exercise their planning and zoning responsibilities, including, but not limited to, a city or special district boundary change which shall mean the annexation of unincorporated territory by a city, the incorporation of a new city and the formation or change of organization of or annexation to any special district authorized by ORS 198.705 to 198.955, 199.410 to 199.534 or 451.010 to 451.620, in accordance with ORS chapters 195, 196, 197 and 197A and the goals approved under ORS chapters 195, 196, 197 and 197A. The Land Conservation and Development Commission shall adopt rules clarifying how the goals apply to the incorporation of a new city. Notwithstanding the provisions of section 15, chapter 827, Oregon Laws 1983, the rules shall take effect upon adoption by the commission. The applicability of rules promulgated under this section to the incorporation of cities prior to August 9, 1983, shall be determined under the laws of this state.
2. Pursuant to ORS chapters 195, 196, 197 and 197A, each city and county in this state shall:
  - a. Prepare, adopt, amend and revise comprehensive plans in compliance with goals approved by the commission;
  - b. Enact land use regulations to implement their comprehensive plans;
  - c. If its comprehensive plan and land use regulations have not been acknowledged by the commission, make land use decisions and limited land use decisions in compliance with the goals;
  - d. If its comprehensive plan and land use regulations have been acknowledged by the commission, make land use decisions and limited land use decisions in compliance with the acknowledged plan and land use regulations; and
  - e. Make land use decisions and limited land use decisions subject to an unacknowledged amendment to a comprehensive plan or land use regulation in compliance with those land use goals applicable to the amendment.

**GENERAL FINDINGS:** These criteria authorize cities to exercise planning and zoning responsibilities, to annex territory, and to revise their respective comprehensive plans pursuant to State law and the Statewide Planning Goals. These criteria also enable cities to evaluate and decide on proposals that are subject to unacknowledged comprehensive plan amendments.

Application 146-TA is a proposal to amend the Redmond Comprehensive Plan. Except for application 146-TA, each application in this package is contingent upon the approval of the application that precedes it, meaning that the decision to approve or deny four (4) of the applications in this package is a decision subject to an unacknowledged comprehensive plan amendment. Staff finds that pursuant to these criteria, the City has authority to evaluate the application package for compliance with applicable criteria and to issue a final decision, subject to appeals and acknowledgment by the State.

**Subsection 3B – OAR**

**OAR 660-021-0060 Urban Growth Boundary Expansion**

All lands within urban reserves established pursuant to this division shall be included within an urban growth boundary before inclusion of other lands, except where an identified need for a particular type of land cannot be met by lands within an established urban reserve.

GENERAL FINDINGS: This criterion only applies to application 147-UGB.

FINDINGS FOR 147-UGB: The 228-acre portion of the subject property that the applicant proposes to include into the UGB is currently designated as URA. The application complies with this criterion.

**OAR 660-024-0020(1-2) Adoption or Amendment of a UGB**

1. All statewide goals and related administrative rules are applicable when establishing or amending a UGB, except as follows:
  - a. The exceptions process in Goal 2 and OAR chapter 660, division 4, is not applicable unless a local government chooses to take an exception to a particular goal requirement, for example, as provided in OAR 660-004-0010(1);
  - b. Goals 3 and 4 are not applicable;
  - c. Goal 5 and related rules under OAR chapter 660, division 23, apply only in areas added to the UGB, except as required under OAR 660-023-0070 and 660-023-0250;
  - d. The transportation planning rule requirements under OAR 660-012-0060 need not be applied to a UGB amendment if the land added to the UGB is zoned as urbanizable land, either by retaining the zoning that was assigned prior to inclusion in the boundary or by assigning interim zoning that does not allow development that would generate more vehicle trips than development allowed by the zoning assigned prior to inclusion in the boundary;
  - e. Goal 15 is not applicable to land added to the UGB unless the land is within the Willamette River Greenway Boundary;
  - f. Goals 16 to 18 are not applicable to land added to the UGB unless the land is within a coastal shorelands boundary;
  - g. Goal 19 is not applicable to a UGB amendment.
2. The UGB and amendments to the UGB must be shown on the city and county plan and zone maps at a scale sufficient to determine which particular lots or parcels are included in the UGB. Where a UGB does not follow lot or parcel lines, the map must provide sufficient information to determine the precise UGB location.

GENERAL FINDINGS: These criteria only apply to application 147-UGB.

FINDINGS FOR 147-UGB: Pursuant to these criteria, Statewide Planning Goals 3, 4, and 15 through 19 are not applicable to this application. This application's compliance with the applicable Statewide Planning Goals is evaluated in subsection 3F.

The applicant has submitted a development plan map into the record (attachment A) which shows the proposed UGB inclusion area as being approximately 228 acres in size. The applicant has also submitted the tentative plat for application 711-23-000145-PLNG, which is a request to divide the subject property into three (3) parcels. Upon reviewing both maps, it is clear that the applicant intends to partition the property along the northernmost boundary of the proposed UGB inclusion area. Staff finds this representation to be sufficiently clear for the purposes of evaluating the applicant's proposal. However, at the time of writing, it is not known if the partition request will be approved or when it would be executed. Therefore, to ensure compliance with these criteria throughout the adoption process, staff recommends a condition of approval requiring the applicant to provide a legal description of the proposed UGB inclusion area evaluated in this application, which will be incorporated into the UGB amendment adopting ordinance. With this condition, the application complies with these criteria.

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| <b>OAR 660-024-0040(1-7) Land Need</b> |
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| <p>(1) The UGB must be based on the appropriate 20-year population forecast for the urban area as determined under rules in OAR chapter 660, division 32, and must provide for needed housing, employment and other urban uses such as public facilities, streets and roads, schools, parks and open space over the 20-year planning period consistent with the land need requirements of Goal 14 and this rule. The 20-year need determinations are estimates which, although based on the best available information and methodologies, should not be held to an unreasonably high level of precision. Local governments in Crook, Deschutes or Jefferson Counties may determine the need for Regional Large-Lot Industrial Land by following the provisions of OAR 660-024-0045 for areas subject to that rule.</p> |
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*[Non-applicable criteria omitted for brevity.]*

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| <p>(3) A local government may review and amend the UGB in consideration of one category of land need (for example, housing need) without a simultaneous review and amendment in consideration of other categories of land need (for example, employment need).</p> |
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*[Non-applicable criteria omitted for brevity.]*

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| <p>(7) The determination of 20-year land needs for transportation and public facilities for an urban area must comply with applicable requirements of Goals 11 and 12, rules in OAR chapter 660, divisions 11 and 12, and public facilities requirements in ORS 197.712 and 197.768. The determination of school facility needs must also comply with 195.110 and 197.296 for local governments specified in those statutes.</p> |
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GENERAL FINDINGS: These criteria only apply to application 147-UGB.

FINDINGS FOR 147-UGB: Application 146-TA is a proposal to add a new policy to the Redmond Comprehensive Plan. The proposed policy reads as follows:

*“Public Facilities and Services Policy 11-1-7:*

*To implement the Central Oregon Emergency Services Center Viability Assessment and the related Strategic Business Plan, the City has determined a need for a suitable site for the Central Oregon Ready, Responsive, Resilient (CORE3) regional public facility as a new community element. The CORE3 facility requires the following site and locational characteristics:*

- *300 contiguous acres of suitable vacant land;*
- *Within one-quarter mile of the Redmond Municipal Airport; and*
- *Direct access to a state highway without the need to travel through designated residential or commercial areas.*

*Any land brought into the Urban Growth Boundary to meet public services and facilities site needs identified through this policy shall be limited to Public Safety, Emergency Services, Training and Coordination Facilities.”*

Per these criteria and other provisions of State law, a UGB is required to contain a twenty (20) year supply of lands for any recognized land need. Adoption of application 146-TA would result in recognizing a new land need for a regional public safety emergency training and coordination facility, which is a type of public facility need, not related to utilities or transportation. Application 147-UGB is a proposal to expand the UGB to include lands which could provide a twenty (20) year supply of lands for this type of public facility need without consideration for any other category of land need. As this type of public facility is not related to utilities or transportation, adoption of this application would not necessitate modifications to the City of Redmond Public Facility Plans or the Redmond Transportation System Plan (TSP) and thus would not require review of OAR 660-011 or OAR 660-012. Therefore, staff finds that this application complies with these criteria. Because the compliance of application 147-UGB with these criteria is contingent upon the adoption of application 146-TA, staff recommends a condition of approval that states this and a condition that the adoption of application 147-UGB shall only occur concurrently with or following the adoption of application 146-TA.

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| <b>OAR 660-024-0050(1-7) Land Inventory and Response to Deficiency</b> |
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| <p>(1) When evaluating or amending a UGB, a local government must inventory land inside the UGB to determine whether there is adequate development capacity to accommodate 20-year needs determined in OAR 660-024-0040. For residential land, the buildable land inventory must include vacant and redevelopable land, and be conducted in accordance with OAR 660-007-0045 or 660-008-0010, whichever is applicable, and ORS 197.296 for local governments subject to that statute. For employment land, the inventory must include suitable vacant and developed land designated for industrial or other employment use, and must be conducted in accordance with OAR 660-009-0015.</p> |
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*[Non-applicable criteria omitted for brevity.]*

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| <p>(4) If the inventory demonstrates that the development capacity of land inside the UGB is inadequate to accommodate the estimated 20-year needs determined under OAR 660-024-0040, the local government must amend the plan to satisfy the need deficiency, either by increasing the development capacity of land already</p> |
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inside the city or by expanding the UGB, or both, and in accordance with ORS 197.296 where applicable. Prior to expanding the UGB, a local government must demonstrate that the estimated needs cannot reasonably be accommodated on land already inside the UGB. If the local government determines there is a need to expand the UGB, changes to the UGB must be determined by evaluating alternative boundary locations consistent with Goal 14 and applicable rules at OAR 660-024-0060 or 660-024-0065 and 660-024-0067.

*[Non-applicable criteria omitted for brevity.]*

- (6) When land is added to the UGB, the local government must assign appropriate urban plan designations to the added land, consistent with the need determination and the requirements of section (7) of this rule, if applicable. The local government must also apply appropriate zoning to the added land consistent with the plan designation or may maintain the land as urbanizable land until the land is rezoned for the planned urban uses, either by retaining the zoning that was assigned prior to inclusion in the boundary or by applying other interim zoning that maintains the land's potential for planned urban development. The requirements of ORS 197.296 regarding planning and zoning also apply when local governments specified in that statute add land to the UGB.
- (7) Lands included within a UGB pursuant to OAR 660-024-0065(3) to provide for a particular industrial use, or a particular public facility, must be planned and zoned for the intended use and must remain planned and zoned for that use unless the city removes the land from the UGB.

GENERAL FINDINGS: These criteria only apply to application 147-UGB.

FINDINGS FOR 147-UGB: The applicant has submitted a site selection analysis prepared by Winterbrook Planning into the record to address the applicable requirements of OAR 660-024. As discussed above, adoption of application 146-TA, would establish a public facility land need for which only land that contains 300 vacant, contiguous acres and direct access to a State highway that is within one-quarter mile of the Redmond Municipal Airport would be suitable. Based on the applicant's site selection analysis, the existing UGB contains no lands that could satisfy the identified public facility need when accounting for these size, proximity, and site characteristics. Staff concurs with this conclusion based on review of the applicant's analysis and staff's own measurements taken using City of Redmond Geographic Information Systems (GIS) tools.

Pursuant to the Comprehensive Plan and the JMA, all land included into the UGB is assigned UH-10 zoning, which is a County zone that assigns urban designation to a property. Application 147-UGB proposes to include a portion of the subject property into the UGB and to apply the PF Redmond Comprehensive Plan designation. Upon adoption of this application and County applications 247-23-000543-PA and 247-23-000544-ZC, the land would be assigned UH-10 zoning, the RUGA Deschutes County Comprehensive Plan designation, and PF Redmond Comprehensive Plan designation. Application 149-ZMA subsequently proposes to change the zoning of that portion from UH-10 to PF zoning following annexation into City Limits, which would both be

compatible with the underlying comprehensive plan designation and enable the property to be developed with the needed public facility once all development authorizations are obtained. Given this, staff concurs with the application that UGB expansion is necessary to satisfy the land deficiency identified by application 146-TA and finds that the applicant's proposed land use designations would comply with these criteria. To ensure continued compliance, staff recommends a condition of approval that the UGB inclusion area evaluated in this application will only be permitted UH-10 or PF zoning designations until such time that it is wholly removed from the UGB. With this condition, the application could comply with these criteria.

**OAR 660-024-0065(1-6) Establishment of Study Area to Evaluate Land for Inclusion in the UGB**

- (1) When considering a UGB amendment to accommodate a need deficit identified in OAR 660-024-0050(4), a city outside of Metro must determine which land to add to the UGB by evaluating alternative locations within a "study area" established pursuant to this rule. To establish the study area, the city must first identify a "preliminary study area" which shall not include land within a different UGB or the corporate limits of a city within a different UGB. The preliminary study area shall include:
- (a) All lands in the city's acknowledged urban reserve, if any;
  - (b) All lands that are within the following distance from the acknowledged UGB:
    - (A) For cities with a UGB population less than 10,000: one-half mile;
    - (B) For cities with a UGB population equal to or greater than 10,000: one mile;
  - (c) All exception areas contiguous to an exception area that includes land within the distance specified in subsection (b) and that are within the following distance from the acknowledged UGB:
    - (A) For cities with a UGB population less than 10,000: one mile;
    - (B) For cities with a UGB population equal to or greater than 10,000: one and one-half miles;
  - (d) At the discretion of the city, the preliminary study area may include land that is beyond the distance specified in subsections (b) and (c).  
*[Non-applicable criteria omitted for brevity.]*
- (3) When the primary purpose for expansion of the UGB is to accommodate a particular industrial use that requires specific site characteristics, or to accommodate a public facility that requires specific site characteristics, and the site characteristics may be found in only a small number of locations, the preliminary study area may be limited to those locations within the distance described in section (1) or (2), whichever is appropriate, that have or could be improved to provide the required site characteristics. For purposes of this section:
- (a) The definition of "site characteristics" in OAR 660-009-0005(11) applies for purposes of identifying a particular industrial use.
  - (b) A "public facility" may include a facility necessary for public sewer, water, storm water, transportation, parks, schools, or fire protection. Site characteristics may include but are not limited to size, topography and proximity.
- (4) The city may exclude land from the preliminary study area if it determines that:  
*[Non-applicable criteria omitted for brevity.]*



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| <p>(d) The land is owned by the federal government and managed primarily for rural uses.</p> <p>(5) After excluding land from the preliminary study area under section (4), the city must adjust the area, if necessary, so that it includes an amount of land that is at least twice the amount of land needed for the deficiency determined under OAR 660-024-0050(4) or, if applicable, twice the particular land need described in section (3). Such adjustment shall be made by expanding the distance specified under the applicable section (1) or (2) and applying section (4) to the expanded area.</p> <p>(6) For purposes of evaluating the priority of land under OAR 660-024-0067, the “study area” shall consist of all land that remains in the preliminary study area described in section (1), (2) or (3) of this rule after adjustments to the area based on sections (4) and (5), provided that when a purpose of the UGB expansion is to accommodate a public park need, the city must also consider whether land excluded under subsection (4)(a) through (c) of this rule can reasonably accommodate the park use.</p> |
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GENERAL FINDINGS: These criteria only apply to application 147-UGB.

FINDINGS FOR 147-UGB: According to the applicant’s narrative and development plan map (attachment A), this facility is proposed to feature a heavy programmatic emphasis on wildfire training and would serve as a coordination facility in the event of a wildfire in the region, meaning that this facility is largely for fire protection. As discussed above, application 146-TA would establish a public facility land need for a regional public safety emergency training and coordination facility for which only land that contains 300 vacant and contiguous acres, direct access to a State highway, and is located within one-quarter mile of the Redmond Municipal Airport would be suitable.

These criteria require a very precise methodology to establish a UGB inclusion study area, from which cities are supposed to evaluate multiple alternatives and select the most appropriate lands to satisfy a land deficiency. The methodology to establish the study area required by these criteria involve identifying all the properties in the range described by criterion (1), removing properties that do not meet the required site characteristics, and then removing federal lands managed for rural use immediately after. The result of this methodology is that only the subject property, which is approximately 1,556.9 acres in size and well over twice the amount of land needed, would be eligible to be included in the UGB inclusion study area. This is the same study area identified within the applicant’s submitted site selection analysis. These criteria have been met.

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| <b>OAR 660-024-0065(9) Establishment of Study Area to Evaluate Land for Inclusion in the UGB</b> |
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| <p>(9) Notwithstanding OAR 660-024-0050(4) and section (1) of this rule, except during periodic review or other legislative review of the UGB, the city may approve an application under ORS 197.610 to 197.625 for a UGB amendment to add an amount of land less than necessary to satisfy the land need deficiency determined</p> |
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under OAR 660-024-0050(4), provided the amendment complies with all other applicable requirements.

GENERAL FINDINGS: This criterion only applies to application 147-UGB.

FINDINGS FOR 147-UGB: Application 147-UGB is a quasi-judicial review of the UGB, rather than a legislative or periodic review. The 228-acre portion of the subject property that the applicant is proposing to include into the UGB includes all of the subject property that is located within both the URA and one-quarter mile of the airport and is seventy-two (72) fewer acres than the land deficiency identified by application 146-TA. This criterion has been met.

**OAR 660-024-0067(1-7) Evaluation of Land in the Study Area for Inclusion in the UGB; Priorities**

- (1) A city considering a UGB amendment must decide which land to add to the UGB by evaluating all land in the study area determined under OAR 660-024-0065, as follows
- (a) Beginning with the highest priority category of land described in section (2), the city must apply section (5) to determine which land in that priority category is suitable to satisfy the need deficiency determined under OAR 660-024-0050 and select for inclusion in the UGB as much of the land as necessary to satisfy the need.
- [Non-applicable criteria omitted for brevity.]*
- (2) Priority of Land for inclusion in a UGB:
- (a) First Priority is urban reserve, exception land, and nonresource land. Lands in the study area that meet the description in paragraphs (A) through (C) of this subsection are of equal (first) priority:
    - (A) Land designated as an urban reserve under OAR chapter 660, division 21, in an acknowledged comprehensive plan;
    - (B) Land that is subject to an acknowledged exception under ORS 197.732; and
    - (C) Land that is nonresource land.
- [Non-applicable criteria omitted for brevity.]*
- (5) With respect to section (1), a city must assume that vacant or partially vacant land in a particular priority category is “suitable” to satisfy a need deficiency identified in OAR 660-024-0050(4) unless it demonstrates that the land cannot satisfy the specified need based on one or more of the conditions described in subsections (a) through (g) of this section: Existing parcelization, lot sizes or development patterns of rural residential land make that land unsuitable for an identified employment need; as follows:
- [Non-applicable criteria omitted for brevity.]*
- (7) Pursuant to subsection (1)(c), if the amount of suitable land in a particular priority category under section (2) exceeds the amount necessary to satisfy the need deficiency, the city must choose which land in that priority to include in the UGB by first applying the boundary location factors of Goal 14 and then applying applicable criteria in the acknowledged comprehensive plan and land use

regulations acknowledged prior to initiation of the UGB evaluation or amendment. The city may not apply local comprehensive plan criteria that contradict the requirements of the boundary location factors of Goal 14. The boundary location factors are not independent criteria; when the factors are applied to compare alternative boundary locations and to determine the UGB location the city must show that it considered and balanced all the factors. The criteria in this section may not be used to select lands designated for agriculture or forest use that have higher land capability or cubic foot site class, as applicable, ahead of lands that have lower capability or cubic foot site class.

GENERAL FINDINGS: As discussed above, only one (1) property is within the UGB inclusion study area. Therefore, staff finds that the alternate site evaluation and selection requirements described in these criteria are not applicable to this application package.

**OAR 660-024-0070 UGB(1) Adjustments**

(1) A local government may adjust the UGB at any time to better achieve the purposes of Goal 14 and this division. Such adjustment may occur by adding or removing land from the UGB, or by exchanging land inside the UGB for land outside the UGB. The requirements of section (2) of this rule apply when removing land from the UGB. The requirements of Goal 14 and this division [and ORS 197.298] apply when land is added to the UGB, including land added in exchange for land removed. The requirements of ORS 197.296 may also apply when land is added to a UGB, as specified in that statute. If a local government exchanges land inside the UGB for land outside the UGB, the applicable local government must adopt appropriate rural zoning designations for the land removed from the UGB prior to or at the time of adoption of the UGB amendment and must apply applicable location and priority provisions of OAR 660-024-0060 through 660-020-0067.

GENERAL FINDINGS: This criterion only applies to application 147-UGB.

FINDINGS FOR 147-UGB: In 2023, both ORS 197.296 and 197.298 were both renumbered to ORS 197A.355, "Priority of land to be included within Metro urban growth boundary", which is not applicable to the City of Redmond. Additionally, the requirements of Goal 14 are expressed through OAR 660-024. Compliance with OAR 660-024 has been evaluated in this subsection, and the application was found to comply. This criterion has been met.

**Subsection 3C – JMA**

**JMA(6)(C). RUGB Amendments and RURA Boundary Designations.**

Quasi-judicial UGB amendments shall be heard in accordance with Exhibit B, with any appeal heard before the BOCC.

- 1) Any corresponding plan designation and zoning map amendment application may be heard as part of the same process.
- 2) City and County shall be given a forty-five day notice of the proposal prior to the hearing before the hearings body, and any comments shall be included in the staff report.
- 3) The amendment shall become effective upon adoption of the amendment by the BOCC.
- 4) Adoption by the Council will also be required.
- 5) County shall send a copy of the ordinance adopting the map amendment to the City.

GENERAL FINDINGS: These criteria only apply to application 147-UGB.

FINDINGS FOR 147-UGB: These criteria are directed at City and County staff. The applicant's corresponding plan designation and zoning map amendment applications are being processed by the County concurrently with this application package. Adequate notice of this application package was provided to the County and no comments have been received. This application package is being reviewed pursuant to Exhibit B of the JMA and other applicable procedural requirements found in State law and the RDC. If this application is granted approval, it will be adopted in compliance with the JMA as described.

**JMA(8)(A). Area of Mutual Interest.**

- A. City and County shall collaborate to assure that the AMI is master planned before it is incorporated into RUUGA.

GENERAL FINDINGS: The criterion only applies to application 147-UGB.

FINDINGS FOR 147-UGB: The subject tract is located with the AMI, otherwise known as the Area of Mutual Interest. The applicant proposes to expand the Redmond Unincorporated Urban Growth Area, otherwise known as the UGB, to include a 228-acre portion of the subject property and has submitted application 148-MD, which proposes to establish a master development plan for that same portion of the subject property. The application complies with this criterion.

**JMA (10)(A). Special Provisions.**

Annexations to City Limits.

- 1) City and County may rely on this agreement as a prerequisite to annexations under ORS 195.205(2)(a)(B) and statutes referenced therein.

- 2) City annexations will occur only within the RUGB.
- 3) Specific annexation decisions will comply with applicable land use law and be consistent with City annexations policies.
- 4) City will provide County at least 15 days' prior written notice to review and comment on annexation decisions.
- 5) When annexing territory, City will also annex roads and road rights of way adjacent to such territory provided that such rights of way are entirely located within RURA.
- 6) Transfer of authority upon annexation:
  - a) Upon annexation, jurisdiction of all land use approvals within the territory annexed will automatically transfer from County to City. Permits will remain effective and will be recognized by City as if they were made by City.
  - b) Upon annexation, City will administer all land use approvals in the annexed territory, implement and enforce such approvals together with all implementing agreements. This includes improvement agreements, conditions of approval agreements, bonds and other similar arrangements.
  - c) For land use approvals within the RUUGA after the date of this agreement, all improvement agreements, conditions of approval agreements, annexation agreements, utility agreements and similar agreements will be approved and signed by the Council and the BOCC jointly. All bonds must designate both City and County as the assured agencies.

GENERAL FINDINGS: These criteria only apply to application 150-ANN.

FINDINGS FOR 150-ANN: The County has been provided adequate notice of this application package and no comments have been received. The applicant proposes to annex a 228-acre portion of the subject property that is not adjacent to any existing public ROW other than Highway 126, which is under ODOT jurisdiction and not eligible for annexation. The applicant does not propose to annex this area until it has been included into the UGB. Staff recommends that the annexation agreement contain a condition stating that adoption of the annexation shall only occur concurrently with or following the adoption of application 147-UGB. With this condition, the application could comply with these criteria.

**Subsection 3D – RDC**

**8.0065 Establishment of Zones and Districts.**

(Identifies allowable zones and definitions for them):

**UH-10 Urban Holding Zone.** To retain large undeveloped or underdeveloped land areas for future urban development; to act as a holding category and is considered agricultural in nature as it will allow agricultural uses to continue operation until urbanization takes place. Land in the UH-10 Holding Zone requires annexation, master plan approval, a zone change and/or a comprehensive plan amendment before urban development can occur. In most instances, Master plans are required before development can occur.

**PF Public Facilities Zone.** To provide for public facility and other uses such as: wastewater treatment facilities, water storage reservoirs, well sites, public schools, public or private child care facilities, transportation/mobility, libraries, museums, pavilions, public plazas, public safety or emergency services, emergency training and coordination facilities, and Public Works Administration facilities.

GENERAL FINDINGS: All properties include into the UGB are assigned UH-10 zoning, which is a County zoning district. Requests to apply City zoning must be accompanied by annexation into City Limits and pursuant to RDC Section 8.0085, the zoning of annexed areas must be compatible with the underlying Redmond Comprehensive Plan designation.

Application 146-TA includes a request to amend the Comprehensive Plan to establish a land need and specific site requirements for a regional public safety emergency training and coordination facility. Application 147-UGB is a request to include a 228-acre portion of the subject property into the UGB to satisfy the land need identified in application 146-TA, and in so doing, to apply the UH-10 County zoning and PF Redmond Comprehensive Plan designations. Application 149-ZMA is a request to change the zoning of that same portion from County UH-10 to City PF upon annexation, which would be compatible with the underlying Comprehensive Plan designation. To ensure that the applicant's use of the UH-10 and PF zoning designations remains consistent with the purpose and intent of the UH-10 and PF zoning districts, staff recommends a condition of approval that states that adoption of application 149-ZMA shall only occur concurrently with or following the adoption of application 711-23-000150-PLNG (ANN).

**RDC 8.0070 Location of Zones.**

The boundaries of the zones listed in these standards shall be as indicated on the most recent City of Redmond Zone Map, as amended, which is hereby adopted by reference. The boundaries shall be modified in accordance with Section 8.0750 et seq (Amendments).

GENERAL FINDINGS: This criterion only applies to application 149-ZMA.

FINDINGS FOR 149-ZMA: Application 149-ZMA includes a request to modify zoning districts, and so must comply with RDC Sections 8.0750 through 8.0765. Compliance with these criteria is discussed further on in this subsection.

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| <b>RDC 8.0075 Zoning Maps.</b> |
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| A Zoning Map or Zoning Map Amendment adopted by Section 8.0070 of these standards or by an amendment to said section shall be prepared by authority of the Planning Commission or be a modification by the City Council of a map or map amendment so prepared. The map or map amendment shall be dated with the effective date of adoption of the map or map amendment. A certified print of the adopted map or map amendment shall be maintained in the office of the County Clerk, the office of the City Manager and the Planning Department as long as these standards remain in effect. |
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GENERAL FINDINGS: This criterion only applies to application 149-ZMA.

FINDINGS FOR 149-ZMA: This criterion is directed at City staff. Should application 149-ZMA be granted approval, it will be adopted in compliance with this criterion.

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| <b>RDC 8.0080 Zone Boundaries.</b> |
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| Unless otherwise specified, Zone Boundaries are section lines, subdivision lines, lot lines, center lines of streets, alleys, canal, or rights-of-way, water courses, ridges or rimrocks, other readily recognizable or identifiable natural features, or such lines extended. Whenever any uncertainty exists as to the boundary of a zone as shown on the Zoning Map or amendment thereto, the following regulations shall control: |
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| <ol style="list-style-type: none"><li>1. Where a boundary line is indicated as following a street, alley, canal, or right-of-way, it shall be construed as following the center line of such right-of-way.</li><li>2. Where a boundary line follows or approximately coincides with a section, lot, or property ownership line, it shall be construed as following such line.</li><li>3. When a lot is divided by a zone boundary and the property owner disputes the location of the boundary, the owner may file a declaratory ruling to determine the exact location of the zone boundary. In this case, the determination shall be made by the Hearings Body, subject to appeal by the City Council.</li><li>4. Where a public street, alley, canal, or railroad right-of-way is officially vacated, the zoning regulations applicable to abutting property on each side of the center line of such right-of-way is officially vacated, the zoning regulations applicable to abutting property on each side of the center line of such right-of-way on each respective side thereof. If the right-of-way is vacated in total to one property owner, the zoning of that abutting property shall apply to the total vacated property.</li></ol> |
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GENERAL FINDINGS: These criteria only apply to application 149-ZMA.

FINDINGS FOR 149-ZMA: As discussed earlier, adoption of application 147-UGB would result in a 228-acre portion of the subject property being included into the UGB. As such, the 228-acre portion would be bounded by City Limits to the north, by property

lines to the south, and by the URA boundary to the east. Additionally, if the applicant's request to partition the subject property is approved and executed, the 228-acre portion would be bounded by the URA boundary to the east, and property lines to the north, west, and south. As the applicant's proposed zoning district boundaries would be aligned with Redmond Comprehensive Plan Map boundaries or property lines, staff finds that the application complies with these criteria.

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| <b>RDC 8.0085 Zoning of Annexed Areas.</b> |
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| Property annexed to the city shall be zoned in compliance with approved Urban Area Master Plans or with a zoning classification that is compatible with planned land use designations in the Comprehensive Plan, the Redmond Urban Area Framework Plan, as determined by the City. |
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GENERAL FINDINGS: This criterion only applies to application 149-ZMA.

FINDINGS FOR 149-ZMA: According to Redmond Community Development records, the subject property is not subject to an existing Urban Area Master Plan. As discussed earlier, should application 147-UGB be adopted, a 228-acre portion of the subject property would be included into the UGB and assigned the PF comprehensive plan designation. The applicant proposes to apply PF zoning to the same portion of the subject property following annexation, which would be compatible with the underlying comprehensive plan designation. Staff finds that the application complies with this criterion.

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| <b>RDC 8.0130(1) Urban Holding UH-10 Zone.</b> |
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| The City shall administer the provisions of Title 20 Redmond Urban Area Zoning Ordinance of the Deschutes County Code for this County zoning district. |
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| <b>1. Master Development Plans.</b> The development and approval of an Urban Area Master Plan subject to the provisions of RDC 8.0270 is required as a condition of annexation, prior to or concurrent with rezoning from UH-10 to City zoning districts. |
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GENERAL FINDINGS: This criterion only applies to application 150-ANN.

FINDINGS FOR 150-ANN: The applicant has submitted application 148-MD for review to comply with this criterion. Staff recommends that the annexation agreement contain a condition stating that adoption of the annexation shall only occur concurrently with or following the adoption of application 147-UGB, and approval of application 148-MD. With this condition, the application could comply with this criterion.

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| <b>RDC 8.0220 Table E, Permitted Uses.</b> |
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| The following land uses are permitted outright or conditionally in each respective zone: |
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| "O" means Permitted Outright |
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|                                   |
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| "C" means Permitted Conditionally |
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|----------------------|
| "N" mean Not Allowed |
|----------------------|



| LAND USE:                                                           | ZONE      |             |           |             |                                                  | Comment: |
|---------------------------------------------------------------------|-----------|-------------|-----------|-------------|--------------------------------------------------|----------|
| <b>Non-Residential Uses:</b>                                        | <b>FG</b> | <b>OSPR</b> | <b>PF</b> | <b>Park</b> | <b>Airport Zone / Airport Compatibility Zone</b> |          |
| Public Safety, Emergency Services, Training Coordination Facilities | O         | C           | O         | C           | C                                                |          |

**GENERAL FINDINGS:** This criterion is only applicable to application 148-MD.

**FINDINGS FOR 148-MD:** Adoption of applications 146-TA, 147-UGB, 150-ANN, and 149-ZMA would result in a 228-acre portion of the subject property being annexed into City Limits and assigned PF zoning. Application 148-MD is a request for master development plan authorization to establish a regional public safety emergency training and coordination facility, which is an outright permitted use within the PF zone, on the same portion of the subject property. Staff finds that this application could comply with this criterion, and to ensure continued compliance, staff recommends a condition of approval that adoption of application 148-MD shall only occur concurrently with or following the adoption of application 149-ZMA.

#### **RDC 8.0270(1-2) Master Development Plans.**

A Master Development Plan is required as a condition of annexation, or after annexation, but prior to or concurrent with rezoning from Urban Holding-10 to other City zoning districts. The specific requirements for a Master Development Plan are:

1. **Applicability.** This section applies to properties proposed for annexation or rezoning from Urban Holding-10, except that in the event that an applicant has applied for a Planned Unit Development application prior to or concurrent with rezoning from Urban Holding-10, the Master Development Plan approval criteria shall be those used for the Planned Unit Development application and the Great Neighborhood Principles.
2. **Purpose.** The purpose of Master Development Plan is to provide:
  - A. Orderly and efficient development of the City consistent with the City of Redmond Framework Plan and adopted Area Plans.
  - B. Compatibility or transitions with adjacent developments and the character of the area.
  - C. A complementary mix of uses and activities.
  - D. An interconnected transportation network (streets, bicycle routes, and pedestrian trails) within the master plan area and to existing and planned City streets, routes, and trails.

- E. A range of housing choices and densities for areas planned to have residential components.
- F. A range of open spaces and recreation facilities, as needed to facilitate the Framework Plan and an adopted Area Plan.
- G. Public and semi-public facilities and services.
- H. Preservation of historic buildings, scenic views, and natural resources to the greatest extent possible.
- I. Transitions or buffers between urban development and rural areas.
- J. Implementation of Redmond's Comprehensive Plan, including adopted Area Plans and the Great Neighborhood Planning Principles described in 3(C)(13) below.

GENERAL FINDINGS: These criteria are only applicable to application 148-MD.

FINDINGS FOR 148-MD: The applicant has submitted application 148-MD concurrently with applications 150-ANN and 149-ZMA in order to comply with these criteria. Staff has recommended a condition of approval that adoption of application 148-MD shall only occur concurrently with or following the adoption of application 149-ZMA. With this condition, the application could comply with these criteria.

**RDC 8.0270(3)(A) Master Development Plans.**

**3. Procedures for Review.**

- A. **General.** Master Development Plans (MDP or PMDP) shall be approved through a quasi-judicial review process. Application procedures and related fees for approval may be streamlined in order to promote timely development of urban planning for land zoned UH-10. The Community Development Director, or designee, shall inform the applicant during the mandatory pre-application stage if the proposed MDP area includes the necessary contiguous properties. The determination for the proposed plan area shall be based on utilizing the following factors:
  - 1. Whether there are properties that abut or are surrounded by the plan boundary that would reasonably fit within the zoning concept for the area plan;
  - 2. Whether the extension of public services and infrastructure would be enhanced by the inclusion of abutting properties;
  - 3. Whether the total acreage of abutting or enclave properties is less than the acreage in the proposed plan area; and
  - 4. There is a community interest that would be served by including additional properties in the plan area.

GENERAL FINDINGS: These criteria are only applicable to application 148-MD.

FINDINGS FOR 148-MD: The applicant completed the mandatory pre-application stage on January 18, 2023, as part of pre-development application 711-22-000258-PLNG and

was informed by City staff that the master development plan already included all the necessary property. These criteria have been met.

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| <b>RDC 8.0270(3)(B) Master Development Plans.</b> |
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| <b>B. Review and approval criteria for Master Development Plans (MPD) or Partial</b> |
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| <ol style="list-style-type: none"><li>1. <b>General.</b> In the review of any application for a Master Development Plan, the Planning Commission and City Council, if required, shall consider the following:<ol style="list-style-type: none"><li>a. Whether the proposed Plan is generally consistent with the Framework Plan, adopted Area Plan, and Comprehensive Plan in terms of land use, density, transportation systems and networks, adequacy of infrastructure and open space.</li><li>b. Whether the proposed Plan is generally suitable for the area in which it is proposed, considering existing and planned neighborhoods, shopping and employment areas, and natural resources and hazards.</li><li>c. Whether the proposed Plan is functionally integrated with developed or planned areas.</li><li>d. The proposed Plan meets the applicable Great Neighborhood Principles.</li></ol></li></ol> |
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GENERAL FINDINGS: These criteria are only applicable to application 148-MD.

FINDINGS FOR 148-MD: This application's compliance with Great Neighborhood Principles is discussed in detail further on in this subsection. Compliance with the Comprehensive Plan, including the framework plans, is discussed in subsection 3E.

The applicant proposes to develop a regional public safety emergency training and coordination facility in an area that is surrounded by vacant properties, the Redmond municipal airport, BLM and COID ownership, and Highway 126. According to measurements taken using DIAL, the closest residential zoned property is just over 3,800 feet to the west of the proposed development area. By siting this facility far from existing or planned residential areas and north adjacent to the airport, it would serve as a buffer for the lands to the north and west of the development area without impact to sensitive uses such as residential areas. Additionally, the proximity of the facility to Highway 126 and the airport would be advantageous in the operation of the facility as both a training and a coordination center because the airport already serves as a critical staging area for air transport and disaster response, and because Highway 126 is a major arterial that provides direct access to areas outside Redmond. Based on these facts, staff finds that the development would be generally suitable for the proposed location and functionally integrated into developed and planned areas.

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| <b>RDC 8.0270(3)(C)(1-13) Master Development Plans.</b> |
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| <b>C. Master Development Plan (MDP) or Partial Master Development Plan (PMDP) Submittal Requirements and Approval Process.</b> |
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An application for approval shall include the submittal requirements set forth in the City's Land Use Review application form as well as the elements described below.

1. **Narrative.** A narrative shall set forth the goals and objectives of the plan and describe the urban characteristics of the planned area.
2. **Neighborhood Meeting.** Proof a neighborhood meeting was conducted to provide an opportunity for the applicant to meet with surrounding property owners discuss the proposal. See Section 8.0385 for meeting requirements.
3. **Development Plan Map.** A map of the plan area and surrounding vicinity shall indicate planned land uses for each land parcel in the area, including plans for park and open space and community facilities, if known. The plan shall show proposed comprehensive plan map designations and zoning. The plan shall include a list of all affected properties with tax lot numbers, current ownership, parcel size, and other information that is pertinent to the plan.
4. **Land Use Diagram.** The land use diagram shall generally indicate the distribution and location of planned land uses for the master plan area, including plans for park and open space and community facilities, if known. The plan shall show proposed comprehensive plan designations, zoning, and density.
5. **Significant Resources Inventory.** An inventory of significant natural resources, scenic and historic resources, and open space areas including those identified on the City's adopted inventory and those that have the potential to qualify for protection under Redmond's Goal 5 resource protection program. When significant resources are present, the proposed plan shall include a management plan to protect resource sites.
6. **Parks and Open Space.** Identify land suitable for park and recreation use in accordance with the needs analysis in the City of Redmond Park Master Plan (Park Plan) and an adopted Area Plan. In particular, where the Park Plan indicates there is a need for neighborhood or community park, the master plan shall identify sites that may be suitable for park development using the design and location criteria from the Park Plan or an adopted Area Plan. Density transfers, SDC credits, dedication, and other value consideration may be identified in the planning process to compensate property owners for land dedicated to public use.
7. **Air, Noise, and Water Resources.** Review air, noise and water resources that may be impacted by planned development and address how adverse impacts will be avoided or mitigated in compliance with applicable local, state, and federal regulations. The analysis may use City public facility plans, technical studies, and policies to meet this requirement when those plans address how urban development in the plan area can be served. In these instances, the Master Development Plan must show that the envisioned land uses in the plan area are consistent with the land use assumptions in the public facility plans. This requirement is particularly important for storm water management.

- 8. Natural Hazard Areas.** Inventory areas subject to natural hazards, particularly steep slopes, and program urban development that is suitable for the identified hazard areas.
- 9. Residential Uses.** Identify areas planned for housing development, if any, and the proposed zoning districts to be applied. The housing plan must identify a mix of housing types and densities so that the overall density in the area meets or exceeds the housing density objectives for the area that are identified in the Redmond Urban Framework Plan, adopted Area Plans, and the Comprehensive Plan. The Framework Plan and adopted Area Plans provide general guidance on housing densities that need to be achieved in order to meet future housing needs. Where proposed residential land uses differ from those shown in the Redmond Urban Framework Plan or adopted Area Plans, the master plan shall demonstrate how it meets the overall housing objectives of the Redmond Urban Framework Plan or adopted Area Plans. Applicants may propose new zoning districts when the proposed district(s) in total achieve the housing densities envisioned in the Redmond Urban Framework Plan or adopted Area Plans.
- 10. Employment Uses.** Identify areas planned for employment use and/or mixed uses and the proposed zoning for these areas. Applicants may propose new zoning districts in cases where existing districts are not suitable for the planned development provided the proposed district(s) achieve similar land improvement values and/or employment densities envisioned in the Redmond Urban Framework Plan or adopted Area Plans.
- 11. Transportation Analysis and Diagram.** Prepare a Transportation Impact Analysis (TIA) including a grid street plan that is consistent with street spacing and connectivity guidelines in the Redmond Transportation System Plan (TSP) and adopted Area or Framework Plans. The TIA shall identify and show:
  - a. The proposed classification for all streets.
  - b. The location of approved TSP improvement projects.
  - c. Any capital improvements that may need to be added to the TSP in order to serve the plan area.
  - d. Proposed bicycle pedestrian, and trail routes.
  - e. Demonstrate how planned transportation facilities will connect to transportation facilities in adjacent urban areas.
- 12. Public Facilities Analysis and Diagram.** The plan shall include a conceptual layout of public facilities, (including sanitary sewer, water, and storm drainage) needed to support the planned uses. The Public Facilities Analysis must be consistent with the city's adopted Public Facility Plan (PFP) and related facility master plans, including improvements related to the adopted Area Plan that may require amending the PFP.
- 13. North Redmond US 97 Interchange Area Management Plan (IAMP) Compliance.** The master plan shall comply with the following policies, if applicable:
  - a. Any property newly annexed within the IAMP area shall have:

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| <ul style="list-style-type: none"><li>i. Direct Access to a local public street other than a state highway consistent with the Local Street Connectivity Plan; and,</li><li>ii. Any property to be annexed to the City shall relinquish all direct access rights to a state highway as a condition of development approval (when a legal alternative access exists).</li></ul> |
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GENERAL FINDINGS: These criteria are only applicable to application 148-MD.

FINDINGS FOR 148-MD: The subject tract does not contain any inventoried significant resources and is not located within the North Redmond US 97 Interchange Area Management Plan area. Additionally, no portion of the proposed development area contains land identified for park or recreation, employment, or residential uses. The applicant submitted a narrative that addresses all the submittal items described in these criteria, a development plan map (attachment A), a land use diagram, a public facility diagram, neighborhood meeting materials, a transportation impact analysis (TIA) and associated transportation system analysis application (TSAA) approval memo into the record. These criteria have been met.

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| <b>RDC 8.0270(3)(C)(14) Master Development Plans.</b> |
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| <p><b>14. Great Neighborhood Principles.</b> MDPs shall address applicable Great Neighborhood Principles below. In instances where the property proposed for a MDP is located within the boundary of an adopted Area Plan, the MDP shall also address the Great Neighborhood Principles according to the specificity provided in the Area Plan.</p> |
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| <ul style="list-style-type: none"><li>a. <b>Transportation.</b> Connect people and places through a complete grid street network and trail system that invites walking and bicycling and provides convenient access to parks, schools, neighborhood service centers, and possible future transit stops. Traffic calming techniques and devices may be required to slow vehicles. Curved streets are encouraged to provide interest and variety in neighborhood design. Trails shall be provided to link with existing or planned pedestrian facilities.</li><li>b. <b>Housing.</b> A mix of housing unit types and densities shall be integrated into the design of new neighborhoods consistent with zone requirements unless a variance or other planning permit is approved. Housing developments containing more than five attached units must be designed to be consistent with the Higher Density Multifamily Design Guidelines.</li><li>c. <b>Open spaces, greenways, recreation.</b> All new neighborhoods shall provide useable open spaces with recreation amenities that are integrated to the larger community. Central parks and plazas shall be used to create public gathering places and should be located in or near the center of the project to the extent practicable. New neighborhoods should retain and incorporate significant geological features such as rock outcroppings or stands of clustered native trees into the design</li></ul> |
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and lot layout. Neighborhood and community parks shall be developed in locations consistent with the Redmond's Parks Master Plan.

- d. **Integrated design elements.** Streets, civic spaces, signage, and architecture shall be coordinated to establish a coherent and distinct character for the MDP. MDPs may integrate design themes with adjacent developed or planned areas.
- e. **Diverse mix of activities.** A variety of uses are encouraged in order to create vitality and bring many activities of daily living within walking and biking distance or a short drive of homes. Amenities including, but not limited to, trails, recreation areas, and open spaces, shall be constructed before occupancy of any residential unit, unless a phasing plan is approved. Commercial service areas must be supported by a market analysis and phasing program which will be used by the City to determine construction timing.
- f. **Public art or artistic feature.** Places for the installation of public art or artistic feature is required to provide focal points, preferably, at the gateways to neighborhoods, in and around the center of neighborhoods, or trailheads.
- g. **Scenic views.** Identify and preserve scenic views and corridors of the Cascade Range, Ochoco Mountains, and Smith Rock, such as in street view sheds or park areas. Streets and common, or public, open spaces should be located and oriented to capture and preserve scenic views for the public. Minimize visual clutter from signs and utilities within scenic corridors.
- h. **Urban – rural interface.** Urban development shall interface with rural areas through landscaped open space buffers at least 100 feet wide and the length of the urban development, excluding public streets, or shall be transitioned from higher density development to lower density development at the urban - rural interface.
- i. **Pocket parks/tot lots.** Fully developed “pocket parks” or “tot lots” shall be incorporated into medium and high density zoned residential subdivisions and site plans. These areas shall be developed for every twenty-five lots/units, a minimum of 3,000 square feet and privately maintained. Examples of amenities include: turf areas, benches, deciduous shade trees, irrigation, shrubs, natural or decorative features, and adequate trash receptable(s) and lighting.
- j. **Canal trails.** If canals or laterals are present, multi-use trails at least 10 feet wide shall be provided, subject to the Central Oregon Irrigation District's review and approval. Pedestrian amenities such as benches and trash receptacles shall be provided at appropriate locations (e.g., every 500 feet, at trailheads or intersections with public streets).
- k. **Green Design.** Energy-efficient design through solar access setbacks, xeriscaping, and planting of drought-resistant trees to minimize water usage and provide shade.

GENERAL FINDINGS: These criteria are only applicable to application 148-MD.

FINDINGS FOR 148-MD: According to the Comprehensive Plan and City of Redmond GIS tools, the subject tract is not located within an adopted area plan and contains no canals or laterals. The applicant proposes to develop a regional public safety emergency training and coordination facility that will be contained within security fencing, have secured access, and will not be generally accessible to the public or contain any residential development such as neighborhoods. As such, only a few of the Great Neighborhood Principles are applicable to this application: transportation, integrated design elements, scenic views, urban-rural interface, and green design.

According to the applicant's submitted narrative and development plan map (attachment A), the full buildout of the master development plan is proposed to include north-south and east-west oriented roadways that would provide circulation through and surrounding the development site, a multi-use pathway along the southern property line, 100-foot buffers surrounding the development site that are inclusive of private roads but exclusive of public roads, and designated native landscaped open spaces areas to the north and west of the development. The applicant states that the buildings will be generally spaced and constructed to meet LEED Silver and Oregon SEED building standards to fulfill the goal of providing a resilient facility for use in disaster coordination. Additionally, according to the City of Redmond GIS tools, the development site is almost entirely located within the area of mandatory airport review for structures proposed above certain heights.

Staff finds that a restricted access development contained by perimeter security fencing naturally lends itself to creating a distinct character. Furthermore, by providing the native landscaped buffers and designated open space areas and by being required to meet airport review standards for structural development, the development would also integrate into the character of the airport to the south, the vacant urban areas to the west, the future urban area to the north, and the unused rural lands under federal ownership to the east. Those same buffers and open space areas, in combination with the energy efficient building design, would contribute to the overall green design of the development. Similarly, the proposed public ROW located within the development site, including SE 21<sup>st</sup> Street, SE Evergreen Avenue, and a multi-use path along the Highway 126 frontage, would facilitate the movement of multi-modal transportation through the site between Highway 126 and future development to the west and to the north. Additionally, the spaced-out building pattern and the layout of the proposed public and private roads would provide scenic corridors to Smith Rock in the north, and the Ochoco Mountains to the east. Based on these facts, staff finds that the proposed master development plan would meet the applicable Great Neighborhood Principles. To ensure continued compliance throughout the development process, staff recommends a condition of approval that the proposed facility be established substantially in conformance with the development plan map evaluated in this application, as depicted in Attachment A.

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| <b>RDC 8.0270(3)(D-F) Master Development Plans.</b> |
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- D. **Implementation.** Upon approval, all subsequent development located within the MDP boundaries shall be consistent with the approval.
- E. **Amendment/Modification to Master Development Plan.** Any modifications to the approved MDP shall be subject to the standards and procedures in Article II, “Modifications”, and subject to the review criteria contained in this section.
- F. **Expiration of Master Development Plan.** An approved MDP or PMDP shall be subject to the requirements of Section 8.1605 concerning expiration, unless a specific timeline is approved through the land use review process.

GENERAL FINDINGS: These criteria are only applicable to application 148-MD.

FINDINGS FOR 148-MD: Staff has recommended a condition of approval that the proposed facility be established substantially in conformance with the development plan map evaluated in this application, as depicted in Attachment A. Any substantial changes to the development plan map shall be evaluated and granted in accordance with RDC 8.1400 or the functionally equivalent standards at the time.

Pursuant to RDC Section 8.1605, all land use approvals are typically valid two years from the date the land use approval becomes effective unless a longer duration is approved during the land use review. The applicant’s narrative states that the development of the proposed facility involves the coordination of multiple agencies across local, regional, State, and Federal levels. Based on this, staff finds it reasonable to allow for a longer validity period than the two (2) years provided to the standard land use approval. Consequently, staff recommends a condition of approval that 148-MD shall expire after six (6) years from the date that PF zoning is applied to the 228-acre development site evaluated in this application package if no development activity has occurred. Requests for approval extensions shall be granted in accordance with RDC Section 8.1610 or the functionally equivalent standard at the time the request is submitted.

**RDC 8.0385 Neighborhood Meeting.**

1. **Purpose and Intent.** The purpose of the neighborhood meeting is to provide a forum for the applicant, surrounding neighbors, and interested members of the community to meet and consider a proposed land use application, and to discuss issues/concerns regarding the proposal prior to application submittal. Neighborhood meetings encourage citizen participation early in the development process, and an opportunity to revise the land use application to address the issues prior to application submittal.
2. **Applicability.** Neighborhood meetings are encouraged prior to submitting any land use application. The following application types or development proposals shall be subject to the neighborhood meeting requirements:
  - A. Master Development Plans.
  - B. Residential or mixed use development proposals that generate 200 or more daily trip ends, or 20 or more p.m. peak hour trip ends, where a Transportation Impact Analysis (TIA) is required.

C. Wireless and Broadcast Communications Facilities.

3. **Requirements and Procedures.** The neighborhood meeting must be held after a predevelopment meeting with City Staff, but before submittal of a land use application. The applicant shall be required to hold only one meeting prior to submitting an application for a specific site but may hold more if desired. If the development proposal is revised after the neighborhood meeting, and a major modification is requested, a second neighborhood meeting with a new notice shall be required before the revised application is submitted.

- A. **Location and Time.** Neighborhood meetings shall be held in person at a location in reasonable proximity to the subject site. The meeting shall be held at a location open to the public., City Staff, and at a facility that is ADA accessible. The meeting shall be held on a weekday evening, or weekends at any reasonable time. Applicants may provide a virtual component for participants to join in the meeting. The virtual component shall not be done in lieu of the in-person requirements. ADA accommodations when requested by attendee must be provided.
- B. **Notice – Mail.** Mailed notice of the meeting shall be provided by the applicant to the neighboring property owners (within 750 feet outside city limits and 250 feet within city limits) and the Community Development Department between ten and 30 calendar days prior to the meeting. Notices must be sent first class and shall include the date, time, and location of the meeting, as well as a brief description of the development proposal and property location. The description shall take into consideration information provided by City staff at the pre-development meeting, include project contact information, a copy of the tax map or a GIS map that clearly identifies the location of the proposed development, and a conceptual site plan.
- C. **Notice – Signage.** The applicant shall also post notice of the neighborhood meeting on the subject site or on an access easement to the site within clear view of a public street at least seven days in advance of the meeting. The sign must display the meeting date, time, and address as well as project contact information.
- D. **Meeting Requirements.** The developer must provide a sign-in sheet for attendees to provide their name, address, telephone number, and email address. At the meeting, the applicant shall provide a conceptual site plan and describe the major elements of the proposal. Depending on the type and scale of the particular application, the applicant should be prepared to discuss proposed land uses and densities; traffic impacts; proposed building size and height; proposed access and parking; and proposed landscaping, buffering and/or protection of natural resources as applicable. Attendees will have an opportunity to speak at the meeting and may identify any issues that they believe should be addressed. If no one arrives within 30 minutes of the scheduled start time for the meeting, the applicant may close the meeting and this requirement will be considered met upon the applicant's submittal of the documentation to that effect.
- E. **Materials Submitted with Application.** The neighborhood meeting notes that identify the major points discussed about the development, list of parties

notified, signed affidavits of mailing and posting notices, copies of all materials provided by the applicant, and a signature sheet of attendees shall be included with the development application upon submittal.

- F. **Validity Period.** The land use application shall be submitted to the City within 180 days of the neighborhood meeting. If an application is not submitted in this timeframe, the applicant shall be required to hold a new neighborhood meeting.
- G. **Denial.** Failure of the applicant to hold a neighborhood meeting in accordance with these provisions prior to submittal of a land use application shall result in an incomplete application and the application may be rejected.

**GENERAL FINDINGS:** As this application package contains a master development plan proposal, the applicant has conducted a hybrid neighborhood meeting and submitted meeting materials into the record. These materials show that the applicant conducted a neighborhood meeting on Monday, March 13, 2023, from 5 pm until 6:30 pm at Redmond City Hall, which is after the pre-development meeting with City staff on January 18, 2023, and within the 180 days prior to the submission of this application package on June 30, 2023. The meeting notes show that the mailed notice and sign posting contained the necessary information and were mailed and posted in the required time frame, and that the meeting was conducted as required. These criteria have been met.

**RDC 8.0750 Authorization to Initiate Amendments.**

An amendment to the text of this chapter (Redmond Development Code), to the Comprehensive Plan, or an amendment to the Comprehensive Plan Map may be initiated by City Council, Planning Commission, or Community Development Director. A property owner may initiate a request for a map or text amendment by filing an application with the Community Development Department.

**GENERAL FINDINGS:** This application package contains five (5) applications, each of which proposes a change to the Comprehensive Plan or the Comprehensive Plan and Zoning Map. The applicant initiated these requests on behalf of the property owner and did so by filing the appropriate applications with the Community Development Department. The application package complies with this criterion.

**RDC 8.0760 Criteria for Amendments.**

The burden of proof is upon the applicant. The applicant shall show the proposed change is:

1. In conformity with all applicable State statutes;
2. In conformity with the State-wide planning goals whenever they are determined to be applicable;
3. In conformity with the Redmond Comprehensive Plan, land use requirements and policies; and
4. That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning.

**GENERAL FINDINGS:** This application package is evaluated for compliance with State statutes and in subsection 3A, with the Statewide Planning Goals in subsection 3F, with the Redmond Comprehensive Plan in subsection 3E, and with RDC land use regulations in this subsection.

The applicant has submitted two documents into the record titled, “Central Oregon Emergency Services Center Viability Assessment”, and “Strategic Business Plan for Central Oregon Regional Emergency Services Training and Coordination Center”. The Viability Assessment was published June 2018 by the University of Oregon Community Service Center and describes a need in Central Oregon for the proposed facility, finding that proximity to the Redmond Municipal Airport would be crucial to emergency response operations. The Strategic Plan, published September 2020 by Interact Business Group, describes more specific facility demands and identifies the subject property as being suitable for the facility. The applicant states that although the proposed facility has been a documented need for years, the exact location and property requirements of the facility were only recently identified and represents a change of circumstance that justifies amendment to the Comprehensive Plan and the Comprehensive Plan and Zoning Map. Staff concurs and in addition to the findings and analysis within the above referenced subsections finds that the application package complies with these criteria.

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| <b>RDC 8.0765 Tentative Approval.</b> |
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| Based on the facts presented at the hearing and the recommendation of the Planning Commission, if the Hearings Body determines that the applicant has met all applicable criteria for the proposed change, the Hearings Body shall give tentative approval of the proposed change. Such approval shall include any conditions, stipulations, or limitations which the Hearings Body determines to be necessary to meet the criteria. An appeal of the Hearings Body’s decision shall be processed and decided in the manner provided for in Article II of these standards. Upon completion of hearings process, the council shall, by order, effect the zone reclassification of the property. Provided, however, if the applicant fails to abide by the conditions attached to the rezoning the Council may, later, rezone the affected property to its original zoning by order. |
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**GENERAL FINDINGS:** This criterion is directed to the Hearings Body and will be observed during hearings. Recommended conditions of approval are described in Section 4 of this document.

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| <b>RDC 8.2815 Transportation System Analysis.</b> |
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| It shall be the burden of the developer to evaluate transportation system impacts when a proposed development involves either a Subdivision, Site and Design Review, PUD, Master Plan, Comprehensive Plan Amendments, a change or expansion of use, or any other development that the City Engineer deems necessary. Transportation system analyses are not required for residential site plan review for up to four units or for partitions up to three lots. |
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1. The following vehicle trip generation thresholds shall determine the level and scope of transportation analysis required for a new or expanded development. Trip ends shall be calculated as per the Institute of Transportation Engineers manual, Trip Generation, current edition, or local trip generation studies prepared by a qualified registered professional engineer and approved by the City Engineer.
  - A. A development will be required to provide a Trip Generation Report per Section 8.2815(2) for developments which generate less than 200 daily or 20 p.m. peak hour vehicle trips. The Trip Generation Report shall be prepared by a professional engineer licensed in the state of Oregon. The Engineering Department will review and evaluate the Trip Generation Report to determine if a Transportation Impact Analysis (TIA) is required.

Projects that generate less than 200 daily or 20 p.m. peak hour trip ends may be required to provide a TIA when, in the opinion of the City Engineer or his/her designee, significant capacity and/or safety problem is caused, or adversely impacted by the development. The City Engineer, or designee, shall determine the scope of the analysis.
  - B. If a proposed development will generate 200 or more daily trip ends, or 20 or more p.m. peak hour trip ends, then a TIA shall be required per Section 8.2815(3).
    1. The applicant's engineer shall consult with the City Engineer, or designee, prior to preparing the TIA to verify the scope of the study. The City shall respond in writing within 30 days.
      - a. When applicable, the applicant's engineer shall concurrently consult with ODOT prior to preparing the TIA to verify the study area.
    2. The City Engineer shall determine when a TIA has satisfied the requirements of the development's impact analysis.
    3. The TIA shall bear the stamp and signature of a licensed professional engineer in the State of Oregon.
2. When a Trip Generation Report is required, it must demonstrate the existing use, proposed use, existing trips per the ITE, and proposed trips per the ITE. Local trip rates may also be considered if supported by traffic counts conducted according to ITE guidelines. The report must include a conceptual site plan that shows adjacent roadways, alleys, roadway classifications, and access points.
3. When a TIA is required, it must demonstrate that the following standards are met:
  - A. The standard of measurement that will determine the acceptability of traffic flow on City streets will be a delay-based level of service as defined by the Highway Capacity Manual, Special Report 209, third Edition (2000 update or subsequent document updates) published by the Transportation Research Board. The determination of LOS shall be calculated by a methodology that is approved by the City Engineer. The acceptable standard of LOS for City streets shall be LOS E during the peak 15 minutes of the peak hours of the average weekday. A lesser standard shall be acceptable at unsignalized intersections with low volume minor street approaches if the volume-to-capacity ratio is less than 0.90 and the 95<sup>th</sup> percentile vehicle queue is less than four vehicles during the peak hour.

- B. The Average Daily Traffic (ADT) volume of Local Street roadways within the City shall be less than 1,200 vehicles per day (VPD). Developments which add vehicle trips to Local Streets with an ADT greater than 1,200 VPD may be asked to provide mitigation in the form of additional access to the site, when in the opinion of the City Engineer, the residential livability is degraded by excessive local street traffic volume.
  - C. New development that will cause degradation below those levels shall be required to provide mitigating transportation system improvements that will restore the LOS to the accepted standard, as is practical, as determined by the City Engineer and pursuant to the adopted City's Transportation System Plan. Where there are impacts to the State Highways, the City and ODOT shall work cooperatively to determine appropriate courses of action based on ODOT and City standards.
- 4. The TIA shall include at a minimum, the following intersections:
    - A. All site access intersections.
    - B. Nearest intersecting collector or arterial street upstream and downstream of the development.
    - C. Any other collector or arterial street intersection that would experience an increase of 25 additional peak hour trips.
    - D. Additional intersections requested by staff in the basis of anticipated impacts resulting from the development.
  - 5. The TIA shall include the following study time frames addressing:
    - A. Existing conditions.
    - B. Completion year of each significant phase of development.
    - C. Five year forecast beyond final phase.
  - 6. The following Tables are required in the TIA:
    - A. Trip Generation (including phase breakdown if applicable).
    - B. LOS Table (LOS for every analysis scenario at every study area intersection. Report LOS, delay, V/C ratio, 95% vehicle queue, and any additional pertinent analysis results).
  - 7. The following Figures are required in the TIA:
    - A. Vicinity/Locator Map.
    - B. Site or Tentative Plan Map.
    - C. Background Traffic Volumes (all study intersections and analysis years).
    - D. Trip Distribution and Assignment.
    - E. Background + Site Generated Traffic Volumes (all study intersections and analysis years).
  - 8. Other Analysis Standards (as required by the study)
    - A. Signal Warrants shall be performed where applicable per the Manual on Uniform Traffic Control Devices, current edition.
    - B. Left Turn Lane Warrants shall be provided where applicable per ODOT criteria based on the Texas Transportation Institute (TTI) curves.
    - C. Right Turn Lane Warrants shall be provided where applicable per ODOT criteria.
    - D. The acceptability of sight distance at all study area intersections shall be determined per AASHTO (current edition) standards.

- E. Traffic signal progression analysis may be required if a new signal is proposed. The City Engineer shall approve the method of traffic signal progression analysis.
- F. Roadway improvements are to be based on the City of Redmond Standards and Specifications and ODOT design standards.

GENERAL FINDINGS: The applicant submitted a Transportation System Analysis Application (TSAA) conducted by Kittleson & Associates, Inc on June 30, 2023 (file 711-23-000068-PW). Following the submission of additional information and revisions, the Engineering Division issued a TSAA approval memo on March 20, 2024. This approval memo describes multiple dedication and improvement requirements, including SE 21st Street, SE Evergreen Avenue, SE 33rd Street, a five (5) foot public utility easement throughout the development area, a multi-use path along the southern property line. The approval memo also discussed a required deed restriction, fire access compliance, and improvements for Highway 126, subject to ODOT review. To ensure compliance with these criteria, staff recommends a condition of approval that the development of the proposed facility be in conformance with the approval memo associated with public works file 711-23-000068-PW.

### ***Subsection 3E – Redmond Comprehensive Plan***

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| <b>Citizen Involvement</b> |
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GENERAL FINDINGS: None of the policies within the Citizen Involvement goal are applicable to the application package.

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| <b>Land Use Planning</b> |
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| Policy 2-2-4: Adopt a Comprehensive Plan Map that identifies planned uses for all land within the Redmond Urban Growth Boundary (UGB). The land use designations in the above table will be used on the Comprehensive Plan Map to designate areas intended for the land uses described. The table also includes a list of City and County zoning designations that are compatible with the associated Comprehensive Plan Map designation. All property added to the UGB from the Urban Reserve Area (URA) is considered to have an Urban Holding Area Comprehensive Plan designation and an Urban Holding-10 (UH-10) zone. Urban development consistent with the Plan designation may not be approved until the land is annexed to the City of Redmond and rezoned consistent with the zoning categories listed. |
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GENERAL FINDINGS: Although the applicant's proposal would expand the UGB, the newly added lands would be immediately designated and planned for the development of a specific use pursuant to applicable RDC provisions governing the application of City zoning. The application package complies with this criterion.

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| <b>Natural Resources, Scenic and Historic Areas, and Open Space Areas</b> |
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GENERAL FINDINGS: None of the policies with the Natural Resources, Scenic and Historic, and Open Space Areas goal are applicable to the application package.

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| <b>Air, Water, and Land Resources Quality</b> |
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| Policy 6-2-3: Ensure compatibility between land uses by separating and buffering pollutant emitting land uses and sensitive populations through land use designation, zoning and site design. |
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GENERAL FINDINGS: This criterion is only applicable to application 148-MD.

FINDINGS FOR 148-MD: According to the applicant's narrative, the most significant source of pollution as part of the proposed development is the Class A burn building and Class B drill tower, which would each be utilized for actual combustion fewer than 500 hours in a year and in limited duration each time. The applicant further states that the burning of these training props would be required to meet environmental parameters before use and that they would be centrally located within the development site (described as "multi-purpose scenario area" on the submitted development plan map included in attachment A). Provided these measures to reduce the overall impact of the potential air pollution and the fact that the burn buildings are centrally located within the



development, far from neighboring properties and potentially flammable open areas alike, staff finds that the application meets this criterion.

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| <b>Areas Subject to Natural Hazards</b> |
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| Policy 7-1-2: Avoid development in unsafe areas and where development increases hazard impacts, such as runoff from paving projects and soil slippage due to weak foundation soils. |
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| Policy 7-1-3: When locating developments in areas of known natural hazards, the density or intensity of the development shall be limited by the degree of the natural hazard. |
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| Policy 7-3-1: Plan and prepare for the Cascadia earthquake to reduce the City's vulnerability to loss of life and property and build capacity for local, regional and state relief. a) Support legislative efforts to establish offshore seismic networks and develop a public alert system for seismic hazards. |
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| Policy 7-3-2: Support plans and programs to expedite the restoration of critical services following a natural hazard event, including lifeline transportation routes. |
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GENERAL FINDINGS: Policies 7-1-2 and 7-1-3 are only applicable to application 148-MD. The applicant's overall proposal is to construct a regional public safety emergency training and coordination facility to support response time and capacity to potential regional disasters such as wildfires and the Cascadia Subduction Zone event. Staff finds it reasonable to conclude that by having such a facility within City Limits, Redmond overall would benefit from direct and immediate access to emergency response, recovery services, and agency coordination during a hazard event.

FINDINGS FOR 148-MD: Based on review of the applicant's submitted existing conditions diagram and the Record of Decision prepared by the Oregon Department of Environmental Quality (DEQ) July 2020, the proposed development site contains one (1) former landfill site and three (3) former shooting range sites, each requiring mitigation for contaminated soils. Aside from these, the subject property does not appear to contain any other hazards beyond the ordinary risk of wildfire inherent to the surrounding Central Oregon ecosystem. The DEQ Record of Decision states that onsite disposal is the preferred method of mitigation during development, occupation, and use of the property. According to the Revised Feasibility Study prepared May 4, 2020, by Apex that was submitted into the record, onsite disposal would involve conducting a more detailed soil assessment and installing physical barriers over the top of the soil sites, as well as maintaining institutional controls for the monitoring and maintenance of both the contaminated soils and barriers. Some amount of the contamination may also be removed to a licensed disposal facility pending the results of the detailed soil assessment. Given the authority of DEQ to review and authorize environmental mitigation, staff recommends a condition of approval that the applicant be required to comply with DEQ standards at all stages of development and shall provide evidence of compliance to the City upon the City's request. With this condition, the application package complies with these criteria.

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| <b>Recreational Needs</b> |
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GENERAL FINDINGS: None of the policies with the Recreational Needs goal are applicable to the application package.

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| <b>Economic Development</b> |
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| Policy 9-5-6: Ensure that Redmond has the services and amenities necessary to for residents of Redmond. These services and amenities include those in Policy 9-5-6 but also include parks and open space, public library, and public safety services. Redmond should also ensure that there are opportunities for development of housing and services for seniors, such as assisted living and other senior housing opportunities. |
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GENERAL FINDINGS: The applicant's overall proposal is to develop a regional public safety emergency training and coordination facility, which is a type of public safety service use. The application package complies with this criterion.

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| <b>Housing</b> |
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GENERAL FINDINGS: None of the policies with the Housing goal are applicable to the application package.

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| <b>Public Facilities</b> |
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| Policy 11-1-1: Ensure development within the Redmond UGB is subsequent to or concurrent with the provision of an adequate level of public facilities and services and complies with utility and facility plans intended to serve the area.<br>Policy 11-1-4: Maintain and enhance the provision of police, fire and emergency medical services for residents. |
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| <i>PROPOSED POLICY 11-1-7: "Public Facilities and Services Policy 11-1-7:</i><br>To implement the Central Oregon Emergency Services Center Viability Assessment and the related Strategic Business Plan, the City has determined a need for a suitable site for the Central Oregon Ready, Responsive, Resilient (CORE3) regional public facility as a new community element. The CORE3 facility requires the following site and locational characteristics: |
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| <ul style="list-style-type: none"><li>• 300 contiguous acres of suitable vacant land;</li><li>• Within one-quarter mile of the Redmond Municipal Airport; and</li><li>• Direct access to a state highway without the need to travel through designated residential or commercial areas.</li></ul> |
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| Any land brought into the Urban Growth Boundary to meet public services and facilities site needs identified through this policy shall be limited to Public Safety, Emergency Services, Training and Coordination Facilities." |
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GENERAL FINDINGS: Proposed policy 11-1-7 is only applicable to application 147-UGB. The applicant's proposal is to establish a regional public safety emergency training and coordination facility, which would provide training to police, fire, and emergency medical personnel, and coordination of these services for the residents of

Central Oregon in the event of a regional disaster. Upon subsequent phases of review, the application will be evaluated for full infrastructure needs such as water and sewer service. These criteria have been met.

**FINDINGS FOR 147-UGB:** According to DIAL, the 228 acres the subject property proposes to include into the UGB is adjacent to vacant acreage to the north and east. The land to the east is within County jurisdiction, outside the URA, and is designated for rural and agricultural purposes, while the land to the north is located within the URA. This criterion describes a need for 300 vacant, contiguous acres. According to the tentative plat and other development diagrams that the applicant submitted into the record, the applicant intends to use seventy-two (72) acres to the east within County jurisdiction in future development phases. Use of this land would be subject to County review and is not evaluated in this staff report document. Nevertheless, as addressed in subsection 3B, OAR 660-024-0065(9) authorizes cities to review a UGB inclusion proposal that does not provide the full amount of land necessary to satisfy an identified land deficiency. As such, staff finds that the application complies with this criterion.

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| <b>Transportation</b> |
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**GENERAL FINDINGS:** None of the policies with the Transportation goal are applicable to the application package.

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| <b>Energy Conservation</b> |
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**GENERAL FINDINGS:** None of the policies with the Energy Conservation goal are applicable to the application package.

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| <b>Urbanization</b> |
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| Policy 14-3-7: Urban development that occurs adjacent to designated Urban Reserve Areas shall be planned with the adjacent land's future urban use in mind. Urban development should be sensitive to adjacent rural uses but the development pattern should not be altered to the point that it fails to achieve desired urban characteristics or interferes with future urban expansion. |
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| Policy 14-3-9: The City and County will favor UGB additions that are of sufficient size and scale to be integrated into the urban area as great neighborhoods or other community elements rather than isolated individual parcels. Privately initiated requests for UGB amendments should include a minimum of 150 acres and shall be based on demonstrated land needs to maintain a 20-year supply of urbanizable land within the UGB, unless otherwise allowed by state- law. |
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**GENERAL FINDINGS:** The Urbanization goal contains numerous policies applicable to the applicable package that are represented through other criteria evaluated in this staff report document. Only policies 14-3-7 and 14-3-9 remain unaddressed, and so are evaluated here.

Application 147-UGB proposes to include 228 acres of land in order to satisfy the twenty (20) year land deficiency established by application 146-TA. Upon adoption of the proposed expansion, the northern boundary of the development area would abut land designated as URA. According to the applicant's development plan map (attachment A), a designated native landscaped open space is proposed for the area between this northern boundary and the facility. The designated native open space would allow the applicant to preserve land on the property and ensure that the proposed development is kept apart from future urban development to the north. Staff finds that the application package complies with these criteria.

#### **Livability**

GENERAL FINDINGS: None of the policies with the Livability goal are applicable to the application package.

#### **Redmond Urban Area Framework Plan**

GENERAL FINDINGS: The subject tract is not located within the Redmond Urban Area Framework Plan. Staff finds that this plan is not applicable to the application package.

#### **Eastside Framework Plan**

GENERAL FINDINGS: Framework plans are adopted to provide a conceptual land use guide and to facilitate the adoption of land into the UGB. The Eastside Framework Plan was adopted by City Council via a Resolution 2008-45 on December 9, 2008. As of the time of writing, the Eastside Framework Plan has not been adopted pursuant to State law regarding comprehensive plan amendments, has not been acknowledged by the State, and has not been used to include properties within the plan area into the UGB. Staff finds that the Eastside Framework Plan is not applicable to the application package.

### ***Subsection 3F – Statewide Planning Goals***

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| <b>Goal 1 – Citizen Involvement</b> |
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| To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process. |
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GENERAL FINDINGS: The RUAPC consists of Redmond area residents and serves as the City's formal citizen involvement committee. The application package will be reviewed in public hearings with both the RUAPC as well as the Redmond City Council pursuant to procedural requirements. Noticing requirements have been and will be met for all public hearings associated with this application package. Additionally, the applicant conducted a neighborhood meeting prior to submitting their land use application package, which allowed for citizen input early in the planning process. All documents are available for public review upon request. The application package complies with this criterion.

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| <b>Goal 2 – Land Use Planning</b> |
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| To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions. |
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GENERAL FINDINGS: Goal 2 is primarily directed towards local governments and requires the establishment of a fact-based land use and zoning review framework that complies with State law. As demonstrated throughout this document, the application package has been shown to comply with all applicable criteria. The application package complies with this criterion.

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| <b>Goal 3 – Agricultural Lands</b> |
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| To preserve and maintain agricultural lands. |
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GENERAL FINDINGS: The City of Redmond does not contain designated agricultural lands and pursuant to OAR 660-024-0020(1), this Statewide Planning Goal is not applicable to the application package.

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| <b>Goal 4 – Forest Lands</b> |
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| To conserve forest lands by maintaining the forest land base and to protect the state's forest economy by making possible economically efficient forest practices that assure the continuous growing and harvesting of forest tree species as the leading use on forest land consistent with sound management of soil, air, water, and fish and wildlife resources and to provide for recreational opportunities and agriculture. |
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GENERAL FINDINGS: The City of Redmond does not contain designated forest lands, as such, this Statewide Planning Goal is not applicable to the application package.

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| <b>Goal 5 – Natural Resources, Scenic and Historic Areas, and Open Spaces</b> |
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| To protect natural resources and conserve scenic and historic areas and open spaces. |
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GENERAL FINDINGS: The proposed inclusion and development area does not contain inventoried Goal 5 resources. Additionally, the proposed comprehensive plan text amendment would not impact these resources. This Statewide Planning Goal is not applicable to the application package.

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| <b>Goal 6 – Air, Water and Land Resources Quality</b> |
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| To maintain and improve the quality of the air, water and land resources of the state. |
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GENERAL FINDINGS: According to the applicant's narrative, the only atypical impacts the proposed facility could have on air, water, and land resources would result from the burn buildings, the recycling pond, the shooting range and the fuel station. However, the applicant also states that mitigation strategies would be implemented for each. The burn buildings would be used in accordance with State and Federal standards fewer than 500 hours in a year in limited duration each time and be centrally located within the development. The recycling pond would be used to capture the water used in fire trainings for reuse in order to reduce the overall quantity of water used by the facility. The shooting range is proposed to be entirely enclosed and the fuel station to be constructed to meet regulation with appropriate spill control measures. Additionally, the size, proximity, and site requirements ensure that the public facility would use as few resources as possible by providing all the entire amount of land needed for the facility on one (1) site rather than requiring multiple properties around the city and by keeping the facility far from sensitive resources such as canals, protected park and recreation areas, or dense urban areas. As staff has already recommended a condition of approval that the proposed facility be established substantially in conformance with the development plan map evaluated in this application, staff finds that the application package complies with this criterion.

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| <b>Goal 7 – Areas Subject to Natural Hazards</b> |
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| To protect people and property from natural hazards. |
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GENERAL FINDINGS: According to the applicant's submitted Viability Assessment, Central Oregon has been identified as having a higher demand for natural hazard response and coordination capacity than currently exists. A regional public safety emergency training and coordination facility would be a resource for protecting people and property from natural hazards. Additionally, the DEQ record of decision demonstrates that on-site disposal would be a sufficient mitigation of the contaminated soils, the only known hazard of the subject property. As staff has already recommended a condition of approval requiring the applicant to comply with DEQ standards at all stages of development and to provide evidence of compliance to the City upon the City's request, staff finds that the application package complies with this criterion.

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| <b>Goal 8 – Recreational Needs</b> |
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| To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts. |
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GENERAL FINDINGS: The proposed inclusion and development area does not contain, remove, or propose lands designated for recreational needs. Additionally, the proposed comprehensive plan text amendment would not impact recreation. This Statewide Planning Goal is not applicable to the application package.

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| <b>Goal 9 – Economic Development</b> |
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| To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens. |
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GENERAL FINDINGS: The proposed inclusion and development area does not contain, remove, or propose new lands designated for economic development. Additionally, the proposed comprehensive plan text amendment would not impact economic development. This Statewide Planning Goal is not applicable to the application package.

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| <b>Goal 10 – Housing</b> |
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| To provide for the housing needs of citizens of the state. |
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GENERAL FINDINGS: The proposed inclusion and development area does not contain, remove, or propose lands designated for housing. Additionally, the proposed comprehensive plan text amendment would not impact housing. This Statewide Planning Goal is not applicable to the application package.

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| <b>Goal 11 – Public Facilities and Services</b> |
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| To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development. |
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GENERAL FINDINGS: The proposal includes a request to identify and fulfill a need for a regional public safety emergency training and coordination facility, which is a type of public service that is currently unaccounted for in the Redmond Comprehensive Plan. In proposing to incorporate this specific need into the Comprehensive Plan, the applicant is requesting the City to plan the timely and orderly development of a public service need, which would serve the city's residents, the greater Central Oregon community, and the broader state population. In proposing a master development plan for this facility, the applicant is demonstrating that this facility can be provided adequate infrastructure to serve the facility. Because the application package identifies a deficient public service need and presents a viable proposal for fulfilling that same need, staff finds that the application package complies with this criterion.

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| <b>Goal 12 - Transportation</b> |
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| To provide and encourage a safe, convenient and economic transportation system. |
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GENERAL FINDINGS: Goal 12 is implemented through OAR 660-012 and the Redmond TSP. The applicant obtained a TSAA approval memo from the Engineering Division, which demonstrates compliance with applicable transportation regulations. Furthermore, staff has recommended a condition of approval that requires the proposed development to be in conformance with the approval memo associated with public works file 711-23-000068-PW. The application package complies with this criterion.

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| <b>Goal 13 – Energy Conservation</b> |
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| To conserve energy. |
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GENERAL FINDINGS: The size, proximity, and site characteristics included with the amendment proposed in application 146-TA demonstrates that consideration for the efficient use of land is included in the proposal. Requiring direct access to a critical transportation corridor and proximity to a high-capacity airport would reduce the opportunity for land use conflicts and increase the efficiency of the facility's function as a coordination center in the event of a disaster response. Additionally, according to the applicant's narrative, the structures within the facility are proposed to be constructed to LEED Silver and SEED standard to reduce energy consumption and increase resiliency of the facility overall. The application package complies with this criterion.

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| <b>Goal 14 – Urbanization</b> |
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| To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities. |
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GENERAL FINDINGS: The proposal includes a request to establish a land need and to supply the lands necessary to fulfill that need. Each of the five (5) applications within this package were required of the applicant in order to evaluate if the applicant's proposal constitutes an orderly and efficient transition to and use of urban land. Staff finds that the application package complies with this criterion.

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| <b>Goal 15 – Willamette River Greenway</b> |
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| To protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway. |
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GENERAL FINDINGS: The City of Redmond does not contain designated Willamette River Greenway lands, as such, this Statewide Planning Goal is not applicable to the application package.

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| <b>Goal 16 – Estuarine Resources</b> |
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| To recognize and protect the unique environmental, economic, and social values of each estuary and associated wetlands; and To protect, maintain, where appropriate develop, and where appropriate restore the long-term environmental, economic, and social values, diversity and benefits of Oregon's estuaries. |
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GENERAL FINDINGS: The City of Redmond does not contain estuarine lands, as such, this Statewide Planning Goal is not applicable to the application package.

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| <b>Goal 17 – Coastal Shorelands</b> |
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| To conserve, protect, where appropriate, develop and where appropriate restore the resources and benefits of all coastal shorelands, recognizing their value for protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources and recreation and aesthetics. The management of these shoreland areas shall be compatible with the characteristics of the adjacent coastal waters; and To reduce the hazard to human life and property, and the adverse effects upon water quality and fish and wildlife habitat, resulting from the use and enjoyment of Oregon's coastal shorelands. |
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GENERAL FINDINGS: The City of Redmond does not contain coastal shorelands, as such, this Statewide Planning Goal is not applicable to the application package.

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| <b>Goal 18 – Beaches and Dunes</b> |
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| To conserve, protect, where appropriate develop, and where appropriate restore the resources and benefits of coastal beach and dune areas; and To reduce the hazard to human life and property from natural or man-induced actions associated with these areas. |
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GENERAL FINDINGS: The City of Redmond does not contain beaches or dunes, as such, this Statewide Planning Goal is not applicable to the application package.

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| <b>Goal 19 – Ocean Resources</b> |
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|                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| To conserve marine resources and ecological functions for the purpose of providing long-term ecological, economic, and social value and benefits to future generations. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

GENERAL FINDINGS: The City of Redmond does not contain ocean resources, as such, this Statewide Planning Goal is not applicable to the application package.

## **Section 4 – Decision**

Based on the evidence submitted and the staff analysis described in Section 3 above, staff recommends the application package be approved with conditions.

### **Conditions of Approval:**

1. Approval of application 711-23-000147-PLNG (UGB) shall only occur concurrently with or following approval of application 711-23-000146-PLNG (TA).
2. Adoption of application 711-23-000147-PLNG (UGB) shall only occur concurrently with or following the adoption of application 711-23-000146-PLNG (TA).
3. The annexation agreement shall include the following condition: “Adoption of the annexation shall only occur concurrently with or following the adoption of application 711-23-000147-PLNG (UGB), and approval of application 711-23-000148-PLNG (MD).”
4. Adoption of application 711-23-000149-PLNG (ZMA) shall only occur concurrently with or following the adoption of application 711-23-000150-PLNG (ANN).
5. Adoption of application 711-23-000148-PLNG (MD) shall only occur concurrently with or following the adoption of application 711-23-000149-PLNG (ZMA).
6. The 228-acre portion of the subject property evaluated in this application will only be permitted UH-10 or PF zoning designation until such time that it is wholly removed from the UGB.
7. The applicant shall provide a legal description of the proposed UGB inclusion area evaluated in this application, which will be incorporated into the adopting ordinance for 711-23-000147-PLNG (UGB).
8. The proposed facility shall be developed in compliance with DEQ standards at all stages of development and shall provide evidence of compliance to the City upon the City’s request.
9. The proposed facility shall be developed substantially in conformance with the development plan map evaluated in this application, as depicted in Attachment A.
10. The proposed facility shall be developed in conformance with the TSAA approval memo associated with public works file 711-23-000068-PW.
11. Application 711-23-000148-PLNG (MD) shall expire six (6) years after the date that Public Facilities zoning is applied to the 228-acre development site evaluated in this application if no development activity has occurred. Requests for approval extensions shall be granted in accordance with RDC Section 8.1610 or the functionally equivalent standard at the time the request is submitted.

**Attachments:** The following attachments are included in this staff report document by reference.

- Attachment A – Development Plan Map
- Attachment B – Comments Received
- Attachment C – TSAA Approval Memo
- Attachment D – Public Facilities Plan

- Attachment E – Tentative Plat for Application 711-23-000145-PLNG
- Attachment F – Land Use Diagram
- Attachment G – Existing Conditions Diagram
- Attachment H – Central Oregon Emergency Services Center Viability Assessment
- Attachment I – Strategic Business Plan for Central Oregon Regional Emergency Services Training and Coordination Center
- Attachment J – [*Reserved For Draft Annexation Agreement*]
- Attachment K – Applicant Narrative
- Attachment L – Site Selection Analysis
- Attachment M – Neighborhood Meeting Materials
- Attachment N – DEQ Record of Decision
- Attachment O – Revised Feasibility Study



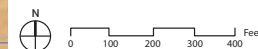
SERA



NOTE:  
All program element sizes and  
locations are conceptual only.

## LEGEND

- |                                       |                                   |                                                                |
|---------------------------------------|-----------------------------------|----------------------------------------------------------------|
| 1 ADMINISTRATION / CLASSROOM BUILDING | 10 MODULAR CLASSROOM              | 19 MATERIAL STAGING                                            |
| 2 URBAN SEARCH AND RESCUE STRUCTURE   | 11 VEHICLE STORAGE                | 20 LEFT-TURN LANE                                              |
| 3 CLASS A BURN BUILDING               | 12 FUEL ISLAND                    | ■ PHASE 1                                                      |
| 4 CLASS B DRILL TOWER                 | 13 VEHICLE EVIDENCE STORAGE       | ■ FUTURE PHASE                                                 |
| 5 WAREHOUSE STORAGE                   | 14 MULTI-AGENCY SATELLITE ACADEMY | ■ FUTURE PHASE (ADMIN ADDITION ONLY)                           |
| 6 SIMUNITIONS - SCENARIO MAZE         | 15 MULTI-AGENCY SATELLITE ACADEMY | ■ STRUCTURE                                                    |
| 7 MOCK STOREFRONT                     | 16 COMMS TOWER                    | --- Security fence                                             |
| 8 RAIL CROSSING / RAIL CAR            | 17 EXPANDED SCENARIO AREA         | --- CORE3 Site Area Boundary                                   |
| 9 RANGE SUPPORT BUILDING              | 18 VEHICLE MAINTENANCE            | --- Redmond Urban Growth Boundary (UGB) + City Limits          |
|                                       |                                   | --- Area outside of City of Redmond Urban Reserve Area and UGB |
|                                       |                                   | --- Approximate Right of Way Easement and Improvements (TBD)   |



**From:** [SHONKWILER, Kenneth D](#)  
**To:** [Morgan Snyder](#)  
**Subject:** RE: Notice of Application  
**Date:** Monday, March 11, 2024 1:53:07 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)

[EXTERNAL]: This email originated from outside of the city. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Morgan,

CORE3 has an approach on 126, the public approach from the CORE 3 plan (21<sup>st</sup> street). Oasis village has a temporary approach but the 21<sup>st</sup> street approach onto OR 126 is intended to serve both CORE3 and Oasis Village.

I'll keep an eye out for your invite.

Thanks

Ken Shonkwiler - Principal Planner  
Oregon Department of Transportation, Region 4  
63055 N. Hwy 97, Bldg M, Bend OR 97703  
[Kenneth.d.shonkwiler@odot.oregon.gov](mailto:Kenneth.d.shonkwiler@odot.oregon.gov)  
Cell: 541-815-6877

---

**From:** Morgan Snyder <[morgan.snyder@redmondoregon.gov](mailto:morgan.snyder@redmondoregon.gov)>  
**Sent:** Monday, March 11, 2024 8:24 AM  
**To:** SHONKWILER Kenneth D <[Kenneth.D.SHONKWILER@odot.oregon.gov](mailto:Kenneth.D.SHONKWILER@odot.oregon.gov)>  
**Subject:** RE: Notice of Application

You don't often get email from [morgan.snyder@redmondoregon.gov](mailto:morgan.snyder@redmondoregon.gov). [Learn why this is important](#)

This message was sent from outside the organization. Treat attachments, links and requests with caution. Be conscious of the information you share if you respond.

There are two sets of application running through the City for CORE3 – one is the partition, and the other is the ‘everything else’. I've attached both notices as well as the applicant's plan and plat. I'm hoping I'll be able to call you here soon to ask about meeting availability, but I'd also be more than happy to address as many of your questions as I can.  
-Morgan

---

**From:** SHONKWILER Kenneth D <[Kenneth.D.SHONKWILER@odot.oregon.gov](mailto:Kenneth.D.SHONKWILER@odot.oregon.gov)>  
**Sent:** Friday, March 8, 2024 7:54 AM  
**To:** Morgan Snyder <[morgan.snyder@redmondoregon.gov](mailto:morgan.snyder@redmondoregon.gov)>  
**Cc:** Lindsey Croomsigt <[lindsey.croomsigt@redmondoregon.gov](mailto:lindsey.croomsigt@redmondoregon.gov)>  
**Subject:** FW: Notice of Application

[EXTERNAL]: This email originated from outside of the city. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Morgan – Are there other files associated with the partition? I am having trouble wrapping my brain around what is going on here with the partition.

Thanks

Ken Shonkwiler - Principal Planner  
Oregon Department of Transportation, Region 4  
63055 N. Hwy 97, Bldg M, Bend OR 97703  
[Kenneth.d.shonkwiler@odot.oregon.gov](mailto:Kenneth.d.shonkwiler@odot.oregon.gov)  
Cell: 541-815-6877

---

**From:** AMITON David <[David.AMITON@odot.oregon.gov](mailto:David.AMITON@odot.oregon.gov)>  
**Sent:** Thursday, March 7, 2024 12:05 PM  
**To:** SHONKWILER Kenneth D <[Kenneth.D.SHONKWILER@odot.oregon.gov](mailto:Kenneth.D.SHONKWILER@odot.oregon.gov)>  
**Subject:** FW: Notice of Application

FYI

David Amiton (he/him/his)  
Region 4 Planning & Programming Manager  
ODOT Region 4 Project Delivery Building  
63055 N. Highway 97, Building M  
Bend, OR 97703

[David.Amiton@odot.oregon.gov](mailto:David.Amiton@odot.oregon.gov) ← NOTE NEW EMAIL  
Mobile: (541) 480-3807

---

**From:** Morgan Snyder <[morgan.snyder@redmondoregon.gov](mailto:morgan.snyder@redmondoregon.gov)>  
**Sent:** Thursday, March 7, 2024 12:02 PM  
**To:** David Pilling <[David.Pilling@redmondoregon.gov](mailto:David.Pilling@redmondoregon.gov)>; Lindsey Croomsigt <[lindsey.croomsigt@redmondoregon.gov](mailto:lindsey.croomsigt@redmondoregon.gov)>; Alex Sabin <[alex.sabin@redmondoregon.gov](mailto:alex.sabin@redmondoregon.gov)>; Tom Mooney <[Tom.Mooney@redmondofireandrescue.org](mailto:Tom.Mooney@redmondofireandrescue.org)>; Maria Ramirez <[maria.ramirez@redmondoregon.gov](mailto:maria.ramirez@redmondoregon.gov)>; Spencer Stauffer <[sstauffer@coid.org](mailto:sstauffer@coid.org)>; Zachary Bass <[zachary.bass@flyrdm.com](mailto:zachary.bass@flyrdm.com)>; Fred LeLacheur <[fred.lelacheur@flyrdm.com](mailto:fred.lelacheur@flyrdm.com)>; ODOT Reg 4 Planning Manager <[ODOTR4PLANMGR@odot.oregon.gov](mailto:ODOTR4PLANMGR@odot.oregon.gov)>; AMITON David <[David.AMITON@odot.oregon.gov](mailto:David.AMITON@odot.oregon.gov)>  
**Subject:** Notice of Application

This message was sent from outside the organization. Treat attachments, links and requests with caution. Be conscious of the information you share if you respond.

Hello,

Attached is a re-notice of application for the CORE3 Partition application. Please note, this application is now separate and distinct from the other applications associated with the CORE3 project and has a comment period deadline of March 22<sup>nd</sup>. Please send any comments you may have directly to me.

Thank you,



**MORGAN SNYDER** | City of Redmond  
*Long-Range Planner*

**phone** 541.504.3062  
**email** [morgan.snyder@redmondoregon.gov](mailto:morgan.snyder@redmondoregon.gov)

411 SW 9<sup>th</sup> Street Redmond, Oregon 97756



[WWW.REDMONDOREGON.GOV](http://WWW.REDMONDOREGON.GOV)

Please consider the environment before printing this email.

DISCLOSURE NOTICE:

Messages to and from this email address may be subject to Oregon Public Records Law.





**CITY OF REDMOND**  
**Engineering Department**

243 East Antler Avenue, Suite 100  
 Redmond, OR 97756-0100  
 (541) 504-2002  
 Fax: (541) 548-0253  
[siteplan@redmondoregon.gov](mailto:siteplan@redmondoregon.gov)  
[www.redmondoregon.gov](http://www.redmondoregon.gov)

March 20, 2024

Matt Kittelson  
 Kittelson & Associates, Inc.

**Re: Approval Memo for Core3 Traffic Impact Analysis (711-23-000068-PW)**

Transportation mitigations for the subject project will be required as follows:

- Five (5) ft. minimum public utility easement (PUE) dedication shall be required along all street/property frontage per COR Standard Drawing 2-1. All required public infrastructure improvements and right-of-way/easement dedications shall be completed prior to final occupancy of any structure or building.
- **East Highway 126 (OR126)** - major arterial street (state highway). A paved highway and sixty (60) ft. ± public right-of-way. No curb or sidewalk exist along project/property frontage. Highway frontage improvements and public right-of-way/easement dedications shall be deferred to ODOT review/approval.
- **SE 21<sup>st</sup> St** - Collector industrial street is planned along the western project boundary in support of the City's Eastside Framework Plan and area development. Eighty (80) ft. public right-of-way shall be dedicated along the property frontage from Highway 126 to SE Evergreen Avenue. The roadway shall be improved to local industrial standards to a northern extent that provides access to Core 3, Oasis, and a future managed camp (approx 600') prior to occupancy of Phase 1. New sidewalk, driveway and curb return/ramp improvements conforming to City standards shall be required along property frontage. Post a STOP (R1-1) sign on the proposed training facility access onto OR 126 in accordance with applicable City standards and the Manual on Uniform Traffic Control Devices (MUTCD). The remaining portions of street improvements may be deferred to future phases at the discretion of the City Engineer.
- **SE Evergreen Ave.** - local industrial street is planned roughly one-quarter mile south of and parallel to East Antler Ave. and along the north project boundary in support of the City's Eastside Framework Plan and area development. A sixty (60) ft. public right-of-way dedication shall be required. The street shall be constructed to local industrial standards, including curb on both sides and sidewalk on the south side. Street improvements may be deferred to future phases at the discretion of the City Engineer.
- **SE 33<sup>rd</sup> St.** - local industrial street is planned along the east project boundary in support of the City's Eastside Framework Plan and potential future OR126 connection. A sixty (60) ft. public right-of-way dedication shall be required. The street shall be constructed to local industrial standards, including curb on both sides and sidewalk on the south side. Street improvements may be deferred to future phases at the discretion of the City Engineer.
- A left turn lane shall be installed along Hwy 126 at future SE 21<sup>st</sup> St, to be reviewed and approved by ODOT, prior to occupancy of Phase 1.
- Prior to certificate of occupancy of Phase 1, a multiuse path conforming to City of Redmond Standards and Specifications is required along Hwy 126 frontage per the Transportation System Plan (identified as B46 in the TSP). A public access easement shall be provided if the path is constructed on private property.
- Suitable fire access must be maintained throughout all phases.
- Prior to certificate of occupancy of Phase 1, a deed restriction shall be recorded on the property limiting the use of the property to Public Safety, Emergency Services, Training and Coordination



**CITY OF REDMOND**  
**Engineering Department**

243 East Antler Avenue, Suite 100  
Redmond, OR 97756-0100

(541) 504-2002

Fax: (541) 548-0253

[siteplan@redmondoregon.gov](mailto:siteplan@redmondoregon.gov)

[www.redmondoregon.gov](http://www.redmondoregon.gov)

Facilities use designation enabled under the current outright permitted uses within the PF zoning provisions and a maximum occupiable building size of 82,135 square feet.

- System development charges shall be assessed per each phase (Phase 1 = 33 PM Peak Trips; future phases = 72 PM Peak Trips).

Please contact me with any questions.

Lindsey Crowsigt, PE

Assistant City Engineer | City of Redmond | [Lindsey.Crowsigt@redmondoregon.gov](mailto:Lindsey.Crowsigt@redmondoregon.gov) | 541-306-1647



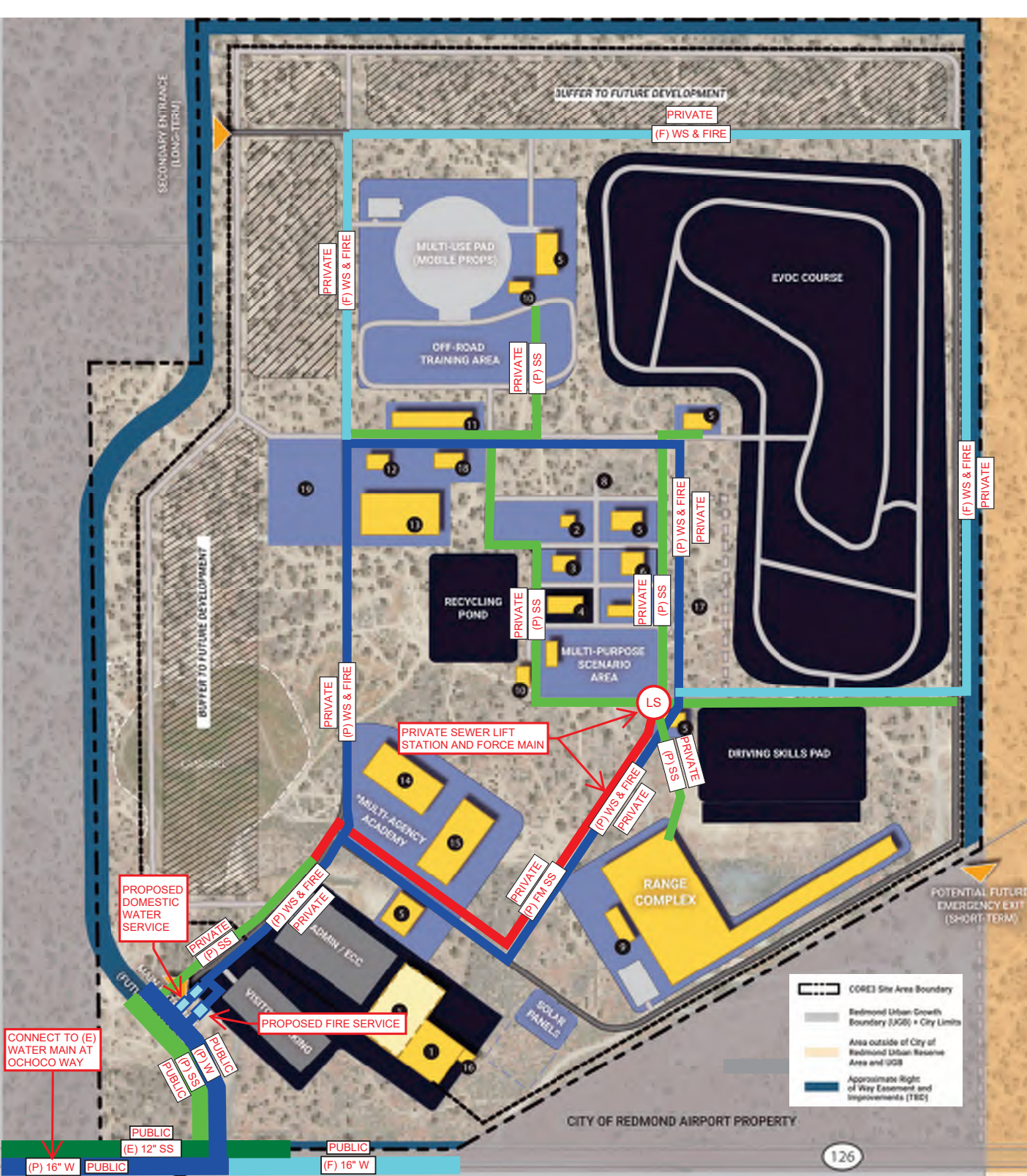


**HHPR** Harper Houf Peterson Righellis Inc.  
ENGINEERS • PLANNERS  
LANDSCAPE ARCHITECTS • SURVEYORS

LEGEND

|  |                                           |
|--|-------------------------------------------|
|  | (P) PUBLIC WATER MAIN                     |
|  | (F) PUBLIC WATER MAIN                     |
|  | (P) PUBLIC GRAVITY SEWER MAIN             |
|  | (E) PUBLIC GRAVITY SEWER MAIN             |
|  | (P) PRIVATE WATER SERVICE OR FIRE SERVICE |
|  | (F) PRIVATE WATER SERVICE OR FIRE SERVICE |
|  | (P) WATER METER / BACKFLOW DEVICE         |
|  | (P) PRIVATE GRAVITY SEWER                 |
|  | (P) PRIVATE SEWER FORCE MAIN              |

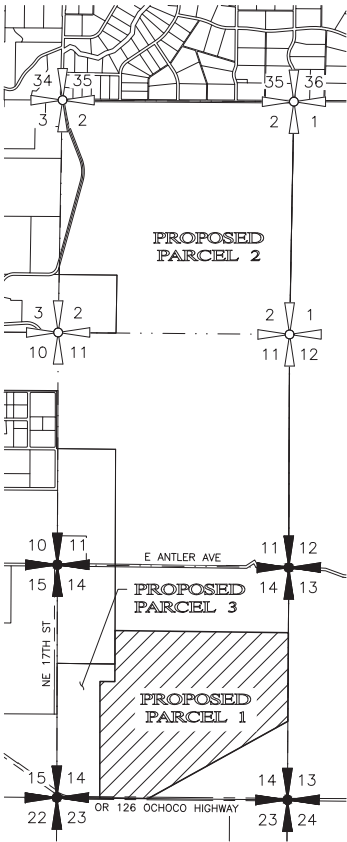
(E) = EXISTING  
(P) = PROPOSED  
(F) = FUTURE





TENTATIVE PARTITION PLAT

A REPLAT OF PARCEL 2, PARTITION PLAT 2022-17, LOCATED IN SECTIONS 2, 10, 11 AND 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, CITY OF REDMOND AND DESCHUTES COUNTY, OREGON



PROPOSED LEGAL DESCRIPTION (RDC 8.2405.2.B):

PROPOSED PARCEL 1:

A PARCEL OF LAND BEING A PORTION OF PARCEL 2, PARTITION PLAT 2022-17, LOCATED IN SECTION 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, DESCHUTES COUNTY, OREGON, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A 2-1/2" BRASS CAP MONUMENTING THE EAST ONE-QUARTER OF SECTION 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, DESCHUTES COUNTY, OREGON; THENCE SOUTH 0°17'20" WEST, 853.84 FEET ALONG THE EASTERLY BOUNDARY OF SAID SECTION; THENCE LEAVING SAID EASTERLY SECTION BOUNDARY SOUTH 61°02'56" WEST, 3625.00 FEET TO THE SOUTHERLY BOUNDARY OF SECTION 14; THENCE NORTH 89°25'48" WEST, 1103.39 FEET ALONG SAID SOUTHERLY BOUNDARY; THENCE ALONG A LINE 975.00 FEET EAST AND PARALLEL WITH THE WEST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 14, NORTH 0°06'55" EAST, 2650.05 FEET TO THE WEST-EAST CENTERLINE OF SECTION 14; THENCE SOUTH 89°17'49" EAST, 337.45 FEET ALONG SAID SECTION CENTERLINE; THENCE LEAVING SAID SECTION CENTERLINE NORTH 0°11'58" EAST, 399.45 FEET TO A 5/8" IRON ROD WITH YELLOW PLASTIC CAP MARKED "HWA" AND THE SOUTHEAST CORNER OF PARCEL 1 OF SAID PARTITION PLAT 2022-17; THENCE CONTINUING NORTH 0°11'58" EAST, 760.09 FEET ALONG THE EAST BOUNDARY OF SAID PARCEL 1 OF PARTITION PLAT 2022-17; THENCE LEAVING SAID EASTERLY BOUNDARY, SOUTH 89°18'28" EAST, 3939.67 FEET ALONG A LINE 160.00 FEET SOUTH AND PARALLEL WITH THE NORTH ONE-SIXTEENTH OF SAID SECTION 14 TO THE EASTERLY BOUNDARY OF SAID SECTION 14; THENCE SOUTH 0°21'45" WEST, 1160.27 FEET ALONG SAID EASTERLY BOUNDARY TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ANY PORTION LYING WITHIN THE DEDICATED PUBLIC RIGHT OF WAYS.

CONTAINS 299.31 ACRES, MORE OR LESS.

PROPOSED PARCEL 2:

A PARCEL OF LAND BEING A PORTION OF PARCEL 2, PARTITION PLAT 2022-17, LOCATED IN SECTIONS 2, 10, 11 AND 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, DESCHUTES COUNTY, OREGON, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

ALL PORTIONS OF PARCEL 2, PARTITION PLAT 2022-17, LYING NORTH OF THE NORTH ONE-SIXTEENTH LINE OF SAID SECTION 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, DESCHUTES COUNTY, OREGON.

TOGETHER WITH A PORTION OF PARCEL 2, PARTITION PLAT 2022-17, LOCATED IN SECTION 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, DESCHUTES COUNTY, OREGON, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE NORTH 160.00 FEET OF THE SOUTH ONE-HALF OF THE NORTH ONE-HALF OF SAID SECTION.

EXCEPTING THEREFROM ANY PORTION LYING WITHIN THE DEDICATED PUBLIC RIGHT OF WAYS.

CONTAINS 1306 ACRES, MORE OR LESS.

PROPOSED PARCEL 3:

A PARCEL OF LAND BEING A PORTION OF PARCEL 2, PARTITION PLAT 2022-17, LOCATED IN SECTION 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, DESCHUTES COUNTY, OREGON, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THE WEST 975 FEET OF THE SOUTHWEST ONE-QUARTER OF SECTION 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, DESCHUTES COUNTY, OREGON.

TOGETHER WITH A PORTION OF PARCEL 2, PARTITION PLAT 2022-17, LOCATED IN SECTION 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, DESCHUTES COUNTY, OREGON, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A 2-1/2" BRASS CAP MONUMENTING THE WEST ONE-QUARTER OF SECTION 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, DESCHUTES COUNTY, OREGON; THENCE NORTH 0°09'21" EAST, 399.26 FEET ALONG THE WESTERLY BOUNDARY OF SAID SECTION 14 TO THE SOUTHWEST CORNER OF PARCEL 1 OF SAID PARTITION PLAT 2022-17; THENCE LEAVING SAID WESTERLY BOUNDARY ALONG THE SOUTH BOUNDARY LINE OF SAID PARCEL 1 OF PARTITION PLAT 2022-17, SOUTH 89°18'19" EAST, 1313.59 FEET TO A 5/8" IRON ROD WITH YELLOW PLASTIC CAP MARKED "HWA" AND THE SOUTHEAST CORNER OF SAID PARCEL 1 OF PARTITION PLAT 2022-17; THENCE LEAVING SAID SOUTH BOUNDARY LINE, SOUTH 0°11'58" WEST, 399.45 FEET TO THE WEST-EAST CENTERLINE OF SAID SECTION 14; THENCE NORTH 89°17'49" WEST, 1313.29 ALONG SAID CENTERLINE TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ANY PORTION LYING WITHIN THE DEDICATED PUBLIC RIGHT OF WAYS.

ALSO EXCEPTING THEREFROM ANY PORTION LYING SOUTH OF OREGON STATE HIGHWAY 126, OCHOCO HIGHWAY.

CONTAINS 71 ACRES, MORE OR LESS.

SHEET INDEX:

SHEET 1: OVERVIEW MAP, PROPOSED LEGAL DESCRIPTION, DATUM NOTES, TENTATIVE PLAT NOTES, CONTACT INFORMATION

SHEET 2: SITE MAP, PROPOSED PARCEL DIMENSIONS, ADJOINER INFORMATION, TOPOGRAPHIC SURVEY NOTES, CONTROL POINTS TABLE

HORIZONTAL DATUM (BASIS OF BEARINGS):

OREGON STATE PLANE, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983 (NAD83(2011)) EPOCH 2010.00) BASED ON STATIC GPS OBSERVATIONS ON CONTROL POINT #1 PROCESSED THROUGH NGS OPUS DISTANCES SHOWN HEREON ARE GROUND DISTANCES COMBINED SCALE FACTOR (1.0000678820) WAS CALCULATED AT CORS STATION "REDM" (N 945762.372', E 4751512.442', ELEV 3088.749') TO OBTAIN GRID DISTANCES, DIVIDE BY THE COMBINED SCALE FACTOR

UNITS: INTERNATIONAL FEET

VERTICAL DATUM:

CITY OF REDMOND VERTICAL DATUM BASED ON AVERAGED RTK GPS OBSERVATIONS OF CITY BENCHMARKS #40 AND #55

UNITS: INTERNATIONAL FEET

ZONING:

PARCEL 1: EFUAL, AS  
PARCEL 2: EFUAL, AS, R4, SM, SMIA  
PARCEL 3: EFUAL, AS, M1, C4

PARCEL AREA (RDC 8.2405.2.B):

PARCEL 1: 299.31 ACRES  
PARCEL 2: APPROXIMATELY 1306 ACRES (UNSURVEYED)  
PARCEL 3: APPROXIMATELY 71 ACRES (UNSURVEYED)

EXISTING EASEMENTS (RDC 8.2405.2.B):

NO EASEMENTS PER TITLE REPORT #DE19502 BY DESCHUTES TITLE EFFECTIVE APRIL 28, 2023 ARE PLOTTABLE, RETRACEABLE OR PERTAIN TO PARCEL 1 IN THIS TENTATIVE PARTITION PLAT.

LAND USE (RDC 8.2405.2.F):

THE DOCUMENTED DESCHUTES COUNTY-OWNED PARCEL IS LARGELY UNDEVELOPED LAND CURRENTLY ZONED AS EFU. THE SITE WAS PREVIOUSLY USED AS A SHOOTING RANGE AND CONTAINED THE FORMER REDMOND ROD AND GUN CLUB SKEET RANGE AND RIFLE/PISTOL RANGE, ALONG WITH THE FORMER SHERIFF'S OFFICE SHOOTING RANGE AND A LANDFILL. THE SITE IS BEING PROPOSED TO BE THE LOCATION OF THE CORE3 DEVELOPMENT - A DEDICATED, MULTI-AGENCY COORDINATION CENTER AND COLLABORATIVE TRAINING FACILITY. THE PROPOSED USES INCLUDE PUBLIC SAFETY, EMERGENCY SERVICES, TRAINING AND COORDINATION FACILITIES.

PROPOSED UTILITIES (RDC 8.2405.2.D):

POTABLE WATER SERVICE WILL BE PROVIDED BY EXTENDING THE EXISTING 16" PUBLIC WATER MAIN FROM THE SOUTH SIDE OF HIGHWAY OR126 AT SE OCHOCO WAY APPROXIMATELY 1,200 LF EASTERLY TO FUTURE SE 21ST AVENUE. FROM THERE, THE PUBLIC WATER MAIN WILL BE EXTENDED NORTHERLY IN SE 21ST AVENUE APPROXIMATELY 550 LF TO THE PROJECT ACCESS ROAD. THE CORE3 SITE WILL BE SERVED BY A SINGLE POTABLE WATER SERVICE AND A SINGLE FIRE SERVICE. ALL ON-SITE DOMESTIC AND FIRE WATER WILL BE PRIVATE AND ISOLATED FROM THE PUBLIC WATER MAIN SYSTEM.

WASTEWATER (SANITARY SEWER) SERVICE WILL BE PROVIDED BY CONNECTING TO THE EXISTING 12" PUBLIC SANITARY SEWER MAIN ALONG THE SOUTH OF HIGHWAY OR126. THE PROJECT CONNECTION WILL REQUIRE CROSSING OR126 AND EXTENDING A PUBLIC SEWER MAIN NORTHERLY APPROXIMATELY 600 LF IN FUTURE SE 21ST AVENUE TO THE PROJECT ACCESS ROAD. THE CORE 3 SITE WILL BE SERVED BY A SINGLE SANITARY SERVICE. ALL ON-SITE SANITARY SEWER WILL BE PRIVATE AND GRAVITY SERVED WHERE POSSIBLE. DUE TO PROJECT TOPOGRAPHY, LOWER LYING AREAS WILL BE SERVED BY A PRIVATE LIFT STATION/FORCE MAIN SYSTEM.

STORMWATER WILL BE COLLECTED AND DISPERSED ON-SITE VIA SWALES, UNDERGROUND INJECTION CONTROL (UIC) DEVICES SUCH AS DRYWELLS, OR A COMBINATION OF BOTH METHODS.

SOLID WASTE DISPOSAL WILL BE THROUGH A LOCAL FRANCHISE PROVIDER.

ACCESS WILL BE PROVIDED FROM OR126 VIA A NEW NORTH-SOUTH COLLECTOR.

CONTACT INFORMATION (RDC 8.2405.2.C):

PROPERTY OWNER: DESCHUTES COUNTY, OREGON  
ADDRESS: 1300 NW WALL ST., BEND, OR 97701  
TELEPHONE NUMBER: 541-388-6570

APPLICANT NAME: CENTRAL OREGON INTERGOVERNMENTAL COUNCIL  
ADDRESS: 1250 NE BEAR CREEK RD., BEND, OR 97701  
TELEPHONE NUMBER: 541-548-8163

SURVEYOR NAME: SAF LAND SERVICES  
ADDRESS: 901 NW CARLON AVE. #3, BEND, OR 97703  
TELEPHONE NUMBER: 541-797-0954

S&F Land Services

Land Surveying & Remote Sensing

901 NW CARLON AVE, SUITE 3  
BEND, OR 97703  
(541) 797-0954

WWW.SFLANDS.COM EMAIL: INFO@SFLANDS.COM

| DATE         | JOB NO.     | FIELD  | DRAWN | CHECKED |
|--------------|-------------|--------|-------|---------|
| JAN. 2, 2024 | 2023-594-01 | SD/SGD | JKK   | AH      |

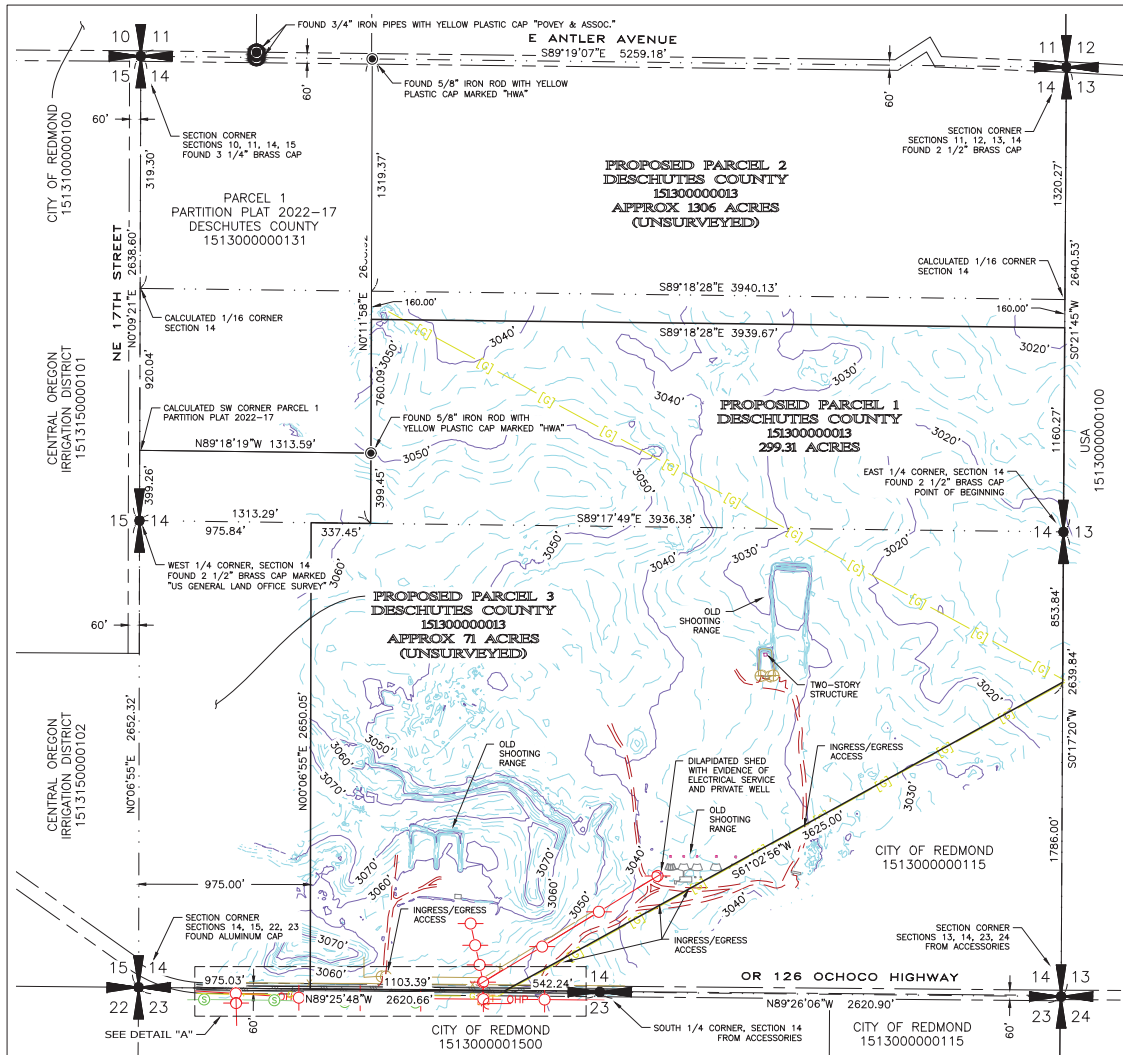
TENTATIVE PARTITION PLAT FOR:  
CENTRAL OREGON  
INTERGOVERNMENTAL COUNCIL

SECTIONS 2, 10, 11 & 14  
TOWNSHIP 15 SOUTH, RANGE 13 EAST  
WILLAMETTE MERIDIAN  
DESCHUTES COUNTY, OREGON

REGISTERED  
PROFESSIONAL  
LAND SURVEYOR

OREGON  
MARCH 14, 2023  
JOSHUA J. KOWALSKI  
94125PLS

EXPIRES 06/30/25



# TENTATIVE PARTITION PLAT

A REPLAT OF PARCEL 2, PARTITION PLAT 2022-17, LOCATED IN SECTIONS 2, 10, 11 AND 14, TOWNSHIP 15 SOUTH, RANGE 13 EAST, WILLAMETTE MERIDIAN, CITY OF REDMOND AND DESCHUTES COUNTY, OREGON

## LEGEND:

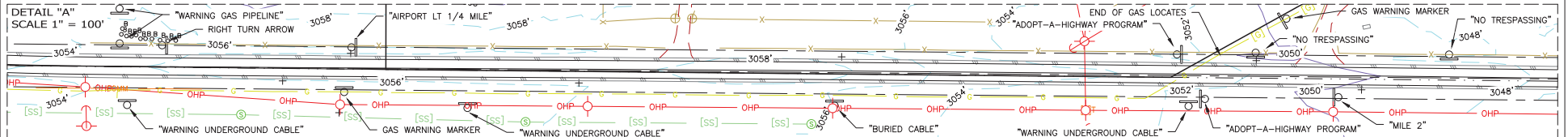
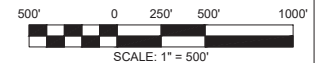
|  |                         |  |                               |
|--|-------------------------|--|-------------------------------|
|  | PARTITION BOUNDARY      |  | FOUND SECTION CORNER AS NOTED |
|  | TAXLOTS- COR GIS        |  | FOUND MONUMENT- IRON PIPE     |
|  | SECTION LINE            |  | FOUND MONUMENT- 5/8" IRON ROD |
|  | RIGHT OF WAY            |  | BOLLARD                       |
|  | ROAD CENTERLINE         |  | SIGN                          |
|  | ROAD STRIPING           |  | SIGN- REFLECTIVE MARKER       |
|  | FENCE                   |  | POWER POLE                    |
|  | BUILDING                |  | GUY ANCHOR                    |
|  | EDGE OF CONCRETE        |  | SANITARY SEWER MANHOLE        |
|  | EDGE OF GRAVEL          |  | TELEPHONE RISER               |
|  | EDGE OF PAVEMENT        |  | FENCE GATE POST               |
|  | MINOR CONTOUR (2 FT.)   |  |                               |
|  | MAJOR CONTOUR (10 FT.)  |  |                               |
|  | OVERHEAD POWER          |  |                               |
|  | COMMUNICATION           |  |                               |
|  | GAS                     |  |                               |
|  | GAS- COR GIS            |  |                               |
|  | SANITARY SEWER- COR GIS |  |                               |

## TOPOGRAPHIC SURVEY NOTES:

- THE LOCATION OF EXISTING UNDERGROUND UTILITY FACILITIES SHOWN HEREON ARE BASED ON LOCATE MARKS REQUESTED FOR THIS SURVEY PER ONE CALL PUBLIC LOCATE TICKET 23102585 AND CITY OF REDMOND (COR) GIS DATA. THE SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE DELINEATION OF SUCH UNDERGROUND UTILITIES BY THE RESPECTIVE UTILITY OWNERS, NOR FOR THE EXISTENCE OF BURIED OBJECTS WHICH ARE NOT SHOWN ON THE PLAN. ALL UTILITY LOCATIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
- FIELD WORK WAS COMPLETED ON MAY 2, 2023.
- RECTIFIED ORTHOPHOTOGRAPHY AND PHOTOGRAMMETRIC MAPPING (PERFORMED BY AN ASPRS CERTIFIED PHOTOGRAMMETRIST) WAS UTILIZED TO OBTAIN PLANIMETRIC AND ELEVATION/SURFACE DATA (EXCLUDING BOUNDARIES) WHERE GROUND MEASUREMENTS ARE NOT OTHERWISE NECESSARY TO LOCATE THOSE FEATURES TO AN APPROPRIATE AND ACCEPTABLE ACCURACY. AERIAL PHOTOGRAPHY WAS COLLECTED WITH 75/70 FORWARD AND SIDE OVERLAP ON 05/02/2023.

## CONTROL POINTS TABLE

| POINT NO. | NORTHING  | EASTING    | ELEVATION | DESCRIPTION          |
|-----------|-----------|------------|-----------|----------------------|
| 1         | 946231.31 | 4751586.76 | 3068.92   | 1-1/4 INCH BRASS CAP |
| 40        | 951873.86 | 4746862.15 | 2989.51   | 3 INCH BRASS CAP     |
| 55        | 950518.90 | 4746972.36 | 2998.83   | 3 INCH BRASS CAP     |



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| DATE         | JOB NO.     | FIELD  | DRAWN | CHECKED |
|--------------|-------------|--------|-------|---------|
| JAN. 2, 2024 | 2023-594-01 | SD/SGD | JJK   | AH      |

TENTATIVE PARTITION PLAT FOR:  
CENTRAL OREGON  
INTERGOVERNMENTAL COUNCIL

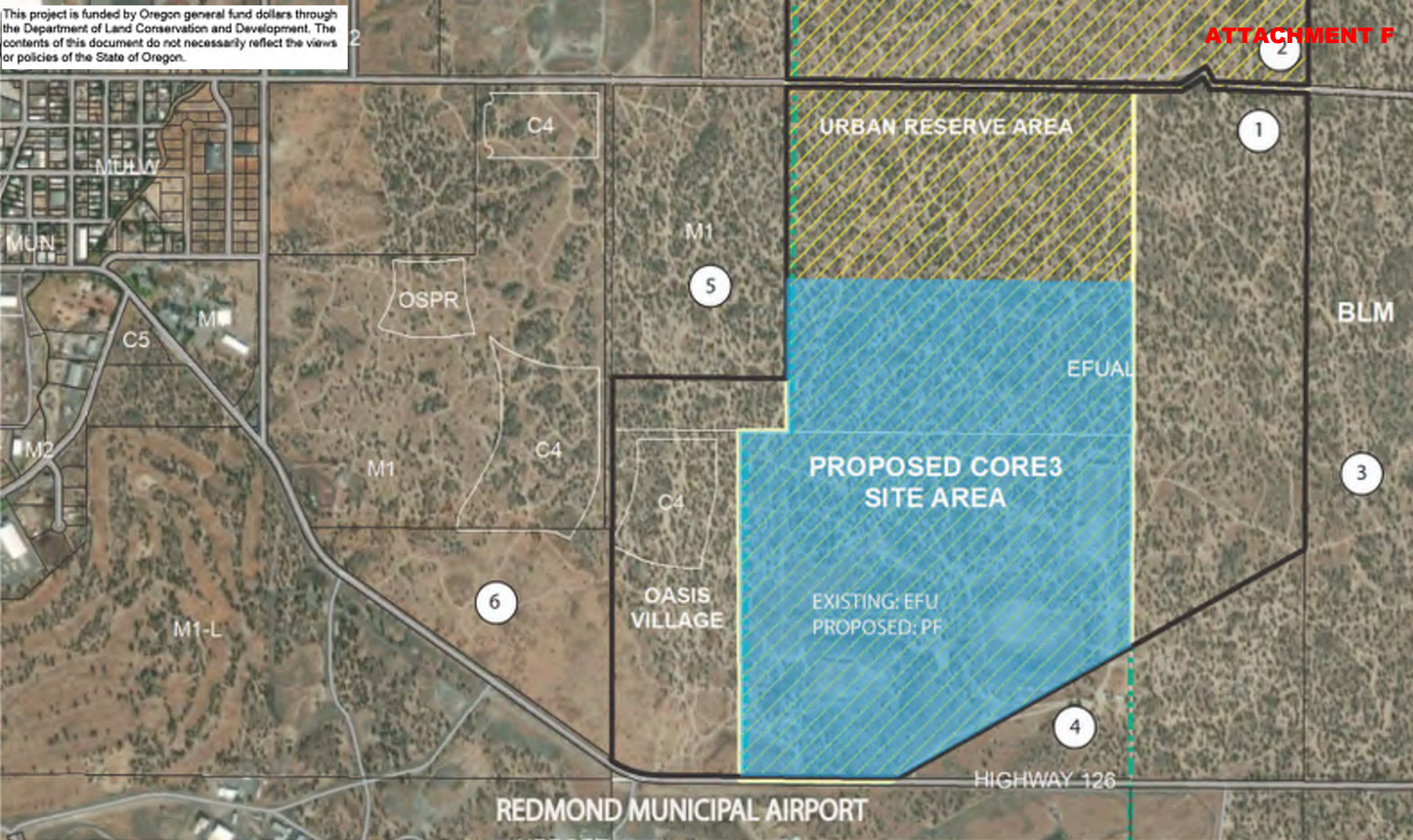
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LAND SURVEYOR

OREGON  
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### VICINITY AND ZONING MAP

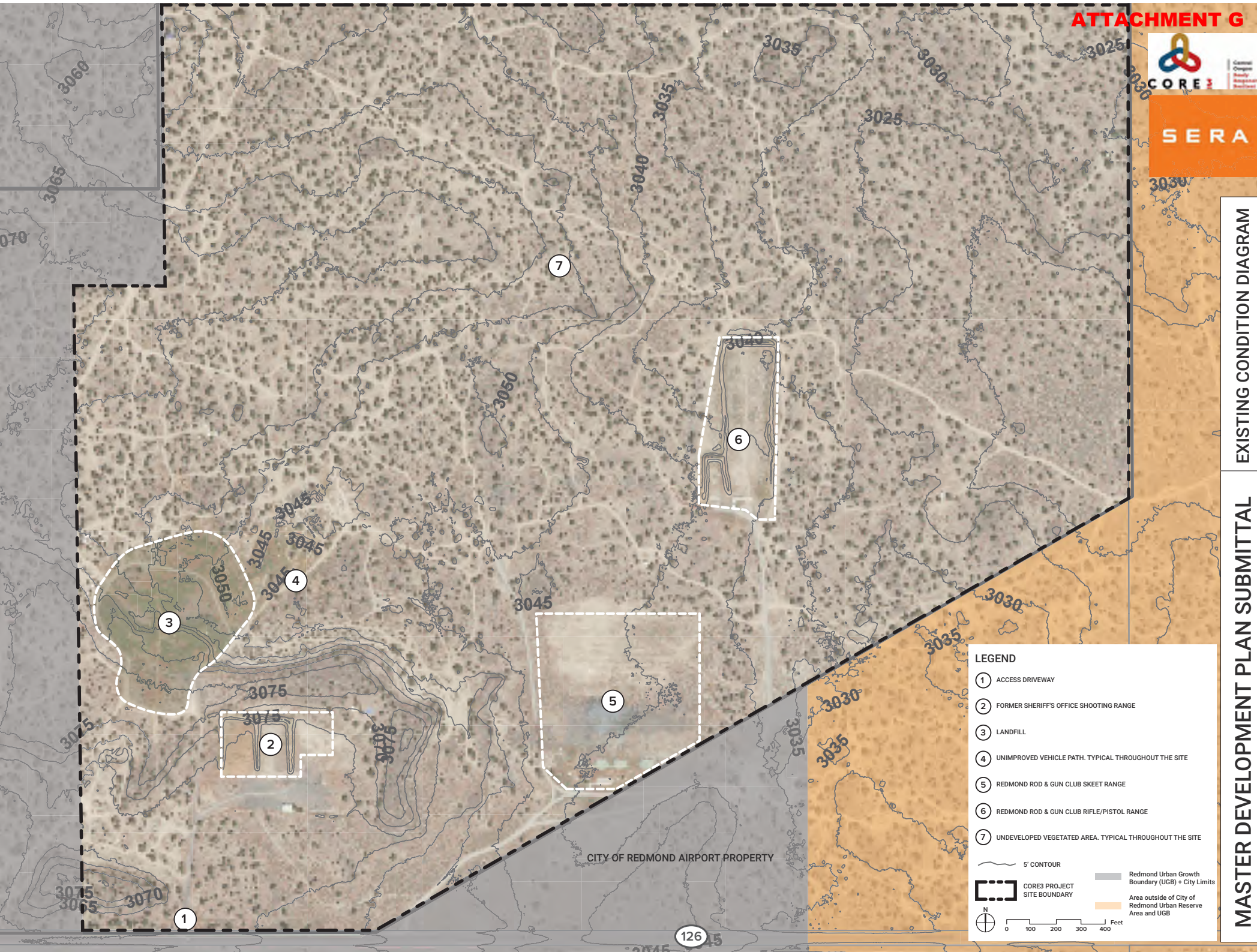
- EXISTING ZONING BOUNDARY
- PROPOSED SITE AREA
- URBAN RESERVE AREA
- URBAN RESERVE BOUNDARY
- TAX LOT LINES
- REDMOND CITY LIMITS



#### TAX LOT INFO

|                                                            |                                                         |                                                                            |
|------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------|
| ① DESCHUTES COUNTY<br>TAX LOT: 1513000000103<br>500.28 AC  | ③ USA<br>TAX LOT 1513000000100<br>5280.52 AC            | ⑤ CENTRAL OREGON IRRIGATION DISTRICT<br>TAX LOT: 1513150000102<br>48.87 AC |
| ② DESCHUTES COUNTY<br>TAX LOT: 1513000000103<br>1396.06 AC | ④ CITY OF REDMOND<br>TAX LOT: 1513000000115<br>41.56 AC | ⑥ DESCHUTES COUNTY<br>TAX LOT: 1513000000131<br>135.91 AC                  |





**LEGEND**

- ① ACCESS DRIVEWAY
- ② FORMER SHERIFF'S OFFICE SHOOTING RANGE
- ③ LANDFILL
- ④ UNIMPROVED VEHICLE PATH, TYPICAL THROUGHOUT THE SITE
- ⑤ REDMOND ROD & GUN CLUB SKEET RANGE
- ⑥ REDMOND ROD & GUN CLUB RIFLE/PISTOL RANGE
- ⑦ UNDEVELOPED VEGETATED AREA, TYPICAL THROUGHOUT THE SITE

— 5' CONTOUR

--- CORE3 PROJECT SITE BOUNDARY

Redmond Urban Growth Boundary (UGB) + City Limits

Area outside of City of Redmond Urban Reserve Area and UGB

N

0 100 200 300 400 Feet



# Central Oregon Emergency Services Center Viability Assessment



June 2018

Final Report

## Community Service Center

Department of Planning, Public Policy & Management  
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# Special Thanks & Acknowledgements

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## About the Community Service Center

The Community Service Center (CSC) is a research center affiliated with the School of Planning, Public Policy, and Management at the University of Oregon. It is an interdisciplinary organization that assists Oregon communities by providing planning and technical assistance to help solve local issues and improve the quality of life for Oregon residents. The role of the CSC is to link the skills, expertise, and innovation of higher education with the transportation, economic development, and environmental needs of communities and regions in the State of Oregon, thereby providing service to Oregon and learning opportunities to the students involved.

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# Executive Summary

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## Introduction

At the present time, **Central Oregon has insufficient facilities to meet existing, mandatory training needs of local, state, and federal public safety personnel. Furthermore, the region lacks a dedicated, multi-agency coordination center for emergency operations. Finally, the region does not currently have an adequate backup 911-center with redundant emergency dispatch capabilities.** To address these deficiencies, emergency service professionals, training coordinators, educators, and emergency managers from across Deschutes, Jefferson, and Crook Counties have developed a **VISION:**

**Construct a state of the art, regional emergency services training and coordination center (RESTCC) in the heart of Central Oregon.**

Imagine the Central Oregon region with:

- An **integrated training campus** that serves law enforcement, structural and wildland fire, emergency medical service, and emergency dispatch training needs.
- Facilities that provide **tactical training resources** to support multi-agency and multi-disciplinary joint training exercises.
- Applied tactical training and **expanded degree programs for college students** and public safety professionals.
- Opportunities to combine classroom training with **hands-on practice using real equipment in real-world settings.**
- Ability to provide **public safety training year-round**, regardless of weather conditions or time of day.
- Dedicated **emergency vehicle operations and live-fire training facilities** serving students and professionals from across central and eastern Oregon.
- A **dedicated multi-agency incident coordination center** to support regional emergency management operations.
- Capability to **respond immediately to large-scale, multi-jurisdictional events** like wildfires, winter storms, earthquakes, or other natural, manmade, or technological disasters.
- Ability to deliver **redundant 911 and emergency dispatch services** throughout the region.

While the vision is inspirational, the concept raises many questions: How would the facility be funded? Who would be responsible for programming, administration and maintenance? In summary, do viable business models exist to operate such a facility on an ongoing basis? This report presents a

preliminary assessment on the viability of a conceptual regional emergency services training and coordination center in Central Oregon, including a set next steps and actions.

## Background

Central Oregon is one of the fastest growing areas of the nation, and the fastest growing region in the State of Oregon. In fact, Portland State University projects the region (Crook, Deschutes, and Jefferson Counties) will add nearly 100,000 people between 2018 and 2040. Regional growth creates increased demand on all types of emergency services – from law enforcement to wildland fire suppression. As regional growth increases and creates an additional need for emergency services, budgets from these services continue to be tight.

Emergency service professionals require a lot of training. Some of this training is mandatory and it occurs on an ongoing basis. Other training is voluntary, but serves to increase the overall capacity of first responders and public safety professionals in the region. Additionally, college students from the region and beyond enroll in public safety degree programs. These students often seek employment in the region thereby increasing the availability of professionally trained emergency services workforce.

Currently, local governments and emergency services providers independently train their staff at inadequate facilities. This increases costs and can create other inefficiencies in training. Additionally, some incidents, such as wildfires, are regional in nature and require a centralized, coordinated, multi-jurisdictional incident coordination and response. Recent challenges with upgrades to the Deschutes County 911 system demonstrate the need for additional investments in redundant emergency communication capabilities.

To better understand the potential benefits and costs of a regional emergency services training and incident coordination center, Deschutes County contracted with the University of Oregon's Community Service Center (CSC) to conduct research to better understand programming and facility needs and assess the viability of the concept.

The CSC used several methods to assess the concept: review of studies for similar facilities, expert interviews, case studies of comparable facilities in other locations, an online survey of emergency management professionals, and focus group meetings.

## Conclusions

Central Oregon is a rapidly growing region. **Public safety agencies throughout Central Oregon conduct numerous required and voluntary trainings throughout the year.** Training is a critical component of public safety service delivery. Additionally, public safety personnel need updated training as public safety standards, needs, equipment, and trends change.

Agencies in Central Oregon largely conduct training on an agency by agency basis. Due to the lack of regional training facilities, opportunities to conduct joint trainings and share resources are limited. While agencies make a concerted effort to collaborate on training activities, **the lack of dedicated training facilities presents a significant barrier to regional coordination.** This, in turn, (1) limits training efficiency opportunities, (2) limits the types of realistic training offerings, (3) increases cost because personnel need to travel out of the region for training, or (4) results in delays or challenges in accessing training in a timely manner.

Many disaster events in the region require multi-agency, multi-jurisdictional emergency management coordination. Preparation for and response to the 2017 total solar eclipse and subsequent wildfire emergency confirmed this fact. However, **the region currently lacks a dedicated Multi-Agency Emergency Coordination Center.** When regional disaster events occur, local partners have to reestablish a coordination center on an event-by-event basis. This inefficient approach diverts emergency manager's attention away from incident response at critical time.

#### Facility deficiencies include:

**Insufficient quantity of adequately sized classroom space to meet existing training needs.** Agencies compete for the limited number of available classrooms. Many classes have waiting lists because available classrooms cannot accommodate the number of registered students.

**Lack of Emergency Vehicle Operations Course.** There is no dedicated place for public safety personnel to conduct driver training. Agencies rely on irregular access to regional facilities (such as parking lots or snow parks) that are not designed for emergency vehicle operations training.

**Lack of live-fire training tower/building.** The lack of a live fire training facility means that many volunteer fire personnel have no experience in a live fire scenario. Career fire personnel cannot practice live fire situations in a controlled, training environment.

**Lack of indoor shooting range.** Law enforcement personnel have regular firearms training requirements across a range of environmental conditions. Current facilities cannot efficiently accommodate law enforcements firearms training needs due to weather, time of day (lighting), or shift scheduling constraints.

**Lack of other tactical training resources.** The Central Oregon region lacks other public safety training facilities including: Mock City, hazardous materials training, tactical training room(s) (e.g. mat, defensive tactics, etc.), shooting range (indoor), technical rescue, water rescue, and urban search and rescue (confined space), among others.

**Lack of multi-jurisdictional emergency operations center.** When regional emergencies occur, emergency management personnel require immediate access to facilities, equipment, and communication capabilities. At the present time, multi-agency incident coordination capability has to be

established on an emergency-by-emergency basis, often in inadequate locations.

**Lack of redundant 911 emergency dispatch capability.** The region currently lacks backup (redundant) 911 and emergency communication capability. Furthermore, the region has limited dedicated 911 training facilities or ability to combine 911 training with live fire, law-enforcement, EMT, and multi-agency incident coordination training scenarios. Notably, simulated multi-agency emergency communication exercises provided tangible benefits during the 2017 eclipse and subsequent wildfire events.

### Common elements of regional public safety training facilities:

Regional public safety training facilities commonly include a wide range of law enforcement, fire, and emergency medical training facilities. The numbers, type, size, selection, and organization of these components varies significantly based on regional needs and available resources.

- **A Central Oregon RESTCC could include a wide range of training facilities, including:**
  - o Administration
  - o Classroom
  - o Skills
  - o Technical
  - o Scenario
  - o Firearms
  - o EVOC
  - o Communications
- **A Central Oregon RESTCC could also provide enhanced regional incident coordination and emergency operations capability.** Such a facility could provide a dedicated incident coordination center for the region and serve to supplement existing state Emergency Coordination Center (ECC) capability, providing needed state-level ECC redundancy in the state. In addition, the facility could provide critical backup 911 capabilities for the entire region.
- **Redmond is a desirable location for a Central Oregon RESTCC.** Redmond is the region's second largest city. Its central location and proximity to primary north/south and east/west highways make it accessible from throughout the region. The Redmond Airport, Central Oregon Interagency Dispatch Center, USFS Air Center (Air Tanker base, training center, interagency support cache, smokejumper base, and interagency Hotshot crew), and Central Oregon Community College Redmond Campus are all located in Redmond. This makes it uniquely positioned to support a RESTCC
- **The facility, as conceived, has unique site requirements.** RESTCC siting will require careful consideration of compatibility with surrounding uses and long-term facility growth and expansion needs.



CSC strongly recommends near-term discussions between Deschutes County, COCC, the City of Redmond, the Redmond Airport, and other key stakeholders to assess the desirability/ feasibility of a two-site approach: (1) Building intensive uses on existing site proximate to the existing COCC campus, and (2) land intensive uses on nearby City of Redmond or Deschutes County controlled property. Such an approach could facilitate phased development and provide additional short, medium, and long-term partnership options.

## RESTCC Demand and Financial Viability

- The value of a Central Oregon RESTCC cannot be overstated. **Public safety agencies in Central Oregon need additional training facilities and programs and will use a RESTCC if one is constructed.**
- Similarly, **Central Oregon needs a Multi-Agency Emergency Coordination Center.** A regional incident coordination center would allow emergency managers to respond quickly to the growing number of chronic inter-local, multi-jurisdictional emergency events. Furthermore, large-scale events like a Cascadia subduction zone earthquake will require significant incident coordination and emergency response capability in Central Oregon.
- Desired programing corresponds closely with the facility deficiencies described in Chapter 2. **Public safety professionals urgently need EVOC training, classroom instruction, and scenario based tactical training facilities.** Fire stakeholders highlight the need for live-fire training; law enforcement personnel emphasize the need for scenario-based tactical training facilities.
- **Regional public safety training facilities range significantly in both cost and size.** Some smaller regions/communities develop training facilities with limited facility and program options for \$5 million or less. Larger entities develop extensive multi-component training campuses that cost \$50-million or more. Similarly, the size of facilities ranges less than 10-acres to more than 150 acres.
- Most existing public safety training budgets are limited. **It does not appear that operation of a RESTCC is viable based on current public agency funding levels. A RESTCC will require other funding partners, revenue models, or increases in agency general fund commitments.**

## Action Plan

Prior to moving forward with detailed site identification, design work, or financial feasibility assessments, RESTCC stakeholders need to evaluate the political feasibility of moving forward. Additionally, CSC strongly advises the partners to identify a willing entity with the authority, capability, and capacity to develop a RESTCC. What follows is a set of recommended next steps and actions for RESTCC partners to consider. We present these actions as a set of phases. A decision to proceed or not (Go/No Go) should

be made at the conclusion of each phase. This approach mitigates risk through restrained, ongoing assessment.

## **Phase I – Political Viability and Lead Entity Identification**

Phase I focusses on determining decision maker interest in pursuing a Central Oregon RESTCC. This phase also seeks to identify a lead agency with the authority, capability, and capacity to develop and administer the RESTCC.

### **Action 1: Initiate discussions with decision makers in the region and secure approval to move forward**

---

*This action will result in a formal commitment on the part of partner entities to move forward with RESTCC planning and development.*

### **Action 2: Convene key administrative partners and designate lead agency(ies)**

---

*CSC recommends initiating discussions with administrative partners, “anchor tenants,” and primary users in conjunction with the decision maker discussions. This action will result a memorandum of understanding (or other agreement) that identifies a lead project agency/entity and outlines the roles, responsibilities, commitments, and governance structure among administrative partners.*

## **Phase II – Site identification, evaluation, and acquisition**

Phase II should focus on site identification, evaluation, and acquisition. As noted in the report, sites proximate to the Redmond Airport are most desirable for a number of reasons. However, of the potential sites, a number opportunities and challenges exist. Site identification will require careful consideration and collaboration among a range of potential federal, state, and local land owner/mangers. These include DSL, Deschutes County, COCC, City of Redmond, the Redmond Airport, the FAA, etc. Obtaining appropriate land use entitlements should be considered in evaluating sites.

### **Action 3: Convene land owners, land use stakeholders, and development regulators**

---

*This action will identify a set of viable development sites or multi-site configurations.*

### **Action 4: Conduct formal site evaluation(s) (if needed)**

---

*This action will evaluate potential sites/multi-site configurations and recommend one or more preferred alternatives.*

### **Action 5: Secure site**

---

*This action will result in a lease agreement, ownership agreement, fee title transfer, or combination thereof, to the lead RESTCC development entity.*

### **Phase III – Preliminary RESTCC design concept and financial pro-forma assessment**

Phase III should focus on developing the final programming, design, and engineering plan. Once complete, a full financial analysis and pro-forma evaluation can be conducted.

#### **Action 6: Assemble program, design, and engineering team**

---

*This action will result in a Request for Proposals/Qualifications and selection of a design and consulting team.*

#### **Action 7: Develop design concept(s) and pro-forma**

---

*This action will result in a preferred design alternative, including a phasing plan if desired, and a comprehensive development pro-forma.*

#### **Action 8: Vet and select final design, construction phasing, and approval to move forward with final design and construction**

---

*This action will result in the completion of one or more phases of the Central Oregon RESTCC.*

### **Phase IV – Commence operations**

Phase IV includes opening, running, and maintaining RESTCC programming. In addition to the ongoing training activities offered, this phase will include using the facility to exercise and conduct regional emergency operations. With time, this phase may also include developing grant or fundraising campaigns for additional programming and facility development.

*This phase will realize the vision of a regional emergency services training and coordination center in the heart of Central Oregon.*



# Chapter I: Introduction

---

At the present time, **Central Oregon has insufficient facilities to meet existing, mandatory training needs of local, state, and federal public safety personnel.**

Therefore, emergency service professionals, training coordinators, educators, and emergency managers from across Deschutes, Jefferson, and Crook Counties have developed a vision: Construct a state of the art, regional emergency services training and coordination center (RESTCC) in the heart of Central Oregon.

Imagine the Central Oregon region with:

- An integrated training campus that serves law enforcement, structural and wildland fire, emergency medical service, and emergency dispatch training needs.
- Facilities to provide tactical training resources to support multi-agency and multi-disciplinary joint training exercises.
- Hands-on tactical training and expanded degree programs for college students and public safety professionals.
- Opportunities to combine classroom training with hands-on practice using real equipment in real-world settings.
- Ability to provide year-round public safety training.
- Dedicated emergency vehicle and live-fire training facilities serving students and professionals from across central and eastern Oregon.
- Facilities to support regional emergency management operations.

This report presents a preliminary assessment on the viability of a conceptual regional emergency services training and coordination center in Central Oregon. The study presents a facility concept, reviews other emergency services training centers, presents the results of a survey of emergency management agencies in Central Oregon, and includes revenue and operating cost estimates for the conceptual facility. The report concludes with a set of recommended next steps.

## Background

Central Oregon is one of the fastest growing areas of the nation, and the fastest growing region in the State of Oregon. This region is at risk to a range of natural hazards including wildfire, winter storms, flooding, drought, and potential volcanic eruptions. In addition, growing population is increasing the need to educate and train a growing public safety workforce. Portland State University forecasts the region will add nearly 100,000 new residents by 2040.

Regional growth creates increased demand on all types of emergency services – from law enforcement to wildland fire suppression. As regional growth increases and creates an additional need for emergency services, budgets from these services continue to be tight.

Moreover, Oregon is at risk of major earthquakes (often called “Cascadia 9.0” after the region and potential magnitude of the event). While this event would likely not

affect Central Oregon to the same degree as Western regions of the state, such an event could cause a large influx of people into the Central Oregon region seeking shelter and assistance. This would further exacerbate strains on emergency services in the region. Preparation for and response to the 2017 total solar eclipse and subsequent wildfire emergency demonstrated the tangible value of standing up a multi-agency emergency management coordination facility. However, the eclipse event and immediate transfer of emergency response operations to managing the 2017 regional wildfires also demonstrated the challenges and limitations that result from working in temporary, non-dedicated incident coordination facilities.

Emergency service professionals require a lot of training. Some of this training is mandatory and it occurs on an ongoing basis. Other training is voluntary, but serves to increase the overall capacity of first responders and public safety professionals in the region. Additionally, college students from the region and beyond enroll in public safety degree programs. These students often seek employment in the region thereby increasing the availability of professionally trained emergency services workforce.

Currently, local governments and emergency services providers independently train their staff at inadequate facilities. This increases costs and can create other inefficiencies in training. Additionally, some incidents, such as wildfires, are regional in nature and require a centralized, coordinated, multi-jurisdictional incident command and response. Recent challenges with upgrades to the Deschutes County 911 system demonstrate the need for additional investments in redundant emergency communication capabilities.

An opportunity exists to build an emergency services training center capable of providing a regional emergency response system in Central Oregon. This center would also be capable of hosting professional emergency response courses, disaster preparedness training, and higher education courses. As conceived, the facility would create continuity in training for all emergency service professionals in Central Oregon, would create more robust training opportunities, and would potentially decrease overall training costs for each emergency services department in the region. Additionally, such a facility could serve as a regional or state-wide emergency operations center for major events such as a Cascadia 9.0 magnitude earthquake.

To better understand the potential benefits and costs of a regional emergency services training center, Deschutes County contracted with the University of Oregon's Community Service Center (CSC) to conduct research to better understand programming and facility needs and assess the viability of the concept.

The CSC used several methods to assess the concept: review of studies for similar facilities, expert interviews, case studies of comparable facilities in other locations, an online survey of emergency management professionals, and focus group meetings.

## Purpose and Methods

This assessment intends to determine whether the vision for the Central Oregon Regional emergency services training and coordination center is viable. In the context of this study, viability has several dimensions:

- **Economic viability.** This is a key dimension and the one most commonly considered in studies. For the purpose of this study, we provide order-of-magnitude estimates of the costs of operations and maintenance.
- **Administrative operability.** Does the organization have the administrative capacity to manage the facility? In this instance, governance is a key issue as are fee structures.
- **Political viability.** Does the concept have support the community? From key leaders and elected officials? Does the community recognize the need for such a facility?

The research focused on three key tasks:

1. **Case study analysis.** To understand the details of space, programming, budgets, and governance, CSC conducted case study research of comparable Emergency Services Training Centers across North America. Case studies discuss detailed analysis of facility amenities, financial characteristics, and program offerings.
2. **User interest.** Use by emergency management organizations in the region is key to the feasibility of a regional service center. To understand training needs and interest in a regional service center, the CSC conducted an online survey of emergency management organizations in Deschutes, Crook, and Jefferson counties.
3. **Financial Assessment.** The financial assessment used data collected throughout research stages to create order-of-magnitude use and revenue estimates. The financial estimates also included up-front and considered construction costs, staff, operations, and maintenance costs.

We characterize this as a preliminary viability assessment because the study is based on a set of assumptions and estimates related to the design, programming, and limitations of predicted demand for the conceived facility. These assumptions and estimates impact projected costs and revenues. Changes to any of these variable assumptions would alter the cost and revenue structure of the site.

Moreover, concepts such as this one often evolve over time and are sometimes built in phases. The facility and programming concept must build from demand; in this instance, we understand demand as expressed by survey respondents. It is possible that not all those respondents would use the facility due to the fact that different organizations have different needs. Thus, a key objective of this study is to understand what potential users want in both facilities and program for an emergency services center.

## Organization of This Report

The remainder of the report is organized as follows:

**Chapter Two: Regional Training Overview** provides an overview of existing and needed public safety training needs. The chapter begins with a discussion of training certifications and maintenance requirements. It goes on to discuss potential users and key facility deficiencies.

**Chapter Three: RESTCC Components** outlines the standard components of a regional emergency services training and coordination center (RESTCC). The numbers, type, size, selection, and organization of these components can vary significantly based on regional needs and available resources

**Chapter Four: Central Oregon RESTCC Concept** outlines a preliminary concept for a regional emergency services training and coordination center (RESTCC). The concept builds from discussions CSC had with emergency management professionals in the region. The concept also reflects the structure of similar facilities studied in Oregon and throughout the U.S.

**Chapter Five: Conclusions and Action Plan** summarizes the key findings of the study and outlines potential next steps.



## Chapter 2: Regional Training Overview

This chapter provides an overview of existing and needed public safety training needs. The chapter begins with a discussion of training certifications and maintenance requirements. It goes on to discuss potential users and key facility deficiencies.

### Emergency Services Personnel Training Overview

The Oregon Board for Public Safety Standards and Training requires that emergency response personnel obtain and maintain a range of professional certifications. Ongoing maintenance of those certifications requires ongoing training. The Department of Public Safety Standards and Training is responsible for “ensuring that public safety professionals and the agencies that employ them maintain compliance with the standards to reduce the risk of liability and ensure public trust is maintained by the communities we serve throughout Oregon.” The Oregon Health Authority oversees certification maintenance for emergency medical personnel. Affiliated public safety personnel (e.g. emergency managers, 911 dispatch, and wildland firefighters) have additional training or certification maintenance requirements.

Oregon Administrative Rules (OAR) govern the timing, amount, and documentation of both basic and ongoing training of public safety providers. OAR 259-008-0000 specifically establishes ongoing employment, training, and certification requirements for fire and law enforcement personnel. OAR 333-265-0000 establishes ongoing certification maintenance requirements for emergency medical services personnel. Tables 2.1 through 2.3 summarizes the ongoing certification maintenance (training) requirements for law enforcement, fire, and emergency medical services personnel.

**Table 2.1 – Annual Law Enforcement Certification Maintenance Requirements**

| Training Type                           | # of hours            |
|-----------------------------------------|-----------------------|
| <b>First Aid/CPR Certification</b>      | Required at all times |
| <b>Annual Training</b>                  |                       |
| Firearms/Use of Force                   | 8                     |
| Ethics                                  | 1                     |
| <b>Three Year Training Requirements</b> |                       |
| Mental Health/CIT                       | 3                     |
| Leadership                              | 24                    |
| General/Other                           | 84                    |

Source: Oregon Department of Public Safety Standards and Training

NOTE: New rules effective March 22, 2017, enforced January 1, 2018

Applies to Police, Corrections, Parole and Probation, and Regulatory Specialists

**Table 2.2 – Annual Fire Maintenance Requirements**

| <b>Training Track</b>              | <b># of hours</b> |
|------------------------------------|-------------------|
| <b>Operations</b>                  | 60                |
| <b>Instructor</b>                  | 4                 |
| <b>Prevention/Public Education</b> | 12                |

Source: Oregon Department of Public Safety Standards and Training

**Table 2.3 – Annual Licensed Emergency Medical Services Providers Continuing Education Requirements**

| <b>Training Topic</b>               | <b># of hours</b> |           |                |           |
|-------------------------------------|-------------------|-----------|----------------|-----------|
|                                     | EMR               | EMT       | AEMT/<br>EMT-I | Paramedic |
| Trauma Emergencies                  | 2                 | 3         | 5              | 6         |
| Medical Emergencies                 | 2                 | 3         | 6              | 8         |
| Pediatric and Obstetric Emergencies | 1                 | 3         | 6              | 8         |
| Airway, Breathing and Cardiology    | 2                 | 4         | 6              | 9         |
| Miscellaneous EMS Topics            | 1                 | 3         | 1              | 1         |
| Education Topics                    | 4                 | 8         | 12             | 16        |
| <b>Total hours</b>                  | <b>12</b>         | <b>24</b> | <b>36</b>      | <b>48</b> |

Source: Oregon Health Authority

The intended purpose of this information is to illustrate general training needs of law enforcement, fire, and emergency medical technicians only. Other public safety personnel may have different or additional ongoing training requirements. Furthermore, we note that individual public safety agencies may have training programs that exceed these requirements. Similarly, individual public safety personnel may desire and engage in additional training based on personal career or job performance goals. This information supports the general need for robust and accessible public safety training facilities and programming wherever public safety programs exist.

## Potential Users and Facilities

Public safety agencies in Central Oregon range significantly in size and budget. For example, 54% of the respondents to the CSC Public Safety Training Survey work for agencies of fewer than 50 personnel and total operating budgets under \$5 million per year. Conversely, 15% of respondents work for entities with more than 200 personnel and annual budgets over \$10 million. This variability reflects the reality of the region: several larger “urban” jurisdictions anchor a region of predominantly smaller, rural-leaning jurisdictions. Correspondingly, larger urban jurisdictions have more capacity and resources to devote to training. This dynamic results in both challenges and opportunities to evaluating potential users of a RESTCC.

At the present time, Central Oregon’s public safety agencies provide for the training needs of their personnel on an agency-by-agency basis. The majority of that training is taking place locally (Figure 2.1). Survey respondents, focus group participants, and project advisors indicate that a significant amount of training occurs in the Central Oregon region. However, agency representatives report that

available training facilities are insufficient to meet the existing, and growing, demand for training in the region.

**Figure 2.1 – Where Training Takes Place**



Source: CSC Public Safety Training Survey

The CSC’s investigation concludes that demand for emergency training facilities exists across a wide range of user groups. Table 2.4 presents users by emergency service category.

**Table 2.4 – Potential Central Oregon RESTCC Users**

| User Type                | User Group                                                                                                                                          |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Law Enforcement</b>   | Local Police<br>County Sheriff<br>State Police<br>Tribal Police                                                                                     |
| <b>Fire</b>              | Local Fire Department<br>Rural Fire District<br>Wildland Firefighting Agency                                                                        |
| <b>Other Local Users</b> | Ambulance District<br>Local Emergency Management<br>Public Works Incident Response<br>911 Dispatch<br>Central Oregon Community College              |
| <b>Other State Users</b> | Oregon DPSST<br>Oregon National Guard<br>Oregon Military Department<br>Oregon Emergency Management<br>Oregon Department of Transportation           |
| <b>Federal Users</b>     | Bureau of Land Management<br>Forest Service<br>Department of Homeland Security<br>Federal Emergency Management Agency<br>US Army Corps of Engineers |

Source: Community Service Center – Training Survey, Focus Groups, and Interviews

The primary existing facility deficiencies reported by survey and focus participants are: classroom space, emergency vehicle driving course, and a live-fire training structure. Secondary facility deficiencies include: mock city, hazardous materials training, tactical training room(s) (e.g. mat, defensive tactics, etc.), shooting range (indoor), technical rescue, water rescue, and urban search and rescue (confined space). Table 2.5 presents survey respondent opinions by importance.

**Table 2.5 – Training Facility Importance**

***Importance*** of TRAINING facilities to agency/organization

| Facility Type                        | High | Medium | Low | Total |
|--------------------------------------|------|--------|-----|-------|
| Emergency Vehicle Operations Course  | 22   | 2      | 0   | 24    |
| Closed Road Emergency Vehicle Course | 22   | 3      | 1   | 26    |
| Skid Pad                             | 19   | 1      | 0   | 20    |
| Wildland Fire Training               | 19   | 2      | 3   | 24    |
| Motor Vehicle Accidents              | 19   | 4      | 2   | 25    |
| HazMat                               | 15   | 8      | 1   | 24    |
| Structural Live Fire                 | 14   | 2      | 4   | 20    |
| Water Rescue                         | 11   | 3      | 4   | 18    |
| Technical Rescue                     | 11   | 5      | 3   | 19    |
| Mock City                            | 11   | 4      | 5   | 20    |
| Tactical                             | 9    | 1      | 6   | 16    |
| Urban Search and Rescue              | 9    | 6      | 2   | 17    |
| Aircraft Firefighting Live Fire      | 9    | 5      | 5   | 19    |
| Dispatch Training                    | 9    | 8      | 3   | 20    |
| Collapsed Structure                  | 8    | 4      | 5   | 17    |
| Shooting Range                       | 7    | 2      | 6   | 15    |
| Corrections related props            | 5    | 2      | 5   | 12    |
| Armed Forces Rescue                  | 4    | 3      | 8   | 15    |
| On-site Living Facilities            | 4    | 5      | 9   | 18    |

Source: CSC Public Safety Training Survey

The following subsections summarize primary facility deficiency information collected from survey, focus group participants, and project advisors.

## Classroom Deficiencies

Existing classroom space in the region is insufficient to meet current demand. At the present time, Redmond Fire has the largest dedicated classroom in the region. It can accommodate up to 24 people. Furthermore, while a number of other multi-purpose classroom spaces exist, competition makes scheduling difficult. Identifying classroom space for multiday classes or training is particularly challenging. Lack of centralized scheduling capability further compounds this issue.

By way of example, focus group participants noted that the D110 course, “Intro to Dispatch” currently has 60 candidates identified for training. However, due to classroom space limitations, they can only accommodate 24 students at a time. Thus, more than half of the candidates will go untrained, or will be placed on a growing waiting list.

In another example, focus group participants noted that the Pacific Northwest Wildland Fire Training Center (PNTC) in Redmond hosts 30-40 classes per year.

However, because their classrooms only accommodate 24-30 students, the center does not have the capacity to accommodate existing wildland fire training needs. PNTC regularly turns trainees away due to insufficient classroom space.

To illustrate the number and frequency of trainings in the region, the Central Oregon Fire Instructors Association (COFIA) developed a five-year training schedule through the year 2021. The purpose of the schedule is to ensure that the region meets the ongoing training and certification needs of its firefighting personnel. At the present time, COFIA anticipates that limited classroom availability will limit fulfillment of the training schedule as proposed.

**Table 2.6 – COFIA 2016 – 2021 Five-Year Training Schedule**

| Month | 2016                                                            | 2017                                           | 2018                                                            | 2019                                           | 2020                                                            | 2021                                           |
|-------|-----------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------|
| Jan   | *FOI Academy                                                    | *FOII Academy                                  | *FOI Academy                                                    | *FOII Academy                                  | *FOI Academy                                                    | *FOII Academy                                  |
| Feb   | *Instructor I<br>*HazMat OSIC                                   | *Instructor I<br>*HazMat Safety Officer        | *Instructor I<br>*HazMat OSIC                                   | *Instructor I<br>*HazMat Safety Officer        | *Instructor I<br>*HazMat OSIC                                   | *Instructor I<br>*HazMat Safety Officer        |
| Mar   | S-215                                                           | S-215                                          | S-215                                                           | S-215                                          | S-215                                                           | S-215                                          |
| Apr   | Wildland Academy                                                | Wildland Academy                               | Wildland Academy                                                | Wildland Academy                               | Wildland Academy                                                | Wildland Academy                               |
| May   | *S-230 *S-231                                                   | *Water Supply Ops                              | *S-230 *S-231                                                   | *Water Supply Ops                              | *S-230 *S-231                                                   | *Water Supply Ops                              |
| Jun   | *Instructor II<br>*FFI Academy                                  | *Instructor III<br>*FFI Academy                | *Instructor II<br>*FFI Academy                                  | *Instructor III<br>*FFI Academy                | *Instructor II<br>*FFI Academy                                  | *Instructor III<br>*FFI Academy                |
| Jul   | *Pump Ops Academy                                               | *Pump Ops Academy                              | *Pump Ops Academy                                               | *Pump Ops Academy                              | *Pump Ops Academy                                               | *Pump Ops Academy                              |
| Aug   | No classes scheduled                                            |                                                |                                                                 |                                                |                                                                 |                                                |
| Sep   | *FFII Academy<br>*Incident Safety Officer                       | *FFII Academy<br>*Incident Safety Officer      | *FFII Academy<br>*Incident Safety Officer                       | *FFII Academy<br>*Incident Safety Officer      | *FFII Academy<br>*Incident Safety Officer                       | *FFII Academy<br>*Incident Safety Officer      |
| Oct   | *Building Construction (Ordinary)<br>*Vehicle Extrication Class | *Hybrid Vehicles<br>*Vehicle Extrication Class | *Building Construction (Ordinary)<br>*Vehicle Extrication Class | *Hybrid Vehicles<br>*Vehicle Extrication Class | *Building Construction (Ordinary)<br>*Vehicle Extrication Class | *Hybrid Vehicles<br>*Vehicle Extrication Class |
| Nov   | *Building Construction (Resistive)                              | *Fire Investigation                            | *Building Construction (Resistive)                              | *Fire Investigation                            | *Building Construction (Resistive)                              | *Fire Investigation                            |
| Dec   | No classes scheduled                                            |                                                |                                                                 |                                                |                                                                 |                                                |

Source: Central Oregon Fire Instructors Association

Other regular classroom-based trainings identified through the survey or focus groups include:

- Fire Recruit Academy: Serves 24-recruits each summer (June/July).
- Community Fire Volunteer Recruit program: Would operate nights and weekends providing 240 hours of education and training to volunteer fire recruits.
- Bend Police Department: Holds more than 300 training events per year (four to five times per week).
- Oregon Department of Public Safety Standards and Training: Provides a range of classroom-based trainings on a recurring basis.
- Central Oregon Community College: Associate Degree level classes.

In summary, the region needs additional classroom space. Lack of large, flexible classrooms currently constrains the region's ability to train public safety personnel. This situation will only get worse as the region grows and the number of public safety personnel increases.

### Emergency Vehicle Operation Course Deficiencies

Law enforcement and fire personnel identified emergency vehicle operations as one of the largest priority training needs. However, the Central Oregon region does not currently have any dedicated emergency vehicle operations courses (EVOC) (i.e. drive tracks or skid pads). Thus, public safety agencies conduct EVOC training in an ad hoc manner. For example, they conduct EVOC training at vacant snow parks during the summer months or at parking lots. On one occasion, the Redmond Airport granted access to one of the airport runways when it was closed for repairs. Such opportunities are few and far between. Furthermore, these opportunities primarily offer lower-speed skid or cone-course training. They do not provide regular access to a closed vehicle course for high-speed vehicle operations training.

Focus group participants report that most agencies rely on parking lots, snow parks, schools, the fairgrounds, or other facilities (e.g. Redmond Airport runway) to conduct training when they are available. Due to the limited number and availability of these facilities, however, competition among public safety agencies is high. Furthermore, because the facilities being used are not designed for public safety driver training, trainee safety and damage to the facilities are potential concerns. Survey respondents, focus group participants, and project advisors all report that existing facility options in the region are neither desirable nor sufficient to meet existing EVOC training demand. The need for EVOC training increases in a region like Central Oregon where emergency responders often drive on dirt, gravel, ice, and snow.

In addition to public safety personnel, EVOC facilities can support a wide range of other vehicle training needs. From government employees to members of the public, access to driver training opportunities can benefit the entire region. Notably, Deschutes County offers driver training courses, where members of the public can pay to be trained in on vehicle handling in a skid car.

### Live Fire Structure Deficiencies

"Safety and performance training for firefighters must cover several on-the-job situations. This requires building structures that present realistic simulations of what firefighters will face as they respond to a call."<sup>1</sup> At the present time, Central Oregon has no dedicated live fire training structures to train in. Consequently, many entry level volunteer firefighters in the region have no experience combating Class A (solid fuel) combustibles in a structure with live fire. Career firefighters also benefit from regular training under live fire conditions. Class A and Class B (gas fuel)

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<sup>1</sup> Pruden, G. E. and Gaggin, A. (April 01, 2013) *Optimizing the Use of Live Fire Training Structures*, Fire Engineering. Retrieved from <http://www.fireengineering.com/articles/print/volume-166/issue-4/departments/technology-today/optimizing-the-use-of-live-fire-training-structures.html>.

structures “are used to teach and evaluate firefighting techniques and on-the-job safety.”<sup>2</sup>

## Key Findings

Central Oregon is a rapidly growing region. **Public safety agencies throughout Central Oregon conduct numerous required and voluntary trainings throughout the year.** Training is a critical component of public safety service delivery. Additionally, public safety personnel need updated training as public safety standards, needs, equipment, and trends change.

Agencies in Central Oregon largely conduct training on an agency by agency basis. Due to the lack of regional training facilities, opportunities to conduct joint trainings and share resources are limited. While agencies make a concerted effort to collaborate on training activities, **the lack of dedicated training facilities presents a significant barrier to regional coordination.** This, in turn, (1) limits training efficiency opportunities, (2) limits the types of realistic training offerings, (3) increases cost because personnel need to travel out of the region for training, or (4) results in delays or challenges in accessing training in a timely manner.

- **Insufficient quantity of adequately sized classroom space to meet existing training needs.** Agencies compete for the limited number of available classrooms. Many classes have waiting lists because available classrooms cannot accommodate the number of registered students.
- **Lack of Emergency Vehicle Operations Course.** There is no dedicated place for public safety personnel to conduct driver training. Agencies rely on irregular access to regional facilities (such as parking lots or snow parks) that are not designed for emergency vehicle operations training.
- **Lack of live-fire training tower/building.** The lack of a live fire training facility means that many volunteer fire personnel have no experience in a live fire scenario. Career fire personnel cannot practice live fire situations in a controlled, training environment.
- **Lack of indoor shooting range.** Law enforcement personnel have regular firearms training requirements across a range of environmental conditions. Current facilities cannot efficiently accommodate law enforcements firearms training needs due to weather, time of day (lighting), or shift scheduling constraints.
- **Lack of other tactical training resources.** The Central Oregon region lacks other public safety training facilities including: Mock City, hazardous materials training, tactical training room(s) (e.g. mat, defensive tactics, etc.), shooting range (indoor), technical rescue, water rescue, and urban search and rescue (confined space), among others.

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<sup>2</sup> Ibid.

## Chapter 3: RESTCC Components

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This chapter outlines the standard components of a regional emergency services training and coordination center (RESTCC). The numbers, type, size, selection, and organization of these components can vary significantly based on regional needs and available resources. The components described here do not represent a recommendation on our part; rather they are intended to be illustrative of what programming and facilities are common in regional training and coordination centers.

### Central Oregon Context

A Central Oregon RESTCC could serve multiple roles. The first, and most pressing, role would be as a training facility for public safety and partner agencies across the Central Oregon region. These trainings would include trainings required to be held every year, along with specialty training on specific scenarios such as wildland fire, swift water rescue, and urban search and rescue. This facility would provide state of the art resources to Central Oregon emergency service agencies. The facility could also benefit public safety personnel throughout Eastern Oregon, the State, the Pacific Northwest, and beyond.

A secondary role of a RESTCC would be to function as a regional emergency operations center (REOC). Central Oregon is vulnerable to large, regional disaster events – wildfires, winter storms, earthquakes, droughts, etc. These events require emergency coordination across multiple local, state, and federal response and recovery agencies. At present, the region has no facilities designed for regional incident management. As a result, emergency managers have to improvise. In practice, they set up regional operations “centers” in an ad hoc manner on a disaster by disaster basis. They can be expensive to set up and take down. Additionally, the lack of dedicated facilities, resources, technology, and space result in corner cutting and numerous inefficiencies. Finally, because Oregon only has one statewide Emergency Coordination Center, located in Salem, the state lacks state-level incident coordination redundancy.

Another role a RESTCC could serve is as a backup 911 center for the region. Deschutes county and its partners are actively seeking to develop redundant 911 capabilities. In addition to providing scenario-based emergency communications training, inclusion of functional backup 911 capability in the RESTCC could provide an additional source of ongoing revenue.

Developing a RESTCC in Redmond is desirable for a number of reasons. First, Central Oregon is one of the most rapidly growing regions in the state of Oregon. A RESTCC would provide additional training capacity to public safety agency programs with documented training needs. Second, Redmond is the region’s second largest city and is centrally located. It hosts the regional airport and is the intersection for major north/south and east/west highways. This means travel time to and from the RESTCC for trainings or in the event of a large-scale hazard response would be reasonable for most public safety partners. Third, Redmond currently hosts the Central Oregon Interagency Dispatch Center and USFS Air Center (Air Tanker base,



training center, interagency support cache, smokejumper base, and interagency Hotshot crew). Additionally, Central Oregon Community College maintains a growing satellite campus in Redmond. The COCC campus is located next to the airport and across the street from a large underutilized parcel owned by the City of Redmond. A RESTCC would fit into this context.

**Figure 2.1 - Chemeketa Brooks Regional Training Facility Site Map**



Source: CSC Team Photo

## Potential Facilities

To maximize regional utility and use, RESTCC facilities need to serve a range of general and specific public safety user needs. To generate a list of potential RESTCC facilities, the CSC first researched other regional training centers across the North America. Then, we surveyed and conducted focus groups with potential users in Central Oregon. Finally, we interviewed facility directors and conducted site tours of the State Department of Public Safety Standards and Training and Chemeketa Community College - Brooks Regional Training Center, both in Salem.

The following list summarizes potential RESTCC facilities by type.

### Administration

A regional training center of the size and scope contemplated will require administrative services. These services will range from facility oversight and management to technical support, facility scheduling, and maintenance. Administration facilities will need to accommodate administrative offices, meeting room(s), shipping and receiving, information technology support, copy and mail services, reception area(s), break room(s), restrooms, and storage. Additional administrative needs could include multi-purpose rooms, an auditorium or large meeting space, security, equipment display area, library, and equipment checkout. Ancillary uses include parking, landscaping, and mechanical equipment.

**Figure 2.2 – Oregon DPSST Administrative Building**



Source: Oregon.gov

Some regional facilities have standalone administrative buildings. Others co-locate administration functions with other training center uses such as classrooms, skills training, and support services. The size, scale, and design of administrative facilities will depend on the size and administrative needs of the RESTCC.

## Academic

Academic needs are generally served through dedicated classroom, lab, and meeting/study facilities. For example, the Brooks Regional Training Center has a three-story academic building dedicated to serving its three public safety programs: Criminal Justice, Fire Protection, and Emergency Medical Technician. Each floor of the Brooks academic facility serves one of the three program areas. Depending on the type of academic services being offered, some or all of the skills, scenario, and tactical training needs discussed below could be collocated in an academic building.

**Figure 2.3 - Chemeketa Brooks Regional Training Center Classroom Building**



Source: Studio3Architecture

## Skills Training

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Skills training encompasses a wide range of potential training needs. Examples include mat rooms for defensive tactics training, jail-cell simulation rooms for prisoner extraction training, or scenario labs for investigative skills training. Skills training facilities differ significantly across the case study centers we reviewed. As noted above, some skills training facilities are best located in a standalone building. Others can be collocated within other buildings, such as classroom, tactical, or scenario training structures. As an example, DPSST and Chemeketa Brooks both include a mix of dedicated skills buildings and collocated skills training rooms.

**Figure 2.4 - Gainesville Police Mat Skills Training Room**



Source: Gilbane Building Company (Gainesville Police Headquarters and Training Facility)

## Scenario Training

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Scenario training facilities tend to consist of mock building/mock city structures or specific training props. The purpose of scenario training is to present realistic situations that public safety personnel are likely to encounter. Mock cities can include simulated residences, businesses, and public spaces (bust stops, park benches, etc.). Scenario training can also include specific emergency types such as active shooter incidents, train derailments, vehicle extractions, or plane crashes,



## Tactical Training

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Tactical training facilities include live-fire buildings, combustible burn rooms, technical rescue structures, confined space rescue, water rescue, hazardous materials, and ventilation props.

## Firearms Training

Law enforcement officers require regular access to firearms training in a variety of environmental settings. These include a range of light, temperature, and climate conditions. Desired attributes of a firearms training facility identified by project advisors and law enforcement focus group participants include:

- Ability to control for time of day.
- Ability to shoot year round, regardless of weather conditions.
- Ability to fire handgun and rifle.
- 24-hour access to accommodate on-shift training

Project advisors strongly encourage designing the facility to accommodate lead free ammunition. This alleviates the need for ongoing environmental remediation of spent ammunition and is generally healthier for shooting range users.

**Figure 2.5 – Victor Valley College Indoor Tactical Shooting Range**



Source: Highland Partnership

## Emergency Vehicle Operations Course

EVOC facilities generally consist of two components: a track or training roadway and a large “skills” or “skid” pad. General driver safety training utilizes equipment from each agency. Dedicated skid cars and trucks are available through a number of agencies in the region as well. Skid car and skid truck training is critical for law enforcement, urban fire, wildland fire, and emergency medical services personnel. According to a 2012 DPSST newsletter, 16 Oregon firefighters were killed in vehicle crashes while on duty between 2000 and 2012.



**Figure 2.6 – Oregon DPSST EVOC**



Source: Google Maps

### **Multi-Agency Emergency Coordination Center**

Central Oregon already maintains a plan for multi-agency emergency operations and incident coordination. The mission of the MAC is to oversee the, “. . . cost effective and timely coordination of local emergency response for wildfire suppression and other incidents. This is accomplished through planning, communications, situations monitoring, need projection, and expediting resource orders between the various agencies.”<sup>3</sup> Importantly, the only designated location for the MAC is the Deschutes County Sheriff’s Office. However, as illustrated by the 2017 eclipse event and subsequent wildfire incidents, that location is insufficient for larger-scale events. In 2017, Deschutes County and its partners established the MAC at the Deschutes County Fairgrounds. Ideally, a Central Oregon MAC would be purpose built as a flexible, scalable, and secure facility capable of coordinating large-scale multi-agency disaster events.

### **Backup 911 Center**

Redundant emergency communications is critical in times of emergency or disaster. Currently, 911 and emergency communication services are coordinated out of a single location at the Deschutes County Sheriff’s Office. The region currently lacks backup (redundant) 911 and emergency communication capability. Furthermore, the region has limited dedicated 911 training facilities or ability to combine 911 training with live fire, law-enforcement, EMT, and multi-agency incident coordination training scenarios. Notably, simulated multi-agency emergency communication exercises provided tangible benefits during the 2017 eclipse and subsequent wildfire events. Recent challenges with upgrades to the Deschutes

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<sup>3</sup> Draft Central Oregon Interagency Operations Plan for Multi-Agency Co-Ordination.

County 911 system demonstrate the need for additional investments in redundant emergency communication capabilities.

## Site Requirements

Siting preferences for public safety training facilities can vary depending on the size, scale, and focus of the training facilities and programs being offered. Regional centers that feature EVOC facilities require a large footprint due to nature of driving courses. By comparison, a live fire training facility requires a much smaller footprint. Based on the facility deficiencies and training needs identified by survey respondents, focus group participants, and local public safety training managers, we've focused our examination of siting requirements on the needs larger-scale, multi-use public safety campuses.

### Size

As a first rule, the project advisors we spoke with strongly encourage selecting as large a site as possible from the outset. Prevailing opinion suggests that the more land the region can acquire now, the better. There are two primary reasons for this approach: (1) compatibility with adjacent uses, and (2) the likely need to accommodate facility growth and expansion over time.

- **Regarding compatibility:** Any public safety training campus that includes skills, scenario, or tactical components, will likely generate off-site impacts. These impacts include, but are not limited to, noise, odors, light, and traffic. Larger sites can more easily accommodate physical buffers (such as visual screening or distance-separation) and campus design approaches that seek to minimize land-use conflicts and off-site compatibility concerns. Furthermore, in a growing region like Central Oregon, larger sites can help mitigate the risks associated with future developments that may encroach on the RESTCC once established. We heard from multiple project stakeholders and advisors during our research that new adjacent or nearby developments have resulted in significant compatibility management problems for other public safety training campuses in Oregon.
- **Regarding future training needs and growth:** the simple fact is that larger sites can accommodate facility expansion over time. In a growing region like Central Oregon, public safety training needs in 2070 may exceed current projections. Prioritizing sites that can accommodate future growth is therefore a prudent approach. During the course of our research, we heard several anecdotes about regional training facilities that wanted to expand, but couldn't because new developments adjacent to the facility eliminated all reasonable expansion options. In the case of Central Oregon, regional growth will continue. Thus, land and development constraints could create undesirable or expensive expansion or relocation needs in the future. These issues are best considered and mitigated through adequate land acquisition from the start.

In summary, based on discussions with other regional training facility operators, CSC recommends that the region consider and evaluate sites of at least 100 acres and as much as 300 acres. Note that this could be accommodated through an assemblage of multiple, non-contiguous parcels. In short, the more room the better. Long-term, the facility will need to reduce use conflicts, accommodate land

intensive uses like an EVOC, and facilitate future expansion. Larger parcels will also help mitigate the compatibility issues discussed above.

## Location

Locational attributes include proximity to infrastructure and compatibility with surrounding uses. Sites located near existing infrastructure are desirable from a development cost perspective. Regional training facilities also produce significant levels of potential nuisance: noise, light, smell, traffic, etc. Consideration of existing and future surrounding uses is therefore a critical siting criterion.

Our location assessment focusses on sites within or near the City of Redmond. Project partners desire a site in Redmond due to (1) its central location in the region and (2) proximity to the Redmond airfield. The Redmond Airport is identified by both FEMA and the state as a likely hub for statewide emergency response following a Cascadia earthquake event. Locating the RESTCC nearby would add strategic facility and staging capacity to the area.

A site located near existing urban services is also desirable. A RESTCC will require access to transportation, water, sewer, electricity, and communications infrastructure. Sites with ready access to available infrastructure will reduce costs associated with infrastructure extension. Importantly, this does not preclude the consideration of sites outside an established urban growth boundary (UGB). The Chemeketa Brooks campus, for example, is located in an unincorporated community on land zoned community industrial. However, the need for urban services remains a critical consideration. If sites outside an existing UGB are considered, we strongly recommend discussions occur with Deschutes County Community Development staff as well as the regional field representative for the Department of Land Conservation and Development. The Statewide land use program places stringent restrictions on certain uses outside UGBs.

Notably, several potential sites exist near the Redmond airport that potentially meet these locational requirements. Identified parcels include a mix of primarily public owners (city, county, state). Some parcels are located within the Redmond City Limit and UGB while others are located outside. Ongoing ownership, land development, infrastructure relocation, and UGB expansion discussions implicate virtually all of the identified sites. Site consideration and future negotiations will likely require considerable assessment, discussion, and negotiation.

Potential sites include:

- Portions of a roughly 2,000-acre Deschutes County owned parcel located north of Highway 126 East (Assessor's Map 15-13-00-00, Tax Lot 00103). Approximately 215 acres of this parcel is located within the Redmond City Limit. Note, the county is currently negotiating 140 acres land swap with Oregon Department of State Lands for a parcel south of the Deschutes County Fairgrounds. This would leave roughly 80-90 acres of available County Owned Land within the Redmond City Limit. County officials note that contamination exists on the site, with estimates of between \$1 and \$2 million to clean it up. There may also be state historic resource regulations to address.

- A roughly 200-acre Central Oregon Irrigation District owned parcel, also located north of Highway 126 East (Assessor's Map 15-13-15-00, Tax Lots 00101 and 00102).
- A roughly 189-acre City of Redmond owned parcel (the old Redmond golf course) located between Highway 126 East and Veterans Way (Assessor's Map 15-13-15-00, Tax Lot 00300). Note that the Redmond Airport intends to retain control of roughly 45 acres of the westerly portion of this site (roughly east of SE 10<sup>th</sup> Street) for future hanger expansion. In addition, there are plans to re-align the intersection of SE and SW Veterans Way and Airport Road to address FAA runway compliance issues. FAA rules preclude the sale of the parcel. However, they can lease it for \$0.19 per square foot (FAA requires leases to be at fair market value). FAA is involved with development decisions and there could be significant "process" considerations.
- Other large (in the hundreds to thousands of acre) government owned parcels exist south of the Redmond Airport near the Deschutes County Fairgrounds. Owners include Deschutes County, Bureau of Land Management, and Department of State Lands. Most of these parcels are located outside the existing Redmond UGB. They would also require extension of urban services.
- Smaller, privately owned parcels also exist in the area.

**CSC strongly recommends near-term discussions between Deschutes County, COCC, the City of Redmond, the Redmond Airport, and other key stakeholders to assess the desirability/ feasibility of a two-site approach: (1) Building intensive uses on existing site proximate to the existing COCC campus, and (2) land intensive uses on nearby City of Redmond or Deschutes County controlled property. Such an approach could facilitate phased development and provide additional short, medium, and long-term partnership options.**

## Key Findings

Regional public safety training facilities commonly include a wide range of law enforcement, fire, and emergency medical training facilities. Many disaster events in the region require multi-agency, multi-jurisdictional emergency management coordination. Preparation for and response to the 2017 total solar eclipse and subsequent wildfire emergency confirmed this fact. However, the region currently lacks a dedicated Multi-Agency Emergency Coordination Center. When regional disaster events occur, local partners have to reestablish a coordination center on an event-by-event basis. This inefficient approach diverts emergency manager's attention away from incident response at critical time.

The numbers, type, size, selection, and organization of these components varies significantly based on regional needs and available resources.

- **A Central Oregon RESTCC could include a wide range of training facilities, including:**
  - o Administration
  - o Classroom
  - o Skills



- o Technical
  - o Scenario
  - o Firearms
  - o EVOC
- **A Central Oregon RESTCC could provide enhanced regional emergency operations capability.** Such a facility could serve to supplement existing state Emergency Coordination Center (ECC) capability, providing needed state-level ECC redundancy in the state. Redundant (backup) 911 and emergency communication facilities would serve to further link, leverage, and align training and emergency response capabilities in the region.
- **A Central Oregon RESTCC could provide redundant 911 emergency dispatch capability.** The region currently lacks backup (redundant) 911 and emergency communication capability. Furthermore, the region has limited dedicated 911 training facilities or ability to combine 911 training with live fire, law-enforcement, EMT, and multi-agency incident coordination training scenarios. Notably, simulated multi-agency emergency communication exercises provided tangible benefits during the 2017 eclipse and subsequent wildfire events.
- **Redmond is a desirable location for a Central Oregon RESTCC.** Redmond is the region's second largest city. Its central location and proximity to primary north/south and east/west highways make it accessible from throughout the region. The Redmond Airport, Central Oregon Interagency Dispatch Center, USFS Air Center (Air Tanker base, training center, interagency support cache, smokejumper base, and interagency Hotshot crew), and Central Oregon Community College Redmond Campus are all located in Redmond. This makes it uniquely positioned to support a RESTCC
- **The facility, as conceived, has unique site requirements.** RESTCC siting will require careful consideration of compatibility with surrounding uses and long-term facility growth and expansion needs.
- **CSC strongly recommends near-term discussions between Deschutes County, COCC, the City of Redmond, the Redmond Airport, and other key stakeholders to assess the desirability/ feasibility of a two-site approach: (1) Building intensive uses on existing site proximate to the existing COCC campus, and (2) land intensive uses on nearby City of Redmond or Deschutes County controlled property.** Such an approach could facilitate phased development and provide additional short, medium, and long-term partnership options.

# Chapter 4: Central Oregon RESTCC Concept

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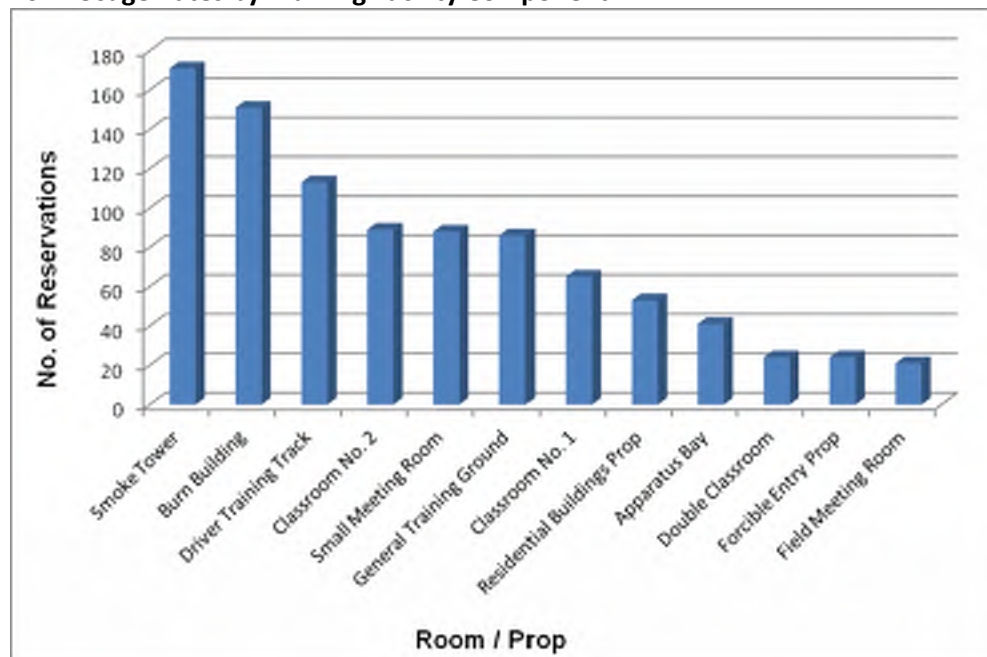
This chapter outlines a preliminary concept for a regional emergency services training and coordination center (RESTCC). The concept builds from discussions CSC had with emergency management professionals in the region. The concept also reflects the structure of similar facilities studied in Oregon and throughout the U.S. This concept is preliminary and has not been evaluated by project partners. As discussed in the previous chapter, the combination of programming and facilities is flexible with many different possible configurations. This study uses the preliminary concept as a baseline to evaluate project viability and establish next steps.

## Use

The value of a Central Oregon RESTCC cannot be overstated. Across survey respondents, focus group participants, project advisors, training providers, and public safety professionals, there is **strong agreement that public safety agencies in Central Oregon will use a RESTCC if constructed**. Over 70% of survey respondents indicated that they would use a regional training facility with another 22% indicated that they would depending on the type of training offered. Similarly, CSC research shows that support for a regional emergency operations center is also high. Of the survey respondents who answered a question about the value of a regional emergency operations center to their organization, 95% indicated it would be valuable or very valuable.

To better understand facility use, CSC first started by reviewing use trends in other regional training facilities. The Waterloo Region Emergency Services Training and Research Complex (WRESTRC) offers a particularly salient example. The Waterloo region is similar to Central Oregon in terms of population and geographic scope. It is one of the fastest growing regions in Southwestern Ontario, with a current regional population of about 500,000. The 2011 WRESTRC Annual Report provides usage characteristics by facility component as well as by user. Figure 4.1 shows regular usage across a wide range of facility components.

**Figure 4.1 - Waterloo Region Emergency Services Training and Research Complex, 2011 Usage Rates by Training Facility Component**



Source: Waterloo Region Emergency Services Training and Research Complex 2011 Annual Report

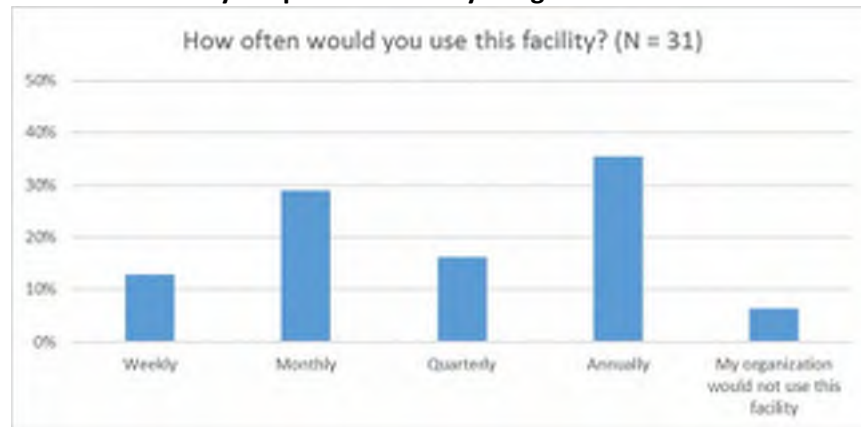
Table 4.1 shows facility utilization rates across a range of partner entities. The table shows that law enforcement, fire, and other users account for nearly 4,000 hours of use in a single year. These numbers suggest a high level of regular usage by regional partners.

**Table 4.1 – Waterloo RESTRC, 2011 Partner Agency Usage Rates by # of Total Hours and Individuals Trained**

| Organization               | Hours | Count |
|----------------------------|-------|-------|
| Waterloo Regional Police   | 961   | 153   |
| Waterloo Fire Rescue       | 780   | 178   |
| Other Regional Departments | 596   | 125   |
| Conestoga College          | 537   | 73    |
| Kitchener Fire Department  | 533   | 126   |
| University of Waterloo     | 325   | 57    |
| External Fire Departments  | 66    | 11    |
| Other External Users       | 59    | 9     |
| Cambridge Fire Department  | 45    | 6     |
| Volunteer Fire Departments | 38    | 9     |
| RoW - EMS                  | 31    | 4     |

Source: Waterloo Region Emergency Services Training and Research Complex 2011 Annual Report

Over 40% of respondents to the Central Oregon Public Safety Training Survey indicate that they would use a RESTCC on at least a monthly basis. Another 16% would use the facility at least quarterly. It is important to note that the survey sample was small and law enforcement stakeholders are significantly under-represented. Subsequent information collected from focus group participants suggests that in practice, usage rates could be significantly higher than those reported by survey respondents. Furthermore, neither the survey nor focus groups include potential usage by COCC students under a shared use scenario.

**Table 4.2 – Survey Respondent Facility Usage Estimates**

Source: CSC Public Safety Training Survey

## Programing

Desired programing corresponds closely with the facility deficiencies described in Chapter 2. Summarizing results across survey responses, focus group feedback, and conversations with project advisors and key stakeholders, public safety professionals desire EVOC training, classroom instruction, and scenario based tactical training (e.g. live-fire, mock-city, technical rescue, etc.) opportunities. For example, when asked about the types of training they would be interested in participating in, survey respondents selected EVOC training as their number one choice. Focus group participants stressed the urgent need for more classroom space and available courses in the region. Both survey respondents and participants in the fire focus group highlighted the need for live-fire training. Law enforcement personnel emphasized the need for a range of scenario-based tactical training needs.

## Facilities

Table 4.2 below shows survey respondent interest in physical amenities. As discussed elsewhere in this report, these survey responses highlight and confirm the need for and interest in additional classroom capacity for public safety training in Central Oregon.

**Table 4.2 – Survey Respondent Interest in Physical Amenities**

| Type                              | High Interest | Moderate Interest | Low Interest | No Interest | Total |
|-----------------------------------|---------------|-------------------|--------------|-------------|-------|
| Small Classrooms (20-40 capacity) | 17            | 11                | 3            | 0           | 31    |
| Meeting Rooms (10-20 capacity)    | 11            | 12                | 6            | 0           | 29    |
| Large Classroom (100+ capacity)   | 9             | 8                 | 8            | 3           | 28    |
| Vehicle storage facilities        | 6             | 8                 | 5            | 9           | 28    |
| Computer Lab                      | 4             | 6                 | 12           | 5           | 27    |
| Equipment storage facilities      | 3             | 13                | 5            | 6           | 27    |
| Dining hall/Canteen               | 2             | 10                | 6            | 9           | 27    |
| Gym                               | 2             | 9                 | 6            | 10          | 27    |
| Administrative offices            | 1             | 8                 | 11           | 6           | 26    |
| Research Laboratory               | 1             | 4                 | 9            | 12          | 26    |
| Recreation room                   | 1             | 7                 | 7            | 12          | 27    |

Source: CSC Public Safety Training Survey

The relative importance of training facilities corresponds with the desired programming and physical amenities discussed above. Table 4.3 shows survey respondent opinions on the importance of various training facilities. Notably, participants in the law enforcement focus group indicated that the survey results appear to under-report the importance law enforcement training facilities, including shooting range, tactical, and mock-city facilities. As noted elsewhere, law enforcement personnel are under-represented in the survey sample.

**Table 4.3 – Importance of Training Facilities to Agency/Organization**

| Facility Type                        | High | Medium | Low | Total |
|--------------------------------------|------|--------|-----|-------|
| Emergency Vehicle Operations Course  | 22   | 2      | 0   | 24    |
| Closed Road Emergency Vehicle Course | 22   | 3      | 1   | 26    |
| Skid Pad                             | 19   | 1      | 0   | 20    |
| Wildland Fire Training               | 19   | 2      | 3   | 24    |
| Motor Vehicle Accidents              | 19   | 4      | 2   | 25    |
| HazMat                               | 15   | 8      | 1   | 24    |
| Structural Live Fire                 | 14   | 2      | 4   | 20    |
| Water Rescue                         | 11   | 3      | 4   | 18    |
| Technical Rescue                     | 11   | 5      | 3   | 19    |
| Mock City                            | 11   | 4      | 5   | 20    |
| Tactical                             | 9    | 1      | 6   | 16    |
| Urban Search and Rescue              | 9    | 6      | 2   | 17    |
| Aircraft Firefighting Live Fire      | 9    | 5      | 5   | 19    |
| Dispatch Training                    | 9    | 8      | 3   | 20    |
| Collapsed Structure                  | 8    | 4      | 5   | 17    |
| Shooting Range                       | 7    | 2      | 6   | 15    |
| Corrections related props            | 5    | 2      | 5   | 12    |
| Armed Forces Rescue                  | 4    | 3      | 8   | 15    |
| On-site Living Facilities            | 4    | 5      | 9   | 18    |

Source: CSC Public Safety Training Survey

## Reference Facilities

On the recommendation of our project advisors, CSC selected two public safety training facilities in Oregon to serve as reference facilities for this assessment: Oregon Department of Public Safety Standards and Training (DPSST) and the Chemeketa Community College - Brooks Regional Training Facility (Brooks). CSC faculty visited both facilities and had an opportunity to interview the facility directors. Both DPSST and Brooks serve as good reference facilities for several reasons. First, both facilities were constructed within the past decade. This allows for analysis of recent development and construction costs. The facilities also offer a diverse set of comparable facilities and programming. DPSST and Brooks train a range of public safety personnel across a range of class, scenario, and tactical training platforms. These facilities also offer the opportunity to assess the delivery of public safety training at two significantly different scales. DPSST serves the entire state. The 236-acre campus offers state of the art programming and training, serves 35,000 constituents across Oregon, and offers on-site lodging. Conversely, Brooks has a regional footprint. The roughly 17-acre campus offers regional public safety education and training services using a unique non-profit/for-profit model.

## Department of Public Safety Standards and Training

Oregon Department of Public Safety Standards and Training (DPSST) opened its signature \$77 million Public Safety Academy in 2009. The DPSST academy serves the training needs for police, fire, corrections, parole and probation, and telecommunications personnel. The academy also licenses private security providers and private investigators in Oregon.

DPSST's 236-acre campus includes the following features:

- Administration building and auditorium
- Academy training facility with eight 40-person classrooms
- 350-student dormitory building
- On-site kitchen and dining hall
- Seven-acre "City Streets" mock city and scenario training building
- 1.6-mile EVOC and 300'x500' cone course
- Three 25-lane tactical firearms ranges; one 50-yard and two 25-yard
- Survival skills building
- Tactical 4,000 square-foot live-fire training tower

DPSST employs roughly 140 full-time employees and approximately 300 part-time employees. The 2015 – 2017 "service level" budget was just under \$47 million dollars. That includes roughly \$9.5 million in general fund debt service and \$37 million in operating funds. DPSST also receives a small amount of federal funding.

As noted above, DPSST's recently constructed public safety academy cost roughly \$77 million to construct.

## Chemeketa Brooks

Chemeketa Community College opened its 30,000 square foot classroom building in 2011. The building anchors the roughly 17-acre Brooks Regional Training Center campus. Brooks Regional Training Center features three public safety degree programs:

- Criminal Justice
- Fire Protection
- EMT

In addition, local police, fire and EMS agencies regularly utilize the Brooks Regional Training Center for training. The Brooks campus includes both indoor and outdoor facilities suitable for a wide range of law enforcement and fire personnel training, including:

- 8,000 square foot indoor demonstration arena with a two-story sim city
- Four story burn building and tower
- Separate stand-alone technical rescue tower
- Low-speed driving (cone) course
- Working fire station with associated training bays
- Confined rescue facility

Brooks employs 128 employees. There are seven full-time administrative staff, including a campus dean, associate dean, and five support staff. Brooks employs

the remaining staff as course/training instructors and facilities managers. The majority of these positions are employed part time.

Chemeketa Community College operates the Brooks campus. This ensures baseline funding through college course and degree programs. The facility benefits from additional funding and in-kind support through its training partnerships with regional public safety agencies. Additionally, Brooks partners with other educational organizations to supplement course and program offerings. For example, they have partnership with George Fox University to run a counseling degree program.

One unique aspect of the Brooks budget model is that many of the support services are provided via contract with other Chemeketa programs. For example, the dining service is run by the Chemeketa catering program. This provides needed services to the Brooks' campus, and real-life service-learning opportunities for Chemeketa's students. In addition, Brooks makes the facility available to outside entities, private sector public safety trainers, non-profits, and others for a fee. Brooks maintains rental and usage rates both non-profit and for-profit users.

## Estimated Costs

CSC contacted a number of regional training facilities throughout Oregon and across North America. While we successfully collected information about training facilities and programs, we did not receive detailed information about capital construction budgets, operational budgets, or revenues. The following information represents supplemental data collection available primarily through internet research. On the capital construction side, DPSST generously provided detailed construction cost estimates from their 2010 feasibility assessment.

Table 4.4 compares a range of public safety training centers. The information includes type of facility, building size (if available), site acreage, construction costs, and funding sources. CSC supplemented information available through Interact Business Group to create the table. Full credit goes to Interact Business Group for compiling the initial list of facilities.



**Table 4.4 - Public Safety Training Center Capital Budget Comparisons**

| Jurisdiction    | Type                                                                                                                                                                                                                                                             | Building Size (s.f.) | Site Acreage | Cost (millions) | Funding Sources                 |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------|-----------------|---------------------------------|
| Richardson, TX  | City Fire Training Center                                                                                                                                                                                                                                        | 11,500               | 23           | \$10.3          | Bonds, federal grants, other    |
| Facility notes: | Serves as backup emergency operations and dispatch center.                                                                                                                                                                                                       |                      |              |                 |                                 |
| San Diego, CA   | Fire and EMT Training Center                                                                                                                                                                                                                                     | 23,000               | unknown      | \$16.5          | Community college bond measures |
| Facility notes: | Lab support space, equipment staging areas, classrooms, administrative office space, an outdoor training area and a drill tower.                                                                                                                                 |                      |              |                 |                                 |
| Loveland, CO    | Police Training Facility                                                                                                                                                                                                                                         | TBD                  | 40           | \$18.0          | Loveland CIP                    |
| Facility notes: | Indoor shooting range, driving platform (EVOC), K-9 training center, storage facility and classroom space.                                                                                                                                                       |                      |              |                 |                                 |
| Fort Worth, TX  | Police and Fire Training Center                                                                                                                                                                                                                                  | 500,000              | 76           | \$97.4          | Grants, building sale           |
| Facility notes: | Classrooms and offices, a vehicle course, a burn building and an indoor gun range.                                                                                                                                                                               |                      |              |                 |                                 |
| Meridian, ID    | Police and Fire Training Center                                                                                                                                                                                                                                  | unknown              | unknown      | \$5.1           | CIP                             |
| Facility notes: | Shooting range, training classroom space and a "scenario village"                                                                                                                                                                                                |                      |              |                 |                                 |
| Brighton, CO    | Regional Police Training Center                                                                                                                                                                                                                                  | 10,000               | 399          | \$10.5          |                                 |
| Facility notes: | Classroom space as well as two 50-yard tactical shooting ranges — one with 21 lanes and one with 17 lanes                                                                                                                                                        |                      |              |                 |                                 |
| Washington, DC  | Tactical Training Village                                                                                                                                                                                                                                        | unknown              | unknown      | \$6.0           |                                 |
| Facility notes: | Self-contained, air-conditioned town built inside a structure that resembles a small aircraft hangar.                                                                                                                                                            |                      |              |                 |                                 |
| DuPage, IL      | Phase 2 Center Expansion                                                                                                                                                                                                                                         | 40                   | unknown      | \$16.5          | Capital bond referendum         |
| Facility notes: | Four multi-use classrooms, four scenario simulators, and a 25-station, 50-yard shooting range.                                                                                                                                                                   |                      |              |                 |                                 |
| Aurora, CO      | Police and Fire Training Center                                                                                                                                                                                                                                  | 74,000               | unknown      | \$22.0          | Bonds, CIP                      |
| Facility notes: | Classrooms (32,000 s.f.), vehicle training (19,000 s.f.), and K-9 training (23,000 s.f.), a burn building, and a search and rescue training structure.                                                                                                           |                      |              |                 |                                 |
| Mobile, AL      | Fire training tower                                                                                                                                                                                                                                              | 2,800                | unknown      | \$0.3           | County CIP                      |
| Facility notes: | Fire tower.                                                                                                                                                                                                                                                      |                      |              |                 |                                 |
| Dothan, AL      | Regional Police and Fire Training Center                                                                                                                                                                                                                         | 25,000               | 25           | \$22.0          | Foundation, City CIP            |
| Facility notes: | Five-story computer-controlled burn drill tower, Class A burn building, 25-lane outdoor gun range, tire drafting area, tactical/simulations house, live fire shoot house, 3.7-acre driving skills pad, tactical village, and a K-9 training and kennel facility. |                      |              |                 |                                 |

Source: Information compiled by Interact Business Group; supplemental research and data summation by CSC. NOTE: CIP = Capital Improvements Program

Regional public safety training facilities range significantly in terms of cost and size. Communities develop small facilities for \$5 million or less. Many of these serve a single city or small rural region. These facilities are often focused on a narrow



selection of public safety training needs. Conversely, larger facilities with a wider range of training components cost in the multiple tens-of-millions.

CSC developed a set of conceptual RESTCC capital cost estimates based on the desired concept components identified by survey respondents, focus group participants, and project advisors. We provide “small,” “medium,” and “large” facility options. Note that this information is for informational purposes only. The estimates do not include potential phasing; all three size options assume development of all desired RESTCC components. Moreover, these figures should be considered order of magnitude estimates—a design program that specifies facilities and space will be necessary to develop planning level cost estimates.

**Table 4.5 – Sample Conceptual RESTCC Capital Cost Estimates**

| Sample Development Costs        | Small            |                     | Medium           |                     | Large            |                     |
|---------------------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|
| <b>Buildings</b>                | <b>sq.ft.</b>    | <b>Cost</b>         | <b>sq.ft.</b>    | <b>Cost</b>         | <b>sq.ft.</b>    | <b>Cost</b>         |
| Administration*                 | 5,000            | \$871,000           | 10,000           | \$1,742,000         | 15,000           | \$2,613,000         |
| Classrooms*                     | 20,000           | \$3,484,000         | 35,000           | \$6,097,000         | 50,000           | \$8,710,000         |
| Lab Space*                      | 2,500            | \$466,875           | 5,000            | \$933,750           | 7,500            | \$1,400,625         |
| Mat/Tactical Rooms*             | 2,500            | \$384,250           | 5,000            | \$768,500           | 7,500            | \$1,152,750         |
| Emergency Coordination Center*  | 2,500            | \$435,500           | 3,750            | \$653,250           | 5,000            | \$871,000           |
| Backup 911 Center*              | 1,000            | \$174,200           | 1,500            | \$261,300           | 2,000            | \$348,400           |
| Restrooms/Shower/Lockers*       | 1,000            | \$153,700           | 2,500            | \$384,250           | 5,000            | \$768,500           |
| Indoor gun range^               | 15,000           | \$2,643,150         | 25,000           | \$4,405,250         | 35,000           | \$6,167,350         |
| Mock City^                      | 5,000            | \$593,500           | 10,000           | \$1,187,000         | 15,000           | \$1,780,500         |
| Fire tower/Burn building**      | 2,000            | \$317,669           | 3,000            | \$476,504           | 4,000            | \$635,338           |
| Tactical training tower^^       | 1,500            | \$90,000            | 2,000            | \$120,000           | 3,500            | \$210,000           |
| Shop/Storage Buildings*         | 10,000           | \$903,000           | 25,000           | \$2,257,500         | 50,000           | \$4,515,000         |
| <i>Building Subtotal</i>        | <i>68,000</i>    | <i>\$10,516,844</i> | <i>127,750</i>   | <i>\$19,286,304</i> | <i>199,500</i>   | <i>\$29,172,463</i> |
| <i>Technology Costs</i>         | <i>0.15</i>      | <i>\$1,577,527</i>  | <i>0.20</i>      | <i>\$3,857,261</i>  | <i>0.25</i>      | <i>\$7,293,116</i>  |
| <b>Site</b>                     | <b>sq.ft.</b>    | <b>Cost</b>         | <b>sq.ft.</b>    | <b>Cost</b>         | <b>sq.ft.</b>    | <b>Cost</b>         |
| Parking***                      | 8,138            | \$465,140           | 16,275           | \$930,279           | 24,413           | \$1,395,419         |
| EVOC^                           | 1,000,000        | \$5,860,000         | 1,300,000        | \$7,618,000         | 1,550,000        | \$9,083,000         |
| <i>Site Subtotal</i>            | <i>1,008,138</i> | <i>\$6,325,140</i>  | <i>1,316,275</i> | <i>\$8,548,279</i>  | <i>1,574,413</i> | <i>\$10,478,419</i> |
| <b>Building + Site Totals</b>   |                  | <b>\$18,419,510</b> |                  | <b>\$31,691,844</b> |                  | <b>\$46,943,998</b> |
| Project Costs (25%)             |                  | \$4,604,878         |                  | \$7,922,961         |                  | \$11,735,999        |
| Misc./Contingency (10%)         |                  | \$1,841,951         |                  | \$3,169,184         |                  | \$4,694,400         |
| <b>Sample Concept Estimates</b> |                  | <b>\$24,866,339</b> |                  | <b>\$42,783,989</b> |                  | <b>\$63,374,397</b> |

Sources: Building size estimates researched by CSC; Cost estimate sources as follows:

\*2011 RS Means Square Foot Costs

^DPSST 2000 Estimated Costs/sq. ft. inflated to 2018 dollars (CPI)

\*\*Averaged cost/sq. ft. between DPSST and Mobile, Alabama Fire Tower costs

^^CSC educated estimate

\*\*\*Victoria Transportation Policy Institute (VTIP) 2017 Cost/sf (Portland, Oregon)

To calculate conceptual RESTCC operations and maintenance estimates, CSC utilized Deschutes County Property Management per square foot rates. The county uses these rates to calculate operations, custodial, day-maintenance, and roof replacement costs for county-owned facilities. These numbers are conceptual and are intended as illustrative budget projections only. They do not include an inflation factor.

**Table 4.5 – Sample Conceptual RESTCC Operations and Maintenance Estimates**

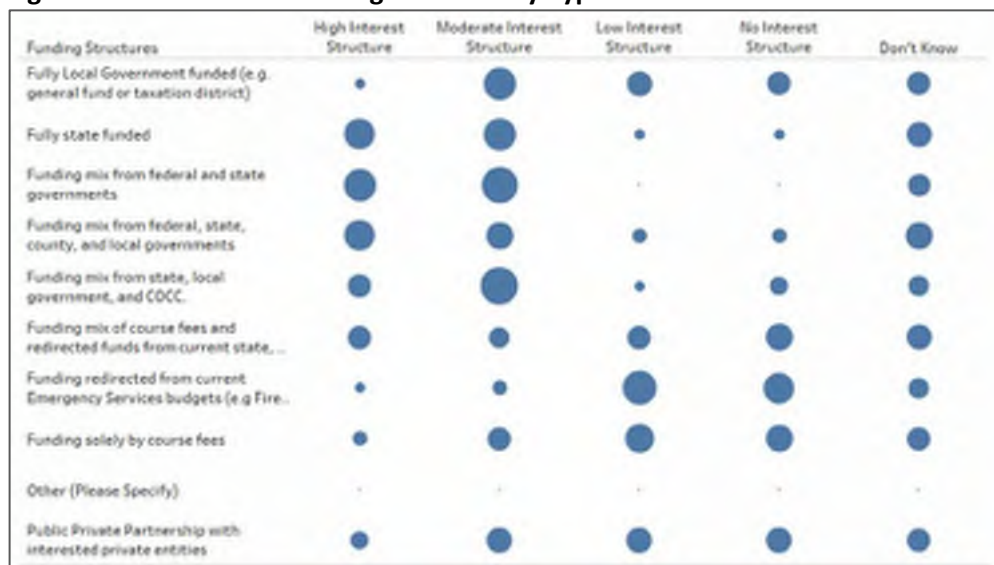
| Annual Operations and Maintenance |             | Small  |                  | Medium  |                  | Large   |                    |
|-----------------------------------|-------------|--------|------------------|---------|------------------|---------|--------------------|
| Category                          | Cost/sq.ft. | sq.ft. | Cost/yr          | sq.ft.  | Cost/yr          | sq.ft.  | Cost/yr            |
| Building Maintenance*             | 4.73        | 64,500 | \$305,085        | 122,500 | \$579,425        | 192,500 | \$910,525          |
| Custodial                         | 3.58        | 46,000 | \$164,680        | 82,500  | \$295,350        | 120,000 | \$429,600          |
| Building Roof                     | 0.4         | 23,000 | \$9,200          | 41,250  | \$16,500         | 60,000  | \$24,000           |
| Storage Roof                      | 0.25        | 10,375 | \$2,594          | 20,313  | \$5,078          | 33,125  | \$8,281            |
| <b>Totals Per Year</b>            |             |        | <b>\$481,559</b> |         | <b>\$896,353</b> |         | <b>\$1,372,406</b> |

Source: Deschutes County Property Management

\*Includes landscaping and snow removal

## Revenue

CSC identified a range of potential revenue sources. These include existing public safety agency training budgets, new partner agency general fund support, annual dues-supported membership, state support, educational institution tuition and general fund support, usage or rental fees. Survey respondents expressed the most interest (high- or moderate-interest) for funding structures that included a mix of contributors or where funding was provided by the state. Importantly, respondents expressed low interest in approaches where “funding [is] redirected from current emergency services budgets.” Figure 4.3 shows relative interest in a range of funding structures. Larger circles indicate higher interest.

**Figure 4.3 – Interest in Funding Structure by Type**

Source: CSC Public Safety Training Survey

Survey respondents indicate that existing public safety training budgets are relatively limited. Importantly, some focus group participants expressed skepticism about these results. Specifically, they suggested that some respondents may have factored in FTE costs while other did not. Regardless, focus group participants confirmed that most agency training budgets are limited and would be insufficient to support the ongoing operation, maintenance, and staffing of a RESTCC.

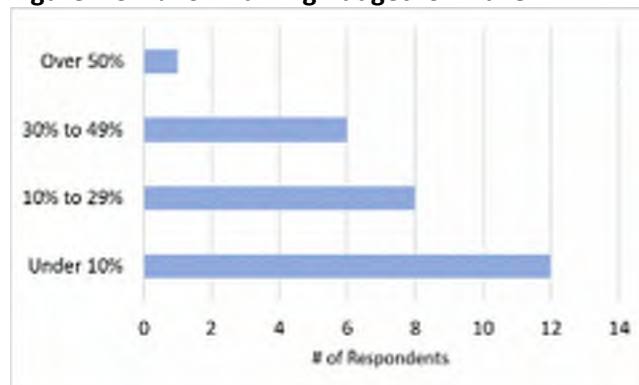
**Table 4.6 – Central Oregon Public Safety Agency Training Budgets**

| Size of current training budget |           |             |
|---------------------------------|-----------|-------------|
| Answer                          | Count     | %           |
| Under \$25,000                  | 13        | 50%         |
| \$25,000 to \$49,000            | 5         | 19%         |
| \$50,000 to \$99,000            | 4         | 15%         |
| \$100,000 to \$124,000          | 1         | 4%          |
| \$125,000 to \$149,000          | 0         | 0%          |
| Over \$150,000                  | 3         | 12%         |
| <b>Total</b>                    | <b>26</b> | <b>100%</b> |

Source: CSC Public Safety Training Survey

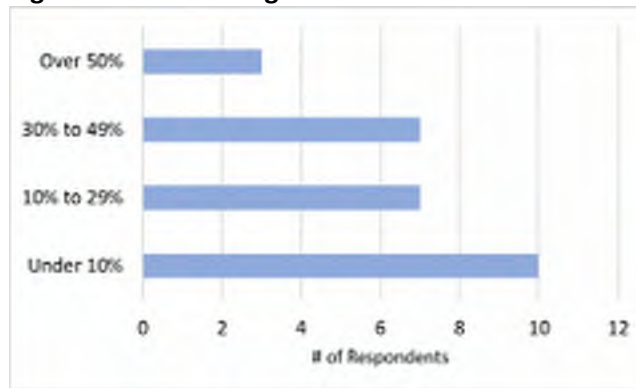
Figures 4.3 and 4.4 show the percentage of agency training budgets that are currently directed to travel and course fees. CSC urges readers to interpret these data in general terms only given the limited number of responses and skepticism expressed by focus group participants about this series of questions. These data do suggest that, in general, agencies spend less than half of their training budgets on travel and course fees. Notably, focus group participants indicated that most small jurisdictions do not have budgetary capacity to support ongoing operations of a RESTCC. They would participate as “non-member” agencies and participate/pay on a class-by-class basis as applicable. Notably, larger agencies, such as Deschutes County and the City of Bend indicated that they would be comfortable with a model where larger entities in the region supported smaller organizations. Especially given the close coordination and multi-agency response that so many of the agencies in the region participate in.

**Figure 4.3 – % of Training Budget for Travel**



Source: CSC Public Safety Training Survey

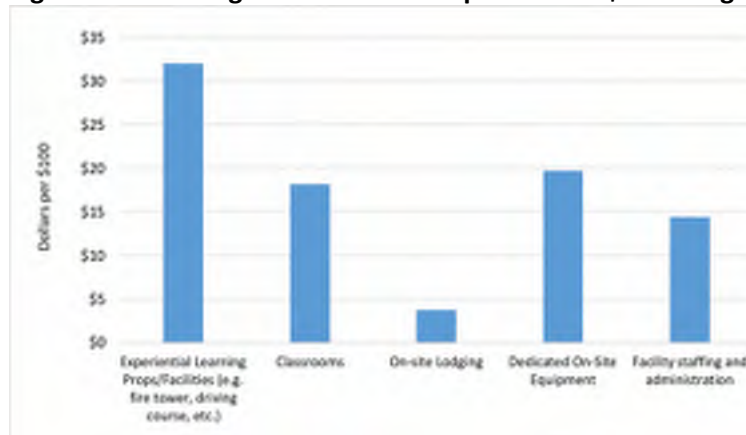
**Figure 4.4 – % of Budget: Course Fees**



Source: CSC Public Safety Training Survey

To better understand what stakeholders would be most interested in spending training dollars on, the survey asked respondents to distribute an imaginary \$100 program budget across five program areas. Specifically, the survey asked respondents to spend more on the program needs that are “most important” and less on the program needs that are “less important.” Figure 4.5 shows that experiential learning received the largest percentage of budget dollars. This was followed by on-site training equipment and classrooms. On-site lodging received very little support. Facility staffing and administration received moderate support.

**Figure 4.5 – Average Dollar Amount Spent out of \$100 Budget**



Source: CSC Public Safety Training Survey

Without more clarity on partner participation and organizational structure, CSC is reluctant to provide even conceptual revenue examples at this point in time. Importantly, we found no examples of regional training facilities that sustain operations on course fees alone. The most common model relies on an anchor agency or institution (most commonly a state agency, local agency, or community college) to support the ongoing operations, maintenance, and staffing. Based on results from the survey, discussions with focus group participants, and feedback from project advisors, it appears unlikely that public safety agencies can support a RESTCC on their own. As noted elsewhere, COCC appears to be the most viable local management entity. City of Bend, Deschutes County, other local governments and DPSST could likely provide significant ongoing financial support for operations and maintenance. If adequate, functional backup 911 capabilities are included, that

would provide another dedicated funding source. Smaller jurisdictions could provide modest to limited support, depending on agency size, training needs, and RESTCC facility and program offerings. Additional opportunities exist to partner with state and federal agencies (e.g. Forest Service, BLM, State Police, etc.).

## Other Considerations

Project advisors identified jurisdictional risk management as a critical budgetary consideration. While beyond the scope of this assessment, the extent to which a RESTCC could reduce jurisdictional losses should be considered as part of any detailed cost-benefit analysis. Specifically, the extent to which training facilities and programs can reduce the number of losses and claims associated with accidents, reputational, and other incidents. Importantly, facilities like an EVOC could be used by non-public safety personnel to train and manage risk.

Identification of multi-objective, multi-partner management structures could result in significant cost saving opportunities. For example, co-located local fire, EMS, or law enforcement response facilities on-site could increase opportunities to share space as well as operations and maintenance costs.

## Key Findings

- The value of a Central Oregon RESTCC cannot be overstated. **Public safety agencies in Central Oregon need additional training facilities and programs and will use a RESTCC if one is constructed.**
- Desired programing corresponds closely with the facility deficiencies described in Chapter 2. **Public safety professionals urgently need EVOC training, classroom instruction, and scenario based tactical training facilities.** Fire stakeholders highlight the need for live-fire training; law enforcement personnel emphasize the need for scenario-based tactical training facilities.
- **Regional public safety training facilities range significantly in both cost and size.** Some smaller regions/communities develop training facilities with limited facility and program options for \$5 million or less. Larger entities develop extensive multi-component training campuses that cost \$50-million or more. Similarly, the size of facilities ranges less than 10-acres to more than 150 acres.
- Most existing public safety training budgets are limited. **It does not appear that operation of a RESTCC is viable based on *current* public agency funding levels. A RESTCC will require other funding partners, revenue models, or increases in agency general fund commitments.**

## Chapter 5: Conclusions and Action Plan

---

The intent of this project was to assess the viability of a regional emergency training and operations center in Central Oregon. The primary elements of this study include:

- Assessment of existing conditions. How and where is training currently taking place? What is the demand for public safety training in Central Oregon? What facilities are currently available and how are they being used? What training deficiencies exist? What facilities are needed? These questions are the primary focus of this assessment.
- Assessment of user groups. Who needs training? Who would use a regional training facility if constructed? Is the demand sufficient to justify a regional training center?
- Assessment of facility costs and revenues. What are the potential capital costs? What are the potential operations and maintenance costs? Where would revenue to operate the facility come from?
- Administrative operability. Does administrative capacity exist within the region to develop and operate that facility?

We primarily address financial and administrative elements in our conclusions. Additional considerations include training demand and partner support. Importantly, this report does not address questions of political viability or where funding for a RESTCC would come from. The findings from this report will need to be presented to political and administrative leadership in the region. We strongly recommend this occur prior to conducting additional design, engineering, or financial feasibility studies.

### Demand Conclusions

- Organizations cannot access all the needed training programs and facilities.
- Public safety agencies' ability to meet existing training demand is constrained by insufficient facilities:
  - Classrooms
  - EVOC
  - Live Fire Burn Building
- Public safety agencies train on an ongoing basis. All public safety agencies require personnel to participate in ongoing training or public safety certification. maintenance – the demand for training in the region will only increase over time as the population increases and public safety agencies grow in size.
- Current demand for training is being met in part by sending public safety personnel out of the region. This can increase local vulnerability in a rapidly growing area of the state.
- A wide range of local, regional, and state public safety users – law enforcement, fire, EMS, COCC - would access and benefit from a RESTCC if constructed.

## Financial Conclusions

- Individual public safety agency ability to financially support ongoing operations and maintenance varies significantly across the region.
- Larger agencies (e.g. Deschutes County, City of Bend, etc.) appear willing to carry some of the burden to support smaller agencies within the region (they see the benefits of doing it).
- Training programming alone likely will not cover the cost of ongoing operations and maintenance (existing training budgets are limited).
- A RESTCC could provide spillover economic benefits to the region.
- Needs one or more anchor funders.

## Operational Conclusions

- Single entity operation and management.
- Limited interest and capacity among local agency partners to manage/operate.
- Community college partnerships are common and appear to be the most viable.
- Potential interest on the part of COCC, but additional discussions with leadership needed.
- Opportunity to engage COCC as a core partner; they have expressed interest at the program level to expand.

## Action Plan

Prior to moving forward with detailed site identification, design work, or financial feasibility assessments, RESTCC stakeholders need to evaluate the political feasibility of moving forward. Additionally, we advise the partners to identify a willing entity with the authority, capability, and capacity to develop a RESTCC. What follows is a set of recommended next steps and actions for RESTCC partners to consider. We present these actions as a set of phases. A decision to proceed or not can be made at the conclusion of each phase. This approach mitigates risk through restrained, ongoing assessment.

### Phase I – Political Viability and Lead Entity Identification

Phase I focusses on determining decision maker interest in pursuing a Central Oregon RESTCC. This phase also seeks to identify a lead agency with the authority, capability, and capacity to develop and administer the RESTCC.

#### Action I: Initiate discussions with decision makers in the region and secure approval to move forward

---

This assessment clearly establishes both the demand and the need for a regional training facility. However, a facility of this scale will require a significant capital expenditure and commitment to ongoing funding for operations and maintenance. Determining political feasibility is critical prior to moving forward with additional assessment. CSC recommends convening Central Oregon decision makers as soon as possible to explore the political viability of this project. CSC strongly recommends engaging the Central Oregon Regional Solutions Team (contact



Annette Liebe) to assist with this convening. **This action will result in a formal commitment on the part of partner entities to move forward with RESTCC planning and development.**

## Action 2: Convene key administrative partners and designate lead agency(ies)

---

**CSC recommends initiating discussions with administrative partners, “anchor tenants,” and primary users in conjunction with the decision maker discussions.** The CSC identified the COCC, DPSST, Deschutes County, and the cities of Bend and Redmond as the primary “first tier” administrative partners. The Central Oregon Regional Solutions Team could serve in a neutral convening and facilitation role.

Realistically, COCC, DPSST, and Deschutes County are the three entities with the greatest capability and capacity to administer a RESTCC. Of these, COCC may present the most viable opportunity moving forward. Given funding and capacity issues at the state level, DPSST is an unlikely lead in the near term. This despite recognition that a regional training facility in Central Oregon would be of significant benefit to the state. Some Deschutes County representatives, on the other hand, expressed concerns with taking on ownership and management of a facility that does not fall within the county’s statutory requirements. Notably, COCC already has a satellite campus in Redmond located next to the Redmond Airport. The campus has grown significantly since completion of the first building in 1997. Another option for consideration would be creation of a new entity (e.g. a public safety district or similar entity). **This action will result a memorandum of understanding (or other agreement) that identifies a lead project agency/entity and outlines the roles, responsibilities, commitments, and governance structure among administrative partners.**

## Phase II – Site identification, evaluation, and acquisition

Phase II should focus on site identification, evaluation, and acquisition. As noted in the report, sites proximate to the Redmond Airport are most desirable for a number of reasons. However, of the potential sites, a number opportunities and challenges exist. Site identification will require careful consideration and collaboration among a range of potential federal, state, and local land owner/mangers. These include DSL, Deschutes County, COCC, City of Redmond, the Redmond Airport, the FAA, etc. Obtaining appropriate land use entitlements should be considered in evaluating sites.

## Action 3: Convene land owners, land use stakeholders, and development regulators

---

There are a number of current opportunities and challenges associated with potential RESTCC development sites. Given the number of stakeholders, CSC recommends convening potential property owners, land-use regulators, and infrastructure service providers as soon as approval to move forward with the project is granted. Given ongoing land use activities in and around the Redmond Airport - including agency land swaps, Redmond UGB expansion, Redmond Airport Strategic Planning, and capital infrastructure improvement planning – if the project is to move forward, there is an urgent need to proceed with this action as soon as possible. CSC identified the following relevant land owners/controllers: City of Redmond, Deschutes County, Department of State Lands, Bureau of Land Management, Central Oregon Community College, and the Redmond Airport. Engaging development regulators (City of Redmond, Deschutes County) and



infrastructure providers is also advised. **This action will identify a set of viable development sites or multi-site configurations.**

#### Action 4: Conduct formal site evaluation(s) (if needed)

---

Once viable sites are identified, partners may need to conduct formal site evaluations. These evaluations should investigate known and potential questions related to land use regulations, infrastructure costs and availability, and other entitlements issues. **This action will evaluate potential sites/multi-site configurations and recommend one or more preferred alternatives.**

#### Action 5: Secure site

---

A site needs to be identified in order to move forward with developing a formal concept plan, including programming, design, and engineering. Once a final site is identified, the lead agency will need to secure the site. Based on our understanding of the potential sites, it is possible that more than one land owner or lessor could be required to participate in a multi-party agreement in order to facilitate all desired RESTCC components. **This action will result in a lease agreement, ownership agreement, fee title transfer, or combination thereof, to the lead RESTCC development entity.**

### Phase III – Preliminary RESTCC design concept and financial pro-forma assessment

Phase III should focus on developing the final programming, design, and engineering plan. Once complete, a full financial analysis and pro-forma evaluation can be conducted.

#### Action 6: Assemble program, design, and engineering team

---

Once a site is identified, CSC recommends assembling a team of experts who can (1) develop one or more formal design concepts and project phasing schemes, and (2) conduct formal pro-forma analysis, including capital cost and operations and maintenance projections. **This action will result in a Request for Proposals/Qualifications and selection of a design and consulting team.**

#### Action 7: Develop design concept(s) and pro-forma

---

Development of a site concept will articulate desired RESTCC components and determine overall construction and operations and maintenance budgets. Once these budgets are established, project partners can determine available funding and move forward with site development and construction phasing. **This action will result in a preferred design alternative, including a phasing plan if desired, and a comprehensive development pro-forma.**

#### Action 8: Vet and select final design, construction phasing, and approval to move forward with final design and construction

---

This task encompasses multiple aspects of the development process. This task is general in nature and will need to be revised in more detail depending on factors we are unable to anticipate at this time. In general, this task involves moving forward with construction of the RESTCC. Because this task will be contingent on available funding, the task may need to be repeated across multiple project phases.

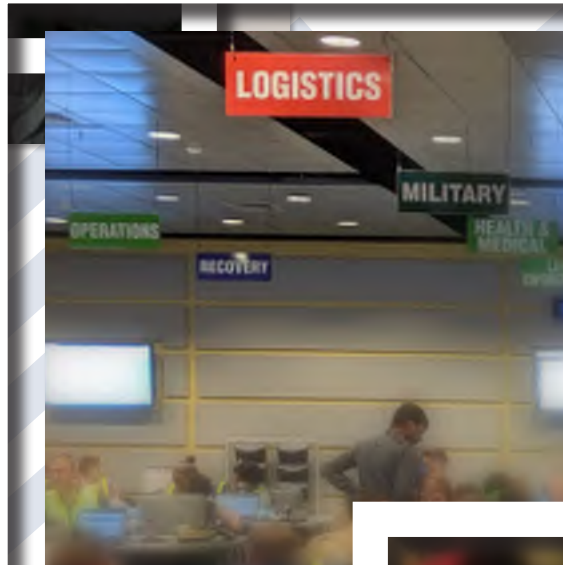
The general steps include: (1) decision maker approval to move forward with process to secure funding, (2) securing funding (e.g. bond issue, general fund allocation, philanthropic contribution, private sector donation, or other fundraising efforts), (3) bidding and selection of construction team, and (4) construction. **This action will result in the completion of one or more phases of the Central Oregon RESTCC.**

#### **Phase IV – Commence operations**

Phase IV includes opening, running, and maintaining RESTCC programing. In addition to the ongoing training activities offered, this phase will include using the facility to exercise and conduct regional emergency operations. With time, this phase may also include developing grant or fundraising campaigns for additional programing and facility development. **This phase will realize the vision of a regional emergency services training and coordination center in the heart of Central Oregon.**

# STRATEGIC BUSINESS PLAN

for  
Central Oregon Regional  
Emergency Services Training  
and Coordination Center



Prepared by:



Partnership with:



# STRATEGIC BUSINESS PLAN

*for*  
Central Oregon Regional  
Emergency Services Training  
and Coordination Center  
(RESTCC)

September 2020

Prepared by:  Interact  
Business  
Group

Partnership with:  Morrison  
Maierle  
engineers • surveyors • planners • scientists

 RDg...  
PLANNING • DESIGN

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## EXECUTIVE SUMMARY

In May 2019, the Central Oregon Intergovernmental Council (COIC) engaged Morrison-Maierle of Bozeman, MT to provide planning and conceptual design services for a proposed multi-stakeholder regional emergency services incident command and training center facility envisioned to meet the training and emergency coordination needs of public safety and first responder personnel working in the region. Morrison-Maierle teamed with the Interact Business Group (IBG) of Valley Center, CA and RDG Planning & Design of Omaha, NE to complete the comprehensive scope of work identified for this project. The proposed facility has been tentatively named the **“Central Oregon Regional Emergency Services Training and Coordination Center (RESTCC).”**

Central Oregon has insufficient facilities to meet existing, mandatory training needs of local, state, and federal public safety personnel. In a rapidly growing region, the need for trained public safety and emergency services professionals is increasing.

Furthermore, the region lacks a dedicated, multi-agency coordination center for emergency operations, nor does it have an adequate backup 911-center with redundant emergency dispatch capabilities.

In the event of a major natural disaster such as a Cascadia Subduction Zone event, Redmond and the Redmond Airport have been envisioned as a primary staging ground for statewide rescue and recovery operations. Another potential opportunity would be for the RESTCC to play a role for continuity of state government functions in the first weeks and months after a catastrophic event.

This plan will build off the Central Oregon Emergency Services Center Viability Assessment, prepared by the University of Oregon Community Service Center. The purpose of the Viability Assessment was to provide “a preliminary assessment on the viability of a conceptual regional emergency services training and coordination center in Central Oregon.”

The primary task of this report is to develop a Training Center Strategic Business Plan that may be used by key leaders to make informed and competent decisions for the safety and well-being of the region’s first responder personnel, its citizens, and property in the communities. This Strategic Business Plan will provide in-depth answers to the following questions:

- Who will use the training center?
- What training will be provided at the center?
- What will it cost to build the center?
- What will it cost to annually operate the center?
- What are the preliminary site plans and equipment training prop requirements?
- What available land options are available for the training center site?
- What are the benefits of the training center?

This report includes a comprehensive needs assessment of the training population size (number of students) and the training hours required by the participating agencies at current training levels, as well as anticipated future levels. RESTCC Steering Team members were made available to IBG+RDG and provided guidance for this report. These interviews were conducted in person and via telephone conference call.

This study has analyzed each participating agency’s training class needs and identified a total of over 75,000 annual training contact hours. It is important to note that the hours identified by the Steering Team only include training that they anticipate conducting at the proposed training center.

That training can include traditional classroom courses, hands-on skills training, or a combination of both (for example, classroom discussion followed by a field component). The hours do NOT represent ALL hours of training completed by the participating agencies. Each of them – to one degree or another – conducts additional training at their own individual locations:

| CLASS HOURS BY PARTNER, BY DEPARTMENT                                                                                                                                                                                  |                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Departments                                                                                                                                                                                                            | Student Contact Class Hours Per Year |
| Bend Fire Department                                                                                                                                                                                                   | 16,160                               |
| Bend Police Department                                                                                                                                                                                                 | 7,928                                |
| COCC (Note Below)                                                                                                                                                                                                      | 0                                    |
| Deschutes County SO                                                                                                                                                                                                    | 33,440                               |
| Jefferson Co. SO                                                                                                                                                                                                       | 2,080                                |
| Redmond Fire & Rescue                                                                                                                                                                                                  | 9,720                                |
| Redmond Police                                                                                                                                                                                                         | 6,624                                |
| <b>TOTAL</b>                                                                                                                                                                                                           | <b>75,952</b>                        |
| <b>Note-</b><br>COCC will only use the training center for its hand-on training, not classroom training. Therefore this table is listing their hours as 0. See Table # 16 for their training prop hours at the center. |                                      |

RESTCC Steering Team members were asked to assign a training category to each training class based on its level of training presentation. The following table includes a description of each category and the number of training hours by category:

| TRAINING HOURS BY CATEGORY                                                                                                                                                                                                                                                                                                                                                                     |               |             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|
|                                                                                                                                                                                                                                                                                                                                                                                                | Total         | % of Total  |
| Category 1— Training required by law (federal, state) or agency policy. Also, training required to safely operate equipment that is needed to carry out a person's job assignment. This required training is being carried out but often at a minimum level due to the lack of facilities. Training in this category is not being performed to the satisfaction of the agencies' expectations. | 52,612        | 69%         |
| Category 2—Desired training. Training the agencies would like to perform, but due to lack of facilities, is not being carried out. This training includes employee basic work skills.                                                                                                                                                                                                          | 9,000         | 13%         |
| Category 3—Training required by law and a person's job assignment (same as above). This required training is being carried out to a satisfactory level of competence.                                                                                                                                                                                                                          | 12,780        | 17%         |
| Category 4—Career development skills training, training to advance the career growth of an employee. Training in this category is not being performed to the satisfaction of the department's expectations.                                                                                                                                                                                    | 900           | 1%          |
| NOTE: COCC classes are not included in the Category Table                                                                                                                                                                                                                                                                                                                                      |               | 0           |
| <b>Total Hours</b>                                                                                                                                                                                                                                                                                                                                                                             | <b>75,952</b> | <b>100%</b> |

The Steering Team has identified a potential 95 acre site known as the "Old Public Range" in Redmond.



## Site Master Plan

Central Oregon Public Safety Training Center

2020-08-29 3000.430.00



Morrison-Maierle, with assistance from IBG and RDG, developed a construction cost estimate. The estimate below reflects a project phased approach with the elements of a training center that would meet the current and future training needs of the participating agencies.

- Phase 1A - \$9,461,482
  - Class A (2 Story) Burn Pad (8" Concrete), 25 Yard Tactical Baffled Range and Support Building
- Phase 1B – \$5,131,891
  - Class B Burn Building (4 story), Pump House and Recycling Pond
- Phase 2 – \$1,368,332
  - Add 50 yard fixed point range behind 25 yard tactical
- Phase 3 – \$7,090,265
  - Add 400'x400' Skills Pad (8" concrete) & EVOC course (8" Concrete)
- Phase 4 – \$23,430,961
  - Add Class Admin Building, 8" Concrete Drive from highway to Burn Pad, 5" concrete POV parking
- Phase 5 –\$17,626,505
  - ARFF – Aircraft Fire Trainer
- Phase 6 – \$34,925,969
  - Remainder to Buildout



## INTRODUCTION

### BACKGROUND & PURPOSE

In May 2019, the Central Oregon Intergovernmental Council (COIC) engaged Morrison-Maierle of Helena, MT to provide planning and conceptual design services for a proposed multi-stakeholder regional emergency services incident command and training center facility envisioned to meet the training and emergency coordination needs of public safety and first responder personnel working in the region. Morrison-Maierle teamed with the Interact Business Group (IBG) of Valley Center, CA and RDG Planning & Design of Omaha, NE to complete the comprehensive scope of work identified for this project. The proposed facility has been tentatively named the **“Central Oregon Regional Emergency Services Training and Coordination Center (RESTCC).”**

Central Oregon has insufficient facilities to meet existing, mandatory training needs of local, state, and federal public safety personnel. In a rapidly growing region, the need for trained public safety and emergency services professionals is increasing.

Furthermore, the region lacks a dedicated, multi-agency coordination center for emergency operations, nor does it have an adequate backup 911-center with redundant emergency dispatch capabilities.

Finally, the RESTCC could, at some point in the future, serve as a facility to house Central Oregon Community College’s wildland and structural fire, EMS, criminal justice, and other related programs.

In the event of a major natural disaster such as a Cascadia Subduction Zone event, Redmond and the Redmond Airport have been envisioned as a primary staging ground for statewide rescue and recovery operations. Another potential opportunity would be for the RESTCC to play a role for continuity of state government functions in the first weeks and months after a catastrophic event.

Due to the nature of the proposed RESTCC, the geographic areas that may benefit from this project can vary considerably. For some functions, e.g. a region-scale event/disaster, the scale is the Central Oregon region. For other functions, such as training programs, the region may be Central and Eastern Oregon, or other locations from which training customers would originate. For others, e.g. rescue and recovery operations for a major statewide disaster such as a Cascadia Subduction Zone event, the region is the entire state and potentially other affected states.

This plan will build off the Central Oregon Emergency Services Center Viability Assessment, prepared by the University of Oregon Community Service Center. The purpose of the Viability Assessment was to provide “a preliminary assessment on the viability of a conceptual regional emergency services training and coordination center in Central Oregon.”

IBG will develop a comprehensive Strategic Business Plan (SBP), which is an important tool that can help key leaders make informed and knowledgeable decisions for the safety and well-being of first responders, the citizens, and property in their communities. This SBP evaluates options and recommends the best and most practical course of action for providing required training and coordination activities for member agencies of the Central Oregon RESTCC Steering Team and COIC. The strategic business planning process will provide in-depth answers to the following questions:

- Who will use the training center?
- What training will be provided at the center?
- What will it cost to build the center?
- What will it cost to annually operate the center?
- What are the preliminary site plans and equipment training prop requirements?
- What are the true land needs and what land options are available for the training center site?
- What is the most viable partnership and governance plan?
- How will the center operate and be managed on a daily basis?
- What is the potential revenue from outside users?
- What is the cost benefit of the training center?
- What funding options are available?

### SCOPE

The COIC engaged Morrison-Maierle to investigate the opportunity and feasibility of constructing and operating a multi-stakeholder regional emergency services incident command and training center facility to help meet the training and emergency

coordination needs of the region's numerous public safety agencies. The RESTCC Steering Team and COIC determined that the study will include the following six (6) core scope items:

1. Phased Operations/Program Plan
2. Estimated Phased Capital and Operating Budgets
3. Conceptual Site Plan
4. Elevation Drawing and Floor Plans (future phase of the project)
5. Proposed Revenue package
6. Final Plan Document

To accomplish the business plan objectives, the report has been organized to include the following chapters and sections:

- Training Needs Assessment – This chapter includes several sections, including:
  - A detailed needs assessment of training population size (number of students) and the training hours required by the region's key public safety agencies at current training levels as well as anticipated future levels. IBG reviewed and validated existing needs assessment data gathered by the staff. Guidelines from national, state, and local training standards were identified. A complete analysis of total training hours, class curricula, and training priority categories is documented.
  - Outside Users Survey. A web-based survey was conducted to determine the interest in renting time and space and/or attending classes at the training center. The survey was sent to private-sector entities in the area and public safety agencies/first responders outside of the immediate area. This information is helpful in determining potential revenue that could result from the delivery of training at the center.
- Existing Training Conditions – This chapter includes an in-depth review of how and where each of the region's key public safety agencies currently conducts their training. It also identifies issues and concerns related to their existing training locations.
- Existing Emergency Management/EOC/Backup 9-1-1 Conditions – This chapter discusses issues and concerns regarding these critical emergency response components.
- Facility & Equipment Assessment – This chapter provides visibility to the scope and magnitude of the training/incident command center facility needs assessment, including descriptions of classrooms, administrative/support areas, training buildings and props. site selection criteria and conceptual site plan.
- Organizational Structure – This chapter addresses the governance of the RESTCC. It also determines the management, communication, and chain of command for the facility.
- Management Plan – This chapter creates an operational baseline for the RESTCC. Daily procedures and policies are addressed, including staffing, day-to-day facility management, scheduling, and security.
- Financial and Resource Assessment – This chapter provides financial feasibility for the project's implementation and direction. It provides estimated values for all aspects of design, construction, operation, maintenance, and revenue potential.
- Benefit Analysis – This chapter provides IBG's quantitative and qualitative analysis of the benefits associated with building a RESTCC.
- Potential Funding Opportunities – This chapter identifies potential funding sources and revenue producers to help offset the Center's annual operational costs.
- Potential Funding Opportunities – This chapter identifies potential funding opportunities for one-time capital construction and ongoing costs related to the operation and maintenance of the RESTCC.
- Acronym and Abbreviation Index – This section lists and defines the acronyms and abbreviations used throughout the report.
- Appendices – This section contains supplementary material that complements the body of the report.

## STEERING TEAM

Members of the RESTCC Steering Team were made available to IBG and provided guidance for this report. Personnel assisting with the project include:

- Central Oregon Community College
  - Matt McCoy, Vice President
  - Paula Simone, Instructor
  - Peter Ostrovsky, Public Safety Director
- Central Oregon Fire Chiefs Association (COFCA)
  - Tim Craig, Deputy Chief
  - Bill Boos, Deputy Chief
- Central Oregon Law Enforcement Services (COLES)
  - Shane Nelson, Deschutes County Sheriff
- Bend Police Department
  - Brian Beekman, Lieutenant
- Redmond Police Department
  - Devin Lewis, Captain
- City of Madras
  - Tanner Stanfill, Police Chief
  - Mike Julazadeh, Fire Marshal
- City of Redmond
  - Mayor George Endicott
- City of Redmond Airport
  - Fred LeLacheur, Airport Engineer
- Crook County Sheriff's Office
  - Michael Ryan, Emergency Manager
- Deschutes County Sheriff's Office – Emergency Services
  - Nathan Garibay, Emergency Manager
- Deschutes County 911

- Sara Crosswhite
- Deschutes County Administration
  - James Lewis, Property Manager
- Jefferson County Sheriff's Office
  - David Pond, Emergency Manager
- Bend Fire and Rescue
  - Darren Root, Battalion Chief
- Redmond Fire and Rescue
  - Doug Kelly, Division Chief
- Sunriver Fire and Rescue
  - Rod Bjorvik, Deputy Chief

### *State-Level Members*

- Oregon Department of Public Safety Standards and Training (DPSST)
  - Erik Gabliks, DPSST Director
  - Mike Leloff, Training Division Director
- Oregon Governor's Office
  - Annette Liebe, Central Oregon Regional Solutions Coordinator
- Oregon Office of Emergency Management (OEM)
  - Sonya Andron, Operations and Preparedness Manager
- Oregon State Police
  - Superintendent Travis Hampton

IBG conducted interviews with many of the RESTCC Steering Team members. The purpose of this interaction was to gain an understanding of the project needs and desired outcomes. These interviews focused on subjects such as organizational structure, existing conditions, training philosophy, changes in staffing, future organization-growth factors, and unmet needs.



## TRAINING NEEDS ASSESSMENT

The following descriptions and tables outline the detailed training requirements of the Partner Department and how those requirements relate to the RESTCC.

### OREGON DPSST TRAINING OVERVIEW

The Oregon Board for Public Safety Standards and Training requires that emergency response personnel obtain and maintain a range of professional certifications. Ongoing maintenance of those certifications requires ongoing training. The Department of Public Safety Standards and Training is responsible for “ensuring that public safety professionals and the agencies that employ them maintain compliance with the standards to reduce the risk of liability and ensure public trust is maintained by the communities we serve throughout Oregon.”

The Oregon Health Authority oversees certification maintenance for emergency medical personnel. Affiliated public safety personnel (e.g. emergency managers, 911 dispatch, and wildland firefighters) have additional training or certification maintenance requirements. Oregon Administrative Rules (OAR) govern the timing, amount, and documentation of both basic and ongoing training of public safety providers. OAR 259-008-0000 specifically establishes ongoing employment, training, and certification requirements for fire and law enforcement personnel. OAR 333-265-0000 establishes ongoing certification maintenance requirements for emergency medical services personnel.

The intended purpose of this information is to illustrate general training needs of law enforcement, fire, and emergency medical technicians only. Other public safety personnel may have different or additional ongoing training requirements. Furthermore, DPSST notes that individual public safety agencies may have training programs that exceed these requirements. Similarly, individual public safety personnel may desire and engage in additional training based on personal career or job performance goals. **This information supports the general need for robust and accessible public safety training facilities and programing wherever public safety programs exist.**

According to DPSST Director Eriks Gabliks: *“DPSST is very supportive of the need for regional training venues around the state that will allow our law enforcement, corrections, parole and probation, 9-1-1, fire and rescue, search and rescue, EMS, and others to have the ability to maintain and update their perishable skills through hands-on training opportunities. This is an amazing opportunity for Central Oregon and it's important that the property be secured while it is still available. Development of the venue could take place over years as funds are available.”*

### OREGON STATE POLICE OVERVIEW

The Department of Oregon State Police (OSP) mission is to enhance the livability and safety for the State of Oregon by protecting the people, property and natural resources of the State. Founded in 1931, the agency now has a workforce comprised of more than 1,400 sworn and professional staff employees, providing diverse public safety services in patrol, criminal investigation, forensic services, medical examiner, state fire marshal, gaming regulation, fish and wildlife enforcement, public safety communications, criminal justice information management, arson and explosive services and special operation teams, with a biennial budget over \$500 million in total funds.

The agency provides specialized and certification maintenance training statewide to their public safety disciplines regionally and at the DPSST campus. The agency currently does not have access to a centralized training facility in Central or Eastern Oregon to accommodate large scale or complex training needs.

The OSP is a statewide agency. Its operational structure is based on a decentralized command structure. The Operations Bureau (Salem) is divided into three (3) Region Commands (NW - Salem, East - Bend, SW – Springfield). These Region Commands are divided further into Area Commands and Worksites. Each region is responsible for holding mandatory training throughout their regions utilizing part-time training personnel (ancillary duties to their primary duties in Patrol, Fish and Wildlife and Criminal). These part-time trainers will hold training at various locations near the Area Commands. These locations may belong to a partner agency – police, DPSST or fire; they might be a private firearms range or they may be a simple school classroom and/or a local business. Some locations, such as private ranges, are rented by OSP.

According to Oregon State Police Major Joel Lujan: *“The availability of a central Oregon training facility could be beneficial to the local area command and to the Department generally as **a region or division-level training venue to provide in-service training to OSP personnel.** Also, I am confident it would provide other public safety agencies across Eastern Oregon a more convenient, modern training facility. The Department focuses most of its mandatory training at the Area Commands, which are*

*the localized offices for the OSP throughout the state. Providing training at the local level has been the most efficient and low cost for training our personnel statewide. I would emphasize that a new facility with large conference rooms in addition to the facility's training props and assets may be utilized by OSP for in-service training or specialty training such as SWAT, arson and explosives, etc. or by other public safety for general training and conferences."*

## OREGON NATIONAL GUARD OVERVIEW

When National Guard units are not mobilized or under federal control, they report to the governor of their respective state, territory (Puerto Rico, Guam, Virgin Islands) or the commanding general of the District of Columbia National Guard. Each of the 54 National Guard organizations is supervised by the adjutant general of the state or territory. Under state law, the National Guard provides protection of life, property and preserves peace, order and public safety. These missions are accomplished through emergency relief support during natural disasters such as floods, earthquakes and forest fires; search and rescue operations; support to civil defense authorities; maintenance of vital public services and counterdrug operations.

Mission: The Oregon National Guard will provide the citizens of the State of Oregon and the United States with a ready force of citizen soldiers and airmen, equipped and trained to respond to any contingency, natural or man-made. When we are needed, we are there.

IBG+RDG and the RESTCC Steering Team met with a representative from the Oregon National Guard's 142nd Medical Group to discuss potential areas of mutual interest in the project. The unit he is involved with is the "CBRNE Enhanced Response Force Package" (CERFP). It is a 205-person team of medical professionals/field operators who provide disaster response, including search and extraction and medical/chemical triage.

The vast majority of their training occurs on weekends. They typically conduct three (3) major training events per year in a hardened training environment. The representative believes his unit would potentially train at RESTCC if it was available, even if there was a fee for such use. One of the reasons he gave to support the use of RESTCC was the issue of "fatigue" given the unit's training at the same site over and over.

RESTCC buildings and props that the representative believes would be utilized by his unit include:

- Rubble pile (similar to the one at Camp Rilea)
- Confined space props
- Scenario Village (similar to the one at Camp Rilea)
- Simulated standing water prop
- Breaching props
- Driver training course (they use F350's pulling trailers)

## PARTICIPATING AGENCY TRAINING NEEDS

The following tables detail training requirements of the Participating Agencies and how those requirements relate to the proposed Central Oregon Regional Emergency Services Training and Coordination Center.

The needs assessment incorporates the current staff totals shown in the table below.

**Table 1 - Participating Agency Staff Totals**

| PARTNER DEPARTMENT        | BEND FIRE & RESCUE | REDMOND FIRE & RESCUE | SISTERS-CAMP<br>SHERMAN FIRE<br>DISTRICT |
|---------------------------|--------------------|-----------------------|------------------------------------------|
| Current Sworn Operations  | 90                 | 63                    | 50                                       |
| Current Non-Sworn Support | 40                 | 40                    | 35                                       |

| PARTNER DEPARTMENT        | BEND PD | PRINEVILLE<br>PD | CROOK<br>COUNTY S.O. | JEFFERSON<br>COUNTY S.O. | DESCHUTES<br>COUNTY S.O. | REDMOND<br>PD |
|---------------------------|---------|------------------|----------------------|--------------------------|--------------------------|---------------|
| Current Sworn Operations  | 103     | 19 (Patrol)      | 49                   | 50                       | 180                      | 47            |
| Current Non-Sworn Support | 35      | 10<br>(Dispatch) | 15                   | 3                        | 55                       | 12            |

This study has analyzed each agency's training class needs and identified a total of almost 280,000 annual training contact hours. It is important to note that the hours identified by the Steering Team only include training that they anticipate conducting at the proposed training center. That training can include traditional classroom courses, hands-on skills training, or a combination of both (for example, classroom discussion followed by a field component). The hours do NOT represent ALL hours of training completed by the Participating Agencies. Each of them – to one degree or another – conducts additional training at their own individual locations.

**Table 2 - Annual Training Student Contact Hours by Partner**

| CLASS HOURS BY PARTNER, BY DEPARTMENT                                                                                                                                                                           |                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Departments                                                                                                                                                                                                     | Student Contact Class Hours Per Year |
| Bend Fire Department                                                                                                                                                                                            | 16,160                               |
| Bend Police Department                                                                                                                                                                                          | 7,928                                |
| COCC                                                                                                                                                                                                            | 0                                    |
| Deschutes County SO                                                                                                                                                                                             | 33,440                               |
| Jefferson Co. SO                                                                                                                                                                                                | 2,080                                |
| Redmond Fire & Rescue                                                                                                                                                                                           | 9,720                                |
| Redmond Police                                                                                                                                                                                                  | 6,624                                |
| <b>TOTAL</b>                                                                                                                                                                                                    | <b>75,952</b>                        |
| Note-<br>COCC will only use the training center for its hand-on training, not classroom training. Therefore this table is listing their hours as 0. See Table # 16 for their training prop hours at the center. |                                      |

Based on the projected staff growth rate at 2030, the following table illustrates the corresponding forecast growth in training hours:

**Table 3 - Training Hours Growth Forecast, 2020 and 2030**

| DEPARTMENT                                        | STAFF GROWTH FORECAST |      | TRAINING HOURS BY YEAR |                              |        |
|---------------------------------------------------|-----------------------|------|------------------------|------------------------------|--------|
|                                                   | 2020                  | 2030 | 2020                   | Percentage Of Growth by 2030 | 2030   |
| Bend Police Department                            | 140                   | 162  | 7,928                  | 14%                          | 9,005  |
| Bend Fire and Rescue                              |                       |      | 16,160                 |                              |        |
| COCC                                              |                       |      |                        |                              |        |
| Deschutes County SO                               | 180                   | 203  | 33,440                 | 11%                          | 37,229 |
| Jefferson Co. SO                                  | 50                    | 50   | 2,080                  | 0%                           | 2,080  |
| Redmond Fire & Rescue                             | 63                    | 81   | 9,720                  | 22%                          | 11,880 |
| Redmond Police                                    | 47                    | 60   | 6,624                  | 22%                          | 8,059  |
| Note-<br>Growth Forecast Provided by the Partners |                       |      |                        |                              |        |

The following table lists each class name by Partner:

**Table 4 - Redmond Fire Rescue - Class Names By Partner**

| REDMOND FIRE & RESCUE      |                                |
|----------------------------|--------------------------------|
| Class List                 |                                |
| Active Shooter             | Mobile Water Supply/Tenders    |
| Driving Course             | RIT/FF Survival                |
| EMS                        | Rope/Rescue Training           |
| Engineer Skills            | Search and Rescue              |
| Forcible Entry             | Strategy and Tactics           |
| HazMat Refresher           | Vehicle Extrication            |
| Hose Evolutions            | Vehicle Fires                  |
| Ladders                    | Vertical Ventilation/Vent Prop |
| Mobile Attack/Bump and Run | Live Fire                      |

**Table 5 - Bend Police Department - Class Names By Partner**

| BEND POLICE           |
|-----------------------|
|                       |
| On-Duty EVOC          |
| On-Duty Rifle Program |
| Quarterly In-Service  |
| Regional SWAT Team    |

**Table 6 - Jefferson County Sheriff's Office - Class Names By Partner**

| JEFFERSON COUNTY SO |
|---------------------|
|                     |
| CPR and First Aid   |
| Defensive Tactics   |
| EVOC                |
| Firearms            |
| Taser               |

Table 7 - Redmond Police Department - Class Names By Partner

| REDMOND POLICE            |
|---------------------------|
| Class List                |
| Redmond Police In-Service |

Table 8 - Deschutes County Sheriff's Office - Class Names By Partner

| DESCHUTES COUNTY SO           |
|-------------------------------|
| Class List                    |
| Emergency Management Training |
| In-Service Training Hours     |

Table 9 - Central Oregon Community College

| CENTRAL OREGON COMMUNITY COLLEGE |               |         |         |
|----------------------------------|---------------|---------|---------|
|                                  |               |         |         |
| CJ 100                           | EMT 170       | S-215   | SFS 102 |
| CJ 101                           | EMT 171       | S-219   | SFS 105 |
| CJ 110                           | EMT 195       | S-230   | SFS 110 |
| CJ 152                           | EMT Lab       | S-231   | SFS 112 |
| CJ 153                           | FOR 130       | S-236   | SFS 120 |
| CJ 207                           | FOR 130_1     | S-270   | SFS 123 |
| CJ 210                           | Inst. I       | S-290   | SFS 133 |
| CJ 214                           | L-280         | S-290   | SFS 205 |
| CJ 220                           | Paramedic     | S-300   | SFS 210 |
| CJ 222                           | Paramedic Lab | S-330   | SFS 230 |
| CJ 230                           | S-130/190     | S-339   | SFS 232 |
| CJ 243                           | S-131         | S-390   | SFS 263 |
| CJ 250                           | S-200         | S-390   | SFS 275 |
| CJ 253                           | S-203         | SFS 101 | WF 215S |
| EMT                              | S-211         | SFS 101 |         |

**Table 10 - Bend Fire and Rescue**

| BEND FIRE & RESCUE   |                      |
|----------------------|----------------------|
| Class List           |                      |
| ACLS                 | Flammable Liquid Pit |
| Bloodborne Pathogens | High Level           |
| Confined Space       | Live Burn            |
| CPR and First Aid    | PALS                 |
| EMT Monthly          | Pediatric            |
| Engineer Development | Skid Car Awareness   |
| Engineer Refresher   | Special Rescue Team  |
| Fire Officer         | Trench Rescue        |
| Firefighter Survival | Vehicle Extrication  |
| Fit Test/SCBA        | Wildland Refresher   |

**OTHER FIRE SERVICE AGENCIES**

In addition to the primary Participating Agencies identified above, there are many smaller fire service agencies located in the Central and Eastern Oregon region that could potentially use the training center.

**TRAINING CLASS DETAIL**

Each class was categorized based on each Partner's current level of training. Following is the definition of each training category:

**Table 11 - Summary of Training Categories**

| TRAINING HOURS BY CATEGORY                                                                                                                                                                                                                                                                                                                                                                                     |               |             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                | Total         | % of Total  |
| <b>Category 1</b> — Training required by law (federal, state) or agency policy. Also, training required to safely operate equipment that is needed to carry out a person's job assignment. This required training is being carried out but often at <b>a minimum level due to the lack of facilities</b> . Training in this category is not being performed to the satisfaction of the agencies' expectations. | 52,612        | 69%         |
| <b>Category 2</b> —Desired training. Training the agencies would like to perform, <b>but due to lack of facilities, is not being carried out</b> . This training includes employee basic work skills.                                                                                                                                                                                                          | 9,660         | 13%         |
| <b>Category 3</b> —Training required by law and a person's job assignment (same as above). This required training <b>is being carried out to a satisfactory level of competence</b> .                                                                                                                                                                                                                          | 12,780        | 17%         |
| <b>Category 4</b> —Career development skills training, training <b>to advance the career growth of an employee</b> . Training in this category is not being performed to the satisfaction of the department's expectations.                                                                                                                                                                                    | 900           | 1%          |
| Note-COCC classes are not included in the Category Table                                                                                                                                                                                                                                                                                                                                                       |               |             |
| <b>Total Hours</b>                                                                                                                                                                                                                                                                                                                                                                                             | <b>75,952</b> | <b>100%</b> |

Table 11 illustrates the total training hours and percentage of all training hours by categories. It is interesting to note that 58% of the total training hours in Category 1: *"This required training is being carried out but often at a minimum level due to the lack of facilities"* and 8% of the required training hours are in Category 2, is "Desired training not being done due to lack of facilities."

### CLASS-SPACE NEED CALCULATION

Using the information presented in the training needs assessment as a baseline, a class-space need calculation was developed to establish the number of classrooms required to meet the demands identified in the needs assessment. The classroom calculation is based on the following weekly training schedule:

- Typical training schedule for classes in the main classroom building are: Monday – Saturday; ten (10) hour training day; 8:00 A.M. to 6:00 P.M. (includes facility preparation, breaks, 1-hour lunch break, and cleanup).
- Each training day is divided into segments. A segment is typically 5 hours in length and is based on 4 hours of instructor-student contact time and 1 hour for setup/teardown. The total segment opportunity per classroom calculation is therefore based on the following:

**Table 12 - Space Need Calculation**

| CLASSROOM SPACE NEED CALCULATION                       |            |
|--------------------------------------------------------|------------|
| Default Source Data                                    |            |
| <b>Monday-Saturday</b>                                 |            |
| Start Time                                             | 8:00 AM    |
| End Time (training)                                    | 6:00 PM    |
| Training Day (hrs.)                                    | 10         |
| Segment Length (hrs.)                                  | 5          |
| Segments Per Day                                       | 2          |
| Segments Per Week                                      | 12         |
| Training Weeks Per Year                                | 48         |
| Max Segments Per year                                  | 576        |
| Real Training Efficiency %                             | 80%        |
| <b>Usable Segments Per Year<br/>(@ 80% efficiency)</b> | <b>461</b> |

**Table 13 - Typical Training Week Schedule**

| Time          | 5 Hour Segment Blocks |
|---------------|-----------------------|
| 8am - 9am     | Set-up                |
| 9am - 10am    | Segment 1             |
| 10 am – 11 am |                       |
| 11am – 12 pm  |                       |
| 12pm – 1pm    |                       |
| 1pm – 2 pm    | Lunch/Transition      |
| 2pm – 3pm     | Segment 2             |
| 3pm – 4pm     |                       |
| 4pm – 5pm     |                       |
| 5pm – 6 pm    |                       |
| 6pm – 7 pm    | Tear-down/Clean-up    |



A typical segment calculation per class would be determined in the following manner: an 8-hour class would require 2 segments, and a 20-hour class would require 5 segments (each segment uses 4 hours of teaching time, or 20 divided by 4).

The following table summarizes the annual total training segments and establishes the type and number of classrooms needed to meet the requirements determined in the training needs assessment.

**Table 14 - Annual Training Hours by Classroom Type, 2020**

| Classroom Type                                                                                     | Total Hours Used Per Year | Hours Per Segment = 5;<br>Segments Per Year = 461 |
|----------------------------------------------------------------------------------------------------|---------------------------|---------------------------------------------------|
| Clean Classroom Number 1 - Capacity 25                                                             | 3960                      | 8.5                                               |
| Clean Classroom Number 2 - Capacity 35                                                             | 1710                      | 3.71                                              |
| Clean Classroom Number 3 - Capacity 50                                                             | 384                       | 0.83                                              |
| Clean Classroom Number 4 - Capacity 70                                                             | 0                         | 0.00                                              |
| Clean Classroom Number 5 - Capacity 100                                                            | 0                         | 0.00                                              |
| Clean Classroom Number 6 - Capacity 200                                                            | 0                         | 0.00                                              |
| Computer Classroom                                                                                 | 0                         | 0.00                                              |
| Defensive Tactics Classroom                                                                        | 1750                      | 3.80                                              |
| Practical Classroom                                                                                | 648                       | 1.41                                              |
| Exterior Pavilion Classroom                                                                        | 1732                      | 3.76                                              |
| Note-Central Oregon Community College has stated they will not need classroom space at the center. |                           |                                                   |

#### TRAINING PROP EFFICIENCY

The following table illustrates the demand for facility training props. The percentage of use is based on previously established hours and the corresponding training segments.

Reminder: The Annual Utilization Percentage below is based on training segments. A segment is a 5-hour block of time with 461 segments available each year for props (see the Space Need Calculation methodology in Table 13 above).

**Table 15 - Annual Prop Use by Hours**

| PERCENTAGE OF PROP USE PER YEAR |                    |                   |                            |                      |
|---------------------------------|--------------------|-------------------|----------------------------|----------------------|
| Prop Name                       | Total Annual Hours | Segments Per Year | Percentage of Use Per Year | Open Available Space |
| Shooting Range                  | 5710               | 1142              | 248%                       | -148%                |
| Strip Mall                      | 3288               | 658               | 143%                       | -43%                 |
| EOC Actual/Simulator            | 2000               | 400               | 87%                        | 13%                  |
| Drill Tower                     | 1904               | 381               | 83%                        | 17%                  |
| Skid Pad Skills Course          | 1668               | 334               | 72%                        | 28%                  |
| ConSim/Shoot House              | 1153               | 231               | 50%                        | 50%                  |
| Building Clearing               | 1088               | 218               | 47%                        | 53%                  |

| PERCENTAGE OF PROP USE PER YEAR |                    |                   |                            |                      |
|---------------------------------|--------------------|-------------------|----------------------------|----------------------|
| Prop Name                       | Total Annual Hours | Segments Per Year | Percentage of Use Per Year | Open Available Space |
| EMT Lab                         | 960                | 192               | 42%                        | 58%                  |
| Driving Track                   | 532                | 106               | 23%                        | 77%                  |
| Burn Building A&B               | 510                | 102               | 22%                        | 78%                  |
| Structural Collapse             | 476                | 95                | 21%                        | 79%                  |
| Sum of TOTAL Training Simulator | 370                | 74                | 16%                        | 84%                  |
| Sum of TOTAL Add Wildland Field | 269                | 54                | 12%                        | 88%                  |
| SCBA Maze                       | 232                | 46                | 10%                        | 90%                  |
| Vehicle Prop Live Fire          | 230                | 46                | 10%                        | 90%                  |
| Confined Space                  | 208                | 42                | 9%                         | 91%                  |
| Tanker Prop Live Fire           | 182                | 36                | 8%                         | 92%                  |
| Engine Drafting Pit             | 107                | 21                | 5%                         | 95%                  |
| Vehicle Extrication Pad         | 92                 | 18                | 4%                         | 96%                  |
| Rail Car                        | 88                 | 18                | 4%                         | 96%                  |
| Training Simulator              | 64                 | 13                | 3%                         | 97%                  |
| ORPAT Room                      | 48                 | 10                | 2%                         | 98%                  |
| Bare Land to Drive              | 24                 | 5                 | 1%                         | 99%                  |
| Swift Water Rescue              | 4                  | 1                 | 0%                         | 100%                 |

The reason for illustrating the number of training hours is to show that, although all props are essential for the successful completion of the required training at one time or another, some are in very high demand and used extensively and others are used less frequently. Those in high demand, such as the Shooting Range (at 248% utilization), have no excess capacity and therefore may be available to outside users only on very a limited basis. Likewise, it identifies those props that have some degree of excess capacity (such as the Rail Car prop at 4% utilization), meaning that the Partners do not use the prop all of the time. In those cases, the prop may be reserved for future expansion or made available to outside users more frequently.

**MOST USED TRAINING PROPS BY ANNUAL HOURS, BY PARTNER**

The following tables highlight the most used props, sorting by number of annual hours used and Partner.

**Table 16 - Most Used Training Props by Annual Hours, by Partner**

| Prop Name                  | Redmond Fire | Bend Police | Deschutes County SO | Jefferson County SO | Redmond Police | COCC | Bend Fire | Grand Total |
|----------------------------|--------------|-------------|---------------------|---------------------|----------------|------|-----------|-------------|
| Shooting Range             | 0            | 1710        | 2064                | 24                  | 1912           | 0    |           | 5710        |
| Drill Tower                | 1024         | 176         | 464                 | 0                   | 176            | 14   | 50        | 1904        |
| Skid Pad Skills Course     | 24           | 1024        | 480                 | 0                   | 84             | 8    | 48        | 1668        |
| EMT Lab                    | 0            | 0           | 0                   | 0                   | 0              | 960  | 0         | 960         |
| Strip Mall                 | 200          | 176         | 1408                | 0                   | 1492           | 12   |           | 3288        |
| Vehicle Prop Live Fire     | 48           | 176         | 0                   | 0                   | 0              | 6    |           | 230         |
| ConSim/Shoot House         | 0            | 270         | 560                 | 0                   | 323            | 0    | 0         | 1153        |
| ORPAT Room                 | 0            | 0           | 48                  | 0                   | 0              | 0    | 0         | 48          |
| Burn Building A&B          | 128          | 0           | 0                   | 0                   | 0              | 70   | 312       | 510         |
| Structural Collapse        | 160          | 0           | 192                 | 0                   | 0              | 4    | 120       | 476         |
| Driving Track              | 24           | 0           | 384                 | 4                   | 42             | 30   | 48        | 532         |
| SCBA Maze                  | 104          | 0           | 0                   | 0                   | 0              | 8    | 120       | 232         |
| Engine Drafting Pit        | 80           | 0           | 0                   | 0                   | 0              | 27   | 0         | 107         |
| Rail Car                   | 80           | 0           | 0                   | 0                   | 0              | 8    | 0         | 88          |
| Tanker Prop Live Fire      | 80           | 0           | 0                   | 0                   | 0              | 6    | 96        | 182         |
| Vehicle Extrication Pad    | 72           | 0           | 0                   | 0                   | 0              | 0    | 20        | 92          |
| Sprinkler Standpipe System | 40           | 0           | 0                   | 0                   | 0              | 24   | 0         | 64          |
| Building Clearing          | 0            | 0           | 736                 | 0                   | 352            |      | 0         | 1088        |
| Confined Space             | 40           | 0           | 0                   | 0                   | 0              | 8    | 160       | 208         |
| Bare Land to Drive         | 24           | 0           | 0                   | 0                   | 0              | 0    | 0         | 24          |
| Swift Water Rescue         | 0            | 0           | 0                   | 0                   | 0              | 4    | 0         | 4           |
| Paramedic Lab              | 0            | 0           | 0                   | 0                   | 0              | 0    | 0         | 0           |
| Dumpster Live Fire         | 0            | 0           | 0                   | 0                   | 0              | 0    | 0         | 0           |
| EOC Simulator              | 0            | 0           | 0                   | 0                   | 0              | 0    | 0         | 0           |
| Training Simulator         | 176          | 176         | 0                   | 0                   | 0              | 18   |           | 370         |
| Wildland Field             | 0            | 0           | 0                   | 0                   | 0              | 125  | 144       | 269         |

## OUTSIDE USER SURVEY

This chapter identifies potential outside agencies that may have an interest in using the training center and what they need to accomplish their own specialized training. This information was developed based on a web-based survey of potential outside users.

IBG developed a web-based Outside Users Survey. Names and contact information for the survey broadcast was provided by the RESTCC Steering Team. Included in the survey email was a cover letter signed by Scott Aycock (COIC). Two email broadcasts were completed; the first around November 20, 2019 and a follow-up to non-respondents around two weeks later.

The survey results are as follows:

**Table 17 - List of Survey Respondents**

| Name                    | Title                                  | Agency                                                    |
|-------------------------|----------------------------------------|-----------------------------------------------------------|
| Dale Cummins            | Chief                                  | Prineville Police Department                              |
| Steven Romero           | Chief                                  | Ontario Police Department                                 |
| Emily Wegener           | Public Health Preparedness Coordinator | Jefferson County Public Health                            |
| Bill Duerden            | Public Works Director                  | City of Redmond                                           |
| Paul Rheault            | Utility Director                       | City of Bend                                              |
| Jamie Collins           | State On-Scene Coordinator             | Oregon Department of Environmental Quality                |
| Chris Webb              | CERFP/Det 1 Deputy Commander           | Oregon National Guard                                     |
| Michael Heffner         | Asst. Chief Deputy                     | Oregon Office of State Fire Marshal                       |
| Kristen Heath           | Disaster Program Manager               | American Red Cross                                        |
| Tim Hoiness             | Training and Safety Manager            | Central Oregon Fire Management (USFS, BLM)                |
| Randall M. Tyle         | Director                               | Area VII Plumbers Joint Apprenticeship Training Committee |
| Muriel DeLaVergne-Brown | Health & Human Services Director       | Crook County Health Department                            |
| Devin Lewis             | Captain                                | Redmond Police Department                                 |
| Joel Fish               | Police Chief                           | Enterprise Police Department                              |
| Tanner Stanfill         | Chief                                  | Madras Police Department                                  |
| Denney Kelley           | Chief of Police                        | Black Butte Police Dept.                                  |
| Gordon Foster           | Unit Forester                          | Oregon Dept. of Forestry                                  |
| Cory Darling            | Chief                                  | Sunriver PD                                               |
| Patrick Ashmore         | Chief                                  | The Dalles PD                                             |
| Scott Polhamus          | Fire Manager                           | Oregon Woods Inc.                                         |
| Kevin Lindsey           | Medical Plans and Operations Officer   | Oregon CERFP Medical Element                              |
| Chris Doty              | Director                               | Deschutes County Road Department                          |
| Robert O'Neal           | Road Master                            | Crook County                                              |

**Table 18 - Respondent Job Discipline**

|                                                                                               |                                                      |
|-----------------------------------------------------------------------------------------------|------------------------------------------------------|
| <i>"Please indicate the industry your department/organization in which you are employed."</i> |                                                      |
| •                                                                                             | Fire/EMS/Rescue Related – 4                          |
| •                                                                                             | Law Enforcement Related – 8                          |
| •                                                                                             | Other (Industry, Medical, Transportation, etc.) – 11 |

**Table 19 - Preferred Training Times**

*Please rate your preferred access hours to the Training Facility. Use the rating system; one, two, and three – one being highest.*

| Preferred Training Times       | Selection | Weighted Score | Distributed Percentage |
|--------------------------------|-----------|----------------|------------------------|
| Monday through Friday - Days   |           | 56             | 42.75%                 |
| 1st Choice                     | 15        |                |                        |
| 2nd Choice                     | 4         |                |                        |
| 3rd Choice                     | 3         |                |                        |
| Monday through Friday - Nights |           | 36             | 27.48%                 |
| 1st Choice                     | 2         |                |                        |
| 2nd Choice                     | 10        |                |                        |
| 3rd Choice                     | 10        |                |                        |
| Saturday/Sunday - Days         |           | 39             | 29.77%                 |
| 1st Choice                     | 5         |                |                        |
| 2nd Choice                     | 7         |                |                        |
| 3rd Choice                     | 10        |                |                        |

**Table 20 - Class Interest**

*Please indicate approximately how many students you would send to the Training Facility for each class annually. If you would not send students to a particular class, please leave the box(es) blank.*

| Class Name                          | Number of Students Per Year |
|-------------------------------------|-----------------------------|
| Building Searches                   | 79                          |
| Fire Extinguishers                  | 72                          |
| Shoot House Simunition              | 69                          |
| Officer Survival                    | 67                          |
| Decontamination Lab                 | 65                          |
| Simulated Street Training Exercises | 64                          |
| Damming/Diking                      | 61                          |
| Fire Officer Development            | 60                          |
| Flammable Liquid Pit                | 60                          |

| Class Name                          | Number of Students Per Year |
|-------------------------------------|-----------------------------|
| Gas Containment                     | 60                          |
| Horizontal Propane Fire             | 60                          |
| Mass Casualty Incidents             | 60                          |
| Over the Road - Gas or Liquid Spill | 60                          |
| Confined Space                      | 54                          |
| Defensive Tactics                   | 53                          |
| Crime Scene Investigation           | 50                          |
| HazMat Operations                   | 49                          |
| Incident Command System             | 46                          |

| Class Name                        | Number of Students Per Year |
|-----------------------------------|-----------------------------|
| Strategy and Tactics Simulator    | 45                          |
| First Aid/CPR                     | 45                          |
| Interview/Interrogation           | 42                          |
| Criminal Investigations           | 41                          |
| Leadership School                 | 33                          |
| Drill Tower - Rappelling          | 2                           |
| Aerial Operator Class             | 0                           |
| Apartment Complex Burn Building   | 0                           |
| Exterior Rappelling Training Area | 0                           |
| Flashover Class A/Gas             | 0                           |
| Interior Firefighting Prop        | 0                           |
| Live Fire Burn Building           | 0                           |
| Live Fueled Tank and Dike Prop    | 0                           |
| Mechanical Lockout/Tagout         | 0                           |

| Class Name                            | Number of Students Per Year |
|---------------------------------------|-----------------------------|
| Rappel Vertical Rescue                | 0                           |
| Roof Vent                             | 0                           |
| Family Residential Burn Building      | 0                           |
| Smoke Maze Training                   | 0                           |
| Ladder Company Training               | 0                           |
| Sprinkler Standpipe Systems           | 0                           |
| Strip Mall                            | 0                           |
| Structural Collapse                   | 0                           |
| Support Vehicle Operator Class        | 0                           |
| Technical Rescue Technician           | 0                           |
| Trench Rescue                         | 0                           |
| Vehicle Extrication Pad               | 0                           |
| Vehicle Fire Prop Live Fire (Propane) | 0                           |
| Water Shuttle Training                | 0                           |

-Please add any additional classes not listed previously that would be beneficial to your organization.

First aid, CPR, Bleeding Control, Emergency Medical Responder

Wildland specific courses. Most likely use would be to put these on within existing organizational constructs, but using this facility.

We fight wildfire. We would only want wildland fire classes

Plumbing Continuing Education May want to include CEU courses for Electricians

grader/dozer training, chainsaw training, other specialty equipment, etc.

NOTE: Classes with zero amount were listed as a possible class in the survey, but none were selected

**Table 21 - Facility Needs**

*If any of the following facilities would be beneficial to your organization, please indicate the number of days per year you would use each facility. If none, leave blank.*

| Facility Type                                                                                       | Number of Days Per Year |
|-----------------------------------------------------------------------------------------------------|-------------------------|
| 48-Person Standard Clean Classroom                                                                  | 101                     |
| Trailers/Scenario Village Area/City Streetscape                                                     | 56                      |
| Large Assembly, Athletic Purposes, Including Bleachers and 1 Large Projector (3,568 SF)             | 52                      |
| 100-Person Standard Clean Classroom                                                                 | 41                      |
| 32-Person Dirty Classroom                                                                           | 28                      |
| Skills Pad/EVOC Track                                                                               | 21                      |
| Confined Space/Trench                                                                               | 15                      |
| Rail Car for Training                                                                               | 15                      |
| Large Outdoor Assembly Area                                                                         | 13                      |
| 5-Story Drill Tower                                                                                 | 10                      |
| Big Box/Strip Mall Complex                                                                          | 10                      |
| Firearms Simulation in Dirty Classroom                                                              | 9                       |
| Class A Burn Building                                                                               | 0                       |
| Gun Shooting Range                                                                                  | 0                       |
| Live Fire Gas Double Bed with Hallway Rollover                                                      | 0                       |
| Live Fire Gas Kitchen Prop and Rollover (3 Burn Points)                                             | 0                       |
| Live Fire Sofa Prop                                                                                 | 0                       |
| Smoke Maze                                                                                          | 0                       |
| Live Fire Gas Industrial Room with Rollover (5 Mock-Up Options)                                     | 0                       |
| Note-Classes with zero amount were listed as a possible class in the survey, but none were selected |                         |

**Table 22 - Topic Specific Seminars**

The center plans topic-specific seminars with guest expert speakers, lasting one to five days. Would you find these events beneficial? If yes, please proceed to question 5. If no, please skip to question 6.

-21 responded YES

-1 responded NO

| Facility Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| COP, POP, Mental Illness, Use of Force                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Leadership strategies, Legal updates, Grant writing and administration, Employee wellness, Strategic policing strategies, Homeless response strategies                                                                                                                                                                                                                                                                                                                                                                  |
| Health and Medical and all-hazard topics such as response, EOC ops, and planning.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Contingency Response/Disaster Recovery, Professional Development Courses, Mandatory training courses common to government agencies.                                                                                                                                                                                                                                                                                                                                                                                     |
| Public Works Management, Effective Utility Management, Safety (Practice Drills / Personal Protective Equipment / Hazardous Materials ), Incident Command Training, Equipment Reviews (Snow Plows / Graders / Vactor Units / CCTV Vans ), Pipeline Training, Project Management Training, State Certification Training (Water / Wastewater ), Trenching Water Distribution System Training, Water Treatment Training, Wastewater Collection System Training, Wastewater Treatment Training, Laboratory Analysis Training |
| Emergency response/ICS expertise                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Urban and rural search & rescue, clearing structures after a disaster event, survival training                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Fire Service Leadership, Incident Management, HAZMAT Response                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Regional Planning Sessions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Interagency Cooperation, Technology Use                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Continuing Education for Plumbers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Required                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Leadership, Law Updates, Communication, Mental Health, Tactics and Office Safety, Investigations/Interrogations, Health and Wellness                                                                                                                                                                                                                                                                                                                                                                                    |
| Investigations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Leadership, management, wildland fire, forestry                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Leadership, legal updates, wellness, de-escalation and communication, ethics, recruitment and retention, internal affairs investigations, labor relations, risk management.                                                                                                                                                                                                                                                                                                                                             |
| Inter-agency Exercise Planning, Field Medicine                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Equipment training, safety training, flagger training, an endless list of classroom training. Central Oregon training events are widely attended from agencies across the state.                                                                                                                                                                                                                                                                                                                                        |
| Funding Options, Certification Classes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |



**Table 23 - Participation in Design or Donation**

*Would your organization consider participating in the design or donation of specialized training props? If yes, please proceed to question 7. If no, please skip to question 8.*

- 13 Responded YES

- 9 Responded NO

*-If you answered **YES**, please provide any props your organization would consider designing or donating. (Note; following area direct quotes from respondents. Minor typo corrections made as needed)*

- ◆ *Prezi or PP presentations Onboarding model development Leadership model development Homeless response model development, Major event planning and response*
- ◆ *Possibly provide depending on need.*
- ◆ *Manhole Fire Hydrants Various specialized equipment in conjunction with a specific training topic. List is lengthy.*
- ◆ *But would have to go through all proper military and federal gov't channels*
- ◆ *Rail car and valving props HAZMAT response props*
- ◆ *TBD*
- ◆ *AV/IT supplies, Range Supplies, PowerPoints/Instructors, Safety Supplies*
- ◆ *Whatever is needed*
- ◆ *I would contribute financially. We do not have anything material to contribute.*
- ◆ *If equipment training is provided, we could lend equipment as necessary, as well as materials.*
- ◆ *If we have it you are welcome to it*

**Table 24 - May We Contact You Again**

*May we contact you directly for any additional questions or follow-up clarifications?*

- 21 Respondents, YES

## EXISTING TRAINING CONDITIONS

Every public safety agency affiliated with the RESTCC project places a high level of importance on ensuring that their personnel are well-trained and prepared to protect those they serve. While a small number of the agencies have their own dedicated training facility, all agencies to one degree or another accomplish their training at a variety of publicly and privately-owned locations mostly controlled by others. The following sections describe those training locations.

In June 2018, the Community Service Center (CSC) published a Final Report for the *Central Oregon Emergency Services Center Viability Assessment*. The CSC is a research center affiliated with the School of Planning, Public Policy, and Management at the University of Oregon. In terms of existing training conditions, part of that report stated:

"At the present time, Central Oregon's public safety agencies provide for the training needs of their personnel on an agency-by-agency basis. The majority of that training is taking place locally (Figure 2.1). Survey respondents, focus group participants, and project advisors indicate that a significant amount of training occurs in the Central Oregon region. However, agency representatives report that available training facilities are insufficient to meet the existing, and growing, demand for training in the region."<sup>1</sup>

Based on our assessment and discussions with members of the RESTCC Steering Team, IBG agrees with this finding.

**FIGURE 2.1 - WHERE TRAINING TAKES PLACE**



Source: CSC Public Safety Training Survey<sup>2</sup>

<sup>1</sup> Central Oregon Emergency Services Center Viability Assessment

<sup>2</sup> Central Oregon Emergency Services Center Viability Assessment

## FIRE DEPARTMENTS

### EXISTING TRAINING FACILITIES AND LOCATIONS

#### BEND FIRE AND RESCUE

This 7-acre training facility is located on the north end of the City of Bend at 63377 NE Jamison Street behind Fire Station 5. It includes a five-story tower (no live burn capability) with built-in high angle rescue anchors, a confined space prop, vehicle preparation and extrication pad, commercial and residential roof prop, drafting pit/cistern, multiple forcible-entry door props and enough room for a driving “cones course” for all emergency vehicles. In addition, the facility has two hydrants supplied by 10” water lines which provide sufficient fire flow for engineer development training. There are two 25-person classrooms and three offices with video conference capability. There is also a computer simulation lab located in classroom #2 inside the training building.



**FIGURE 1 - OVERVIEW OF BEND FIRE AND RESCUE TRAINING FACILITY**



**FIGURE 2 - BEND FIRE AND RESCUE DRILL TOWER AND CONFINED SPACE PROP**



### REDMOND FIRE AND RESCUE

This training field is located at 911 SE Veterans Way in Redmond. It consists of a small lecture room and an approximately 2.4-acre lot to train on (including a mix of gravel and asphalt with some concrete). A DPSST mobile live-fire trainer is situated on the site. There is no water source and no fire hydrants on the site; there is a hydrant located outside of the most SE corner of the fence. This facility has recently hosted a regional training academy.



**FIGURE 3 - OVERVIEW OF REDMOND FIRE AND RESCUE TRAINING CENTER**



**FIGURE 4 - DPSST MOBILE FIRE TRAINER AT REDMOND FIRE AND RESCUE TRAINING FIELD**

### SISTERS-CAMP SHERMAN FIRE DISTRICT

The department owns a 4-acre parcel to the south of the City of Sisters that is mostly undeveloped ground. The only water supply is a small line that supports an irrigation system. There is no hydrant nearby, so there is limited opportunity to conduct training that involves flowing water. There is a one-acre asphalt pad (3" thick pavement) that has recently been installed that allows the department to conduct the "cone course" portion of its driver training in a secure environment. There are no buildings on the site, so ladder training is not possible there. The department is able to conduct extrication training and limited driver training at the site. Currently, there is an RFP out to install a water line with a maximum flow of 500 gallons per minute. The department envisions adding a connex-style live burn trainer in the future.

Most training is being conducted in the parking lot behind the main fire station and in the two meeting spaces in the station. The parking lot is large enough to allow one engine to conduct training. All multi-company training must be done in parking lots (such as school parking lots) around town.

The department conducts its on-road driver training on open city streets and rural highways alongside other traffic.

The department holds its classroom training in their community hall, which has a capacity of 100+ students.

### JEFFERSON COUNTY RURAL FIRE PROTECTION DISTRICT #1

The department has a 5-acre facility located at its main fire station, 765 5'th Street in Madras. It includes a variety of props and a wildland open space training area. This agency consists mostly of volunteer firefighters, who receive their basic training at the facility.

## GENERAL FIRE SERVICE TRAINING CONDITIONS

### LIVE BURN TRAINING

There are no permanent, dedicated live burn facilities (Class A or Class B) in the region. The only option for conducting live burn training is through the use of acquired structures (generally old, abandoned buildings slated for demolition) and the DPSST mobile live fire trainer at the Redmond Fire and Rescue training site.

### TRAINING CLASSROOMS

Many of the region's fire departments indicated that they utilize rooms located at their fire stations or their designated training areas.

### DRIVER TRAINING

Most of the region's fire departments conduct their driver training at various public and private parking lots throughout their respective jurisdictions (subject to the approval of the parking lot owners). One specific area mentioned was at the Redmond Airport.

### HANDS-ON SKILLS TRAINING

Many of the region's fire departments indicated that they conduct much of their hands-on, company skills training at their fire stations due to the lack of accessibility to a dedicated training facility. Very rarely, they also utilizes acquired structures in their jurisdictions (such as abandoned buildings or houses scheduled for demolition) for high-impact training evolutions.

## POLICE DEPARTMENTS

### EXISTING TRAINING FACILITIES AND LOCATIONS

#### BEND POLICE DEPARTMENT

Bend PD has an outdoor shooting range near the Bend Airport. It has several connex boxes for equipment and one classroom. There is one paved 25-yard range and three other shooting areas to include a paved 100-yard shooting range with a 200-yard shooting position.



**FIGURE 5 - OVERVIEW OF THE BEND PD OUTDOOR SHOOTING RANGE**

The department has several large rooms at its police department, one of them being municipal court (which is difficult to book at times due to the court schedule). Bend PD also utilizes the Bend Fire and Rescue training center on occasion.

#### **GENERAL LAW ENFORCEMENT TRAINING CONDITIONS**

##### **DRIVER TRAINING**

Most of the region's law enforcement agencies conduct their driver training at various public and private parking lots throughout their respective jurisdictions (subject to the approval of the parking lot owners). Bend PD and Redmond PD also use the County skid pad near the Knott Landfill. Crook County Sheriff's Deputies and Jefferson County Sheriff's Deputies attend and conduct EVOc training at the Madras Speedway. Jefferson County Sheriff's Deputies also use the Madras Airport for driver training.

##### **FIREARMS TRAINING**

The Crook County Sheriff's Office has a primitive outdoor range facility with a short (100 yard) rifle range and two short pistol/shotgun/close-quarters rifle training bays. There are no fixed facilities or advanced training bays at this location. This area is open and exposed to all weather. It is surrounded by private property. Prineville PD and Redmond PD both utilize the Crook County Sheriff's Office range.

The Jefferson County Sheriff's Office currently uses the RAPA Gun Club (located near Madras Airport) that has indoor shooting as well as outdoor shooting. There is no charge to the Sheriff's Office for use of the Gun Club; it must schedule ahead of time to avoid conflicts. The Jefferson County Sheriff's Office also uses a range at the Deer Ridge Correctional Institution. Firearms training is conducted at the local indoor range during inclement weather and at the outdoor range the rest of the time for both pistol and rifle.

Deschutes County Sheriff's Office also has a range.

Redmond PD uses the Redmond Rod and Gun Club, which is located southwest of Redmond at 9020 US-97.

##### **TRAINING CLASSROOMS**

Prineville PD currently conducts classroom training at a conference room in the Crook County FD fire hall and a room at the police department building. They also use the Carry Foster Hall at the fairgrounds.

The Crook County Sheriff's Office has a single training room capable of accommodating approximately 20 students for classroom-type training. They also use the Lutheran Family Services Conference Room, the Prineville Police Department, and the Crook County Fire Hall.

Jefferson County Sheriff's Office uses its conference/meeting/training room for defensive tactics, Taser training, and CPR/first aid training.



REALITY-BASED TRAINING

The Jefferson County Sheriff's Office has utilized schools for active shooter training.

**DESCHUTES COUNTY 9-1-1 SERVICE DISTRICT**

The 911 Center is located at 20355 Poe Sholes Drive in Bend. Dispatcher training is conducted in two training rooms. One of the rooms is also designated as the County Emergency Operations Center (EOC). The other room is a dedicated four-position dispatcher training room.



**FIGURE 6 - DESCHUTES COUNTY 911 TRAINING ROOMS; SHARED WITH EOC (L); DEDICATED 4-POSITION ROOM (R)**

**CENTRAL OREGON COMMUNITY COLLEGE (COCC)**

The Central Oregon Community College (COCC) Fire Program is IFSAC Degree Assembly accredited and prepares students to test for international certifications based on the International Fire Service Accreditation Congress (IFSAC) system. COCC is state Department of Public Safety and Standards Training (DPSST) accredited and a National Fire Academy Fire and EMS Higher Education (FESHE) recognized program.<sup>1</sup> The Fire and EMS Programs are offered at the COCC campus in Bend.

STRUCTURAL FIRE SCIENCE PROGRAM

COCC Structural Fire Science Program serves its communities by providing lifelong learning opportunities through quality education for emergency personnel. It strives to enhance opportunities, to prepare providers for future employment, and ensure that education and skills remain abreast of rapidly evolving advancements and pursuits of continuing education.

The AAS degree in Structural Fire Science is designed to provide students with the necessary skills, knowledge and abilities to enter the fire service or to increase skills, knowledge and abilities for those already employed as a firefighter. This degree is used to build technical skills and knowledge necessary for employment in rural fire protection districts, volunteer fire protection agencies and private or public fire departments. The program requires significant on-the-job training (OJT) in participating area fire agencies, where students receive hands on training in fire and emergency medical skills. Current COCC students are affiliated with local fire departments, emergency medical providers and wildland fire agencies.

WILDLAND FIRE SCIENCE

At COCC, some of the best instructors in the Northwest provide students with the hands-on training needed to manage controlled burns, implement fuels planning, work with fire suppression tactics, and more. All classes are designed to meet US Forest Service requirements, as well as those of other government wildland fire management agencies. COCC offers both an associate of applied science and a certificate program in Wildland Fire/Fuels Management (Online Catalog). COCC also provides fire S-courses for the East Slope Training Region.

The COCC *Wildland Fire Career Pathway* is designed to create educational "stepping stones" for advancement of workers and jobs seekers. It illustrates the steps needed through education, work experience and on-the-job training to enable students to combine school and work and advance over time to better jobs. Note: This program is open to current employees of forest management agencies or graduates of forestry programs only.

ASSOCIATE OF SCIENCE (AS) DEGREE - PREPARATION FOR TRANSFER TO EASTERN OREGON UNIVERSITY

<sup>1</sup> <https://www.cocc.edu/programs/structural-fire/default.aspx>

The AS degree is intended to prepare students to transfer to Eastern Oregon University's Fire Service Administration (FSA) degree and is designed for students seeking a career in the fire service industry or upgrading their skills for current fire service employment. The program meets or exceeds the required technical skills and knowledge necessary for employment in many fire service organizations throughout the country.

### EMERGENCY MEDICAL SERVICES

An AAS degree in Paramedicine contains many courses to develop technical skills and knowledge for employment and advancement in pre-hospital employment. The program is challenging and will require participants to spend many additional hours in clinical and field settings. The program contains certification requirements at the Emergency Medical Technician (EMT), Advanced EMT, and Paramedic levels. Students will need to test through the Oregon Health Authority to complete certification. All applicants wanting to test with the Oregon Health Authority at the Paramedic level must show proof they have completed an associate degree or higher.

The COCC paramedic program is accredited by the Commission on Accreditation of Allied Health Education Programs upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP).<sup>1</sup>

## EXISTING TRAINING CONDITIONS – ISSUES AND CONCERNS

IBG and the Participating Agencies have identified several issues and concerns directly related to the existing locations at which they currently conduct their training. The benchmark for modern, progressive public safety training is to conduct training in a **SAFE, SECURE, and CONSISTENT** environment. IBG has concluded that, in many instances, the locations currently being used by these departments fall short in one or more of those areas.

1. The use of schools, acquired structures, city parks, commercial buildings, etc. for **reality-based law enforcement scenario training** (such as active shooter) puts police officers in an unsecure environment. It is common practice to assign one or more armed officers to the perimeter of the training area to provide security for the officers involved in the training scenario. This in turn may introduce live-fire ammo adjacent to a simulated weapon use training area.

In addition, the process of locating, gaining permission, and ensuring the safe use of acquired structures, commercial buildings, and strip malls, etc. for reality-based training is very labor intensive. In general, simulated/reality-based training locations are not readily available in the region. In addition, the Participating Departments do not have the training staff to regularly support this approach to scenario-based training. In short, these locations do not support the concept of a safe, secure, and consistent training environment.

2. The region's fire departments cannot continue to rely on "acquired structures" for live burn training or other types of high-impact training evolutions. Regulations and standards for preparing an acquired structure for live burn (or other high-impact) training have become onerous. The amount of work necessary to prep a building has become such a huge burden on department training staff it has effectively ended the practice. Further, the timing of acquisition cannot be controlled and Departments in the region are severely limited as to the times they can conduct the training due to wildfire hazard in the summer and fall, as well as the significant snowfall in the region that prevents them from training in acquired structures in the winter.
3. The Participating Agencies (both Fire and Police) do not have local access to a **dedicated driving skills** area. Fire Departments are typically forced to make due with inadequately-sized areas at their fire stations or drive at publically or privately-controlled parking lots in their communities. Conducting drivers training at public and private parking lots is inconsistent with doing so at a safe, secure, and consistent location. For example, obstacles such as light poles and barriers may be present, which could pose a collision hazard. Use of these parking lots are subject to permission by the owners; the departments cannot depend on their availability. By their very nature, these parking lots are open to traffic and are not generally secure. In addition, these parking lots are not typically designed for the type of use and weight loads imposed on them by public safety vehicles, such as large fire engines. Damage can and does occur, and the City is responsible for the cost of repair and any associated potential personnel or property liability issues that may arise. Redmond FD used to be able to drive in the area around the Forest Service buildings but their fire apparatus damaged the asphalt.

Police Departments mainly depend on the use of driving areas that are under the tight control of other entities (such as the Redmond Airport and Madras Speedway). Redmond Airport driving area use is limited at times due to the staging of air tankers.

<sup>1</sup> <https://www.cocc.edu/programs/ems/default.aspx>



4. The region's fire departments do not have local access to a high-quality, realistic, dedicated **technical rescue/confined space** training area. Given the rapid rate of development and construction in the region, the need for specialized training in such disciplines as trench and confined space rescue is very real.
5. The region's fire departments do not have adequate local access to high-quality, realistic **hands-on skills** training areas. This includes locations and props for hose deployment evolutions, building search, ladder deployment, etc. There is a lack of buildings available for multi-story residential and commercial building training evolutions. This leads to a serious lack of multi-company training for in-service personnel.
6. The region's police departments do not have access to a **dedicated indoor shooting range**. The Bend PD range is outdoors and winter weather limits its use for training from November through March each year.
7. Overall, there is a lack of adequately-sized dedicated **classrooms** where the region's public safety agencies can conduct their didactic training and host specialized classes and instructor-level courses benefitting their personnel and first responders from throughout the area.
8. Although COCC has adequate classroom space at its Bend campus to accommodate its Fire and EMS programs, it does not have the capability for hands-on training there. Students must relocate to a variety of training locations at fire departments throughout the region to receive critical hands-on training. COCC could potentially conduct most, if not all, of its hands-on training at RESTCC.
9. Many of these same issues and concerns were also noted in the *Central Oregon Emergency Services Center Viability Assessment*:

"The primary existing facility deficiencies reported by survey and focus participants are: classroom space, emergency vehicle driving course, and a live-fire training structure. Secondary facility deficiencies include: mock city, hazardous materials training, tactical training room(s) (e.g. mat, defensive tactics, etc.), shooting range (indoor), technical rescue, water rescue, and urban search and rescue (confined space)."<sup>1</sup>

Key Findings in the report included:

- "Insufficient quantity of adequately sized classroom space to meet existing training needs. Agencies compete for the limited number of available classrooms. Many classes have waiting lists because available classrooms cannot accommodate the number of registered students."
- "Lack of Emergency Vehicle Operations Course. There is no dedicated place for public safety personnel to conduct driver training. Agencies rely on irregular access to regional facilities (such as parking lots or snow parks) that are not designed for emergency vehicle operations training."
- "Lack of live-fire training tower/building. The lack of a live fire training facility means that many volunteer fire personnel have no experience in a live fire scenario. Career fire personnel cannot practice live fire situations in a controlled, training environment."
- "Lack of indoor shooting range. Law enforcement personnel have regular firearms training requirements across a range of environmental conditions. Current facilities cannot efficiently accommodate law enforcements firearms training needs due to weather, time of day (lighting), or shift scheduling constraints."
- "Lack of other tactical training resources. The Central Oregon region lacks other public safety training facilities including: Mock City, hazardous materials training, tactical training room(s) (e.g. mat, defensive tactics, etc.), shooting range (indoor), technical rescue, water rescue, and urban search and rescue (confined space), among others."
- "The region has limited dedicated 911 training facilities or ability to combine 911 training with live fire, law-enforcement, EMT, and multi-agency incident coordination training scenarios. Notably, simulated multi-agency emergency communication exercises provided tangible benefits during the 2017 eclipse and subsequent wildfire events."
- "Public safety professionals urgently need EVOC training, classroom instruction, and scenario-based tactical training facilities. Fire stakeholders highlight the need for live-fire training; law enforcement personnel emphasize the need for scenario-based tactical training facilities."<sup>2</sup>

Based on IBG's assessment of the Participating Agencies' current training needs and existing training conditions, we concur with the concerns and key findings articulated in the Central Oregon Emergency Services Center Viability Assessment.

<sup>1</sup> Central Oregon Emergency Services Center Viability Assessment

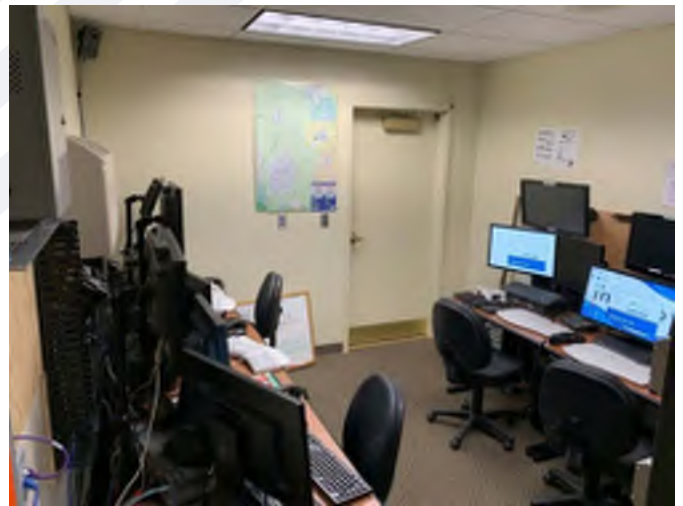
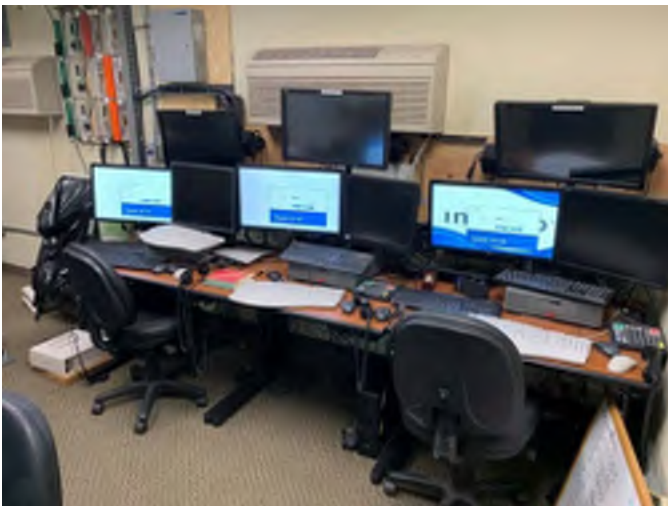
<sup>2</sup> Central Oregon Emergency Services Center Viability Assessment

## EXISTING EMERGENCY MANAGEMENT/EOC/BACKUP 9-1-1 CONDITIONS

Many disaster events in the region require multi-agency, multijurisdictional emergency management coordination. Preparation for and response to the 2017 total solar eclipse and subsequent wildfire emergency confirmed this fact. However, the region currently lacks a dedicated Multi-Agency Emergency Coordination Center. When regional disaster events occur, local partners have to re-establish a coordination center on an event-by-event basis. This inefficient approach diverts emergency manager's attention away from incident response at a critical time.<sup>1</sup>

**Lack of multi-jurisdictional emergency operations center.** When regional emergencies occur, emergency management personnel require immediate access to facilities, equipment, and communication capabilities. At the present time, multi-agency incident coordination capability has to be established on an emergency-by-emergency basis, often in inadequate, non-dedicated locations.

**Lack of redundant 911 emergency dispatch capability.** The region currently lacks adequate backup (redundant) 911 and emergency communication capability. This negatively impacts the ability to deliver redundant 911 and emergency dispatch services throughout the region. The Deschutes County 911 Backup Dispatch Center is located at 62420 Hamby Road on the first floor-north end of the east Bend Fire Station. It is in a very small, cramped room with only four dispatcher positions.



**FIGURE 7 - DESCHUTES COUNTY 911 BACKUP DISPATCH CENTER**

**Central Oregon needs a Multi-Agency Emergency Coordination Center.** A dedicated regional incident coordination center designed to support regional emergency management operations would allow emergency managers to respond quickly to the growing number of chronic inter-local, multi-jurisdictional emergency events. Furthermore, large-scale events like a Cascadia subduction zone earthquake will require significant incident coordination and emergency response capability in Central Oregon.

<sup>1</sup> Central Oregon Emergency Services Center Viability Assessment

## SITE LAYOUT CONSIDERATIONS

### SITE SELECTION CRITERIA

According to DPSST Director Eriks Gabliks: *"This is an amazing opportunity for Central Oregon and it's important that the property be secured while it is still available. Development of the venue could take place over years as funds are available. It's also important to consider future development so having adequate buffer space is also essential to avoid environmental concerns raised by neighbors down the road on issues such as noise from firearms or emergency vehicle operations or smoke from live-fire training. I share this simply as every training venue we have visited over the past 20 years has said we should have asked for more land. Not necessarily for training space but to be good neighbors and to avoid what many call an attractive nuisance that training venues become to interested parties. We also know with the growth of Central Oregon, open space and property such as that which is available to you now will not be there forever. It's an amazing opportunity that is worth exploring with passion. While DPSST is not able to contribute funds to the project we would be interested in exploring the option of moving our regional fire and law enforcement training coordinators from their current office space with Redmond Fire & Rescue to the new venue once its operational. We would pay a standard rental rate for our office space needs as we do now."*

### POTENTIAL TRAINING CENTER SITE(S)

The Project Team performed an extensive criteria-based site search and evaluation process. The following criteria was employed to narrow and focus potential sites for deeper due diligence and examination.

- Parcels of available land that could support a project site of approximately 50+ acres that are either owned or in control by potential jurisdictional project partners.
- Parcels of available land that could support a project site of approximately 50+ acres that are currently available within the real estate market.
- Parcels of approximately 50+ acres with current and future adjacent compatible uses.
- Parcels of approximately 50+ acres in size centrally located to reduce drive times and associated operational costs for public safety personnel traveling to the training facility.

The following drawings provide a conceptual site plan for the RESTCC based on the training hours, facilities, and equipment requirements needed to meet the training demand identified in the needs assessment.

### CONCEPTUAL SITE PLAN

The approximate 95-acre facility located at the "Old Public Range Site" in Redmond, is designed to allow concurrent use of training facilities by police and fire without disruption of training by either. The facility includes a 85,000 sf Classroom/Training Building, a two story high bay practical applications bay, a four story drill/training tower and three story clean Class B burn building, two story Class A burn building, driving track integrated into a tactical village, skills pad with straight away and perimeter live fire and transportation emergency props., 25 yard tactical 25 lane gun range, 50 yard fixed point 25 lane gun range, 100 yard fixed point 4 lane gun range, a driving skills pad, tactical village, space for K-9 training. The training site also includes props for urban search and rescue, confined space, collapsed trench, vehicle extrication, and hazardous materials containment training.

Key design elements include:

- |                                         |                                                |
|-----------------------------------------|------------------------------------------------|
| • Detention Pond                        | • Confined Space and Trench                    |
| • Administration and Classroom Building | • Roof Training                                |
| • Gun Range Support                     | • Vehicle Extrication                          |
| • 25 yard, 25 lane Tactical Gun Range   | • USAR Building                                |
| • 50 yard fixed point 25 Lane Gun Range | • Class A Burn Building, two story             |
| • 100 yard fixed point 4 lane Gun Range | • Drill Tower, 4 Story with Class B burn props |
| • High Bay / Practical Apps             | • Tactical Village / Street Grid               |
| • Drafting Pit                          | • Skills Pad                                   |

Following the conceptual site plan(s) reflect a phased approach leading to a full buildout.



## MASTER SITE PLAN



## Site Master Plan

Central Oregon Public Safety Training Center

2020-08-29 3000 430 00



## PHASE 1A

**Site Master Plan**

Central Oregon Public Safety Training Center

2020-08-29 3033.432.00

**PHASE 1A****\$9.5 mil Phased Cost****\$9.5 mil Cumulative Cost**



## PHASE 1B



Scale: 1" = 200'

**Site Master Plan**  
 Central Oregon Public Safety Training Center  
 2020-08-29 3003.430.00

**PHASE 1B**  
 \$5.2 mil Phased Cost  
 \$14.6 mil Cumulative Cost

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 Group**

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## PHASE 2



Scale: 1" = 200'

**Site Master Plan**  
 Central Oregon Public Safety Training Center  
 2020-08-29 3:00:43:00

**PHASE 2**  
 \$1.4 mil Phased Cost  
 \$15.9 mil Cumulative Cost





## PHASE 3



Scale: 1" = 200'

**Site Master Plan**  
 Central Oregon Public Safety Training Center  
 2020-08-29 3003.430.00

**PHASE 3**  
 \$7.0 mil Phased Cost  
 \$23.0 mil Cumulative Cost

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## PHASE 4



**Site Master Plan**  
 Central Oregon Public Safety Training Center  
 2020-08-29 3003.430.00

**PHASE 4**  
 \$23.4 mil Phased Cost  
 \$46.5 mil Cumulative Cost





## PHASE 5



**Site Master Plan**  
 Central Oregon Public Safety Training Center  
 2020-08-29 3003.430.00

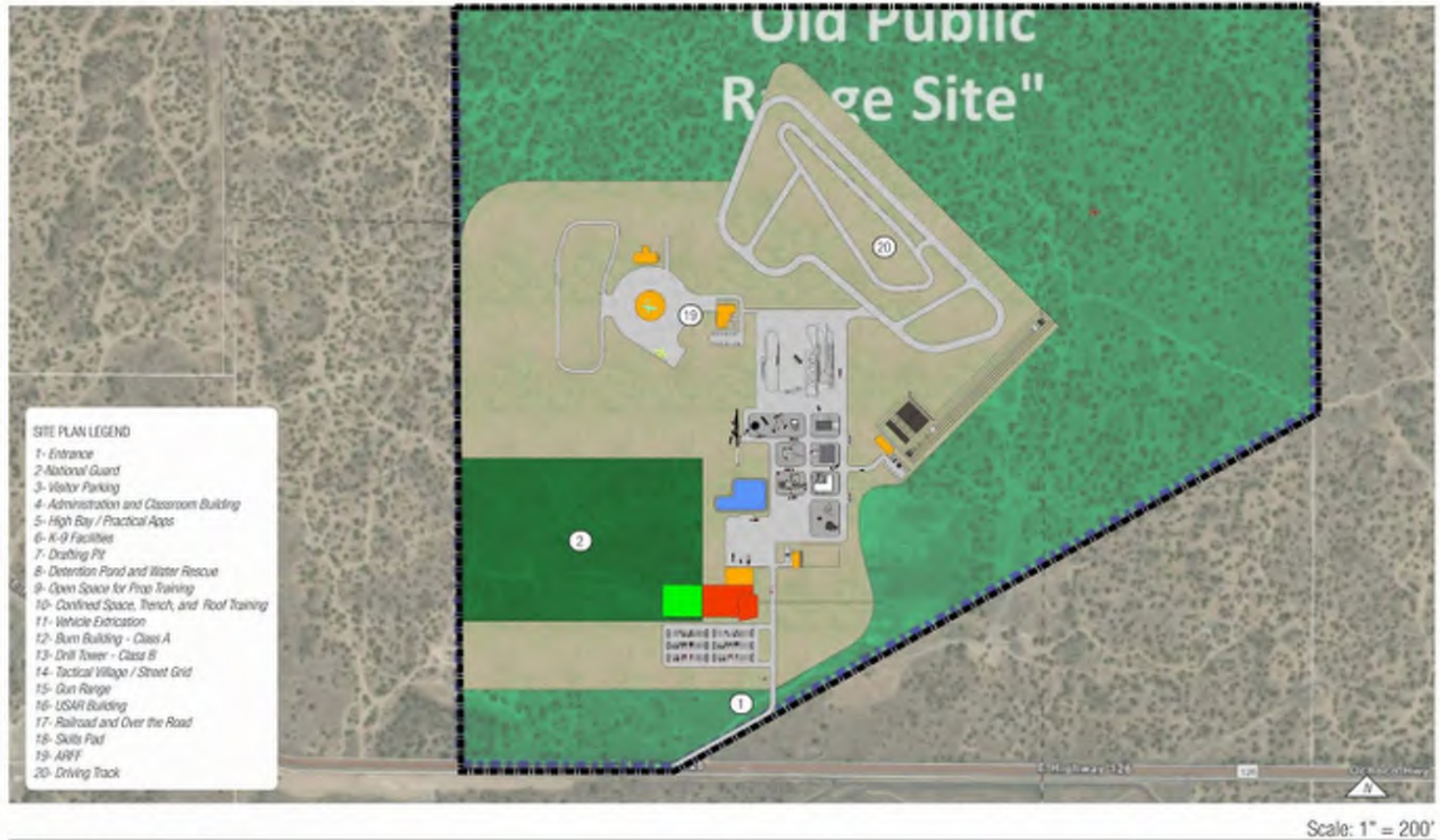
**PHASE 5**  
 \$17.6 mil Phased Cost  
 \$64.1 mil Cumulative Cost

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## PHASE 6



**Site Master Plan**  
 Central Oregon Public Safety Training Center  
 2029-08-29 3003.430.00

**PHASE 6**  
 \$34.9 mil Phased Cost  
 \$99.4 mil Cumulative Cost

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## MASTER PLAN – PERSPECTIVE VIEW



Master Plan Perspective



Master Plan Perspective



Master Plan Perspective



Master Plan Perspective

**Site Master Plan**  
Central Oregon Public Safety Training Center  
2020-06-29 3003.430.00

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## FACILITY PROGRAM

Guided by the information developed in the detailed Needs Assessment section of this report, the Steering Team has identified the major components of the training center that are vital to sustaining and enhancing the Participating Agency's training programs. The following chapter lists and describes the buildings, facilities, and props that will be located at the training center.

### FACILITY AND EQUIPMENT PLAN

#### OFFICE SPACE AND ADMINISTRATIVE HUB

The training center will be a state-of-the-art classroom and administration building, site plan # 3. The building, at full buildout, will be approximately 85,000 square feet. The building will house office space, various multiple classrooms, a defensive tactics training room and a simulations classroom. In addition, there will be public restrooms, meeting and conference rooms, a library, auditorium and complete locker rooms and showers for instructors and training personnel.

#### CLASSROOMS

The training center needs a variety of different classrooms to conduct the required training. The center must accommodate classrooms for traditional podium lectures and hands-on lab exercises, as well as outdoor training venues with props. Types of classroom needs were identified during the assessment process. Below is a description of each classroom type:



**FIGURE 8 - TYPICAL CLEAN CLASSROOM**

- **Standard Clean Classrooms** – Each clean classroom will accommodate various student capacities based on the needs assessment data and with an instructor's podium. Each classroom will use "smart" technology such as LCD projector, DVD player, and computer access. Based on the data from the needs assessment the clean classroom(s) may double as computer enabled classroom(s) with Wi-Fi capability.



**FIGURE 9 - TYPICAL PRACTICAL "DIRTY" CLASSROOM**

Photo Courtesy RDG Planning & Design

- **Practical Classroom "Dirty Classroom"** – This type of classroom will be used for multiple purposes. It will be larger than the standard classroom to accommodate equipment-based training, such as hands-on lab exercises and tabletop equipment demonstrations. The practical classrooms will be situated with direct access to the outside training drill area, allowing for immediate passage to outside props.



**FIGURE 10 - TYPICAL TACTICAL PADDED CLASSROOM**

Photo Courtesy RDG Planning & Design

- Tactical Padded Classroom – This classroom will be used for physical conditioning, arrest methods and defensive tactics training. Wall mats are permanently attached to the walls, while floor mats can be removed so the room can be used as a general classroom when not used for defensive tactics training.



**FIGURE 11 - PRACTICAL APPLICATIONS BAY**

Photo Courtesy RDG Planning & Design



#### HIGH BAY PRACTICAL APPLICATIONS

This area, site plan Item #6, is in the administration/classroom building and will be high (2 stories) and wide with no columns. This open area building will be used for multiple exercises such as high angle rescue, ground and aerial ladder drills, apparatus placement, high rise hose evolution, and rappel entry and exit training. The building will allow for in-door fire training apparatus.



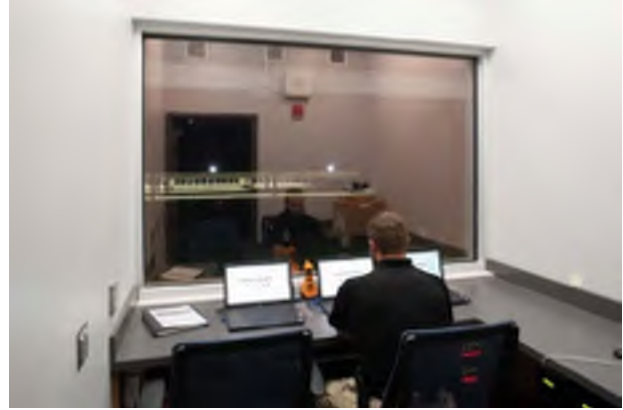
**FIGURE 12 - TYPICAL OUTDOOR TARGETING AND BULLET TRAP**

Photo Courtesy RDG Planning & Design

#### OUTDOOR GUN RANGE

The 25-lane gun range has been considered with safety and efficiency as top priorities. A baffle system made of ballistic steel, wood, and acoustical tiles will provide protection from bullet ricochet, spatter and escape as well as sound abatement. The firearms training facility will accommodate the most realistic training possible while providing a comprehensive, safe environment. The target systems are designed to facilitate qualifying and flexible “move and shoot” training scenarios. Below are detailed descriptions with size estimates of the major design components for the training center.





**FIGURE 13 - TYPICAL GUN CLEANING ROOM AND TARGET CONTROL ROOM**

Photo Courtesy RDG Planning & Design

- Gun Range and Support – This area consists of the firearms training range, which is configured as a, 25-lane, 50-yard fixed point and 25-yard tactical range with a lighting and target control booth. Other space required at the range include:
  - Armor area for gun storage, repair and maintenance rooms
  - Ammo storage room
  - Weapon cleaning room
  - Targeting System
  - Range storage room
  - Restrooms



**FIGURE 14 - TARGET SYSTEM**

Photo Courtesy RDG Planning & Design

- Range Bullet Trap – An environmentally friendly bullet containment system will be used. The design type of the bullet containment system has not been finalized. There are three commonly recognized bullet trapping systems for outdoors: 1) steel trap system, 2) rubber trap system and 3) earth backstop trap system. The following is a short laypersons description of each type of system. This information has been extracted from manufacturer's product literature.
  - Steel Containment System - The steel containment system will protect the shooters by using a gently sloping steel-plated funnel to direct rounds into a collection chamber where they will be safely contained. Because the low impact angle on the plates prevents bullets from breaking up on initial impact, splatter and ricochet are not concerns, even when rounds are fired at very close distances. A computer-controlled moving target system will provide solid, realistic, ongoing, and verifiable training.
  - Rubber Trap System – This system can be used with all pistol, shotgun, and rifle rounds up to 50 BMG. The granular rubber is made from recycled tires and is a cost-effective solution that will last indefinitely with regular maintenance. Bullet trap maintenance includes raking and lead removal after inspections or approximately 100,000 rounds have been fired per lane. Granular rubber absorbs incoming rounds reducing bullet fragmentation. Reduced fragmentation limits lead dust in the air which limits lead exposure to range users.
    - Earth Backstop: This system can be used with all pistol, shotgun, and rifle rounds up to 50 BMG. Backstops may be constructed with fill of any description, but on the side facing the shooter, a minimum of 18" - 24" of rock-free earth is required to reduce possible ricochet. Where not possible recommend rocks no greater than ¾" in size. The utilization of Geotextile materials can aid with the construction of the backstop if needed. The minimum height of the earth backstop shall be 20' high.
- Range Noise Consideration – In order to ensure a safe and noise compliant range it should meet the US Army Corps of Engineers noise performance criteria for shooting ranges. Which is an ASTM RT60 requirement to meet a 1.3 second reverb time across all octaves from 125 Hz to 8000 Hz. frequencies. Also, the range noise range limits must comply with OSHA CFR 29 noise exposure limits.<sup>1</sup>

<sup>1</sup> Data provided by Troy Acoustics Corporation - <http://www.troysoundwalls.com/>

**FIGURE 15 - DRIVING SKILLS PAD****DRIVING SKILLS PAD**

The driving skills pad is approximately 400' x 400' where police officers and firefighters will practice a wide variety of driving techniques. These may include (but are not limited to):

- Skid control techniques during controlled braking exercises.
- Straight line skids and 90 degree turning skids.
- The pad may also be used to set up various slow speed exercises using traffic cones.
- Officers will apply learned techniques for serpentine, 9-3 steering, shuffle steering, lane changes, backing, and parking.

Following are various types of training that can be performed on the driving skills pad.

| Typical Driving Skills Pad Training Scenarios                                                     |                                        |
|---------------------------------------------------------------------------------------------------|----------------------------------------|
| Serpentine steering                                                                               | High risk stops                        |
| Diminishing clearance exercises, primarily for large rigs                                         | Braking techniques (ABS and non-ABS)   |
| Confined space turns                                                                              | Combined pursuit techniques            |
| Offset alley maneuvers                                                                            | Skid control practice                  |
| Four-corner exercises to acquaint drivers with the location and clearance of each side of the car | Proper seating and steering techniques |
| Emergency driving maneuvers                                                                       | Controlled braking                     |
| Urban environment driving techniques                                                              | Proper backing techniques and practice |
| Complex cone course driving                                                                       | Vehicle dynamics training              |

**OPEN TRAINING PAD AREA**

This concrete pad, adjacent to the Skills Pad, will be a central training venue for many large, open space training activities such as:

- Mass trauma response exercise
- Automobile extrication exercises
- Active shooter tactic response
- "CERT Rodeo" events for community response drills (portable fire extinguisher; sandbags; light debris removal, etc.)
- Natural disaster large functional response exercise
- Mobile Field Force/Crowd Control

**SPECIALIZED FIRE TRAINING AREAS****DRILL TOWER AND CLASS B BURN BUILDING**

This stand-alone training building is designed for maximum training scenarios and evolutions for both fire and police. It will be located in the street grid, adjacent to the driver's skill pad and the Class B Burn Building to provide building approach training. Designed to provide interior or exterior training exercises, it will have two exterior and two interior stairs allowing for multiple drills to occur at the same time. Openings (simulated windows) on all sides will be gated to ensure trainee safety. Roof chop-out areas provide roof entry and ventilation exercises. All floors will be sloped for water drainage.



**FIGURE 16 - DRILL TOWER, AURORA CO**

Photo Courtesy RDG Planning & Design

Typical training scenarios for the building include:

- Computer controlled gas simulation
  - Home, industrial, and office fires
  - Smoke and flashover simulations
- Ground ladder training
- Hose advancement
- Fire department connection (FDC) operations
- Fire sprinkler operations and standpipe training
- Rappel entry and exit
- Over parapet, balconies, door and windows
- Flat and Rough walls
- Large double tie-off for safety and minimize wear on ropes

- Door, wall, ceiling and roof breaching
- Flexible maze panel system
- SCBA awareness
- Firefighter escape system training
- High-rise situation protocols
- Fire command and control
- Vertical and horizontal ventilation operations
- Confined space
- Building searches, and room clearing

\* The building will be designed to meet the requirements of NFPA 1402, "Guide to Building Fire Service Training Centers".



**FIGURE 17 - BED GAS-FUELED LIVE FIRE PROP**

Photo Courtesy RDG Planning & Design

#### LIVE FIRE SIMULATORS

Gas-fueled, computer-controlled live fire training systems located inside the Drill Tower, Class B Burn Building provide many training advantages. These systems realistically recreate fire emergencies in a controlled environment. The heart of the training is a computer-controlled system with multiple built-in safety features. Each scenario can be generated by the instructor, who determines the flame height, rate of fire growth, fire spread, and ability to create a controlled flashover.<sup>1</sup> The system constantly monitors the environment in the burn rooms to keep conditions within acceptable limits. If a firefighter experiences an actual emergency, such as a malfunctioning SCBA, the system can be shut down with the push of a button. Once the emergency button is pushed, the control system automatically shuts down the gas flow, extinguishes the fire, and ventilates the heat and simulated smoke from the building. Even though a gas-produced fire is just as hot as fires used in traditional fire training, the gas fire is controlled and limited in duration to reduce thermal stress on the burn building.

With the use of gas-fueled training props, environmental compliance is easily achieved. Training fires fueled by natural gas or propane do not produce the volatile organic compounds and soot associated with conventional combustibles. To add realism, these systems also have smoke generators to obscure vision and match common field conditions. Even this "smoke" is an environmentally benign aerosol fog. Because no actual products of combustion are created, the system is 100% environmentally friendly. In addition, a gas-fueled system can be used year-round, thereby allowing training fires to continue even on "no burn" days that prevent other facilities from conducting live burns. Gas-fueled burn buildings are currently used across the United States and even operate close to suburban neighborhoods without adverse effects on residents or the environment.

<sup>1</sup> The stage of a fire in which a room or other confined area becomes heated so much that flames flash over the surface of the area.



**FIGURE 18 - TYPICAL  
FLASHOVER PROP**

Courtesy Fire Blast Inc. Area

#### FLASHOVER LIVE FIRE PROP

The flashover prop, located within the Class A Building, trains firefighters to recognize conditions that lead up to a flashover event and learn techniques (known as Phase 1 capability) to delay this phenomenon—in a controlled, repeatable setting. The burn system combine purpose-built training units that train firefighters on fire behavior. The flashover prop will have capability up to the Phase 2 level. Meaning it will also have the ability to train students to recognize a room's fire condition, advancing a hose line, applying nozzle patterns, and ventilating fire gases through hydraulic ventilation methods.



**FIGURE 19 - MULTI STORY BURN BUILDING,  
AURORA, CO**

Courtesy RDG Planning & Design

#### **CLASS A BURN BUILDING**

Designed to provide Class A fire training to recognize real fire behavior and heat, this building will be approximately 4,000 square foot (including roof training) designed to simulate a ranch style house with walkout basement and/or two-story house with an option of an attached garage. Burn room walls, floors and ceilings are protected to provide years of training use. Rooms are configured for maximum flexibility to simulate kitchen, bedroom, living, closet, storage, bathroom and attic spaces.

Typical training scenarios for the building include:

- Real fire behavior
- Ground ladder training
- Hose advancement
- Fire department connection (FDC) operations
- Fire sprinkler operations
- Rappel entry and exit
  - Over parapet, balconies, door and windows
  - Flat and Rough walls
  - Double tie-off for safety
  - Large tie-off anchors to minimize wear on equipment
- Door, wall, ceiling and roof breaching
- SCBA training
- Firefighter escape system training
- Vertical and horizontal ventilation operations
- Confined space
- Building searches, and room clearing
- Basement-level entry exercises

*\* The building will be designed to meet the requirements of NFPA 1402, "Guide to Building Fire Service Training Centers".*



## OUTDOOR PROP TRAINING AREA

Based on the Fire Department Training Needs Assessment, the Project Team has identified several specialized training props and areas that are needed to support and enhance the Partner Departments' training programs.



**FIGURE 20 - TYPICAL VEHICLE LIVE FIRE PROP**

### VEHICLE LIVE FIRE TRAINING PROP

The vehicle live fire simulator allows students to experience various live fire scenarios involving a motor vehicle. The prop is equipped with propane gas burners that simulate an engine compartment fire, passenger compartment fire.

### ROOF/VERTICAL VENTILATION PROP

A ground level multi-pitched roof ventilation training props designed to allow students to have the opportunity vent a roof using various types of equipment and techniques. The simulator can be changed to reflect various materials and construction types.

### ENGINE DRAFTING PIT

Fire apparatus will conduct drafting operations and pump testing at this location. It will be located near the training grounds entry for easy apparatus access and its water supply will be integrated with that prop by city water. The pad surrounding the pit will be designed to support the weight of the Department's apparatus. Fire apparatus will have the ability to draft or use a hydrant located in the area. The piping system will be designed to recirculate discharge water.

### VEHICLE EXTRICATION PAD

Vehicle extrication training will take place near the USAR and Class A Burn Buildings described above.



**FIGURE 21 - TRENCH TRAINING PROP**

### USAR TRAINING AREA

The following multiple technical rescue prop areas are essential training tools for all personnel, and, in particular, the members of the Technical Rescue Teams. These props are designed to meet a variety of training mandates and they will maximize the educational benefit of training and provide a safe training environment. These props will also be built to any new or anticipated Federal Emergency Management Agency (FEMA) training requirements.

#### CONFINED SPACE PROP

It will include a variety of above ground and below ground pipes, vaults, etc. as well as at least one above ground tank with hatch.

#### TRENCH RESCUE PROP

It will be a permanent concrete "simulated" trench designed to allow for shoring practice, etc.

#### URBAN SEARCH AND RESCUE PROP

This unique structure provides for four stories of pancake collapsed floors, horizontal and vertical breaching penetrations, movable walls and roofs as well as multiple levels of shoring.



**FIGURE 22 - USAR URBAN SEARCH & RESCUE**

*Courtesy RDG Planning & Design*

## ORGANIZATIONAL STRUCTURE

The foundation for a successful training center is a well-defined organizational structure and a mutually agreed-upon management plan. A strong organization and well-defined management plan will significantly reduce the operational problems that may occur.

## GOVERNANCE

Based on its nationwide experience with multi-jurisdictional, multi-discipline training center organizations, IBG identified and presented a number of possible governance models to the RESTCC Governance Committee. Those models which seemed to have the most relevance to this project include:

**1. Memorandum of Understanding (MoU).** Various definitions of an MoU include:

- A Memorandum of Understanding (MoU) describes an agreement between two or more parties. It expresses a convergence of will between the parties, specifying an intended common line of action. It may be legally binding if specified.
- A Memorandum of Understanding (MOU) is a formal agreement between federal, state, or local government agencies; academic institutions; and other entities (e.g., non-profit organizations). The MOU constitutes an understanding between the parties but is a non-binding agreement.
- A memorandum of understanding (MoU) is a type of agreement between two (bilateral) or more (multilateral) parties. It expresses a convergence of will between the parties, indicating an intended common line of action. ... It is a more formal alternative to a gentlemen's agreement.
- MOUs specify mutually-accepted expectations between two or more people or organizations as they labor together toward a common objective. And here are two other touchstones of MOUs -- generally they're not legally binding, in part because neither party wants to deal with the ramifications of a binding agreement, and they don't involve the exchange of money.

### Oregon Revised Statutes (ORS):

**2. "ORS 451" County Service Facilities** (Deschutes County 9-1-1 Center model). Some key elements of the statute:

#### *Chapter 451 – County Service Facilities*

451.010 Authorization to establish master plans and service districts; purposes. (1) Master plans and service districts may be established as provided by this chapter regarding:

- (j) Emergency medical services, including ambulance services.
- (m) Services related to the emergency communications system established under ORS 403.105 to 403.250.
- (n) Law enforcement services.

(2) Within the geographical jurisdiction of any local government boundary commission established by or pursuant to ORS 199.410 to 199.519, in addition to the purposes described in subsection (1) of this section, master plans and service districts may be established as provided by this chapter regarding:

- (a) Fire prevention and protection.
- (b) Hospital and ambulance services.

(3) Within the boundaries of any subdivision, service districts may be established as provided by this chapter regarding:

- (a) Fire prevention and protection.

451.420 District may construct and operate service facilities. When authorized as provided in ORS 451.410 to 451.610 a district may construct, maintain and operate any or all of the service facilities specified in ORS 451.010

**3. "ORS 190" Agreement.** An ORS 190 Agreement is an intergovernmental agreement between two or more public agencies that seek to foster efficiency and economy by promoting the use of existing resources; "furthering economy and efficiency in local government..." Some key elements of the statute:

#### *Chapter 190 – Cooperation of Governmental Units; State Census; Arbitration*

**190.010 Authority of local governments to make intergovernmental agreement.** A unit of local government may enter into a written agreement with any other unit or units of local government for the performance of any or all functions and activities that



a party to the agreement, its officers or agencies, have authority to perform. The agreement may provide for the performance of a function or activity:

- (1) By a consolidated department;
- (2) By jointly providing for administrative officers;
- (3) By means of facilities or equipment jointly constructed, owned, leased or operated;
- (4) By one of the parties for any other party;
- (5) By an intergovernmental entity created by the agreement and governed by a board or commission appointed by, responsible to and acting on behalf of the units of local government that are parties to the agreement; or
- (6) By a combination of the methods described in this section

**190.080 Powers of intergovernmental entity created by intergovernmental agreement; limits; debts of entity; procedure for distribution of assets; rules.** (1) An intergovernmental entity created by an intergovernmental agreement under ORS 190.010 may, according to the terms of the agreement:

- (a) Issue revenue bonds under ORS chapter 287A or enter into financing agreements authorized under ORS 271.390 to accomplish the public purposes of the parties to the agreement, if after a public hearing the governing body of each of the units of local government that are parties to the agreement approves, by resolution or order, the issuance of the revenue bonds or entering into the financing agreement;
  - (b) Enter into agreements with vendors, trustees or escrow agents for the installment purchase or lease, with option to purchase, of real or personal property if the period of time allowed for payment under an agreement does not exceed 20 years; and
  - (c) Adopt all rules necessary to carry out its powers and duties under the intergovernmental agreement.
- (2) Except as provided in ORS 190.083, an intergovernmental entity may not levy taxes or issue general obligation bonds.
- (3) The debts, liabilities and obligations of an intergovernmental entity shall be, jointly and severally, the debts, liabilities and obligations of the parties to the intergovernmental agreement that created the entity, unless the agreement specifically provides otherwise.
- (4) A party to an intergovernmental agreement creating an intergovernmental entity may assume responsibility for specific debts, liabilities or obligations of the intergovernmental entity.
- (5) Any moneys collected by or credited to an intergovernmental entity shall not accrue to the benefit of private persons. Upon dissolution of the entity, title to all assets of the intergovernmental entity shall vest in the parties to the intergovernmental agreement. The agreement creating the entity shall provide a procedure for:
- (a) The disposition, division and distribution of any assets acquired by the intergovernmental entity; and
  - (b) The assumption of any outstanding indebtedness or other liabilities of the entity by the parties to the intergovernmental agreement that created the entity.
- (6) An intergovernmental entity created by intergovernmental agreement under ORS 190.010 may be terminated at any time by unanimous vote of all the parties to the intergovernmental agreement or as provided by the terms of the agreement.

Although all of these Governance models have potential relevance to the RESTCC project, based on a discussion of the options, there was consensus among the Governance Committee to begin formalizing the governance concept with a Memorandum of Understanding (MoU) between the Participating Agencies. The idea is start with a less-formal structure and scale-up in subsequent years to a more formal ORS 451 or ORS 190 model as needed.

IBG recommends that the RESTCC MoU should include statements of:

- Mission
- Shared Values
- Guiding Principles
- Purpose
- Tasks and Responsibilities
- Desired Outcomes

## MANAGEMENT PLAN

The Participating Agencies have indicated that they intend to use this Strategic Business Plan to assist them in developing a Management Plan for the RESTCC. This chapter provides various options for owning, staffing, managing, and operating the training center to meet its stated goals.

### RESTCC OWNERSHIP AND STAFFING

Participating Agency Leadership must decide in what manner the training center site (land) and physical improvements (buildings and props) will be owned. Various models for training center ownership exist throughout the country. Below are some examples:

- One entity owns both the land and physical improvements.
- One entity owns the land; a different entity owns the physical improvements. In this model there is typically a lease agreement for the land.
- A separate, stand-alone entity (such as a Joint Powers Agency/Authority) is created by the Participating Agencies; that entity owns the land and physical improvements.
- A separate public or private-sector entity (such as a college or private foundation) owns the land and physical improvements; the training center is then leased to the partner public safety agencies.

Participating Agency Leadership must also decide in what manner the training center will be staffed and operated on a day-to-day basis. Training Center support positions typically include a training center manager/coordinator, maintenance/janitorial employee(s), I.T. support employee(s), and other similar non-training personnel. Nationwide, there are many training center staffing models that may be considered. Below are some examples:

- One entity provides all training center support personnel (including full-time and part-time positions); these personnel are employees of that entity.
- Each Participating Agency contributes its own personnel toward training center support staffing; this is typically done on a fair-share FTE basis. Personnel remain employees of each respective entity.
- A separate, stand-alone entity (such as a Joint Powers Agency/Authority) is created by the Participating Agency; that entity employs the support staffing.
- Dedicated support staff is minimized to a single key employee (training center coordinator); the other support positions (maintenance/custodial; I.T.) are contracted out to a private company. Below are several options for staffing the Training Center Coordinator position:
  - **OPTION #1: NEW FULL TIME EQUIVALENT (FTE) POSITION**
    - ◆ In this option, the Training Center Coordinator (TCC) is a newly-funded position. The TCC would be an employee of one of the Participating Agencies; all agencies would contribute their fair share toward the position's salary and benefits.
  - **OPTION #2: FULL TIME EQUIVALENT (FTE) POSITION USING EXISTING EMPLOYEE**
    - ◆ In this option, the Training Center Coordinator position would be filled by an existing employee currently working for one of the Participating Agencies. That employee would be shifted from their current job assignment to the new TCC position.
  - **OPTION #3: ASSIGN EXISTING TRAINING STAFF**
    - ◆ In this option, the Training Center Coordinator role would be filled by one of the Participating Agency's existing Fire or Police Training Officers. The responsibility for coordinating the Training Center would be blended and balanced with the Training Officer's current job responsibilities.
  - **OPTION #4: ASSIGN EXISTING TRAINING STAFF ON A ROTATIONAL BASIS**
    - ◆ Similar to Option #3, the Training Center Coordinator role would be filled by one of the Participating Agency's existing Fire or Police Training Officers. However, rather than a long-term assignment, the position would be rotated among the Participating Agencies' Training Officers periodically (perhaps every two to three years). The responsibility for coordinating the Training Center would be blended and balanced with the assigned Training Officer's current job responsibilities.

## □ OTHER CONSIDERATIONS

- ◆ With respect to Options #3 and #4, it should be noted that currently, the Participating Agencies' training staffs are doing an excellent job managing their respective agency's training activities. Placing the responsibility for operating the training center on existing training staff may result in negative impacts. If current training staff were to absorb the increased workload brought about by the opening of the training center, the assigned individual may not be able to support his/her agency's training programs at a desired level. Conversely, if the staff member places his/her focus on agency training programs and away from the needs of operating the training center, it will not run as effectively and efficiently.

## RESTCC MANAGEMENT

The following section includes role descriptions – not formal job descriptions – for each key RESTCC position.

### TRAINING CENTER COORDINATOR

The role of the Training Center Coordinator is to ensure the effective and efficient day-to-day operation of the training center. Some of the key responsibilities of this position include:

- Ensuring that classrooms and other non-specialty props and training center assets are prepped and ready for scheduled training.
- Providing day-to-day guidance and assistance to training center users; troubleshooting problems that arise during the use of the facility.
- Generating work orders for facility maintenance and repairs.
- Coordinating all outside contracts and warranty work for the specialized props and equipment.
- Maintaining the training schedule in accordance with mutually agreed-upon scheduling policies and guidelines.
- Developing specific RESTCC SOPs and Standard Operating Guidelines (SOGs) as part of a User Group Team.
- Developing periodic reports for facility usage, performance measurement, etc.
- Handling billing for facility use; calculating and preparing invoices.
- Managing facility use agreements.

### TRAINING OFFICER (POLICE, FIRE, EMS, EMD, 911)

The role of the Training Officer is two-fold: 1) to administer his or her respective Department's training program; and 2) to be an active participant and voice to a User Group Team and help ensure the smooth operation of the training center. Some of the key responsibilities of this position include:

- Supervising staff that directly provides the training.
- Ensuring his or her Department's respective needs for training center assets are identified, forecasted, and scheduled as far in advance as is reasonably possible and in accordance with the mutually agreed-upon scheduling SOP; ensuring that last-minute needs are communicated to others that may be impacted.
- Attending User Group Team meetings as needed and participating in those meetings as a collaborative member.
- Working with the Training Center Coordinator and the Training Staff to resolve scheduling conflicts with a collaborative and flexible approach.
- Ensuring that RESTCC buildings, props, and other assets are clean, orderly, and in good repair at the beginning and conclusion of training; this is largely accomplished through the Training Staff.

### TRAINING CENTER STAFF CADRE (POLICE, FIRE, EMS, EMD, 911)

The role of the Training Staff is two-fold: 1) to deliver his or her respective Department's training; and 2) to help ensure the smooth operation of the training center. Some of the key responsibilities of these positions include:

- Providing new employee and in-service training as directed by the Training Officers.
- Ensuring that training center buildings, props, and other assets are clean, orderly, and in good repair at the beginning and conclusion of training.
- Ensuring that specialty props and training center assets are prepped and ready for scheduled training.
- Working to resolve scheduling conflicts with a collaborative and flexible approach.

### TRAINING CENTER MAINTENANCE AND REPAIR

The role of maintenance personnel working at the facility includes basic services, such as preventive maintenance, minor repairs, etc. Maintenance staff may also be trained in the upkeep of specialized assets. In addition, this staff may be responsible for training instructors in the use and simple repair of equipment and props.

- Authorized Police and Fire Department personnel are permitted to perform minor repairs and simple fixes.

Custodial/janitorial services may be provided by one or more of the Participating Agencies' personnel, by contracting those services out, or by a combination of these two options.

### TRAINING CENTER INFORMATION TECHNOLOGY (IT) SUPPORT

The role of IT personnel includes supporting all computers and other information technology (IT) equipment at the training center.

## RESTCC OPERATIONS

All RESTCC users, including the Participating Agencies' personnel and those from external agencies, will comply with SOPs/SOGs as established by a User Group Team, and, in the case of individual police and fire training programs, by departmental policies and procedures. The following section identifies some of the key RESTCC operational considerations.

### SCHEDULING RULES

The scheduling of classrooms, props, and training areas will comply with policies/guidelines as established by a User Group Team. The Training Center Coordinator is responsible for maintaining the master schedule. Participating Agency Training Officers will forward their requests, and the Coordinator will process those requests and schedule appropriately.

- Training directly related to the personnel of the Participating Agencies will have first and highest priority for use of the facility. Their approved requests will be placed on the master schedule first. They will have 24/7 access to the facility for approved training uses. These operational hours will not generally apply to outside agencies.
- Community-related use of the training center associated with Participating Agency Police, Fire, EMD, and EMS programs have second priority for facility use.
- Other Participating Agency departments (non-public safety, such as Public Works) have third priority for facility use.
- Outside public safety agencies have fourth priority for facility use.
- The operational hours for outside agency use of the facility is dependent on the availability of training facility staff or other public safety personnel. To ensure adequate security and oversight, at least one Participating Agency Police/Fire representative will be present whenever outside agencies are training at the facility.
- The master calendar will document all facility training activities for 12 months. The calendar will use an "80-20 rule", which recommends that the calendar will normally not be more than 80% scheduled, allowing 20% for discretionary use.
- The Training Center Coordinator will utilize Microsoft Outlook or a similar software-based tool for scheduling to ensure that conflicting events are not scheduled simultaneously. The Administrative Assistant will work with the Participating Agency Training Officers to ensure training in adjacent locations (two training activities being held near each other) does not create an unsafe environment.
- Participating Agency Training Officers will have ongoing access to the scheduling calendar and will advise the Training Center Coordinator of all canceled events.

### ACCESS CONTROL

The granting of access to the training center and issuance of individual access cards will comply with direction from the Training Center Board and policies/guidelines as established by a User Group Team. The Training Center Coordinator will manage the access control/card access system for the facility. Levels of access must be established, i.e. who is able to access the facility and when. The Coordinator will issue security codes to necessary personnel.

### SET UP/TEAR DOWN/CLEAN UP

The Training Center Coordinator (or his or her designee) will ensure that classrooms and non-specialty prop areas are set up and ready in advance of scheduled training utilizing those assets. Training Staff will ensure that specialty props are ready in advance of their scheduled use. All agencies using the facility are responsible for clean up after their training activities. They are expected to leave the site in the condition they found it. All tables must be set-up in the previous format upon conclusion of any classroom training session.

### **PARTICIPATING AGENCY DEPARTMENTS RESPONSIBILITIES FOR FACILITY USE**

Any damage caused to the facility or equipment shall be reported to the Training Center Coordinator as soon as possible.

### **OUTSIDE AGENCY USE OF FACILITY AND EQUIPMENT**

Outside user agencies that are granted permission when capacity exists to utilize the RESTCC for training purposes are required to complete an *Outside User Agreement* form. When an outside agency is granted use of the training center and its associated training equipment, the equipment and training areas shall be evaluated for condition and documented on the *Site Use Checklist* by the Training Center Coordinator or Training Staff. When the outside agency has completed its training, the Training Center Coordinator or Training Staff shall inspect the used facilities and equipment with a statement of condition being documented on the *Site Post-Use Checklist*. Any damaged facilities or equipment will be documented using the *Damaged Equipment Report Form*. The user agency will be invoiced for all facility and/or equipment damage at actual repair or replacement cost.

### **CONSUMABLES**

Consumable items include plywood, sheetrock, salvaged vehicles, etc. The Participating Agencies will purchase their own consumable items out of their respective training budgets. Outside law enforcement agencies will bring their own targets, ammunition, and weapons to the facility. Outside fire service agencies will be charged for actual use of consumables on a pay-as-you-go basis.

### **STORAGE**

The Participating Agency's personnel are responsible for keeping their respective storage areas clean and organized. Storage areas are intended for the storage of training-related tools, materials, and supplies only. Expanded use of storage areas and/or creation of new storage areas are not permitted without the approval of the User Group Team.

### **SAFETY PROCEDURE**

All training requires the presence of a designated safety officer. The Training Center Coordinator or Training Staff will ensure that one is in place for outside user agency training activities. This may be a Participating Agency staff member or other approved personnel. Safety issues/concerns must be reported to the Training Center Coordinator or Training Staff immediately. Any injury incurred at the RESTCC must be reported to the Training Center Coordinator or Training Staff immediately.

### **FEE SCHEDULE**

RESTCC resources may be rented to agencies, departments, institutions, and other approved entities that are not affiliated with the Participating Agencies at the rates published in the annual service fees schedule and upon acceptance of the training center Site Use Agreement. The Training Center Coordinator is responsible for renting training center assets to outside users on a space-available basis.

### **VEHICLES/PARKING**

Vehicles regularly assigned to the RESTCC will be identified by sign or decal and will be maintained by their respective agencies. Parking inside the facility fence is dependent on training activities, which have first priority.

## FINANCIAL ASSESSMENT

### CAPITAL COSTS

In association with the Steering Team, IBG+RDG has developed a facility plan that reflects the RESTCC build-out strategy based on the identified training needs. The following construction cost estimate has been established based on the training center described in the Facility & Equipment Assessment section. The costs were developed based on local project experience, training-specific equipment costs from manufacturers, and IBG historical data from similar fire training center projects. The following tables summarize the cost elements of all areas of the Main Training Campus.



## SUMMARY OF CAPITAL COST

| Conceptual Opinion of Cost of Full Master Plan Summary     |                                                      | PHASE 1A                                                                                      | PHASE 1B                                                           | PHASE 2                                               | PHASE 3                                                            | PHASE 4                                                                                       | PHASE 5      | PHASE 6               | MASTER PLAN                       |
|------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------|-----------------------|-----------------------------------|
|                                                            |                                                      | Class A (2 Story) Burn Pad (8" Concrete), 25 Yard Tactical Baffled Range and Support Building | Add Class B Burn Building (4 story), Pump House and Recycling Pond | Add 50 yard fixed point range behind 25 yard tactical | Add 400'x400' Skills Pag (8" Concrete) & EVOC course (8" Concrete) | Add Class Admin Building, 8" Concrete Drice from Highway to Burn Pad, 5" concrete POV parking | ARFF         | Remiander to Buildout | Master Plan - Includes Everything |
| August 29, 2020                                            |                                                      | \$9,461,482                                                                                   | \$5,131,891                                                        | \$1,368,332                                           | \$7,090,265                                                        | \$23,460,961                                                                                  | \$17,626,505 | \$34,925,969          | \$99,461,030                      |
| 01                                                         | Combined Education and Training Building             | \$0                                                                                           | \$0                                                                | \$0                                                   | \$0                                                                | \$14,565,000                                                                                  | \$0          | \$15,762,728          | \$30,327,728                      |
| 02                                                         | Drill Tower w/Class B Burn                           | \$0                                                                                           | \$2,966,000                                                        | \$0                                                   | \$0                                                                | \$0                                                                                           | \$0          | \$200,000             | \$3,166,000                       |
| 03                                                         | Pumping Infrastructure                               | \$0                                                                                           | \$346,026                                                          | \$0                                                   | \$0                                                                | \$0                                                                                           | \$0          | \$0                   | \$346,026                         |
| 04                                                         | Class A Burn Building                                | \$1,078,000                                                                                   | \$0                                                                | \$0                                                   | \$0                                                                | \$0                                                                                           | \$0          | \$0                   | \$1,078,000                       |
| 05                                                         | Tactical/Search/Rescue Structure                     | \$0                                                                                           | \$0                                                                | \$0                                                   | \$0                                                                | \$0                                                                                           | \$0          | \$253,000             | \$253,000                         |
| 06                                                         | Tactical Village                                     | \$0                                                                                           | \$0                                                                | \$0                                                   | \$0                                                                | \$0                                                                                           | \$0          | \$1,229,000           | \$1,229,000                       |
| 07a                                                        | Range - 25 Yard Tactical & 2,700 SF Support Building | \$2,774,000                                                                                   | \$0                                                                | \$0                                                   | \$0                                                                | \$0                                                                                           | \$0          | \$346,500             | \$4,4047,180                      |
| 07b                                                        | Range - 50 Yard Fixed & 100 Yard Fixed               | \$0                                                                                           | \$0                                                                | \$926,680                                             | \$0                                                                | \$0                                                                                           | \$0          | \$0                   |                                   |
| 08                                                         | Training Site                                        | \$0                                                                                           | \$65,000                                                           | \$0                                                   | \$0                                                                | \$0                                                                                           | \$0          | \$1,284,000           | \$1,349,000                       |
| 09                                                         | AARF - Aircraft Rescue Fire Fighting                 | \$0                                                                                           | \$0                                                                | \$0                                                   | \$0                                                                | \$0                                                                                           | \$13,040,500 | \$0                   | \$13,040,500                      |
| 10                                                         | Site Development                                     | \$1,361,800                                                                                   | \$57,850                                                           | \$75,550                                              | \$5,287,900                                                        | \$1,916,150                                                                                   | \$0          | \$3,353,600           | \$12,234,850                      |
| 11                                                         | Utilities                                            | \$1,543,400                                                                                   | \$350,265                                                          | \$0                                                   | \$0                                                                | \$242,000                                                                                     | \$0          | \$1,133,340           | \$3,269,005                       |
| SUBTOTAL                                                   |                                                      | \$6,757,200                                                                                   | \$3,785,141                                                        | \$1,002,230                                           | \$5,287,900                                                        | \$16,723,150                                                                                  | \$13,040,500 | \$34,925,969          | \$99,461,030                      |
| 10% Contingency/GC Fees/Material Testing/Commissioning/etc |                                                      | \$1,428,489                                                                                   | \$800,188                                                          | \$205,893                                             | \$1,054,764                                                        | \$23,430,961                                                                                  | \$17,626,505 | \$34,925,969          | \$99,461,030                      |
| Non-Construction Soft Costs/FFE/Feess/etc                  |                                                      | \$1,275,793                                                                                   | \$546,562                                                          | \$160,209                                             | \$747,601                                                          | \$2,972,904                                                                                   | \$1,829,210  | \$34,925,969          | \$99,461,030                      |
| TOTAL PHASED COSTS                                         |                                                      | \$9,461,482                                                                                   | \$5,131,891                                                        | \$1,368,332                                           | \$7,090,265                                                        | \$23,430,961                                                                                  | \$17,626,505 | \$34,925,969          | \$99,461,030                      |
| TOTAL CUMULATIVE COSTS                                     |                                                      | \$9,461,482                                                                                   | \$14,593,373                                                       | \$15,961,705                                          | \$23,051,970                                                       | \$46,482,931                                                                                  | \$64,109,436 | \$99,035,405          |                                   |

## OPERATION AND MAINTENANCE (O&M) COSTS

The cost to operate and maintain the RESTCC on an annual basis is separated into three general categories:

1. Staff Expense – these costs are for the dedicated facility staff.
2. Administration/Classroom Building – these costs include utilities, office supplies, computer supplies, telephone, etc.
3. Annual Prop Maintenance and Training Areas – these costs include expenditures directly associated with the delivery of training, such as live burn building, gun range, equipment maintenance, and training consumables, including fuel and water.

In terms of staff expense, although this SBP discusses options for staffing the RESTCC in the “Management Plan” chapter, there has not been a determination as to which option (or combination of options) will ultimately be chosen to provide the necessary staff to operate the center. For this reason, it’s not possible to develop a dollar-cost O&M estimate at this time.

Likewise, this SBP includes phasing scenarios for the development of the RESTCC assets in the “Conceptual Site Plan” section. The phasing and timing for construction of improvements such as the Administration/Classroom Building and various other training buildings and props will be determined at some point in the future. For this reason, it’s not possible to develop a dollar-cost O&M estimate at this time.

## COST SHARE

Each of the Partner Agencies agrees in principle that they will contribute a fair share dollar amount to the training center ongoing annual operating costs. Although an exact cost share formula has not been determined, several variables can be considered in determining a formula. Those include:

- Overall population of each Partner jurisdiction.
- Number of fire, police, EMS, and dispatch personnel from each Partner that will be using the training center.
- Number of hours annually that each Partner’s personnel use the training center.

Any cost share formula agreed to should be reevaluated from time to time and any adjustment should be based on solid methodology. As mentioned in the Governance section of this SBP, the cost share should be documented in the written agreement between the Partners.

## BENEFIT ANALYSIS

The effort to create a Strategic Business Plan for the RESTCC started in May 2019. The IBG Team interviewed numerous individuals, considered all information gathered, and prepared this report. An Emergency Services Training and Coordination Center strategically located in Central Oregon would provide numerous benefits. Key among those is: 1) the ability to properly support and optimize training efforts and allow for more consistent, realistic, and repeatable training exercises; 2) the ability to coordinate emergency management activities during times of local, regional, and statewide disasters. This section includes IBG's quantitative and qualitative analysis of the benefits associated with building the RESTCC.

## POTENTIAL COST SAVINGS

The development of a Regional Emergency Services Training Center in the Central Oregon area brings with it the potential for certain cost savings in terms of how the Participating Agencies currently meet their training needs now and in the future. Those cost savings are identified below.

### JOINT TRAINING FACILITY CONCEPT

By co-locating law enforcement, fire, EMS, emergency management, and 911 training buildings, facilities, and props at one location and creating shared-use classrooms and other features, the Participating Agencies are expected to realize some substantial capital cost and operational cost savings as compared to each Jurisdiction/Department building its own stand-alone training center.

### COST OF TRAVEL TO TRAINING SITES AWAY FROM THE AREA

As noted in the "Existing Training Conditions" section of this report, from time to time the Participating Agencies conduct their training or attend specialized classes at locations outside of their respective jurisdictions. These training venues are frequently owned and controlled by other entities. There are real dollar costs associated with training at these locations, including:

- **Vehicle Costs.** The departments travel to outside training venues in agency vehicles (police cars, fire engines, etc.). Costs associated with this travel include fuel and vehicle mileage/wear and tear.
- **Facility Use Fees.** On occasion, the agencies must pay fees for the use of outside training venues.
- **Registration Fees.** From time to time, the departments must pay registration fees for specialized training classes hosted by outside agencies.
- **Greater Efficiency in Specialized Training Costs.** With properly-designed classrooms and the correct props, the RESTCC can become a host site for a great deal of specialized training that many agencies must currently obtain at distant locations. By being able to host specialized training, a much larger number of personnel can receive that training for the same cost as just a few at an offsite location.

The RESTCC – as envisioned – will meet the majority of the Participating Agency's training that is currently conducted away from their jurisdictions. As such, they can expect to see some degree of real dollar cost savings. Those funds can be redirected to help offset the training center O&M costs.

Note: Construction of a RESTCC will not eliminate all costs related to training outside of the Participating Agency jurisdictions. Certain highly-specialized training courses, such as high-speed driver training, will continue to be obtained at outside venues.

## LEADERSHIP AND COMMITMENT

Leaders within the Participating Agencies have demonstrated their commitment to organizational development. This is evident in their viewpoints and attitudes toward training, in their respective training organization staffing levels, and in the allocation of funds to support both in-house and outside training. They understand that the environment in which employees are expected to learn is often challenging and that an adverse psychological impact on the education of emergency responders can occur when they lack adequate training facilities and logistical support to meet their ongoing needs.

Although the Departments are – for the most part – meeting their essential training needs, all of them recognize that meeting those needs in the future is not sustainable by continuing to rely heavily on current training locations. It is their vision to reduce the need for their respective agencies to go outside the area for training by having a training center built in the Redmond/Bend area. Leadership views this as an important investment in public safety. Creating a dedicated training facility demonstrates leadership and commitment to citizens, employees, and other agencies. This commitment is also an effective tool in helping to recruit and retain the very best public safety personnel.

## SAFE, SECURE, & CONSISTENT TRAINING

The benchmark for modern, progressive public safety training is to conduct that training in a SAFE, SECURE, and CONSISTENT environment. The RESTCC will be a modern, state-of-the-art facility designed to meet the current and future training needs of the Participating Agency's first responders, personnel from other Participating Agency departments (such as Public Works and Risk Management), and potentially, other Central Oregon public safety agencies.

## NON-MONETARY JOINT TRAINING FACILITY BENEFITS

Rather than having separate training facilities for each Participating Agency, this project envisions creating a joint training facility. There are important benefits realized in this approach, including:

- Joint first responder and mutual aid training – Many of the buildings, assets, and props envisioned for the new training facility support cooperative training opportunities for law enforcement, fire service, and EMS agencies. This is particularly important for scenario-based training exercises, such as hazardous materials emergencies, mass casualty incidents, active shooter incidents, etc.
- Training opportunities for non-public safety departments – The props and assets envisioned for the training center will also benefit and support some of the training needs of other Participating Agency departments such as Public Works, Utilities, Risk Management, etc.

## IMPROVED AVAILABILITY OF FIRST RESPONDERS

Currently, Participating Agency staff must frequently leave their respective areas to complete some of their key training. IBG has determined that the Departments' first responders spend a considerable amount of time per year "off-post," away from their respective jurisdictions while traveling to, training at, and returning from training facilities located outside of their home areas. When this happens those personnel are not immediately available to respond to a larger-scale emergency event (such as an active shooter situation or weather event) should they be needed.

Should a major emergency situation arise, there could be a significant delay in deploying first responders who are training outside of the area to the scene. Having the ability to complete that same training locally would allow those first responders to immediately discontinue their training activity and respond to the evolving emergency scene.

## INCREASED ABILITY TO MEET NEW TRAINING REGULATIONS

National and state regulations for public safety training will continue to update and change in the coming years. A dedicated training center will better-enable the Participating Agencies to respond to these changes more efficiently and develop dedicated training curricula specific to their needs.

## OTHER BENEFITS

Several other benefits will be realized from establishing a RESTCC. Examples of these benefits include:

- Improved training capability. With the assistance of new training props and classrooms, the Participating Agencies will be able to provide the quantity and quality of training they desire in a variety of areas. Example include:
  - Vastly-improved live burn training. Fire service agencies will have regular access to state-of-the-art live burn buildings and props. This type of training is critical for safely and effectively responding to low-frequency, high-risk emergencies such as structure fires.
  - Deschutes County 9-1-1 leaders have a vision to position their training classrooms in such a way that the dispatchers can view real-time first responder activities on the training ground while the responders are communicating with the dispatch center.
- Ability to host specialized training. The training center will provide improved training capabilities which will benefit the Participating Agencies and the region with enhanced opportunities to host specialized classes and courses taught by nationally-recognized presenters.
- "One Stop Shop" training environment. Participating Agencies personnel, along with first responders from outside agencies in the region, will have access to all of the critical training assets they need to accomplish their most important training – all in one location. As envisioned, the training center will facilitate the most effective and efficient use of staff's valuable training time. For example, a training day could consist of defensive tactics in the morning and firearms training in the afternoon. Accomplishing these activities at various training sites (including well outside of the area) in the same day is virtually impossible.

- Better-prepared emergency first responders.
- Reduced risk of injuries and deaths of trainees, civilians, and emergency responders.
- Increased teamwork abilities of first responders due to a better understanding of duties and job responsibilities. Predictable, consistent, ongoing, and professional training.

## COORDINATION OF EMERGENCY MANAGEMENT ACTIVITIES

The RESTCC will serve as a dedicated, multi-agency coordination center for emergency operations. It will be a critical hub for emergency management training and coordination of disaster-related emergency management activities not only for the Central Oregon region, but for the entire state as well. The site(s) under consideration are close to the Redmond Airport. In the event of a major natural disaster such as a Cascadia Subduction Zone event, Redmond and the Redmond Airport have been envisioned as a primary staging ground for statewide rescue and recovery operations. Another potential opportunity would be for the RESTCC to play a role for continuity of state government functions in the first weeks and months after a catastrophic event.

One important feature of RESTCC will be its dedicated, fully-functional EOC. A dedicated EOC invites and facilitates emergency management-related training, exercises, and simulations.

## BACKUP 9-1-1 CENTER

The RESTCC will include a much needed, state-of-the-art backup 9-1-1 center with redundant emergency dispatch capabilities. This will vastly improve the ability to deliver redundant 9-1-1 and emergency dispatch services throughout the region.

## COMMUNITY-ORIENTED USE OF THE FACILITY

In addition to supporting the training needs of the Participating Agencies and providing training opportunities to other emergency responders, the training facility may serve as a location for other community-oriented uses. Collaborating with the community for access opportunities presents the agencies with an opportunity to give back to its citizens while also enhancing department team building, recruiting, morale, community education, and public safety awareness.

While not inclusive, the following list outlines examples of community-oriented activities and events that could potentially utilize the training facility:

- Community Emergency Response Team (CERT) Training
- Free Health Screening Expo
- Science, Technology, Engineering, & Mathematics (STEM) classes
- Junior EMT and First Aid classes
- Hunter Safety classes
- Charity Fundraising

## POTENTIAL FUNDING OPPORTUNITIES

This chapter identifies potential funding sources and revenue producers to help offset the Center's annual operational costs.

This chapter identifies potential funding opportunities for one-time capital construction and ongoing costs related to the operation and maintenance of the RESTCC. It is highly likely that the Center will need to use a combination of all of these available funding mechanisms to construct and operate the facility.

### CAPITAL FUNDING:

Based on the information gathered during the course of this project, IBG and the Steering Team have identified the following potential funding sources that could be utilized toward the cost of constructing the Center.

#### BONDS

Based on IBG's experience, bonds are frequently used to help finance the construction of public safety training centers. The State of Oregon Revised Statutes includes provisions for the issuance of local government bonds. Excerpts include:

- ORS 287A.050 Authority of city to issue general obligation bonds
  - (1) Upon approval of the electors of a city, the city may issue general obligation bonds to finance:
    - ◆ (a) Capital construction or capital improvements permitted by Article XI, sections 11 and 11b, of the Oregon Constitution.
    - ◆ (b) Capital costs permitted by Article XI, section 11L, of the Oregon Constitution.
- ORS 287A.150 Authority of public body to issue revenue bonds
  - (1) In addition to any other authority to issue revenue bonds, a public body may authorize revenue bonds by resolution or nonemergency ordinance pursuant to this section for a public purpose.

IBG Note: It isn't likely that revenue bonds would be used for this project since the amount of revenue that's expected to be generated by the Center would not be sufficient to pay the bond principal and interest.

#### CAPITAL IMPROVEMENT PROJECT (CIP) FUNDS

Most cities and counties throughout the country have Capital Improvement Program (CIP) budgets established to help build and maintain public facilities (such as fire stations, libraries, etc.) and fund infrastructure improvements (such as roads, bridges, water/wastewater plants, etc.). CIP budgets are typically forecast five or more years in advance and funds are accumulated over a series of years for each identified project. Funds used for CIP projects can come from a variety of sources including cash and borrowed funds. Common examples include gas tax, state and federal grants, capital development fees, and bond proceeds.

#### SPECIAL LEGISLATION

The Partner Agencies could seek special one-time funding from the Oregon State Legislature for a portion of the training center capital improvements. The benefits of building the RESTCC have the potential of extending well beyond education, training, dedicated multi-agency coordination for emergency operations, and backup 911-capability. The physical presence of these kinds of facilities has proven to be transformational for many of the communities in which they are located.

State Senator Tim Knopp represents Senate District 27, which encompasses the Central Oregon communities of Bend, Redmond, Sunriver, and Tumalo.

#### PRIVATE SECTOR DONATIONS

Given the potential regional economic benefit that the RESTCC could generate, it's very possible that private sector entities could step forward with one-time donations of money, equipment, and labor – or some combination of all three. For example, IBG is aware of instances where trade labor unions (such as electricians, heavy equipment operators, carpenters, etc.) have donated labor and materials to construct training center props as part of their apprenticeship training programs.

### OPERATIONAL FUNDING:

IBG and the Steering Team have identified several potential funding sources that could be utilized toward the ongoing operation and maintenance of the Center.



## REGIONAL USER FEES

Perhaps the most significant operational funding source for the RESTCC may come from the region's public services entities. As described in the Training Needs Assessment chapter, there are strong indications that the Center will be utilized extensively by a variety of agencies to help them meet their specialized training needs. It is IBG's experience that this type of training typically involves an agency providing its own instructor and paying a user fee for training center time and assets. For example, if an EVOCC were built at the RESTCC, a law enforcement agency would likely provide its own driving instructor and rent time and space at the driving track. Given the specialized training assets envisioned for the RESTCC, IBG believes that a large portion of the training center's overall operational cost could be offset by this type of revenue.

## STATE & FEDERAL USER FEES

It's likely that the RESTCC may be used from time to time to help facilitate training that's sponsored by state and federal entities. To provide a sense of this revenue opportunity, IBG has identified some examples of fees associated with state and federal public services training:

- **Emergency Management Functional Exercises:** The RESTCC could be used to support large functional exercises that occur from time to time. Grant funds that are used to support this type of training typically allow a portion of the exercise budget to be allocated to the use of a suitable facility, including the staff that supports the facility.
- **Oregon State Police:** A Major with the Oregon State Police has indicated that the availability of a central Oregon training facility could be beneficial to the local area command and to the Department generally as a region or division-level training venue to provide in-service training to OSP personnel. The Department focuses most of its mandatory training at the Area Commands, which are the localized offices for the OSP throughout the state. Providing training at the local level has been the most efficient and low cost for training our personnel statewide. He further emphasized that a new facility with large conference rooms in addition to the facility's training props and assets may be utilized by OSP for in-service training or specialty training such as SWAT, arson and explosives, etc.
- **Oregon National Guard:** IBG+RDG and the RESTCC Steering Team met with a representative from the Oregon National Guard's 142nd Medical Group to discuss potential areas of mutual interest in the project. The unit he is involved with is the "CBRNE Enhanced Response Force Package" (CERFP). It is a 205-person team of medical professionals/field operators who provide disaster response, including search and extraction and medical/chemical triage.

The vast majority of their training occurs on weekends. They typically conduct three (3) major training events per year in a hardened training environment. The representative believes his unit would potentially train at RESTCC if it was available, even if there was a fee for such use. One of the reasons he gave to support the use of RESTCC was the issue of "fatigue" given the unit's training at the same site over and over.

## SPECIALTY SEMINARS

Guest speakers and specialty seminars may also be a source of income for the facility. Nationally-recognized speakers may draw students from a wide geographical area. Hosting such seminars may generate some revenue to help offset operational costs.

## GRANTS:

When evaluating potential grant programs, it is important to realize that grants are offered to solve some governmental or societal problem. Foundation and government grants fill very specific niches. However, even in program areas that would appear to have a similar interest and mission (such as Homeland Security), there is a limit as to how far the funding can be spread around a variety of missions including border patrol, port and airport security, law enforcement, fire service, and emergency medical service. With that said, grant programs do exist that will help offset the cost of facility, curriculum development and delivery, equipment, supplies, and furnishings. Potential grant funding that may be available to help offset the cost of the Center includes:

### ASSISTANCE TO FIREFIGHTERS GRANT (AFG) PROGRAM

The primary goal of the Assistance to Firefighters Grant (AFG) is to meet the firefighting and emergency response needs of fire departments and non-affiliated emergency medical service organizations.

Since 2001, AFG has helped firefighters and other first responders obtain critically needed equipment, protective gear, emergency vehicles, **training** and other resources necessary for protecting the public and emergency personnel from fire and related hazards.

The Fiscal Year (FY) 2019 Assistance to Firefighters Grant (AFG) Program is one of three grant programs that constitute the Department of Homeland Security (DHS), Federal Emergency Management Agency's (FEMA) focus on enhancing the safety of the public and firefighters with respect to fire and fire-related hazards. The AFG Program accomplishes this by providing financial assistance directly to eligible fire departments, nonaffiliated emergency medical service (EMS) organizations, and State Fire Training Academies (SFTA) for critical training and equipment. The AFG Program represents one part of a comprehensive set of measures authorized by Congress and implemented by DHS. Among the five basic homeland security missions noted in the DHS Quadrennial Homeland Security Review, the AFG Program supports the goal to Strengthen National Preparedness and Resilience.

For the FY 2019 Program:

- Training ‘props’ were limited to \$50,000 except for a State Fire Training Academy request.
- Funding Priorities, Operations and Safety – Training Overview: FEMA has determined that hands on, instructor-led training that meets a national, state, or DHS adopted standard and results in a national or state certification provides the greatest training benefit.

## NON-PROFIT FOUNDATIONS:

Many public safety agencies have embraced the concept of public-private partnerships by working with various private sector entities that wish to provide ongoing financial support to a training center or facility. The structure for doing so frequently takes the form of a not-for-profit corporation that is organized and operated exclusively for charitable and educational purposes. These Public Safety Training Center Foundations generally enjoy tax-exempt status pursuant to Section 501(c) (3) of the federal Internal Revenue Code. They typically solicit and receive public and private donations, gifts, grants, memorials, and bequests of money, property, and services that support training of fire, police, EMS, emergency management, other public agency personnel, and related private sector employees.

Examples of existing foundations include:

- The Northeastern Illinois Public Safety Training Academy (NIPSTA) Foundation.<sup>1</sup> Founded in 2006, it is governed by a five-member Board of Directors. This Foundation supports:
  - Development of a diverse public safety curriculum
  - Design and implementation of state-of-the-art training props
  - Expansion of NIPSTA facilities, programs, and services
  - Enhancement of emergency preparedness and response
  - Improvements in community safety that result from better-trained personnel

Their web site lists over 60 private-sector foundation contributors.

- The Nassau County (New York) Police Department Foundation.<sup>2</sup> It is governed by a fourteen-member Board of Directors and was formed to help make the vision of the new Nassau County Center for Law Enforcement Training and Intelligence a reality. The Nassau County Police Department sought to explore using a public/private partnership to get this project accomplished. With this in mind, a group of concerned business leaders established the Nassau County Police Department Foundation, Inc., a not-for-profit corporation. This entity will help provide private monies to establish the new Center.
- The Highlands Ranch Law Enforcement Training Foundation (Littleton, Colorado).<sup>3</sup> Founded in 1993, the Foundation was created to manage the large training facility built in 1986. It too is a not-for-profit 501 (c) (3) corporation governed by a Board of Directors that includes representatives of Douglas and Arapahoe County Sheriff’s Offices, as well as Shea Homes Inc.
- Cincinnati Fire Foundation - The Cincinnati Fire Foundation is an independent corporation.<sup>4</sup> The foundation was chartered in 2008 and is recognized as exempt under section 501 (c) (3) of the Internal Revenue Code. The corporation is non-political in nature and exists to provide effective support to the purchase and/or maintenance of equipment and vehicles, providing funds for professional education forums and training of fire-fighting personnel, providing funds for the promotion of fire prevention and general safety training and material for the general public. An independent Board of Directors manages the affairs of the Cincinnati Fire Foundation.

While the training centers supported by these types of foundations clearly benefit from the generosity of its members and contributors, the individuals and private-sector businesses supporting the foundations are also rewarded. Private citizens and local businesses often view their contributions as a way to give back to their community by providing financial support to their local first responders. Larger regional or national companies often have programs in place that set aside funds to donate to worthy causes and these foundations give them an opportunity to showcase their support for public safety. Frequently, a foundation will recognize large corporate donations that are targeted to support a specific program or capital purchase by aligning the business name with the program or item that it sponsored.

Particularly during these challenging economic times, public safety foundations can provide the kind of public-private partnership that’s ideal for helping to raise funds used to build, equip, and maintain state-of-the art training facilities and provide specialized training courses.

<sup>1</sup> <https://www.nipsta.org/247/About-the-Foundation>

<sup>2</sup> <https://ncpdfoundation.org/about-us/>

<sup>3</sup> <https://hrletf.org/about/>

<sup>4</sup> <https://www.cincinnati-firefoundation.org/>

## GO FORWARD PLAN

This chapter addresses the implementation of the Go Forward Plan. Its purpose is to provide guidelines for Participating Agency Leaders to use to proceed with the development of the RESTCC. Going forward, agency management and staff must develop the detailed steps, implement the steps, measure the results, evaluate progress, and determine whether the results meet expectations.

Organizations need plans to survive and prosper. Organizations need business plans to provide a framework for the next month, next quarter, and next year. The annual budget is a component of a business plan. Organizations need strategic plans to provide long-term solutions to issues that they must address. The future of an organization without a strategic plan is subject to fate. An organization that has a strategic plan has a management tool that gives it control over its fate. A strategic plan identifies a desired vision and the objectives, measures, and actions needed to achieve the vision.

Considering the importance of having a strategic plan, it's unfortunate that many organizations either do not have one or struggle trying to develop and/or implement one. Strategic Planning can have many pitfalls, including:

- The Vision established is not practical
- The plan attempts to solve too many issues
- The plan lacks champions to move it forward
- The planning team does not include personnel with capabilities suitable for the tasks assigned.
- The plan participants are too busy with day-to-day tasks,
- The goals are not sufficiently measurable to assess progress
- The plan champion does not obtain periodic and frequent feedback from participants on the task assignments
- Senior management disengages itself from monitoring progress

Working closely with the RESTCC Steering Team, Morrison-Maierle, IBG, and RDG, have prepared a strategic plan that avoids these pitfalls. The following recommendations and action items are focused and practical. They can be implemented with the support of senior management and a team that is willing to expend significant effort to achieve the goals.

## RECOMMENDATIONS AND ACTION ITEMS

This chapter includes Morrison-Maierle and IBG+RDG's professional recommendations for the project's success and gives the RESTCC Steering Team a blueprint for improving the training capabilities for Participating Agency personnel and other first responder agencies in the region.

### RECOMMENDATION #1: DEVELOP A FORMAL AGREEMENT

- IBG recommends the Partner Agencies develop a Memorandum of Understanding (MoU) which formalizes the partnership envisioned by the leadership of each entity as described in the "Governance and Management" chapter of this report. Those details (and many others) need to be addressed and memorialized in a document which will ultimately be approved by the governing bodies of all Participating Agency entities.

### RECOMMENDATION #2: DEVELOP A PHASED IMPROVEMENT PLAN

- IBG+RDG recommends the RESTCC Steering Team develop a detailed phasing plan for construction of the Training Center. With an estimated project cost of \$99,000,000 for the full facility buildout, it's uncertain whether all of the envisioned training assets can be developed at the same time.
- The RESTCC Steering Team needs to identify which of the improvements have the highest priority; for example, construction of the main Administration/Classroom building or shooting range.

### RECOMMENDATION #3: ESTABLISH A FOUNDATION

- The RESTCC Steering Team should consider creating a non-profit foundation to support the training center. Funds raised through such a foundation could be used for both one-time capital expenses and ongoing operations and maintenance costs. A "RESTCC Training Foundation" would provide an opportunity for individuals and entities to give back to the region's Public Safety Agencies in a meaningful way.

### RECOMMENDATION #4: VISIT OTHER SIMILAR TRAINING CENTERS

- The RESTCC Steering Team should consider visiting other training centers and talking to other training center staff to learn from their experiences. IBG can provide a list of training centers that are similar in scope to the proposed training center.

### RECOMMENDATION #5: REINFORCE THE REGIONAL ASPECT OF THE TRAINING CENTER

- IBG recommends the RESTCC Steering Team continues to stress and reinforce the regional importance of the RESTCC. This project will support and encourage the kind of multi-agency and interdisciplinary training and coordination that is critically needed in the Central Oregon area, in the rest of the state, and throughout the country.

## ACRONYMS

|       |                                                          |
|-------|----------------------------------------------------------|
| ARFF  | Aircraft Rescue Fire Fighting                            |
| AS    | Associate Of Science                                     |
| AV    | Audio Visual                                             |
| BLM   | Bureau of Land Management                                |
| CALEA | Commission on Accreditation for Law Enforcement Agencies |
| CERFP | Enhanced Response Force Package                          |
| CERT  | Community Emergency Response Team                        |
| CEU   | Continuing Education Unit                                |
| COCC  | Central Oregon Community College                         |
| COIC  | Central Oregon Intergovernmental Council                 |
| CSC   | Community Service Center                                 |
| DOT   | Department of Transportation                             |
| DPSST | Department of Public Safety Standards and Training       |
| DT    | Defensive Tactics                                        |
| EMSP  | Emergency Medical Services Professions                   |
| EOC   | Emergency Operations Center                              |
| EVOC  | Emergency Vehicle Operations Course                      |
| FATS  | Fire Arms Training Simulator                             |
| FBI   | Federal Bureau of Investigation                          |
| FESHE | Fire and EMS Higher Education                            |
| FSA   | Fire Service Administration                              |
| FSRS  | Fire Suppression Rating Schedule                         |
| FTE   | Full Time Equivalent                                     |
| IBG   | Interact Business Group                                  |

|        |                                                              |
|--------|--------------------------------------------------------------|
| ICS    | Incident Command System                                      |
| IFSAC  | International Fire Service Accreditation Congress            |
| ILA    | Inter Local Agreement                                        |
| ISO    | Insurance Services Office                                    |
| IT     | Information Technology                                       |
| NFPA   | National Fire Protection Association                         |
| NIMS   | National Incident Command System                             |
| O&M    | Operations and Maintenance                                   |
| OAR    | Oregon Administration Rules                                  |
| OEM    | Office of Emergency Management                               |
| OJT    | On The Job Training                                          |
| OSP    | Oregon State Police                                          |
| OT     | Overtime                                                     |
| POST   | Police Officer Standards and Training                        |
| RESTCC | Regional Emergency Services Training and Coordination Center |
| SBP    | Strategic Business Plan                                      |
| SO     | Sheriff's Office                                             |
| SOG    | Standard Operating Guideline                                 |
| SOP    | Standard Operating Procedure                                 |
| STEM   | Science, Technology, Engineering, & Mathematics              |
| SWAT   | Special Weapons and Tactics                                  |
| T.O.   | Training Officer                                             |
| TCC    | Training Center Coordinator                                  |
| USFS   | United States Forest Service                                 |

Central Oregon Intergovernmental Council:

# Central Oregon Ready, Responsive, Resilient (CORE3) Facility



Figure 1 CORE3 Informational Website (<https://core3center.org/>)

## Introduction to Land Use Applications

Prepared by Winterbrook Planning

In coordination with SERA Architects, Kittelson & Associates, and HHPR Inc.

This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

December 2023



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## Application Narratives:

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### **Introduction to Land Use Applications**

Part 1. Comprehensive Plan Text Amendment

Part 2. Urban Growth Boundary Amendment

Part 3. Master Development Plan

Part 4. Redmond Zone Change & Annexation

Part 5. Deschutes County Plan Map & Zone Change

## General Information

|                  |                                                                                                                                                                                                                                                                                            |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant:       | Central Oregon Intergovernmental Council (COIC)<br>Scott Aycock, COIC Community and Economic Development Director,<br>1250 NE Bear Creek Rd.<br>Bend, OR 97701<br>541-390-4653, scotta@coic.org                                                                                            |
| Representative:  | Jesse Winterowd, AICP, Winterbrook Planning<br>610 SW Alder Street, Suite 810<br>Portland, OR 97205<br>503-827-4422 ext. 109, Jesse@WinterbrookPlanning.com                                                                                                                                |
| Property Owner:  | Kristie Bollinger, Deschutes County Property Management<br>14 NW Kearney Avenue<br>Bend, OR 97703<br>541-385-1414                                                                                                                                                                          |
| Site Address:    | No Situs                                                                                                                                                                                                                                                                                   |
| Tax Lot ID:      | 151300-00-00103                                                                                                                                                                                                                                                                            |
| Current Zoning:  | Deschutes County Exclusive Farm Use – Alfalfa Subzone                                                                                                                                                                                                                                      |
| Proposed Zoning: | City of Redmond Public Facility                                                                                                                                                                                                                                                            |
| Proposal:        | Introduction to a series of land use applications necessary to permit the CORE3 facility in the City of Redmond. The facility is proposed on a site currently within Redmond's URA. Development on this site will require seven consecutive land use applications in five narrative parts. |

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## Reference Documents

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- City of Redmond Economic Opportunity Analysis (2020)
- City of Redmond Parks Master Plan (2018)
- Deschutes County Transportation System Plan (2010)
- City of Redmond UGB Adjustment, Redmond Ordinance No. 2020-01 (2019)

## Abbreviations

- (BLM) Federal Bureau of Land Management
- (BOCC) Board of Deschutes County Commissioners
- (COIC) Central Oregon Intergovernmental Council
- (CORE3) Central Oregon Ready, Responsive, Resilient
- (DLCD) the Oregon Department of Land Conservation and Development
- (DCC) Deschutes County Code
- (DCCP) Deschutes County Comprehensive Plan
- (ECC) Emergency Communications Center
- (EFU) Deschutes County Exclusive Farm Use Zone
- (EOA) Economic Opportunities Analysis
- (EVOC) Emergency Vehicle Operator Course
- (FEMA) Federal Emergency Management Agency
- (JMA) Redmond-Deschutes County Joint Management Agreement
- (MDP) City of Redmond Master Development Plan
- (OAR) Oregon Administrative Rules
- (ODOT) Oregon Department of Transportation
- (ORS) Oregon Revised Statutes

- (PF) City of Redmond Public Facility Zone
- (RCP) Redmond Comprehensive Plan
- (RDC) Redmond Development Code
- (RUUGA) Redmond Unincorporated Urban Growth Area
- (TGR) Trip Generation Report
- (TPR) Transportation Planning Rule – OAR Chapter 660, Division 012
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- (UGB) or (RUGB) Redmond Urban Growth Boundary
- (UGB Rule) the Urban Growth Boundary Rule – OAR Chapter 660, Division 024
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- (UH-10) Deschutes County Urban Holding Zone

## 0 Project Context and Vision

The Central Oregon Ready, Responsive, Resilient (CORE3)<sup>1</sup> facility will address a critical need for both a centralized public safety training facility and a coordination center for emergency response operations. The CORE3 facility will fulfill a local, regional, and state public facilities need in the following ways:

- **Training Facilities:** Central Oregon has insufficient facilities to meet existing, minimum mandatory training needs of public safety personnel. In a growing region, the need for trained public safety and emergency service professionals is increasing, and the CORE3 facility will incorporate industry best practices to ensure that the best training is provided to those that need it. There are significant operational and performance benefits and financial efficiencies to co-locating these facilities. The CORE3 facility will enable multiple emergency response agencies to coordinate logistics during the training stage, rather than having to do so in the field while responding to an emergency. It will also enable multiple agencies to share certain program elements, reducing the public funds needed for construction overall.
- **Emergency Coordination Center:** This facility will serve as a dedicated, multi-agency coordination center for emergency operations and regional recovery, as well as a centralized base for disaster response coordination that the region currently lacks.
- **Classrooms and Practical Learning Spaces:** The facility will provide opportunities for Central Oregon Community College's wildland and structural fire, criminal justice, and other related programs. This effort will further support public safety and provide workforce training.
- **State Resiliency Center:** U.S. Highway 97 has been identified by local, state, and the federal emergency management agency as a critical facility and the community of Redmond as a staging site for emergency response and recovery efforts during the event of a major natural disaster. In the occurrence of a Cascadia subduction zone event, the CORE3 facility, sited on E. HWY 126 that runs directly to HWY 97, will be critical to statewide emergency response efforts because there is far less likelihood of damage to facilities in Central Oregon than in the western portion of the state – including the state capital of Salem. CORE3 is envisioned as space for the continuity of state governance in the first weeks and months after a catastrophic event. Proximity to the Redmond Airport will be essential in this and other major regional disruption events.



Figure 2 "The Big One", Readers Digest

<sup>1</sup> Previously known as the Regional Emergency Services Training and Coordination Center (RESTCC).

The CORE3 facility is the result of a regional effort led by the Central Oregon Intergovernmental Council (COIC). COIC serves as a neutral convener on behalf of Central Oregon's local governments and public safety agencies, as well as several state and federal agencies. COIC does not have a service provision role in emergency management or related services but has facilitated regional coordination for the conceptualization and implementation of the CORE3 facility.

In September of 2020, a (see Appendix I.1) was prepared for COIC that provided an assessment of current emergency services and training capacity and identified additional training needs and facilities necessary for regional emergency relief response capacity. The plan highlighted some preliminary sites that could support the CORE3 facility in and around the City of Redmond. Specifically, the report defined locational needs and site characteristics for any future CORE3 site and pointed to a preferred site – the southern 300 acres of a roughly 1,800-acre Deschutes County-owned parcel near the Redmond Municipal Airport. While the project will ultimately need 300 acres, a Master Development Plan has been prepared for 228 acres of the site to reflect programmatic needs for both Phase 1 and Future-Phase work for the CORE3 development. The proposed UGB amendment includes the 228 acres identified in the Master Development Plan. The 228-acre site is outside the City of Redmond city limits and Urban Growth Boundary (UGB), but it is within the City's Urban Reserve Area (URA).

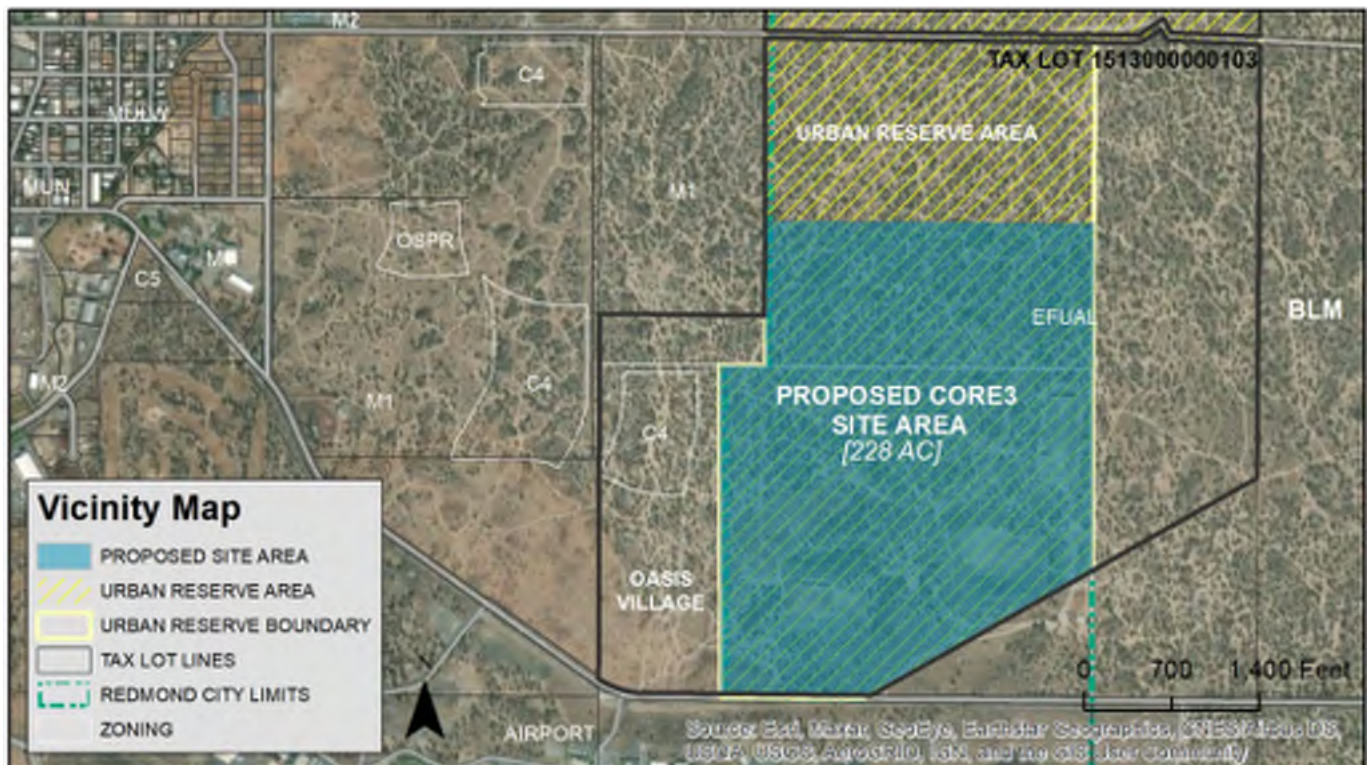


Figure 3 Vicinity Map



# 1 Implementation

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Winterbrook conducted a detailed analysis of all lands within the City of Redmond's UGB, URA and up to 1.5 miles from the UGB to identify the best site for the CORE3 facility, considering a series of site and locational needs:

- 300 contiguous acres of suitable vacant land<sup>2</sup>
- Within one-quarter mile of the Redmond Airport
- Direct access to a state highway without the need to travel through designated residential or commercial areas.

Like the Strategic Business Plan (Appendix G.1), this analysis also identified the subject site as the optimal site. For more detailed information, please see Appendix F. Site Selection Analysis and Division 24 Findings. As shown in Figure 3, the subject site is outside of the existing Redmond UGB but within the Redmond URA. Because of this, an Urban Growth Boundary amendment and a series of land use applications are required to permit the CORE3 facility at this location.

## 1.1 Applications

This Introduction provides broad context for seven of the 10 applications required for CORE3 land use entitlements. Applications are designed to be heard consecutively by decision makers to provide the full project context. The seven requested applications are contained in the following five narrative parts:

- Part 1. Comprehensive Plan Text Amendment:** A new comprehensive plan policy is proposed to support the identified regional public facilities need. This new policy describes needed site and locational characteristics for the facility.
- Part 2. Urban Growth Boundary Amendment:** The subject site must be included into the City of Redmond's UGB. UGB expansions must be consistent with Statewide Planning Goal 14 (Urbanization) and its implementing rule (OAR Chapter 660, Division 024).
- Part 3. Master Development Plan (MDP):** MDPs are required as a condition of annexation and development. The MDP must demonstrate consistency with applicable Great Neighborhood Principles (RDC 8.0270.3.C.14).
- Part 4. Redmond Zone Change & Annexation:** Any future development, consistent with the MDP, will require a zone change from County Urban Holding (UH-10) to the City Public Facility (PF) zone and annexation into the city limits.
- Part 5. Deschutes County Plan Map & Zone Change:** Concurrent with city land use applications, dual map amendments are required in Deschutes County to move from County Exclusive Farm Use (EFU) to County UH-10 and from an Ag designation to RUUGA (Redmond Unincorporated Urban Growth Area). This will allow the rezoning and annexation applications contained in Part 4.

---

<sup>2</sup> As noted above, the proposal is to include 228 of the total need of 300 acres within the UGB to reflect the current Master Development Plan.

Three additional unattached applications are required for the CORE3 project, but are not addressed in these five narrative parts:

- Deschutes County Partition Application
- Redmond Partition Application
- Redmond Variance to Final Plat Requirements Application.

All application parts contain their relevant approval criteria and demonstrate consistency with state rules, statutes, and local criteria and plans. For example, Redmond Comprehensive Plan (RCP) policies relating to Part 1. Comprehensive Plan Text Amendment are different from the relevant RCP policies addressed in Parts 2 or 3. Consistency with Statewide Planning Goals and Great Neighborhood Principles are found in Appendix J: Statewide Planning Goal Analysis, and Appendix K: Great Neighborhood Principles Findings. Additional applications will be required for project development and are not included at this stage of the planning process. Among them include Redmond Site and Design Review, public works and building permits.

To aid in project development and to help prove consistency with approval criteria, Winterbrook consulted a variety of reports and planning documents from the City of Redmond and other agencies. Below is a list of materials referenced, some of which are included as appendices to this application package.

- **Strategic Business Plan (Appendix G.1):** The COIC commissioned a 2020 report to plan for the future CORE3 facility (which at that time was branded the RESTCC). Information from this document helped inform site requirements and programmatic details.
- **Intergovernmental Agreement (Appendix G.2):** This agreement between the City of Redmond and Deschutes County, passed in 2007, establishes the process for providing an orderly transition of urban services from county to city jurisdiction, including plan and map amendments in the Redmond URA into the UGB.
- **Oregon Emergency Services Center Viability Assessment (Appendix G.3):** This June 2018 report prepared by the University of Oregon's Partnership for Disaster Resilience found a strong regional need for an emergency services center in Central Oregon.
- **City of Redmond Development Code:** Contains requirements for requested applications.
- **City of Redmond Comprehensive Plan:** All proposals must comply with RCP policies.
- **City of Redmond Transportation System Plan and Deschutes County Transportation System Plan (TSP):** These TSPs were consulted both to facilitate long-range transportation planning in the Redmond URA and to inform the Site Selection Analysis (Appendix F).
- **City of Redmond Economic Opportunities Analysis (EOA):** The Economic Opportunities Analysis assisted in discussions of demonstrated compliance with State-Wide planning Goal 9: Economy of the State.
- **City of Redmond Parks Master Plan:** The Parks Master Plan assisted in discussions of demonstrated compliance with State-Wide planning Goal 8: Recreation Needs.
- **Deschutes County Code (DCC):** Titles 18-23 of the DCC contain county zoning regulations and county comprehensive plan policies.
- **City of Redmond UGB Adjustment (2019):** This 2019 application shows the process by which 156 acres of the subject site was removed from the UGB and "swapped" for another site.

## 1.2 Subject Site History

The CORE3 facility is proposed on the southern 228 acres of a roughly 1,800-acre Deschutes County-owned parcel near the Redmond Municipal Airport (see Figure 3). Until recently, 156 acres of the subject site were included in the Redmond UGB and city limits. An abbreviated site history is as follows:

- 1979: the southern 156-acre portion is shown within Redmond's UGB, zoned Industrial.
- 1980: rezoned Open Space, Parks and Recreation to allow for a fairgrounds project that was ultimately never constructed.
- 1980-2012: the City was unable to rezone the property back to Industrial, constrained by transportation improvements required by the State's Transportation Planning Rule (TPR).
- 2005: The Redmond URA was jointly adopted by Redmond and Deschutes County. At this time there was a mapping discrepancy between the City's mapping of the URA and the County's mapping of the URA, shown in Figure 4. Since this mapping discrepancy, subsequent City adoptions, including the Redmond Comprehensive Plan and Zoning Map, showed a different URA boundary than that of Deschutes County.



Figure 4 :City URA (red line) vs County URA (grey)

- 2007: The City of Redmond and Deschutes County adopted the Redmond-Deschutes County Urban Area Joint Management Agreement.
- 2012: Oregon Senate Bill 1544 was adopted. It allowed cities to plan for large lot industrial development, mitigating traffic impacts incrementally. The 156-acre portion of the subject site was rezoned Light Industrial and Heavy Industrial with approval of the Senate Bill.
- 2020: No development occurred between 2012 and 2019. Because of this, it was included in a reconfiguration of the Redmond UGB. The 156-acre portion of the subject site was excluded from the UGB, and a separate 156-acre portion of URA was included into the UGB (see City of Redmond Ordinance No. 2020-01).

Today, the 228-acre subject site is outside of the UGB, zoned County EFU, but inside the URA. As show on the Existing Conditions Diagram contained in Appendix C., the site contains the former Redmond Rod and Gun Club skeet range and rifle/pistol range, along with the former sheriff's office shooting range and a landfill. The site is largely undeveloped, with multiple unimproved vehicle pathways throughout.

## 2 Master Development Plan

The CORE3 MDP is shown in Figure 4. The Master Development Plan Set is contained in Appendix C. Application narrative Part 3. MDP contains details on the major program elements and site layout, and responses to approval criteria. This information is summarized in this section.

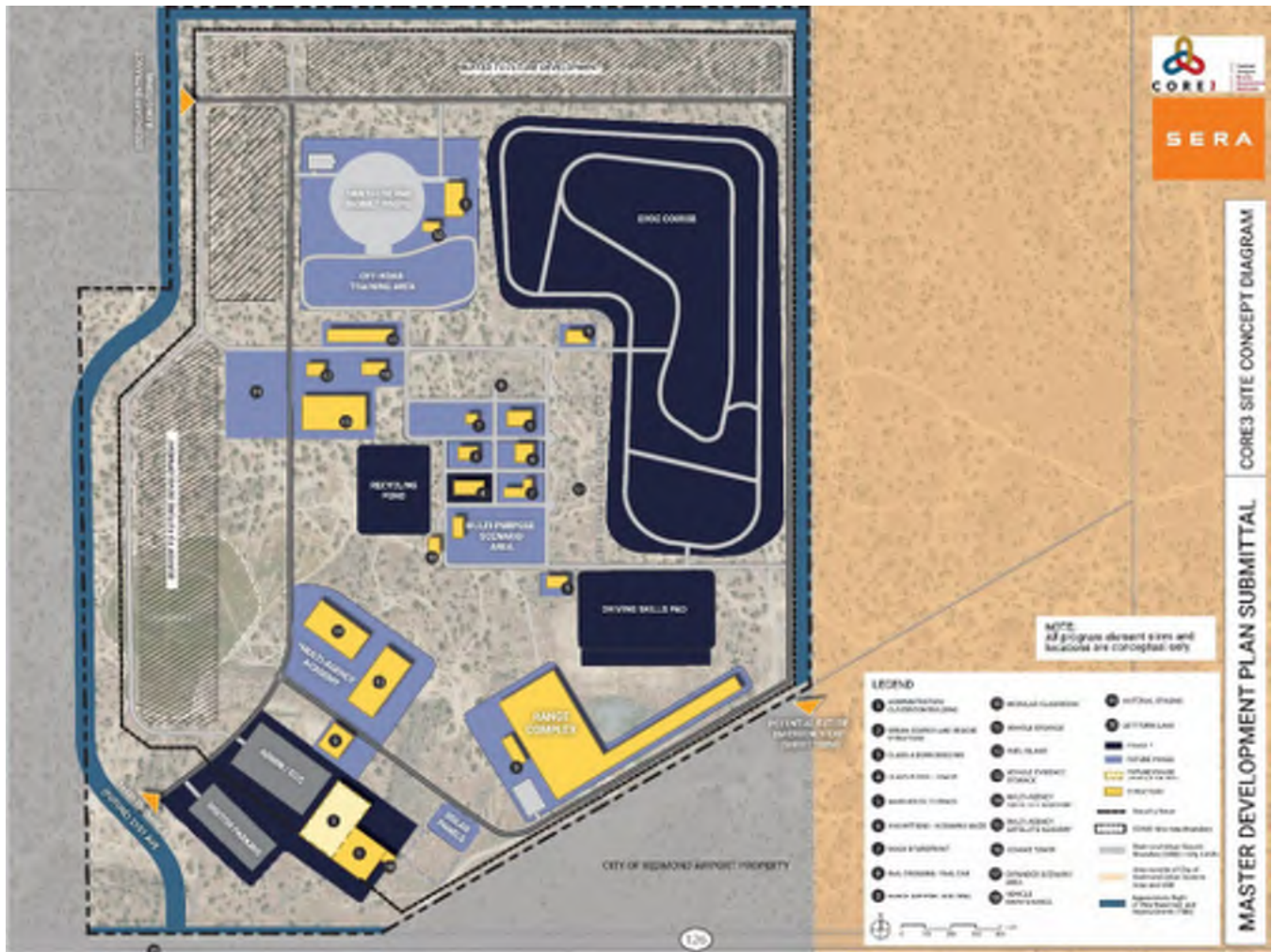


Figure 5 Master Development Plan

### 2.1 Major Program Element Types

The MDP shows the build-out of Phase 1 and Future-Phase work of the site, addressing regional training and emergency response needs in the long term. The features and structures planned for the CORE3 facility generally fall into the following categories:

- Academic and Administrative Facilities;
- Multi-Purposed Scenario Area and Training Props;
- Vehicular Training;
- Specialized Training Areas; and



- Storage and Maintenance.

Multiple structures have dual purposes to serve both immediate training needs and future state resiliency. For instance, the academic and administrative facilities will ordinarily host classrooms, conference rooms, etc., but during the event of a natural disaster these facilities are intended to support an Emergency Communications Center as well as operations related to continuity of state governance functions.

Other features to support regional emergency response training activities include: structures for simulations, driving tracks with various terrains, an emergency communications tower, gun range, and general storage for vehicles and fuel.

## 2.2 Site Concept Plan Layout

The 228-acre CORE3 facility is planned to meet identified facility needs, while buffering activities from one another and from surrounding land uses. As shown on the MDP (Figure 4), large buffers are planned for the western and northern sides of the site, and a proposed public right of way is planned on the western side of the site. These buffers will separate training facilities from land currently within the Redmond UGB to the west and from future urban lands to the north within the URA.

The MDP has been designed to take advantage of key programmatic adjacencies in order to maximize collaborative training opportunities across the different agencies. Similar uses are grouped together, with some internal buffers between functions. A private loop road will provide internal access, and the proposed right-of-way of 21<sup>st</sup> Ave. will provide public access. With full buildout of all phases, the CORE3 facility will have one primary access and one secondary access onto 21<sup>st</sup> Ave. Secondary access is proposed for redundancy and emergency response events.

## 3 Public Facilities

---

The CORE3 site fronts E. HWY 126, opposite the Redmond Municipal Airport. The site will be served by a new public water main and sanitary sewer line from the proposed right-of-way of 21<sup>st</sup> Avenue (see Appendix C). Stormwater will be contained on-site.

### 3.1 Water Service

Potable water service will be provided by extending the existing 16" public water main from the south side of E. HWY 126 at SE Ochoco Way, approximately 1,200 linear feet easterly to the planned right-of-way of 21<sup>st</sup> Avenue. From there, the public water main will be extended northerly in 21<sup>st</sup> Avenue approximately 550 linear feet to the project's access road. The CORE3 site will be served by a single potable water service and a single fire service. All on-site domestic and fire water service will be private and isolated from the public water main system.

## 3.2 Sanitary Sewer Service

Sanitary sewer service will be provided by connecting to the existing 12" public sanitary sewer main along the south of E. HWY 126. The connection will require crossing E. HWY 126 and extending a public sewer main northerly approximately 600 linear feet in future 21<sup>st</sup> Avenue to the project access road. The CORE 3 site will be served by a single sanitary service. All on-site sanitary sewer will be private and gravity served where possible. Due to project topography, lower lying areas will be served by a private lift station/force main system.

## 3.3 Stormwater

Stormwater will be collected and dispersed on-site via swales, underground injection control devices (such as drywells), or a combination of both methods.

# 4 Conclusion

---

This introduction provides broad context for all decision makers across seven of the ten requested land use applications. These applications are designed to be heard consecutively to provide the full project context. The seven application narratives are contained in the following five application parts:

- Part 1. Comprehensive Plan Text Amendment
- Part 2. Urban Growth Boundary Amendment
- Part 3. Master Development Plan
- Part 4. Redmond Zone Change & Annexation
- Part 5. Deschutes County Plan Map & Zone Change



Central Oregon Intergovernmental Council:

# Central Oregon Ready, Responsive, Resilient (CORE3) Facility



Figure 1 Planning for the CORE3 Facility

## Part 1. Comprehensive Plan Text Amendment

Prepared by Winterbrook Planning  
In coordination with SERA Architects, Kittelson & Associates, and HHPR Inc.  
This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

December, 2023



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# Application Narratives:

---

## Introduction to Land Use Applications



### **Part 1. Comprehensive Plan Text Amendment**

Part 2. Urban Growth Boundary Amendment

Part 3. Master Development Plan

Part 4. Redmond Zone Change & Annexation

Part 5. Deschutes County Plan Map & Zone Change

## General Information

|                  |                                                                                                                                                                                                                                                                |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant:       | Central Oregon Intergovernmental Council (COIC)<br>Scott Aycock, COIC Community and Economic Development Director,<br>1250 NE Bear Creek Rd.<br>Bend, OR 97701<br>541-390-4653, <a href="mailto:scotta@coic.org">scotta@coic.org</a>                           |
| Representative:  | Jesse Winterowd, AICP, Winterbrook Planning<br>610 SW Alder Street, Suite 810<br>Portland, OR 97205<br>503-827-4422 ext. 109, <a href="mailto:Jesse@WinterbrookPlanning.com">Jesse@WinterbrookPlanning.com</a>                                                 |
| Property Owner:  | Kristie Bollinger, Deschutes County Property Management<br>14 NW Kearney Avenue<br>Bend, OR 97703<br>541-385-1414                                                                                                                                              |
| Site Address:    | No Situs                                                                                                                                                                                                                                                       |
| Tax Lot ID:      | 151300-00-00103                                                                                                                                                                                                                                                |
| Current Zoning:  | Deschutes County Exclusive Farm Use – Alfalfa Subzone                                                                                                                                                                                                          |
| Proposed Zoning: | City of Redmond Public Facility                                                                                                                                                                                                                                |
| Proposal:        | Part 1 in a series of five narrative parts necessary to permit the CORE3 facility in the City of Redmond. The proposed comprehensive plan text amendment identifies a public facility need and defines site/locational characteristics for the CORE3 facility. |

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| 3.3 RDC 8.0760(3) In conformity with the Redmond Comprehensive Plan, land use requirements and policies; and                           | 9  |
| 3.4 RDC 8.0760(4) That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning. | 10 |
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- (URA) or (RURA) Redmond Urban Reserve Area
- (UH-10) Deschutes County Urban Holding Zone



# 1 Relation to Other Land Use Applications

---

This application contains findings to support a comprehensive plan text amendment.

This application narrative is the first in a series of five narrative parts containing seven applications to develop the Central Oregon Ready, Responsive, Resilient (CORE3) facility in the City of Redmond. Three unattached applications include two partition applications and a variance to final plat requirements. An overview of the project and additional information on required applications are contained in the Introduction to Land Use Applications.

OAR 660-024-0040(3) allows cities to consider UGB expansions based on a demonstrated land need for either housing, employment lands, or public facilities without the simultaneous review of other land need categories<sup>1</sup>. OAR 660-024-0065(3) acknowledges that particular industrial uses and public facilities require specific site characteristics.

To facilitate inclusion of a suitable site for the development of the CORE3 facility in Redmond, a new comprehensive plan policy is proposed. This new comprehensive plan policy will:

- (1) describe an identified public facility need; and
- (2) define necessary site and locational characteristics for the CORE3 facility.

## 2 Proposed Text Amendment

---

Winterbrook proposes the following comprehensive plan text as a new “Public Facilities and Services Policy 11-1-7:”

***To implement the Central Oregon Emergency Services Center Viability Assessment and the related Strategic Business Plan, the City has determined a need for a suitable site for the Central Oregon Ready, Responsive, Resilient (CORE3) regional public facility as a new community element. The CORE3 facility requires the following site and locational characteristics:***

- ***300 contiguous acres of suitable vacant land;***
- ***Within one-quarter mile of the Redmond Municipal Airport; and***
- ***Direct access to a state highway without the need to travel through designated residential or commercial areas.***

***Any land brought into the Urban Growth Boundary to meet public services and facilities site needs identified through this policy shall be limited to Public Safety, Emergency Services, Training and Coordination Facilities.***

---

<sup>1</sup> OAR 660-024-0040 (3) A local government may review and amend the UGB in consideration of one category of land need (for example, housing need) without a simultaneous review and amendment in consideration of other categories of land need (for example, employment need).

### 3 Redmond Development Code (RDC) 8.0760 Criteria for Amendments:

---

The proposed text amendments must meet RDC 8.0760 Criteria for Amendments. RDC 8.0760 reads as follows:

1. ***In conformity with all applicable State statutes;***
2. ***In conformity with the State-wide planning goals whenever they are determined to be applicable;***
3. ***In conformity with the Redmond Comprehensive Plan, land use requirements and policies; and***
4. ***That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning.***

Responses to these criteria and supporting evidence are described in sections 3.1 through 3.4. Winterbrook's responses are shown in standard font. All Statewide Planning Goals, OARs, ORSs, RCP policies, and the RDC are shown in **bold italic font**.

#### 3.1 RDC 8.0760(1) In conformity with all applicable State statutes;

##### ***ORS 197.250 Compliance with goals required***

**Response:** Adopted comprehensive plans – and land use regulations to carry out those comprehensive plans – must comply with all Statewide Planning Goals and implementing administrative rules. The proposed comprehensive plan text amendment to the adopted and acknowledged RCP will comply with all applicable goals, as demonstrated in response to RDC 8.0760.2 (See section 3.2).

##### ***ORS 197.610 Submission of proposed comprehensive plan or land use regulation changes to Department of Land Conservation and Development; rules.***

**Response:** The City of Redmond has an adopted development code and an adopted comprehensive plan, both acknowledged by the State of Oregon, that follow provisions in ORS 197. The city and county will provide notice to DLCD 35 days prior to the first evidentiary hearing, as required by OAR 660-018-0020.

#### 3.2 RDC 8.0760(2) In conformity with the State-wide planning goals whenever they are determined to be applicable;

**Response:** As demonstrated in Appendix J: Statewide Planning Goal Analysis, the proposed text amendment is in conformity with applicable Statewide Planning Goals. The proposed comprehensive plan text amendment will meet:

- Goals 1 and 2 because the proposal is being processed through an established and acknowledged land use process;
- Goals 7 and 11 requirements to plan for natural disasters and hazards, and public facilities and services;

- Goal 13's requirement to plan for efficient use of land and energy because it will allow for a site with consolidated facilities and uses; and
- Goal 14's rules to evaluate land needs and accommodate demonstrated land needs for urban uses (public facilities).

The proposed policy will not allow for a circumvention of the UGB expansion evaluation requirements of OAR 660-024-0050, 0065, & 0067. Any accommodation of the CORE3 facility outside of the adopted Redmond UGB requires a detailed land evaluation (see Part 2. UGB Amendment and Appendix F. Site Selection Analysis and Division 24 Findings).

### 3.3 RDC 8.0760(3) In conformity with the Redmond Comprehensive Plan, land use requirements and policies; and

**Response:** The comprehensive plan text amendment must demonstrate consistency with RCP policies. As shown in the following responses, all applicable RCP policies, and this criterion, are met.

***POLICY 7-3-1 Plan and prepare for the Cascadia earthquake to reduce the City's vulnerability to loss of life and property and build capacity for local, regional and state relief.***

**Response:** During a Cascadia subduction event, the CORE3 facility will act as the hub for local agency emergency coordination, and it will serve as the State Resiliency Center. The proposed plan amendment to establish a need for the CORE3 facility in Redmond directly supports this policy to build local, regional, and state resiliency during a major earthquake. Redmond will become the state's center for relief if ever a Cascadia Subduction Zone Earthquake event occurs. For more context on the CORE3 facility functions, please see the Introduction, Part 3. MDP, and Appendix I.1. Strategic Business Plan.

***POLICY 7-3-2 Support plans and programs to expedite the restoration of critical services following a natural hazard event, including lifeline transportation routes.***

**Response:** As discussed in the Introduction to Land Use Applications, Redmond and the region currently lack both a centralized public safety training facility and a coordination center for emergency response operations. The proposed plan amendment directly supports this policy by allowing for a CORE3 facility that will better equip emergency service personnel and provide a centralized location for disaster response.

***POLICY 9-5-1 Ensure that the City's planning for economic development increases economic resiliency, mitigating long-run economic risks such as future disruptions such as: infrastructure issues, technological disruptions, natural disasters, or national economic recessions.***

**&**

***POLICY 15-1-15 Redmond shall develop strategies that improve resiliency in times of crisis and reduce the potential negative impact to the whole city should any one system falter or fail. Improving resiliency means Redmond should maximize the variety of business types.***

**Response:** The programmatic elements of the CORE3 facility and the physical space of the facility will better prepare emergency service personnel and create a coordination center for emergency

response operations. Although the facility itself will not be a major employment center, the facility's programmatic elements will better equip Redmond's and the region's emergency service personnel. Planning for the CORE3 facility through the proposed comprehensive plan text amendment is consistent with these policies and will allow the city to mitigate an identified economic long-run risk – natural disasters.

***POLICY 9-5-6 Ensure that Redmond has the services and amenities necessary for residents of Redmond. These services and amenities include those in Policy 9-5-6 but also include parks and open space, public library, and public safety services. Redmond should also ensure that there are opportunities for development of housing and services for seniors, such as assisted living and other senior housing opportunities.***

***&***

***POLICY 11-1-4 Maintain and enhance the provision of police, fire and emergency medical services for residents.***

**Response:** The proposed plan amendment is consistent with these policies because it will allow for a CORE3 facility to satisfy local and regional needs for a centralized public safety training facility and a coordination center for emergency response operations. Programmatic facility elements will enhance Redmond's public safety services. Redmond's current and future residents will be better served by police, fire, and emergency medical services through the facility's development.

### 3.4 RDC 8.0760(4) That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning

**Response:** Regional emergency management agencies have been discussing the concept of the CORE3 facility for well over ten years. Organizing efforts culminated in a June 2018 report prepared by the University of Oregon's Partnership for Disaster Resilience that found a strong need for an emergency services center for regional agencies in Central Oregon (See Appendix I.3. Central Oregon Emergency Services Center Viability Assessment). COIC then published a Strategic Business Plan in October 2020 that assessed current training facilities and programming needs, conducted a financial assessment for the project, developed a list of site layout considerations, and identified the City of Redmond as the optimal location for this facility (See Appendix I.1. Strategic Business Plan). The proposed comprehensive plan text amendment is necessary to allow the city to adequately plan for the CORE3 facility.

Proposed policy 11-1-7 articulates the site and locational needs of the CORE3 facility that have already been defined through multi-agency efforts and reports over the last decade. This documented need has created a change in circumstances that justifies creating a new comprehensive plan policy to adequately address the identified public facility need. This criterion is met.

## 4 Conclusion

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The proposed comprehensive plan text amendment identifies a regional public facility need for the CORE3 facility in the City of Redmond and implements this need through a comprehensive plan policy. The proposed new comprehensive plan policy 11-1-7 describes the identified public facility need and defines site and locational characteristics necessary for the facility. This narrative demonstrates that the proposed comprehensive plan text amendment is consistent with RDC 8.0760 Criteria for Amendments and consistent with all applicable ORSs, Statewide Planning Goals, and RCP policies.

Central Oregon Intergovernmental Council:

# Central Oregon Ready, Responsive, Resilient (CORE3) Facility

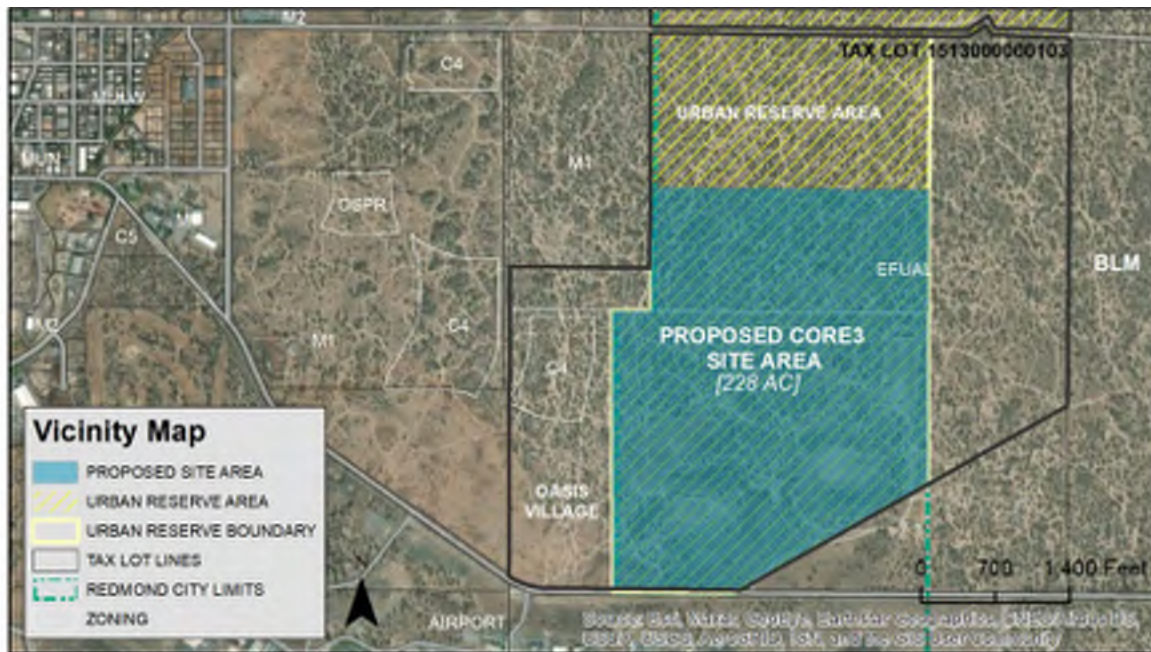


Figure 1 Proposed CORE3 Facility Site in Relation to Redmond UGB and URA

## Part 2. Urban Growth Boundary Amendment

Prepared by Winterbrook Planning

In coordination with SERA Architects, Kittelson & Associates, and KPFF Consulting

This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

December, 2023





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## Application Narratives:

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Introduction to Land Use Applications

Part 1. Comprehensive Plan Text Amendment



**Part 2. Urban Growth Boundary Amendment**

Part 3. Master Development Plan

Part 4. Redmond Zone Change & Annexation

Part 5. Deschutes County Plan Map & Zone Change

## General Information

|                  |                                                                                                                                                                                                                                                                                                          |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant:       | Central Oregon Intergovernmental Council (COIC)<br>Scott Aycok, COIC Community and Economic Development Director,<br>1250 NE Bear Creek Rd.<br>Bend, OR 97701<br>541-390-4653, Scotta@COIC.org                                                                                                           |
| Representative:  | Jesse Winterowd, AICP, Winterbrook Planning<br>610 SW Alder Street, Suite 810<br>Portland, OR 97205<br>503-827-4422 ext. 109, Jesse@WinterbrookPlanning.com                                                                                                                                              |
| Property Owner:  | Kristie Bollinger, Deschutes County Property Management<br>14 NW Kearney Avenue<br>Bend, OR 97703<br>541-385-1414                                                                                                                                                                                        |
| Site Address:    | No Situs                                                                                                                                                                                                                                                                                                 |
| Tax Lot ID:      | 151300-00-00103                                                                                                                                                                                                                                                                                          |
| Current Zoning:  | Deschutes County Exclusive Farm Use – Alfalfa Subzone                                                                                                                                                                                                                                                    |
| Proposed Zoning: | City of Redmond Public Facility                                                                                                                                                                                                                                                                          |
| Proposal:        | Part 2 in a series of five narratives to permit the CORE3 facility in the City of Redmond. This application is to amend the City of Redmond UGB by 228-acres to accommodate the CORE3 facility, a centralized public safety training facility and coordination center for emergency response operations. |

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## Reference Documents

- City of Redmond Comprehensive Plan (2020)
- City of Redmond Transportation System Plan (2020)
- City of Redmond Economic Opportunity Analysis (2020)
- City of Redmond Parks Master Plan (2018)
- Deschutes County Transportation System Plan (2010)
- City of Redmond UGB Adjustment, Redmond Ordinance No. 2020-01 (2019)

## Abbreviations

- (BLM) Federal Bureau of Land Management
- (BOCC) Board of Deschutes County Commissioners
- (COIC) Central Oregon Intergovernmental Council
- (CORE3) Central Oregon Ready, Responsive, Resilient
- (DLCD) the Oregon Department of Land Conservation and Development
- (DCC) Deschutes County Code
- (DCCP) Deschutes County Comprehensive Plan
- (ECC) Emergency Communications Center
- (EFU) Deschutes County Exclusive Farm Use Zone
- (EOA) Economic Opportunities Analysis
- (EVOC) Emergency Vehicle Operator Course
- (FEMA) Federal Emergency Management Agency
- (JMA) Redmond-Deschutes County Joint Management Agreement
- (MDP) City of Redmond Master Development Plan
- (OAR) Oregon Administrative Rules
- (ODOT) Oregon Department of Transportation
- (ORS) Oregon Revised Statutes

- (PF) City of Redmond Public Facility Zone
- (RCP) Redmond Comprehensive Plan
- (RDC) Redmond Development Code
- (RUUGA) Redmond Unincorporated Urban Growth Area
- (TGR) Trip Generation Report
- (TPR) Transportation Planning Rule – OAR Chapter 660, Division 012
- (TSP) Transportation System Plan
- (UGB) or (RUGB) Redmond Urban Growth Boundary
- (UGB Rule) the Urban Growth Boundary Rule – OAR Chapter 660, Division 024
- (URA) or (RURA) Redmond Urban Reserve Area
- (UH-10) Deschutes County Urban Holding Zone

# 1 Relation to Other Land Use Applications

---

This application contains findings to support a 228-acre Urban Growth Boundary (UGB) amendment.

This application narrative is the second in a series of five narrative parts containing seven applications to develop the Central Oregon Ready, Responsive, Resilient (CORE3) facility in the City of Redmond. Three unattached applications include two partition applications and a variance to final plat requirements. This narrative provides the factual and analytical basis to justify the inclusion of 228 acres of Urban Reserve Area (URA) within the UGB to accommodate the CORE3 facility. An overview of the project and additional information on required applications are contained in the Introduction to Land Use Applications.

Part 1. Comprehensive Plan Text Amendment amends the Redmond Comprehensive Plan (RCP) to include a new Public Facilities and Services Policy 11-1-7 which reads:

***To implement the Central Oregon Emergency Services Center Viability Assessment and the related Strategic Business Plan, the City has determined a need for a suitable site for the Central Oregon Ready, Responsive, Resilient (CORE3) regional public facility as a new community element. The CORE3 facility requires the following site and locational characteristics:***

- ***300 contiguous acres of suitable vacant land;***
- ***Within one-quarter mile of the Redmond Municipal Airport; and***
- ***Direct access to a state highway without the need to travel through designated residential or commercial areas.***

***Any land brought into the Urban Growth Boundary to meet public services and facilities site needs identified through this policy shall be limited to Public Safety, Emergency Services, Training and Coordination Facilities.***

This RCP policy (1) demonstrates a public facility land need and (2) defines necessary site and locational characteristics. OAR 660-024-0065(3) allows cities to identify siting requirements for public facilities to be applied in the UGB evaluation and amendment process. The proposal is to include 228 acres of the identified need, consistent with the Master Development Plan prepared for Phase 1 and programs identified for the Future Phase. The proposed 228-acre UGB amendment is justified through a detailed land evaluation using the necessary site and locational characteristics identified in RCP policy 11-1-7.

## 1.1 UGB Amendment Burden of Proof

This narrative addresses Statewide Planning Goal 14 (Urbanization) and its implementing UGB Rule (OAR Chapter 660, Division 024). As documented in Appendix F: Site Selection Analysis and Division 24 Findings and Section 2.1 of this document, no property within the existing UGB can meet identified CORE3 facility site needs. Goal 14 allows UGBs to be expanded to accommodate a “demonstrated need for housing, employment opportunities, livability or uses such as public



facilities, streets and roads, schools, parks or open space.”<sup>1</sup> Winterbrook proposes a 228-acre UGB expansion to meet a demonstrated public facility land need to accommodate the CORE3 facility.

Section 2 summarizes the Site Selection Analysis contained in Appendix F. Site Selection Analysis and Division 24 Findings. Section 3 demonstrates compliance with the Redmond Development Code (RDC) and compliance with all applicable Statewide Planning Goals, OARs, ORSs, and RCP policies. Quotations from applicable goals, rules, statutes, or local policies and criteria are shown in **bold italic font**. Winterbrook's responses are shown in standard font.

## 2 Public Facility Site Need and Supply

---

The new RCP policy (Public Facilities and Services Policy 11-1-7) defines necessary site and locational characteristics for the CORE3 facility. To satisfy the demonstrated public facility need, Winterbrook conducted a geospatial analysis. Detailed methodology is contained in Appendix F. Site Selection Analysis and Division 24 Findings. This section (section 2) provides a summary of that analysis, while a more complete discussion of relevant OAR requirements is included in section 3.2.1.

### 2.1 Evaluating Lands within Redmond's UGB

Goal 14's implementing UGB Rule (OAR 660-0024-0050[1]) and ORS 197.298/197A.320 require cities to first look inside their UGBs to satisfy urban land needs. If development cannot reasonably be accommodated within the existing UGB, cities must then amend their plan in accordance with Goal 14 (OAR 660-024-0050[4]).

The CORE3 facility is a unique proposal with specific site characteristic needs. OAR 660-024-0065(3) allows site characteristics to be considered when identifying a site to satisfy demonstrated public facility needs. Site characteristics include, but are not limited to, size, topography, and proximity. As defined in the new RCP policy 11-1-7, required site characteristics for the CORE3 facility are:

- 300 contiguous acres of suitable vacant land;
- Within one-quarter mile of the Redmond Municipal Airport; and

---

#### *1 Goal 14: Urbanization*

*To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.*

#### *Land Need*

*Establishment and change of urban growth boundaries shall be based on the following:*

- (1) Demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments, or for cities applying the simplified process under ORS chapter 197A, a 14-year forecast; and*
- (2) Demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories in this subsection (2). In determining need, local government may specify characteristics, such as parcel size, topography or proximity, necessary for land to be suitable for an identified need. Prior to expanding an urban growth boundary, local governments shall demonstrate that needs cannot reasonably be accommodated on land already inside the urban growth boundary.*

- Direct access to a state highway without the need to travel through designated residential or commercial areas.

Winterbrook evaluated all land within the UGB based on these site and locational characteristics. No land within the UGB met all three of these conditions. Therefore, land outside of the UGB was evaluated.

## 2.2 Evaluating Surrounding Lands

OAR 660-024-0065 "Establishment of Study Area to Evaluate Land for Inclusion in the UGB" allows for the narrow establishment of a preliminary study area specific to the identified public facility site and locational needs. It states:

***(1) When considering a UGB amendment to accommodate a need deficit identified in OAR 660-024-0050(4), a city outside of Metro must determine which land to add to the UGB by evaluating alternative locations within a "study area" established pursuant to this rule. To establish the study area, the city must first identify a "preliminary study area" which shall not include land within a different UGB or the corporate limits of a city within a different UGB. The preliminary study area shall include:***

***(a) All lands in the city's acknowledged urban reserve, if any;***

***(b) All lands that are within the following distance from the acknowledged UGB:***

***(A) For cities with a UGB population less than 10,000: one-half mile;***

***(B) For cities with a UGB population equal to or greater than 10,000: one mile;***

***(c) All exception areas contiguous to an exception area that includes land within the distance specified in subsection (b) and that are within the following distance from the acknowledged UGB:***

***(A) For cities with a UGB population less than 10,000: one mile;***

***(B) For cities with a UGB population equal to or greater than 10,000: one and one-half miles;***

***[...]***

***(3) When the primary purpose for expansion of the UGB is to accommodate a particular industrial use that requires specific site characteristics, or to accommodate a public facility that requires specific site characteristics, and the site characteristics may be found in only a small number of locations, the preliminary study area may be limited to those locations***

***within the distance described in section (1) or (2), whichever is appropriate, that have or could be improved to provide the required site characteristics. For purposes of this section:***

***(a) The definition of “site characteristics” in OAR 660-009-0005(11) applies for purposes of identifying a particular industrial use.***

***(b) A “public facility” may include a facility necessary for public sewer, water, storm water, transportation, parks, schools, or fire protection. Site characteristics may include but are not limited to size, topography and proximity.***

A preliminary study area was established that included Redmond's four URAs, all tax lots within one mile of the existing UGB, and all tax lots in exception areas<sup>2</sup> within one and one-half mile from the existing Redmond UGB.

After analyzing all sites within the preliminary study area, only one site meets the identified public facility site and locational needs: tax lot 151300-00-00103 owned by Deschutes County. The majority of the site is within the eastern URA.

ORS 197.298[1][a] and OAR 660-024-0060 establish a system of prioritization for lands to be included in the UGB. URAs are first priority for inclusion in the UGB. A city must consider all urban reserves in the study area and select for inclusion “as much of the land as necessary to satisfy the need for land.” (ORS 197A.320[2][c][A]). The UGB should therefore be amended to accommodate the CORE3 facility on the subject site.

The subject site is large, vacant, and proximal to air and highway transportation. The subject site is roughly 1,800 acres. A 300-acre portion of the site will be needed to develop all of the program elements of the CORE3 facility. This application proposes an area for inclusion consistent with the Master Development Plan: 228 acres of the site to satisfy site needs for Phase I and the Future Phase of site build-out. To satisfy locational needs, the 228-acre UGB expansion should be located at the southern end of the subject site, nearest to E. HWY 126 and the Redmond Municipal Airport. The master-planned CORE3 facility location is shown outlined in blue in figure 2.

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<sup>2</sup> For this analysis, lands with the following zoning designations were used to determine status as exception areas: Rural Residential, Rural Industrial, Multiple Use Agricultural, Surface Mining and Open Space.

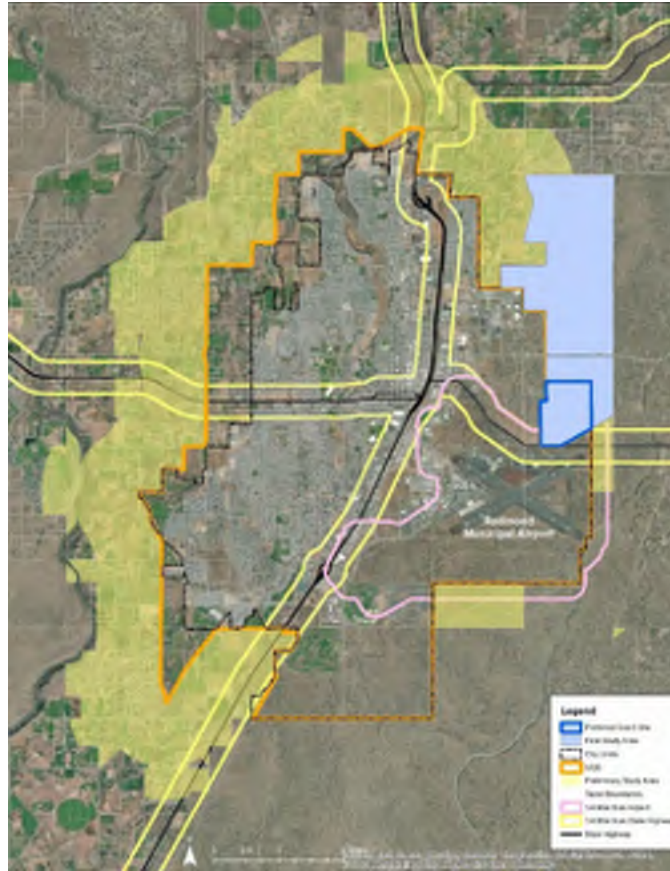


Figure 2 Final Study Area with Preferred CORE3 Site

### 3 Redmond Development Code 8.0760 and Deschutes County Development Code 20.36.030 Criteria for Amendments:

The proposed UGB amendment must meet RDC 8.0760 Criteria for Amendments. RDC 8.0760 reads as follows:

1. ***In conformity with all applicable State statutes;***
2. ***In conformity with the State-wide planning goals whenever they are determined to be applicable;***
3. ***In conformity with the Redmond Comprehensive Plan, land use requirements and policies; and***
4. ***That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning.***

The subject site is designated as agricultural land in the Deschutes County Comprehensive Plan and will need to be redesignated. The proposed UGB amendment requires a Deschutes County Plan Map and Zone Change (addressed in Part 5), and the proposal must meet Deschutes County

Code (DCC) 20.36.030 Criteria for Map Amendments. Because DCC criteria are similar to RDC criteria, we have addressed both under the same responses in the pages that follow.

All applicable OARs, ORSs, RCP policies, and the city and county criteria are addressed in sections 3.1 through 3.4; findings for compliance with Statewide Planning Goals are provided in Appendix J: Statewide Planning Goal Analysis.

### 3.1 RDC 8.0760(1) In conformity with all applicable State statutes;

This criterion is substantively identical to DCC 20.36.030(A), which requires the proposal “**(A) Conforms with the applicable state statutes.**” Applicable ORS requirements are implemented through OAR 660-024, which is addressed under Goal 14 findings in Appendix J: Statewide Planning Goal Analysis and in detail in Appendix F: Site Selection Analysis and Division 24 findings. The following procedural statutory requirements also apply:

#### **ORS 197.250 Compliance with goals required**

**Response:** Adopted comprehensive plans – and land use regulations to carry out those comprehensive plans – must comply with all Statewide Planning Goals and implementing administrative rules. The proposed comprehensive plan text amendment to the adopted and acknowledged RCP will comply with all applicable goals, as demonstrated in response to RDC 8.0760.2 (See section 3.2).

#### **ORS 197.610 Submission of proposed comprehensive plan or land use regulation changes to Department of Land Conservation and Development; rules.**

**Response:** The City of Redmond has an adopted development code and an adopted comprehensive plan, both acknowledged by the State of Oregon, that follow provisions in ORS 197. The city and county will provide notice to DLCD 35 days prior to the first evidentiary hearing, as required by OAR 660-018-0020.

#### **ORS 197.626 Submission of land use decisions that expand urban growth boundary or designate urban or rural reserves**

**Response:** The proposed UGB amendment will add over 100 acres to the City of Redmond UGB and therefore requires notice to DLCD per ORS 197.626(1)(a). The city and county will provide notice to DLCD and will receive a final order within 90 days after the Redmond City Council votes on the proposed amendment.

### 3.2 RDC 8.0760(2) In conformity with the State-wide planning goals whenever they are determined to be applicable;

This criterion is substantively identical to DCC 20.36.030(B) which requires the proposal “**(B) Conforms with the applicable state-wide planning goals and Oregon Administrative Rules (OAR) whenever they are determined to be applicable;**”

As stated in OAR 660-024-0020 “Adoption or Amendment of a UGB”:

**(1) All statewide goals and related administrative rules are applicable when establishing or amending a UGB, except as follows:**

***(a) The exceptions process in Goal 2 and OAR chapter 660, division 4, is not applicable unless a local government chooses to take an exception to a particular goal requirement, for example, as provided in OAR 660-004-0010(1);***

***(b) Goals 3 and 4 are not applicable;***

***(c) Goal 5 and related rules under OAR chapter 660, division 23, apply only in areas added to the UGB, except as required under OAR 660-023-0070 and 660-023-0250;***

***(d) The transportation planning rule requirements under OAR 660-012-0060 need not be applied to a UGB amendment if the land added to the UGB is zoned as urbanizable land, either by retaining the zoning that was assigned prior to inclusion in the boundary or by assigning interim zoning that does not allow development that would generate more vehicle trips than development allowed by the zoning assigned prior to inclusion in the boundary;***

***(e) Goal 15 is not applicable to land added to the UGB unless the land is within the Willamette River Greenway Boundary;***

***(f) Goals 16 to 18 are not applicable to land added to the UGB unless the land is within a coastal shorelands boundary;***

***(g) Goal 19 is not applicable to a UGB amendment.***

***(2) The UGB and amendments to the UGB must be shown on the city and county plan and zone maps at a scale sufficient to determine which particular lots or parcels are included in the UGB. Where a UGB does not follow lot or parcel lines, the map must provide sufficient information to determine the precise UGB location.***

Goals applicable to this application are: Goal 1 (Citizen Involvement), Goal 2 (Land Use Planning), Goal 5 (Open Spaces, Scenic, and Historic Areas), Goal 6 (Air, Water, and Land Resources Quality), Goal 7 (Areas Subject to Natural Disasters and Hazards), Goal 8 (Recreation Needs), Goal 9 (Economy of the State), Goal 10 (Housing), Goal 11 (Public Facilities and Services), Goal 12 (Transportation), Goal 13 (Energy), Goal 14 (Urbanization). Goal 14 Urbanization is implemented by OAR 660-024 (Division 24), which establishes substantive and procedural requirements for UGB amendments. Compliance with the Division 24 is demonstrated in Appendix F: Site Selection Analysis and Division 24 Findings. Compliance with applicable statewide planning goals is demonstrated in Appendix J: Statewide Planning Goal Analysis.

### **3.3 RDC 8.0760(3) In conformity with applicable Redmond Comprehensive Plan, land use requirements and policies; and**

This criterion is substantively similar to DCC 20.36.030(C) which requires that all map amendments **“[conform] with the City Comprehensive Plan.”** This confirms that only RCP policies apply to county map amendments – including UGB amendments. Therefore, this application meets this criterion by responding to applicable RCP Policies.

The following RCP policies apply:



### 3.3.1 Redmond Comprehensive Plan Policies

***POLICY 7-3-1 Plan and prepare for the Cascadia earthquake to reduce the City's vulnerability to loss of life and property and build capacity for local, regional and state relief.***

**Response:** During a Cascadia subduction event, the CORE3 facility will act as the State Resiliency Center. The proposed UGB amendment to establish the CORE3 facility in Redmond directly supports this policy to build local, regional, and state resiliency during a major earthquake.

Redmond will become the state's center for relief if a Cascadia Subduction Zone Earthquake event occurs. For more context on the CORE3 facility functions, please see the Introduction to Land Use Applications, Part 3. MDP, and Appendix I.1. Strategic Business Plan.

***POLICY 7-3-2 Support plans and programs to expedite the restoration of critical services following a natural hazard event, including lifeline transportation routes.***

**Response:** As discussed in the Introduction to Land Use Applications, Redmond and the region currently lack both a centralized public safety training facility and a coordination center for emergency response operations. The proposed UGB amendment to establish the CORE3 facility in Redmond directly supports this policy by providing for land to site the CORE3 facility – a facility that will better equip emergency service personnel and provide a centralized location for disaster response.

***POLICY 9-5-1 Ensure that the City's planning for economic development increases economic resiliency, mitigating long-run economic risks such as future disruptions such as: infrastructure issues, technological disruptions, natural disasters, or national economic recessions.***

**&**

***POLICY 15-1-15 Redmond shall develop strategies that improve resiliency in times of crisis and reduce the potential negative impact to the whole city should any one system falter or fail. Improving resiliency means Redmond should maximize the variety of business types.***

**Response:** The programmatic elements of the CORE3 facility and the physical space of the facility will better prepare emergency service personnel and create a coordination center for emergency response operations. Although the facility itself will not be a major employment center, the facility's programmatic elements will better equip Redmond's and the region's emergency service personnel to help protect businesses and residences throughout the region. Planning for the CORE3 facility through the proposed UGB amendment is consistent with these policies and will allow the city to mitigate an identified economic long-run risk – natural disasters.

***POLICY 9-5-6 Ensure that Redmond has the services and amenities necessary to for residents of Redmond. These services and amenities include those in Policy 9-5-6 but also include parks and open space, public library, and public safety services. Redmond should***

***also ensure that there are opportunities for development of housing and services for seniors, such as assisted living and other senior housing opportunities.***

**&**

***POLICY 11-1-4 Maintain and enhance the provision of police, fire and emergency medical services for residents.***

**Response:** The proposed UGB amendment is consistent with these policies because it will allow for a CORE3 facility to satisfy local and regional needs for a centralized public safety training facility and a coordination center for emergency response operations. Programmatic facility elements will enhance Redmond's public safety services. Redmond's current and future residents and businesses will be better served by police, fire, and emergency medical services through the facility's development.

***POLICY 11-2-1 Coordinate public facility planning for the Redmond UGB with participation and assistance from Deschutes County and the following service providers:***

- ***Transportation – Deschutes County, Oregon Department of Transportation,***
- ***Burlington Northern Santa Fe Railroad, Central Oregon Intergovernmental Council – Cascade East Transit.***
- ***Water – Brentwood Water Association, Avion Water, Central Oregon Irrigation District***
- ***Sewer***
- ***Storm Drainage – Deschutes County, Central Oregon Irrigation District***
- ***Parks – Deschutes County, RAPRD, Redmond School District.***

**Response:** Appendix D. Public Facilities Plan and Appendix E. Transportation Studies (TGR – TPR) demonstrate orderly, economic, and efficient public facility serviceability for the subject site. With previous inclusion in the UGB, prior to 2019, the subject site has been included in past discussions between service providers regarding public facility planning. Throughout this process, COIC has been in coordination with Deschutes County Transportation department and City of Redmond public works. Development of the CORE3 facility will require more detailed discussions with service providers during future land use entitlements and building permits.

***POLICY 2-2-4 Adopt a Comprehensive Plan Map that identifies planned uses for all land within the Redmond Urban Growth Boundary (UGB). The land use designations in the above table will be used on the Comprehensive Plan Map to designate areas intended for the land uses described. The table also includes a list of City and County zoning designations that are compatible with the associated Comprehensive Plan Map designation. All property added to the UGB from the Urban Reserve Area (URA) is considered to have an Urban Holding Area Comprehensive Plan designation and an Urban Holding-10 (UH-10) zone. Urban development consistent with the Plan designation may not be approved until the land is annexed to the City of Redmond and rezoned consistent with the zoning categories listed.***

**&**

***POLICY 14-1-5 When land is brought into the UGB, it shall be designated Urban Holding (UH-10) on the comprehensive plan map.***

**&**

***POLICY 14-1-6 The UH-10 plan designation may be changed when the land is annexed and approved for urban zoning through a Master Plan approval process.***

**&**

***POLICY 14-1-7 Land that is designated UH-10 on the Comprehensive Plan Map shall be planned for urban development using a Master Development Plan or Partial Master Development Plan. Such plans may be approved through a quasi-judicial land use process and should be prepared so that contiguous UH-10 zoned parcels are covered by the plan. Minority property holdings that abut or are surrounded by a proposed Master Development Plan or Partial Master Development Plan may be included in the plan without landowner consent, but City annexation and rezoning may be delayed until requested by the landowner.***

**Response:** These policies establish the rezoning process during UGB expansions for moving from county comprehensive plan designation to city. Inclusion lands are first zoned county UH-10, and then once a MDP is approved the area is allowed to be rezoned.

This application package contains five sequential land use narrative packages. Part 3 contains the requested MDP approval. Ultimately, we are proposing the city and county rezone the subject site from county EFU, to county UH-10, to city PF in a sequential decision process, adhering to the rezoning process established in these policies. Please see Parts 3, 4, and 5 for more information on the rezoning requests.

***POLICY 14-2-1 The establishment and change of the UGB shall be a cooperative process between the City of Redmond and Deschutes County.***

**&**

***POLICY 14-3-4 The City of Redmond will adopt and implement IGAs with Deschutes County and other agencies to facilitate long-range transportation planning and master planning of the Redmond Urban Reserve Area.***

**Response:** The City of Redmond and Deschutes County have a cooperative UGB amendment process, as established in the joint management agreement for the Redmond unincorporated urban growth areas and the urban reserve areas (see Appendix I.2. Redmond-Deschutes County Joint Management Agreement). Policy 4-2-1 in the Deschutes County Comprehensive Plan states that the county will “participate in the processes initiated by cities in Deschutes County to create and/or amend their urban growth boundaries.”

The requested UGB amendment is proposed to both the city and the county. Both city and county processes have been followed, in accordance with the joint management agreement, RDC, RCP, DCC, and the Deschutes County Comprehensive Plan.

***POLICY 14-3-3 Urban Reserve Area lands will be included within the UGB on a phased basis as the need for urbanizable land warrants an expansion. The City and County may establish a strategy and priority for expanding the UGB based on factors such as proximity to existing urban development and ability to extend public facilities and services in an orderly and efficient manner.***

**Response:** The proposed UGB expansion includes URA land. The subject site was identified through a site selection process consistent with Goal 14 and Division 24. This is summarized in sections 2 and

3.2.1, and discussed in detail in Appendix F. Site Selection Analysis and Division 24 Findings. Evaluation of locational site needs identified the southern portion of the eastern URA as the only suitable expansion area for the CORE3 facility.

RCP policy 11-1-7 establishes three site and locational characteristics necessary to site the CORE3 facility. Two locational characteristics include adjacency to the Redmond Municipal Airport and access to the state's highway system. Because of these necessary site needs, the proposed UGB expansion is onto the southern portion of the eastern URA land.

In order to evaluate the extension of public facilities and services in an orderly and efficient manner, the proposal is required to demonstrate compliance with Goals 14, 12, and 11. Goal 14 prioritization and location factors are discussed in Appendix F: Site Selection Analysis and Division 24 Findings. Goal 11 is addressed in Appendix J: Statewide Planning Goal Analysis and Appendix D: Public Facilities Plan. Goal 12 is addressed in Appendix J: Statewide Planning Goal Analysis and Appendix E. Transportation Studies (TGR – TPR).

***POLICY 14-3-5 The City will encourage the preparation of Framework Plans for urban reserve area(s) prior to approving an UGB amendment consistent with the City/County Urban Area Management Agreement.***

**Response:** The subject site is within the eastern URA. The Eastside Framework Plan was prepared in 2008 for the eastern URA consistent with this policy.

The Eastside Framework Plan did not consider the unique needs of a regional public safety training facility and coordination center for emergency response operations. The CORE3 facility is a unique public facility with specific needs relating to site characteristics, size, and location. The proposed UGB amendment is regulated by state law and must supersede the conceptual URA planning of the Eastside Framework Plan. The proposed site will be designated for Public Facility use. Therefore, the Master Development Plan proposed in Part 3. MDP will be consistent with the RCP.

The subject site will be zoned PF, with a MDP for the CORE3 facility on the subject site. OAR 660-024-0050(7)<sup>3</sup> and RCP Policy 11-1-7 prevent any zoning or uses that are inconsistent with the land needs used to justify the UGB expansion.

***POLICY 14-3-8 Property owners have the opportunity to request that land within a designated Urban Reserve Area be included within the UGB, based on consideration of the following factors outlined in Statewide Goal 14, as amended. The Goal generally includes:***

- ***Demonstrated need to accommodate urban population growth requirements;***
- ***Need for housing, employment opportunities and livability;***

**Response:** The UGB expansion is based on a multi-agency regional and statewide collaborative effort, which culminated in RCP policy 11-1-7. This policy establishes a need, and site requirements necessary for, the CORE3 facility in Redmond. See sections 2 and 3.2.1 for more details.

---

<sup>3</sup> (7) Lands included within a UGB pursuant to OAR 660-024-0065(3) to provide for a particular industrial use, or a particular public facility, must be planned and zoned for the intended use and must remain planned and zoned for that use unless the city removes the land from the UGB.

- **Orderly and economic provision of public facilities or services;**

**Response:** Serving the site with public facilities will be orderly, economic and efficient. Evidence is contained in Appendix D. Public Facilities Plan, in responses in section 3.2.1, and section 3.2.10, and in Appendices F and J.

- **Maximum efficiency of land uses;**

**Response:** One of the primary objectives of the CORE3 facility is efficient provision of regional training and emergency response facilities. Rather than individual locations with land needs across the region, these facilities are planned in a central location with internal and external synergies – each portion of the site can be used by multiple agencies, and the entire site is close to air and ground transportation. The site's efficient layout of facilities is further discussed in Part 3. MDP.

- **Retention of agricultural land;**

**Response:** By following the priorities in Goal 14, the proposed UGB expansion includes only land within the URA that has already been dedicated for future urban use. No agricultural land outside of URA boundaries is included in the proposed expansion. Additionally, DEQ has determined that the site is not appropriate for any agricultural use (see Appendix I.5).

- **Compatibility of urban uses with nearby agricultural activities; and**

**Response:** The subject site is designated URA and is already committed to future urban use. Compatibility with nearby agricultural activities was considered and addressed in the URA designation process. In addition, Part 3. MDP directly addresses compatibility of the CORE3 site with adjacent uses and proposes significant buffers around the facility to reduce urban-rural conflicts.

- **Environmental, energy, economic and social consequences.**

**Response:** Environmental Consequences. As discussed under Goals 5 and 6 in Appendix J: Statewide Planning Goal Analysis, no natural resources have been mapped or identified within the proposed bounds of the subject site. Any future development of the CORE3 facility will require compliance with both Goal 5 and 6 policies and measures, including regulations and mitigation measures related to air quality.

Energy Consequences. As discussed under Goal 13 in Appendix J: Statewide Planning Goal Analysis, efficient provision of multi-agency public facilities and services on the CORE3 site will reduce vehicle miles traveled for routine training within the region. Energy consequences of the proposed UGB expansion are positive.

Economic Consequences. As discussed under Goal 9 Appendix J: Statewide Planning Goal Analysis, expanding the UGB to allow development and use of the CORE3 facility will bring employment, visitors, and commercial spending to Redmond. Economic consequences of the proposed UGB expansion are positive.

Social Consequences. In general, public safety training and disaster preparedness is a social positive, as it increases safety and peace of mind for local, regional, and state residents. The proposed CORE3 facility is supported by all local and regional public safety agencies, as well as state agencies, for this reason. Social consequences of the proposed UGB expansion are positive.

### 3.4 RDC 8.0760(4) That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning.

**Response:** Regional emergency management agencies have been discussing the concept of the CORE3 facility for well over ten years. Organizing efforts culminated in a June 2018 report prepared by the University of Oregon's Partnership for Disaster Resilience that found a strong need for an emergency services center for regional agencies in Central Oregon (See Appendix I.3. Central Oregon Emergency Services Center Viability Assessment). COIC then published a Strategic Business Plan in October 2020 that assessed current training facilities and programming needs, conducted a financial assessment for the project, developed a list of site layout considerations, and identified the City of Redmond as the optimal location for this facility (See Appendix I.1. Strategic Business Plan).

The new RCP policy 11-1-7 puts into policy what has already been determined through multi-agency efforts and reports over a span of several years: that a new, regional emergency response center is needed in Central Oregon and would be used by public entities, private users, and other regional and state agencies. This documented need—paired with the fact that no suitable site could be identified within the existing UGB—has created a change in circumstances that justifies the amendment of the UGB to accommodate a suitable site.

## 4 Conclusion

---

The proposed UGB amendment to provide land for the 228-acre Phase I and Future Phase Master Development Plan of CORE3 facility meets most of the identified public facility land need for a regional emergency services training and coordination center in Redmond. Site selection was based on identified site and locational characteristics contained in RCP policy 11-1-7:

- 300 contiguous acres of suitable vacant land;
- Within one-quarter mile of the Redmond Airport; and
- With direct access to a state highway without the need to travel through designated residential or commercial areas.

After a site selection analysis based on these factors, there are no suitable sites with the existing UGB to satisfy this need. A suitable site was identified in the southern portion of the eastern URA adjacent to the City of Redmond, and a Master Development Plan for 228 acres of the site is included in this application package. UGB expansion onto the subject site meets Goal 14 priorities for UGB expansion, and this narrative and attached appendices demonstrates that the proposed UGB amendment is consistent with RDC 8.0760 Criteria for Amendments and consistent with all applicable ORSs, Statewide Planning Goals, and RCP policies.



Central Oregon Intergovernmental Council:  
Central Oregon Ready, Responsive, Resilient  
(CORE3) Facility

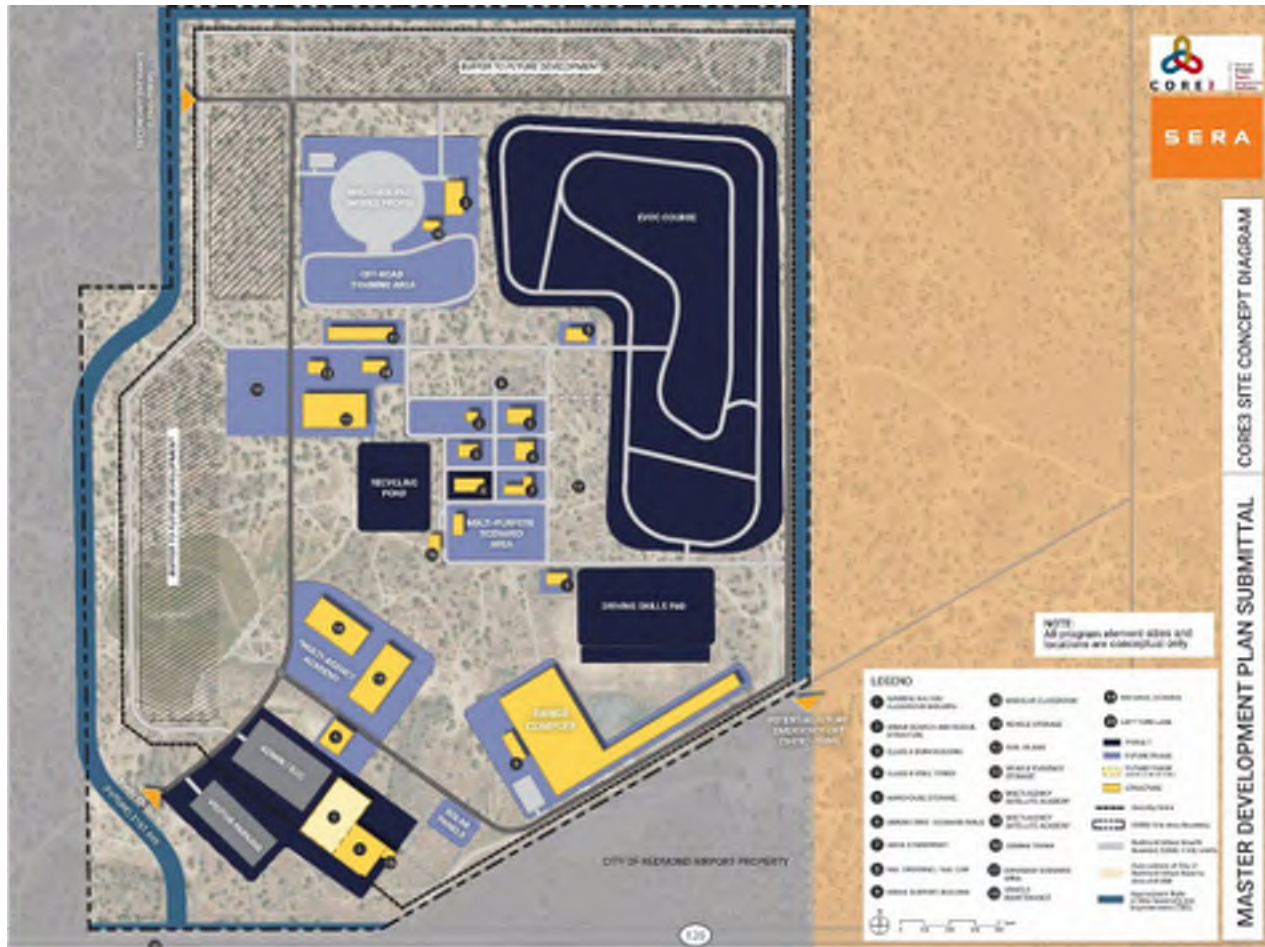


Figure 1 CORE3 Master Development Plan

## Part 3. Master Development Plan

Prepared by SERA Architects  
In coordination with Winterbrook Planning, Kittelson & Associates, and HHPR Inc.  
This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

December, 2023



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## Application Narratives:

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Introduction to Land Use Applications

Part 1. Comprehensive Plan Text Amendment

Part 2. Urban Growth Boundary Amendment



**Part 3. Master Development Plan**

Part 4. Redmond Zone Change & Annexation

Part 5. Deschutes County Plan Map & Zone Change

## General Information

|                  |                                                                                                                                                                                                  |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant:       | Central Oregon Intergovernmental Council (COIC)<br>Scott Aycock, COIC Community and Economic Development Director,<br>1250 NE Bear Creek Rd.<br>Bend, OR 97701<br>541-390-4653, SCotta@COIC.org  |
| Representative:  | Jesse Winterowd, AICP, Winterbrook Planning<br>610 SW Alder Street, Suite 810<br>Portland, OR 97205<br>503-827-4422 ext. 109, Jesse@WinterbrookPlanning.com                                      |
| Property Owner:  | Kristie Bollinger, Deschutes County Property Management<br>14 NW Kearney Avenue<br>Bend, OR 97703<br>541-385-1414                                                                                |
| Site Address:    | No Situs                                                                                                                                                                                         |
| Tax Lot ID:      | 151300-00-00103                                                                                                                                                                                  |
| Current Zoning:  | Deschutes County Exclusive Farm Use – Alfalfa Subzone                                                                                                                                            |
| Proposed Zoning: | City of Redmond Public Facility                                                                                                                                                                  |
| Proposal:        | Part 3 in a series of five narratives necessary to permit the CORE3 facility in the City of Redmond. This narrative describes the master development plan and addresses all applicable criteria. |

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## Reference Documents

- City of Redmond Comprehensive Plan (2020)
- City of Redmond Transportation System Plan (2020)
- City of Redmond Economic Opportunity Analysis (2020)
- City of Redmond Parks Master Plan (2018)
- Deschutes County Transportation System Plan (2010)
- City of Redmond UGB Adjustment, Redmond Ordinance No. 2020-01 (2019)

## Abbreviations

- (BLM) Federal Bureau of Land Management
- (BOCC) Board of Deschutes County Commissioners
- (COIC) Central Oregon Intergovernmental Council
- (CORE3) Central Oregon Ready, Responsive, Resilient
- (DLCD) the Oregon Department of Land Conservation and Development
- (DCC) Deschutes County Code
- (DCCP) Deschutes County Comprehensive Plan
- (ECC) Emergency Communications Center
- (EFU) Deschutes County Exclusive Farm Use Zone
- (EOA) Economic Opportunities Analysis
- (EVOC) Emergency Vehicle Operator Course
- (FEMA) Federal Emergency Management Agency
- (JMA) Redmond-Deschutes County Joint Management Agreement
- (MDP) City of Redmond Master Development Plan
- (OAR) Oregon Administrative Rules
- (ODOT) Oregon Department of Transportation
- (ORS) Oregon Revised Statutes
- (PF) City of Redmond Public Facility Zone
- (RCP) Redmond Comprehensive Plan
- (RDC) Redmond Development Code

- (RUUGA) Redmond Unincorporated Urban Growth Area
- (TGR) Trip Generation Report
- (TPR) Transportation Planning Rule – OAR Chapter 660, Division 012
- (TSP) Transportation System Plan
- (UGB) or (RUGB) Redmond Urban Growth Boundary
- (UGB Rule) the Urban Growth Boundary Rule – OAR Chapter 660, Division 024
- (URA) or (RURA) Redmond Urban Reserve Area
- (UH-10) Deschutes County Urban Holding Zone



# 1 Relation to Other Land Use Applications

---

This application narrative is the third in a series of five narrative parts containing seven applications to develop the Central Oregon Ready, Responsive, Resilient (CORE3) facility in the City of Redmond. Three unattached applications include two partition applications and a variance to final plat requirements. An overview of the project and additional information on required applications are contained in the Introduction to Land Use Applications.

The City of Redmond requires all areas zoned UH-10 to have an approved Master Development Plan (MDP) prior to annexation and rezoning to a city zoning designation. This application narrative part contains findings to support the adoption of a MDP for the CORE3 facility site.

This application narrative is organized by the following:

- **Section 2** contains context and information about the proposed MDP.
- **Section 3** contains responses to approval criteria for the MDP. These are found in RDC 8.0270(3)(B).
- **Section 4** contains responses to the MDP submittal requirements, additional approval criteria, and approval process. These criteria are found in RDC 8.0270(3)(C).

Responses to these criteria and supporting evidence are described in the sections to follow.

Responses are shown in standard font. All Statewide Planning Goals, OARs, ORSs, RCP policies, and the RDC are shown in ***bold italic font***.

## 2 MDP Overview & Elements

---

In September of 2020, the COIC developed a Strategic Business Plan (Appendix G.1) identifying a need for, and preliminary siting requirements for, a centralized public safety training facility. The CORE3 facility will address a critical need for both a centralized public safety training facility and a coordination center for emergency operations.

**CORE3 Mission:** To deliver a high caliber public safety training and emergency coordination facility that enhances public safety, builds resilience, and mitigates risk.

**CORE3 Vision:** A model center in Central Oregon for public safety providers which delivers superior, collaborative emergency services training and coordination across disciplines, creating a safe and resilient Oregon.

### 2.1 CORE3 Facility Goals and Objectives

The CORE3 facility is required to address a critical local, regional, and state public facilities need. Addressing that public facilities need is the primary goal of the CORE3 facility. To achieve this goal, the facility is designed to meet a series of four objectives. The CORE3 facility is designed to satisfy that public facilities need through the following objectives:

**Training Facilities:** Central Oregon has insufficient facilities to meet existing, minimum mandatory training needs of public safety personnel. In a growing region, the need for trained public safety and emergency service professionals is increasing, and the CORE3 facility will incorporate industry best practices to ensure that the best training is provided to those that need it. There are significant operational and performance benefits and financial efficiencies to collocating these facilities. The CORE3 facility will enable multiple emergency response agencies to coordinate logistics during the training stage, rather than having to do so in the field while responding to an emergency. It will also enable multiple agencies to share certain program elements, reducing the public funds needed for construction overall.

**Emergency Coordination Center:** This facility will provide a dedicated, multi-agency coordination center for emergency operations and regional recovery, as well as a centralized base for disaster response coordination that the region currently lacks.

**Classrooms and Practical Learning Spaces:** The facility will provide opportunities for Central Oregon Community College's public safety programs, to support public safety and provide workforce training.

**State Resiliency Center:** U.S. Highway 97 has been identified by the FEMA as a critical facility and the Redmond Municipal Airport as a staging site for emergency response and recovery efforts during the event of a major natural disaster. Because there is far less likelihood of damage to facilities in Central Oregon than in the western portion of the state – including Salem – the CORE3 facility will be relied upon extensively after a Cascadia subduction zone event. CORE3 will provide a space for the continuity of state governance in the first weeks and months after a catastrophic event. Proximity to Redmond Airport will be essential in this and other major regional disruption events.



Figure 2 Bend Police Drone Training (<https://core3center.org/>)

## 2.2 Major Program Element Types

The multi-agency facility will incorporate a variety of program types for training emergency responders in the region. These program types can be broken down into the following categories which represent the proposed features and structures of the full build out of the concept plan. All MDP plans are contained in Appendix C. As shown in the Master Development Plan, the majority of the 228 acres is not occupied by buildings, and many of the anticipated buildings would be used for training scenarios.

**Academic and Administrative Facilities:** The main Administration and Classroom building will house office space, various classrooms, a defensive scenario training room and a simulations classroom. In addition, there will be public restrooms, meeting and conference rooms, a library, auditorium and complete locker rooms and showers for instructors and training personnel. This building will also act as the Emergency Coordination Center (ECC) in the event of a major disaster and could support other temporary programs for emergency uses and continuous operations for public entities. A wireless communications tower will need to be included in order to support this emergency functionality.

The Multi-agency Academy is a potential future large space for a 16-week long training academy which could be supported by facilities such as cafeteria, personal hygiene, fitness, kitchen, and dining hall. It could also temporarily house emergency personnel in case of a disaster event.

There are also plans for the site to house a few remote, small, modular classroom buildings to support training in the field adjacent to other program elements.

**Multi-Purpose Scenario Area and Training Props:** This is the centralized training area with specialty buildings to support emergency response training for police and fire personnel. These structures support search and rescue and pursuit training under various conditions. They benefit from being together in a street-grid formation to help simulate larger events.

**Vehicular Training:** The CORE3 site will contain several courses of different types of terrain to help with training for vehicle operations and pursuits. These include the Emergency Vehicle Operator Course (EVOC) and the driving skills pad, the off-road training area,

**Specialized Training Areas:** There are other unique features and facilities as part of the CORE3 project that will support specialized activities on the site. These include a gun range an aircraft rescue fire trainer, train derailment props, and a multi-purpose pad that can support a variety of specialized and mobile props.

**Storage and Maintenance:** In order to support the operations of this facility, there will be several types of storage and maintenance facilities on site. These will store equipment and supplies to support and maintain the site, cached emergency supplies, vehicles, and will help maintain the specialized vehicles and training props. A fuel island will help support training vehicles as well as emergency response vehicles in an emergency event in order to avoid going through downtown Redmond.

## 2.3 Site Concept Layout

The MDP is contained in Appendix C and shown in Figure 3 on the following page. This section contains descriptions of the general elements of the plan, including driving forces that influenced the siting of CORE3 facility elements. For instance, admin and academic facilities were clustered near the southern main entrance to act as a “gate” to the CORE3 facility and program elements.

**Buffers and Setbacks:** The concept plan designates large buffers on the North and West sides of the CORE3 site area to ensure separation between the training facilities and adjacent uses. Training facilities are to be set away from these edges to minimize impacts to future development. The project will work with the City of Redmond Engineering Department as well as ODOT to ensure proper setbacks and easements are designated along the site perimeter to support future roadway development as needed.

**Efficiency:** The Site Concept Plan lays out the program to take advantage of key programmatic adjacencies in order to maximize collaborative training opportunities across the different agencies. Similar uses are grouped together with some internal buffers between functions to create separation for safety and disturbance reasons. The loop road allows for efficiency and safety for on-site circulation, as well as utility distribution.

**Access and Parking:** Main access for the CORE3 site will be from the south side of the property, off of a future 21<sup>st</sup> Ave that connects to E. HWY 126. There will be a visitor parking lot outside of the security perimeter before you reach the secured entry point. Parking for the main Administrative and Classroom building will also be provided inside of the entry. Other small parking areas will be provided throughout the site for access to the various training facilities.

While only one access point is currently required to meet Redmond Fire Department standards for Phase 1 development, a second access/egress point is recommended for resilience and redundancy purposes to serve emergency response events. Ideally this second point would be located at the Northwest corner of the site and tie into the future extension of 21<sup>st</sup> Ave. While that is still in development, it makes sense to pursue a temporary access easement across the City of Redmond Airport property to the south, inside the UGB. This is conceptual only and approval for this easement will be a future process, outside of this application.

**Landscaping:** The site and landscape design will be developed as each phase of work is designed. A minimum of 15% of each area will be landscaped, and a large portion of the site will remain as existing undeveloped native landscape, especially in the perimeter and internal buffer zones. Native and drought-tolerance species will be selected, and care will be taken to minimize any wildfire risk around structures.

## 2.4 Phasing

Based on the Strategic Plan, COIC anticipates that CORE3 MDP will be achieved in phases, with initial operations intended by the end of Year 2026 and full operations by the end of Year 2035. Phase I is anticipated to include the following components:



- **Site prep, infrastructure and utilities** (there will be additional site prep and infrastructure/utilities extension for future phases as well)
- **Combined Education and Training Building and Emergency Coordination Center**
- **Fire Training Drill Tower and pumping infrastructure, recycling pond**
- **Emergency Vehicle Operator Course and Driver Skills Pad**

Limited dedicated classroom and office space would also be provided. Phase 1 structures would broadly be dedicated to the use of the CORE3 site as a training facility. The education and training building and emergency coordination center would serve primarily as an administration and classroom building. Facilities shown in the MDP both in Phase 1 and the Future Phase are in support of the Public Safety, Emergency Services, Training and Coordination Facilities use.

The comprehensive plan text amendment contained in Part 1. Comprehensive Plan Text amendment, limits land uses on-site to the Public Safety, Emergency Services, Training and Coordination Facilities.

For the purposes of the application, the remaining phases of buildout are grouped under the "Future Phase" heading. Following the construction of Phase 1 infrastructure as shown in the Master Development Plan, the buildout of the Future Phase will be determined by the Executive Council based on available budgets and prioritization.

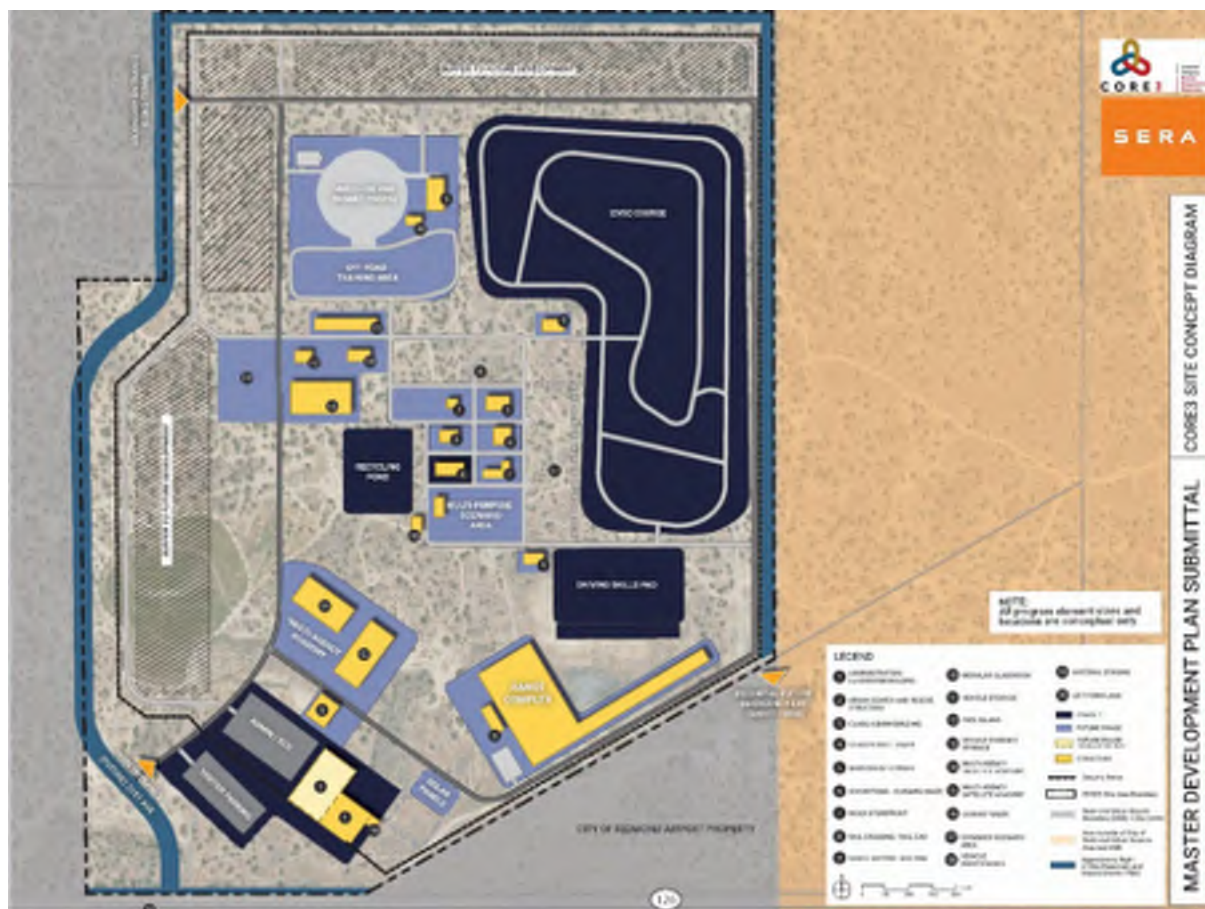


Figure 3 CORE3 Master Development Plan

### 3 Redmond Development Code (RDC) 8.0270(3)(A) & (B) MDP Approval Criteria

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The proposed MDP must meet RDC 8.0270(3)(A) and (B). Standard A sets the boundaries of the MDP. Standard B contains the MDP approval criteria. Responses to these standards are addressed in this section.

#### 3.1 RDC 8.0270(3)(A) General

**A. General. Master Development Plans (MDP or PMDP) shall be approved through a quasi-judicial review process. Application procedures and related fees for approval may be streamlined in order to promote timely development of urban planning for land zoned UH-10. The Community Development Director, or designee, shall inform the applicant during the mandatory pre-application stage if the proposed MDP area includes the necessary contiguous properties. The determination for the proposed plan area shall be based on utilizing the following factors:**

- 1. Whether there are properties that abut or are surrounded by the plan boundary that would reasonably fit within the zoning concept for the area plan;**
- 2. Whether the extension of public services and infrastructure would be enhanced by the inclusion of abutting properties;**
- 3. Whether the total acreage of abutting or enclave properties is less than the acreage in the proposed plan area; and**
- 4. There is a community interest that would be served by including additional properties in the plan area.**

**Response:** A pre-application conference was held with the City on January 17<sup>th</sup>, 2023. The City agreed that the proposed MDP boundary is appropriate for the CORE3 facility. The MDP will only apply to the CORE3 facility site and proposed right-of-way of 21<sup>st</sup> Ave.

The CORE3 facility is a unique public facility, planned on 228-acres of URA land that will be brought into the Redmond UGB with approval of this application package (findings for the expansion are contained in application Part 2. UGB Amendment). As described in Section 2, the facility will contain multiple program elements and facilities that are specialized to the CORE3 facility. Because of the site size and specialized elements and facilities, the MDP plans for potential conflicts with adjacent lands through the use of large buffers and siting more intensive activities nearer to rural BLM land.

#### 3.2 RDC 8.0270(3)(B) Review and Approval Criteria

**B. Review and approval criteria for Master Development Plans (MPD) or Partial Master Development Plans (PMDP).**

- 1. General. In the review of any application for a Master Development Plan, the Planning Commission and City Council, if required, shall consider the following:**



**a. Whether the proposed Plan is generally consistent with the Framework Plan, adopted Area Plan, and Comprehensive Plan in terms of land use, density, transportation systems and networks, adequacy of infrastructure and open space.**

**Response:** The subject site is within the eastern URA. The Eastside Framework Plan was prepared in 2008 for the eastern URA and guides development. The Eastside Framework Plan did not consider the unique needs of a regional public safety training facility and coordination center for emergency response operations. The CORE3 facility is a unique public facility with specific needs relating to site characteristics, size, and location. The Site Selection Analysis and Division 24 Findings (Appendix F) concludes that the site is the only suitable location for the CORE3 facility, based on needed site characteristics and land inclusion priorities.

The proposed UGB amendment will designate the expansion area for public facility use. UGB expansions are regulated by ORS 197, as implemented by OAR 660-024; therefore, the proposed UGB expansion process and requirements supersede conceptual planning contained in the Eastside Framework Plan. Through adoption of the proposed UGB amendment, the RCP designation of Public Facilities will be the controlling land use designation for the proposed expansion area. OAR 660-024-0050(7)<sup>1</sup> prevents any zoning that is inconsistent with the land needs used to justify the UGB expansion. The subject site will be zoned PF (see Parts 4 and 5). This is consistent with the proposed comprehensive plan designation of Public Facility.

Appendix E. Transportation Studies (TGR – TPR) demonstrates that the proposed public facility will not overburden transportation facilities, and therefore will be consistent with the transportation system. The MDP proposal includes a new local road – 21<sup>st</sup> Ave. This road is not planned in the TSP, but it is consistent with the Eastside Framework Plan.

Appendix D. Public Facilities demonstrates that there will be adequate water and sewer capacity for the site. All stormwater will be managed on-site. The proposal is consistent with the City's public facility planning.

**b. Whether the proposed Plan is generally suitable for the area in which it is proposed, considering existing and planned neighborhoods, shopping and employment areas, and natural resources and hazards.**

**Response:** The Site Selection Analysis and Division 24 Findings (Appendix F) concludes that the site is the only suitable location for the CORE3 facility, based on needed site characteristics and land inclusion priorities. Further, the site is ideal for the facility because it is planned adjacent to the airport, and between industrial zoned land and land outside of the city URA/UGB, owned by BLM.

Airport adjacency is critical for the CORE3 facility. In the event of a major disaster, the facility will need to be readily accessible via air transport, without navigating through established residential or commercial areas. Further, due to the fact that FEMA will set up operations at the Redmond Airport in the event of Cascadia or another major natural disaster, the proposed CORE3 location is ideal in that public safety personnel may easily access both disaster response centers. The CORE3 proposed site is just north of the Redmond Municipal Airport; the Airport has been a participating

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<sup>1</sup> (7) Lands included within a UGB pursuant to OAR 660-024-0065(3) to provide for a particular industrial use, or a particular public facility, must be planned and zoned for the intended use and must remain planned and zoned for that use unless the city removes the land from the UGB.

partner in the CORE3 definition and design process, and the airport will also benefit from locating the CORE3 facility on the subject site, making the proposed MDP highly suitable for this location.

The property to the east – owned by BLM – is unlikely to develop for urban uses in the near future. Siting the facility on the urban fringe is ideal for the proposed program elements contained in the MDP. Significant buffers will mitigate any potential impacts to adjacent lands to the west and east. This design and the site's location make it suitable for the CORE3 facility.

***c. Whether the proposed Plan is functionally integrated with developed or planned areas.***

**Response:** Areas within the URA north of the site are planned for mixed-use employment and light industrial uses. The plan also includes a grid network of roads. Land to the west is within the UGB and zoned light industrial, this area is committed for the future Oasis Village. All land adjacent to the site is currently vacant.

Although the CORE3 site does not need to conform to the Eastside Framework Plan, it will enable future development of the mixed-use and industrially planned land in the north. The CORE3 proposal includes full buildout of a new north-south road (21<sup>st</sup> Ave.) and a new east-west road along the northern property line. Both of these connections will provide access and utility services for the eventual development of lands to the north and west.

The CORE3 facility has been designed to mitigate any potential impacts through the use of buffers and siting program elements with potentially more impacts towards the eastern side of the site, adjacent to BLM land.

To the south is the Redmond Municipal Airport. Similar to the airport, the CORE3 facility will be a public facility use with limited access to users. The Redmond Municipal Airport has been a partner in the CORE3 definition and design process and will also benefit from the siting and location of facility, making the proposed Plan functionally integrated with this existing and major development.

Lastly, the proposed administrative buildings will be visible from E. HWY 126. As the eastern-most part of the City, along E. HWY 126, the CORE3 facility will function as a “gateway” into Redmond. Building designs will be developed with this gateway concept in mind.

***d. The proposed Plan meets the applicable Great Neighborhood Principles.***

**Response:** The Great Neighborhood Principles are contained in RDC 8.270(3)(C)(14). Applicable principles and findings are discussed in Appendix K: Great Neighborhood Principles Findings. The MDP is consistent with the Great Neighborhood Principles.

## 4 Redmond Development Code (RDC) 8.0270(3)(C) Submittal Requirements and Approval Process

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***C. Master Development Plan (MDP) or Partial Master Development Plan (PMDP) Submittal Requirements and Approval Process.***

***An application for approval shall include the submittal requirements set forth in the City's Land Use Review application form as well as the elements described below.***

**1. Narrative. A narrative shall set forth the goals and objectives of the plan and describe the urban characteristics of the planned area.**

**Response:** Section 2.1 contains a description of program elements and the driving forces that influenced the siting of CORE3 facility elements. This section addresses the goal and the four objectives of the CORE3 facility.

**2. Neighborhood Meeting. Proof a neighborhood meeting was conducted to provide an opportunity for the applicant to meet with surrounding property owners discuss the proposal. See Section 8.0385 for meeting requirements.**

**Response:** A neighborhood meeting was held on March 13, 2023, at Redmond City Hall. Evidence of the neighborhood meeting is contained in Appendix I. All requirements and procedures of RDC 8.0385 were followed, as shown in Appendix I.

**3. Development Plan Map. A map of the plan area and surrounding vicinity shall indicate planned land uses for each land parcel in the area, including plans for park and open space and community facilities, if known. The plan shall show proposed comprehensive plan map designations and zoning. The plan shall include a list of all affected properties with tax lot numbers, current ownership, parcel size, and other information that is pertinent to the plan.**

**&**

**4. Land Use Diagram. The land use diagram shall generally indicate the distribution and location of planned land uses for the master plan area, including plans for park and open space and community facilities, if known. The plan shall show proposed comprehensive plan designations, zoning, and density.**

**Response:** The Vicinity and Zoning Map in Appendix C shows the CORE3 site in context with surrounding land uses, proposed and existing zoning, and adjacent tax lots. An Existing Conditions Plan in Appendix C shows current land uses, and the CORE3 Site Concept Diagram in Appendix C shows proposed program elements and site features. Together, these plans satisfy the requirements of these criteria.

**5. Significant Resources Inventory. An inventory of significant natural resources, scenic and historic resources, and open space areas including those identified on the City's adopted inventory and those that have the potential to qualify for protection under Redmond's Goal 5 resource protection program. When significant resources are present, the proposed plan shall include a management plan to protect resource sites.**

**Response:** The site contains no inventoried Goal 5 resources or potential Goal 5 resources. This criterion is not applicable.

**6. Parks and Open Space. Identify land suitable for park and recreation use in accordance with the needs analysis in the City of Redmond Park Master Plan (Park Plan) and an adopted Area Plan. In particular, where the Park Plan indicates there is a need for neighborhood or community park, the master plan shall identify sites that may be suitable for park development using the design and location criteria from the Park Plan or an adopted Area Plan. Density transfers, SDC credits, dedication, and other value consideration may be**

***identified in the planning process to compensate property owners for land dedicated to public use.***

**Response:** The CORE3 facility will be a secure facility, not open to the public. Program elements are planned to fill the entire 228-acre site. Public parks and open spaces are not proposed, and there are no proposed parks or trails in the Park Plan on the CORE3 site.

***7. Air, Noise, and Water Resources. Review air, noise and water resources that may be impacted by planned development and address how adverse impacts will be avoided or mitigated in compliance with applicable local, state, and federal regulations. The analysis may use City public facility plans, technical studies, and policies to meet this requirement when those plans address how urban development in the plan area can be served. In these instances, the Master Development Plan must show that the envisioned land uses in the plan area are consistent with the land use assumptions in the public facility plans. This requirement is particularly important for storm water management.***

**Response:** All impacts from the CORE3 facility will be mitigated to ensure that the facility does not adversely affect existing resources or adjacent properties.

Air: The proposed training facilities on the site do include vehicle training courses. These courses are planned near the eastern portion of the site, away from potential urban development to the west and north, adjacent to BLM land. The CORE3 facility will also include burn buildings that could have impacts on air quality. To reduce impacts from these facilities on surrounding lands, element siting, design and operational program has been developed to best meet state and federal air quality standards.

The State of Oregon Department of Public Safety Standards and Training has adopted the 2019 Edition of the National Fire Protection Association's 1001 Standard for Fire Fighter Professional Qualifications. The Class A Burn Building and Class B Drill Tower (see Appendix C. MDP and Figure 3) are essential training components to provide a safe, secure and consistent training environment to fulfill certification requirements for fire behavior, search and rescue, ventilation, water supply, hose management, fire control, fire streams, sprinkler control, scene safety, and the practical use of self-contained breathing apparatus.

The Class A and Class B Burn Buildings are currently programmed for approximately 510 training hours annually. Of those training hours, Class A live burn training, using combustible materials such as hay and wood, will represent a small fraction of the total training hours annually. Class A live burn training operations are expected to occur a few times a month with the actual burns lasting less than hour. Class B fire training operations utilize propane fueled fire training props and theatrical smoke that is engineered to dissipate quickly.

As part of the CORE3 facility operation plan, live burn training operations must meet environmental parameters such as wind speed and direction to promote the rapid dissipation of smoke. The Class A and Class B training structures are strategically located on the site to take advantage of prevailing wind patterns to optimize the dissipation of smoke from populated areas.

Construction of the CORE3 facility will require additional local, state, and federal reviews to ensure that all potential air quality impacts are mitigated through element siting, structure designs, and operational program development.

Noise: The CORE3 facility is designed with large, landscaped buffers. The roughly 100-to-300-foot buffers are planned between the facility and potential uses to the west and north. More intensive uses such as the driving course have been purposefully sited away from potential development in the City and URA. The siting along with large buffers will mitigate noise the CORE3 facilitate may produce. Gun ranges planned for the Future Phase of development will be enclosed, with appropriate sound mitigation measures incorporated into the design.

Water: There are no existing water resources on the site. The land is largely undeveloped and is proposed to be developed with multiple buildings and outdoor training facilities. Any stormwater runoff from the proposed development is proposed to be managed on-site. In addition to the proposed training facilities, the CORE3 site will also contain an extensive network of potable water, sanitary-sewer, power, and telecommunication lines (see Appendix D.1 Public Facility Plan). As shown in Appendix D, the proposed MDP is consistent with planned and existing public facilities for this area.

**8. Natural Hazard Areas. Inventory areas subject to natural hazards, particularly steep slopes, and program urban development that is suitable for the identified hazard areas.**

**Response:** The proposed site area is generally flat, without hazardous steep slopes. While there are no significant forested areas on the site, the site is within a high-risk wildfire area defined by Deschutes County. However, the CORE3 proposal includes robust water infrastructure to serve training activities related to fire response. This water infrastructure will ensure that any wildfire risk potential is mitigated.

Additionally, the site contains several landfill and contaminated areas that require mitigation. These contamination sites are proposed to be mitigated. Per DEQ Record of Decision for Remedial Action, onsite disposal is recommended for this site. The soil containments are not mobile and would be reliably contained under sufficiently robust cover. Contaminated areas would be remediated per DEQ recommendation by utilizing soil or new infrastructure to cap and cover contaminated soil. The project team is working with Deschutes County to integrate the soil cover and hardscape remedial alternative into the proposed redevelopment. Contaminated soil and debris will be contained within soil berms and pavement surfaces proposed at the facility. The forthcoming remedial design and Contaminated Media Management Plan (CMMP) will document the remedial action and the future management requirements. Please see Appendix I.4 and I.5 for reports on groundwater and soil contamination and mitigation recommendations.

**9. Residential Uses. Identify areas planned for housing development, if any, and the proposed zoning districts to be applied. The housing plan must identify a mix of housing types and densities so that the overall density in the area meets or exceeds the housing density objectives for the area that are identified in the Redmond Urban Framework Plan, adopted Area Plans, and the Comprehensive Plan. The Framework Plan and adopted Area Plans provide general guidance on housing densities that need to be achieved in order to meet future housing needs. Where proposed residential land uses differ from those shown in the Redmond Urban Framework Plan or adopted Area Plans, the master plan shall demonstrate how it meets the overall housing objectives of the Redmond Urban Framework Plan or adopted Area Plans. Applicants may propose new zoning districts when the proposed district(s) in total achieve the housing densities envisioned in the Redmond Urban Framework Plan or adopted Area Plans.**

&

**10. Employment Uses. Identify areas planned for employment use and/or mixed uses and the proposed zoning for these areas. Applicants may propose new zoning districts in cases where existing districts are not suitable for the planned development provided the proposed district(s) achieve similar land improvement values and/or employment densities envisioned in the Redmond Urban Framework Plan or adopted Area Plans.**

**Response:** The CORE3 site is included in the Eastside Framework Plan. This Plan shows planned residential and employment uses on the site. However, the Eastside Framework Plan is outside of the UGB and does not contain land currently needed for Housing or Employment uses. Additionally, DEQ has determined that the site is not suitable for either residential or agricultural uses (see Appendix I.5). As described in response to 8.0270(3)(B)(a), the site will be designated as public facility, consistent with the identified public facility need in Goal 11 (Public Facilities) of the Comprehensive Plan and statutory requirements for UGB expansion location described in Part 1 and Part 2 application narratives in this package. The proposal contains no employment or residential uses.

**11. Transportation Analysis and Diagram. Prepare a Transportation Impact Analysis (TIA) including a grid street plan that is consistent with street spacing and connectivity guidelines in the Redmond Transportation System Plan (TSP) and adopted Area or Framework Plans. The TIA shall identify and show:**

**a. The proposed classification for all streets.**

**b. The location of approved TSP improvement projects.**

**c. Any capital improvements that may need to be added to the TSP in order to serve the plan area.**

**d. Proposed bicycle pedestrian, and trail routes.**

**e. Demonstrate how planned transportation facilities will connect to transportation facilities in adjacent urban areas**

**Response:** . A Transportation Planning Rule (TPR) analysis is included in Appendix E to respond to these requirements. The MDP (Appendix C) shows three public roads planned to run along the site's perimeter. These public roads will be classified as local roads and will connect the site with the existing transportation system. The proposed public roads are consistent with conceptually planned roadways within the Eastside Framework Plan. There are no capital improvements within the TSP planned for this area because the site is currently within the URA and will be brought into the UGB with Parts 1 and 2 of this application package.

**12. Public Facilities Analysis and Diagram. The plan shall include a conceptual layout of public facilities, (including sanitary sewer, water, and storm drainage) needed to support the planned uses. The Public Facilities Analysis must be consistent with the city's adopted Public Facility Plan (PFP) and related facility master plans, including improvements related to the adopted Area Plan that may require amending the PFP.**

**Response:** A Public Facilities Plan is contained in Appendix D.1. A Water and Sewer Capacity Analysis is contained in Appendix D.2. As demonstrated in these appendices, public facilities are



planned and sized appropriately to meet CORE3 facility needs and the future needs of adjacent development.

**13. North Redmond US 97 Interchange Area Management Plan (IAMP) Compliance. The master plan shall [...]**

**Response:** The site is not within the IAMP boundary.

**14. Great Neighborhood Principles. MDPs shall address applicable Great Neighborhood Principles below. In instances where the property proposed for a MDP is located within the boundary of an adopted Area Plan, the MDP shall also address the Great Neighborhood Principles according to the specificity provided in the Area Plan.**

**Response:** The CORE3 campus will not be open to the public. As such, we see the primary applicability of the Great Neighborhood Principles to be most relevant for the CORE3 project's edge conditions. The following principles are applicable and addressed individually in the pages that follow: Transportation; Open Spaces, Greenways, Recreation; Integrated Design Elements; Scenic Views; Urban-Rural Interface; and Green Design. Compliance with Great Neighborhood Principles is found in Appendix K.

## 5 Conclusion

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The City of Redmond requires all areas zoned UH-10 to have an approved MDP prior to annexation and rezoning to a city zoning designation. This application narrative part addresses all applicable MDP approval criteria. The proposed MDP will be consistent with the RCP, will be suitable for the area and is designed to be functionally integrated with surrounding planned development, and meets all applicable Great Neighborhood Principles.

Central Oregon Intergovernmental Council:

# Central Oregon Ready, Responsive, Resilient (CORE3) Facility

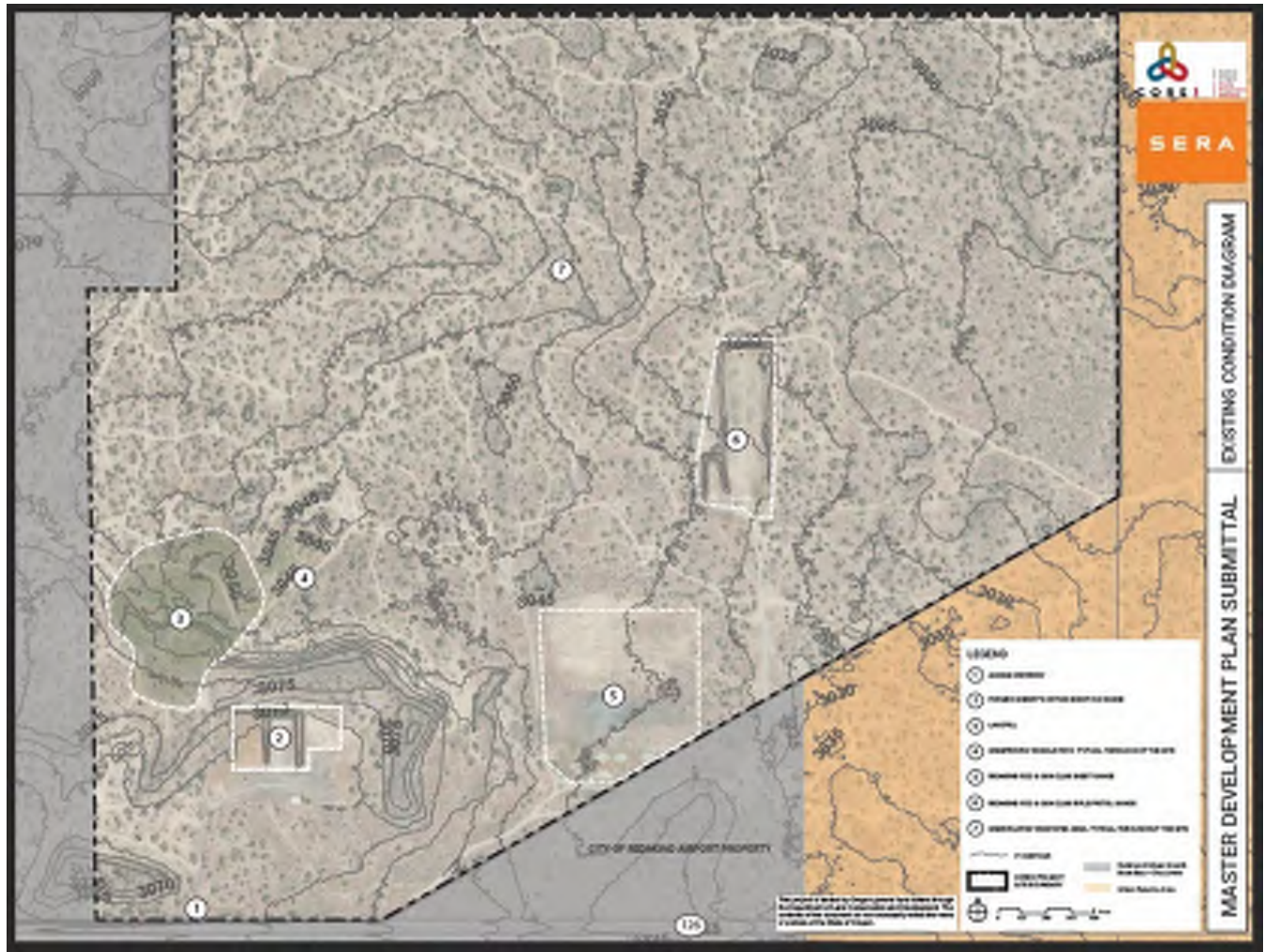


Figure 1 Existing Conditions Diagram

## Part 4. Redmond Zone Change & Annexation

Prepared by Winterbrook Planning  
In coordination with SERA Architects, Kittelson & Associates, and HHPR Inc.  
This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

December, 2023



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## Application Narratives:

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Introduction to Land Use Applications

Part 1. Comprehensive Plan Text Amendment

Part 2. Urban Growth Boundary Amendment

Part 3. Master Development Plan



**Part 4. Redmond Zone Change & Annexation**

Part 5. Deschutes County Plan Map & Zone Change

## General Information

|                  |                                                                                                                                                                                                                                                                             |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant:       | Central Oregon Intergovernmental Council (COIC)<br>Scott Aycock, COIC Community and Economic Development Director,<br>1250 NE Bear Creek Rd.<br>Bend, OR 97701<br>541-390-4653, SCotta@COIC.org                                                                             |
| Representative:  | Jesse Winterowd, AICP, Winterbrook Planning<br>610 SW Alder Street, Suite 810<br>Portland, OR 97205<br>503-827-4422 ext. 109, Jesse@WinterbrookPlanning.com                                                                                                                 |
| Property Owner:  | Kristie Bollinger, Deschutes County Property Management<br>14 NW Kearney Avenue<br>Bend, OR 97703<br>541-385-1414                                                                                                                                                           |
| Site Address:    | No Situs                                                                                                                                                                                                                                                                    |
| Tax Lot ID:      | 151300-00-00103                                                                                                                                                                                                                                                             |
| Current Zoning:  | Deschutes County Exclusive Farm Use – Alfalfa Subzone                                                                                                                                                                                                                       |
| Proposed Zoning: | City of Redmond Public Facility                                                                                                                                                                                                                                             |
| Proposal:        | Part 4 in a series of five narratives necessary to permit the CORE3 facility in the City of Redmond. This narrative is for the rezone and annexation of the 300-acre subject site. The proposal is to rezone the land from UH-10 to PF, and annex into the City of Redmond. |

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## Reference Documents

- City of Redmond Comprehensive Plan (2020)
- City of Redmond Transportation System Plan (2020)
- City of Redmond Economic Opportunity Analysis (2020)
- City of Redmond Parks Master Plan (2018)
- Deschutes County Transportation System Plan (2010)
- City of Redmond UGB Adjustment, Redmond Ordinance No. 2020-01 (2019)

## Abbreviations

- (BLM) Federal Bureau of Land Management
- (BOCC) Board of Deschutes County Commissioners
- (COIC) Central Oregon Intergovernmental Council
- (CORE3) Central Oregon Ready, Responsive, Resilient
- (DLCD) the Oregon Department of Land Conservation and Development
- (DCC) Deschutes County Code
- (DCCP) Deschutes County Comprehensive Plan
- (ECC) Emergency Communications Center
- (EFU) Deschutes County Exclusive Farm Use Zone
- (EOA) Economic Opportunities Analysis
- (EVOC) Emergency Vehicle Operator Course
- (FEMA) Federal Emergency Management Agency
- (JMA) Redmond-Deschutes County Joint Management Agreement
- (MDP) City of Redmond Master Development Plan
- (OAR) Oregon Administrative Rules
- (ODOT) Oregon Department of Transportation
- (ORS) Oregon Revised Statutes
- (PF) City of Redmond Public Facility Zone
- (RCP) Redmond Comprehensive Plan
- (RDC) Redmond Development Code
- (RUUGA) Redmond Unincorporated Urban Growth Area
- (TGR) Trip Generation Report
- (TPR) Transportation Planning Rule – OAR Chapter 660, Division 012
- (TSP) Transportation System Plan
- (UGB) or (RUGB) Redmond Urban Growth Boundary



- (UGB Rule) the Urban Growth Boundary Rule – OAR Chapter 660, Division 024
- (URA) or (RURA) Redmond Urban Reserve Area
- (UH-10) Deschutes County Urban Holding Zone

# 1 Relation to Other Land Use Applications

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This narrative part is the fourth in a series of five narrative parts containing seven applications to develop the Central Oregon Ready, Responsive, Resilient (CORE3) facility in the City of Redmond. Three unattached applications include two partition applications and a variance to final plat requirements. This application contains findings to support the rezoning and annexation of the subject site. An overview of the project and additional information on required applications are contained in the Introduction to Land Use Applications.

The requested annexation and rezoning (comprehensive plan and zoning map amendment) from county UH-10 to city PF is to ensure consistency between the MDP, RCP, and RDC. Specifically, as required by:

***RDC 8.0085 Zoning of Annexed Areas. Property annexed to the city shall be zoned in compliance with approved Urban Area Master Plans or with a zoning classification that is compatible with planned land use designations in the Comprehensive Plan, the Redmond Urban Area Framework Plan, as determined by the City.***

This application narrative is organized by the following:

- **Section 2** contains approval criteria for the Redmond Comprehensive Plan and Redmond Zoning Map amendments<sup>1</sup> and annexation applications. These are found in RDC 8.0760.
- **Section 3** contains additional approval criteria and procedures for annexation into the Redmond city limits. These are found in the Redmond-Deschutes County Joint Management Agreement (JMA)(see Appendix I.2.)

Responses to these criteria and supporting evidence are described in the sections to follow. Winterbrook's responses are shown in standard font. All Statewide Planning Goals, OARs, ORSs, RCP policies, the JMA, and the RDC are shown in **bold italic font**.

## 2 Zone Change & Annexation Consistency with RDC

---

The proposed comprehensive plan and zoning map amendment must meet RDC 8.0760 Criteria for Amendments. RDC 8.0760 reads as follows:

- 1. In conformity with all applicable State statutes;***
- 2. In conformity with the State-wide planning goals whenever they are determined to be applicable;***
- 3. In conformity with the Redmond Comprehensive Plan, land use requirements and policies; and***
- 4. That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning.***

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<sup>1</sup> Note that the City of Redmond has a single mapping system, providing both comprehensive plan and zoning designation on one map.

Responses to each of these criteria are contained in sections 2.1 through 2.4.

## 2.1 RDC 8.0760(1) In conformity with all applicable State statutes;

### **ORS 197.250 Compliance with goals required**

**Response:** Adopted comprehensive plans – and land use regulations to carry out those comprehensive plans – must comply with all Statewide Planning Goals and implementing administrative rules. The proposed annexation and comprehensive plan and zoning map amendment to the adopted and acknowledged RCP will comply with all applicable goals, as demonstrated in Appendix J. Statewide Goal Analysis. Appendix J is also referenced in response to RDC 8.0760.2 (see section 2.2).

### **ORS 197.610 Submission of proposed comprehensive plan or land use regulation changes to Department of Land Conservation and Development; rules.**

**Response:** The City of Redmond has an adopted development code and an adopted comprehensive plan, both acknowledged by the State of Oregon, that follow provisions in ORS 197. The city and county will provide notice to DLCD 35 days prior to the first evidentiary hearing, as required by OAR 660-018-0020.

### **ORS 222.111 Authority and procedure for annexation; specifying tax rate in annexed territory**

***(1)When a proposal containing the terms of annexation is approved in the manner provided by the charter of the annexing city or by ORS 222.111 (Authority and procedure for annexation) to 222.180 (Effective date of annexation) or 222.840 (Short title) to 222.915 (Application of ORS 222.840 to 222.915), the boundaries of any city may be extended by the annexation of territory that is not within a city and that is contiguous to the city or separated from it only by a public right of way or a stream, bay, lake or other body of water. Such territory may lie either wholly or partially within or without the same county in which the city lies.***

**Response:** The subject site is contiguous to the current Redmond city limits, entirely within the URA. The adjacent right-of-way, E. HWY 126, is part of the annexation proposal. There are no other existing or planned rights-of-way between the proposed annexation area and the current city limits.

### **ORS 222.120 Procedure for annexation without election**

***(1)Except when expressly required to do so by the city charter, the legislative body of a city is not required to submit a proposal for annexation of territory to the electors of the city for their approval or rejection.***

***(2) When the legislative body of the city elects to dispense with submitting the question of the proposed annexation to the electors of the city, the legislative body of the city shall fix a day for a public hearing before the legislative body at which time the electors of the city may appear and be heard on the question of annexation.***

***(3)The city legislative body shall cause notice of the hearing to be published once each week for two successive weeks prior to the day of hearing, in a newspaper of general***

***circulation in the city, and shall cause notices of the hearing to be posted in four public places in the city for a like period.***

***(4) After the hearing, the city legislative body may, by an ordinance containing a legal description of the territory in question:***

***(a) Declare that the territory is annexed to the city upon the condition that the majority of the votes cast in the territory is in favor of annexation;***

***(b) Declare that the territory is annexed to the city where electors or landowners in the contiguous territory consented in writing to such annexation, as provided in ORS 222.125 or 222.170, prior to the public hearing held under subsection (2) of this section; or***

***(c) Declare that the territory is annexed to the city where the Oregon Health Authority, prior to the public hearing held under subsection (1) of this section, has issued a finding that a danger to public health exists because of conditions within the territory as provided by ORS 222.840 to 222.915.***

**Response:** The Redmond City Charter<sup>2</sup> does not require this annexation and zone change be put to a vote in a city-wide election. The JMA provides annexation authority, procedures, and approval criteria (see responses in section 3 for more information, and view Appendix G.2. An annexation consent agreement is included in this application package, referenced as Appendix B.3 and contained within the Annexation Application form.

The city and county will hold public hearings for the proposed annexation and zone change, at which time electors may be heard on the question of annexation. The City of Redmond will provide proper notice for the public hearing per ORS 222.120(3), and the City may adopt an ordinance declaring the territory is annexed per written consent agreement for annexation.

#### ***ORS 222.170 Annexation by consent before public hearing or order for election***

***(1) The legislative body of the city need not call or hold an election in any contiguous territory proposed to be annexed if more than half of the owners of land in the territory, who also own more than half of the land in the contiguous territory and of real property therein representing more than half of the assessed value of all real property in the contiguous territory consent in writing to the annexation of their land in the territory and file a statement of their consent with the legislative body on or before the day:***

***(a) The public hearing is held under ORS 222.120, if the city legislative body dispenses with submitting the question to the electors of the city; or [...]***

**Response:** Public elections are not required before annexation into the city limits if a majority of landowners consent to the annexation. The subject site has just one landowner: Deschutes County. A written consent agreement for annexation has been provided prior to the public hearing, referenced as Appendix B.3 and contained within the Annexation Application form. This application adheres to ORS 222.170(1)(a).

---

<sup>2</sup> <https://www.redmondoregon.gov/home/showpublisheddocument/4/635276495855770000>

## 2.2 RDC 8.0760(2) In conformity with the State-wide planning goals whenever they are determined to be applicable;

**Response** Applicable goals to the proposed annexation and comprehensive plan and zoning map amendment to the adopted and acknowledged RCP are defined in OAR 660-024-0020 and are: Goal 1 (Citizen Involvement), Goal 2 (Land Use Planning), Goal 5 (Open Spaces, Scenic, and Historic Areas), Goal 6 (Air, Water, and Land Resources Quality), Goal 7 (Areas Subject to Natural Disasters and Hazards), Goal 8 (Recreation Needs), Goal 9 (Economy of the State), Goal 10 (Housing), Goal 11 (Public Facilities and Services), Goal 12 (Transportation), Goal 13 (Energy), Goal 14 (Urbanization). The proposal will comply with all applicable goals, as demonstrated in Appendix J. Statewide Goal Analysis.

## 2.3 RDC 8.0760(3) In conformity with the Redmond Comprehensive Plan, land use requirements and policies; and

The following RCP policies are applicable to the requested zone change and annexation applications:

***POLICY 7-3-1 Plan and prepare for the Cascadia earthquake to reduce the City's vulnerability to loss of life and property and build capacity for local, regional and state relief.***

**Response:** During a Cascadia subduction event, the CORE3 facility will act as the State Resiliency Center. The proposed UGB amendment to establish the CORE3 facility in Redmond directly supports this policy to build local, regional, and state resiliency during a major earthquake.

Redmond will become the state's center for relief if ever a Cascadia Subduction Zone Earthquake event occurs. For more context on the CORE3 facility functions, please see the Introduction, Part 3. MDP, and Appendix I.1. Strategic Business Plan.

***POLICY 7-3-2 Support plans and programs to expedite the restoration of critical services following a natural hazard event, including lifeline transportation routes.***

**Response:** As discussed in the Introduction to Land Use Applications, Redmond and the region currently lack both a centralized public safety training facility and a coordination center for emergency response operations. The proposed zone change and annexation applications to allow the development of the CORE3 facility in Redmond directly supports this policy by allowing land brought into the UGB for the CORE3 facility to develop as the CORE3 facility – a facility that will better equip emergency service personnel and provide a centralized location for disaster response and communications.

***POLICY 9-5-1 Ensure that the City's planning for economic development increases economic resiliency, mitigating long-run economic risks such as future disruptions such as: infrastructure issues, technological disruptions, natural disasters, or national economic recessions.***

**&**

***POLICY 15-1-15 Redmond shall develop strategies that improve resiliency in times of crisis and reduce the potential negative impact to the whole city should any one system falter or fail. Improving resiliency means Redmond should maximize the variety of business types.***

**Response:** The programmatic elements of the CORE3 facility and the physical space of the facility will better prepare emergency service personnel and create a coordination center for emergency response operations. Although the facility itself will not be a major employment center, the facility's programmatic elements will better equip Redmond's and the region's emergency service personnel. Planning for the CORE3 facility through the proposed zone change and annexation is consistent with these policies and will allow the city to mitigate an identified economic long-run risk – natural disasters.

***POLICY 9-5-6 Ensure that Redmond has the services and amenities necessary to for residents of Redmond. These services and amenities include those in Policy 9-5-6 but also include parks and open space, public library, and public safety services. Redmond should also ensure that there are opportunities for development of housing and services for seniors, such as assisted living and other senior housing opportunities.***

**&**

***POLICY 11-1-4 Maintain and enhance the provision of police, fire and emergency medical services for residents.***

**Response:** The proposed zoning and annexation is consistent with these policies because it will allow for a CORE3 facility to satisfy local and regional needs for a centralized public safety training facility and a coordination center for emergency response operations. Programmatic facility elements will enhance Redmond's public safety services. Redmond's current and future residents and businesses will be better served by police, fire, and emergency medical services through the facility's development.

***POLICY 11-2-1 Coordinate public facility planning for the Redmond UGB with participation and assistance from Deschutes County and the following service providers:***

- ***Transportation – Deschutes County, Oregon Department of Transportation,***
- ***Burlington Northern Santa Fe Railroad, Central Oregon Intergovernmental Council – Cascade East Transit.***
- ***Water – Brentwood Water Association, Avion Water, Central Oregon Irrigation District***
- ***Sewer***
- ***Storm Drainage – Deschutes County, Central Oregon Irrigation District***
- ***Parks – Deschutes County, RAPRD, Redmond School District.***

**Response:** Appendix D. Public Facilities Plan and Appendix E. Transportation Studies (TGR – TPR) demonstrate orderly, economic, and efficient public facility serviceability for the subject site. With previous inclusion in the UGB, prior to 2019, the subject site has been included in past discussions between service providers regarding public facility planning. Throughout this process, COIC has been in coordination with Deschutes County Transportation department and City of Redmond public works. Development of the CORE3 facility will require more detailed discussions with service providers during future land use and building permit reviews.

***POLICY 2-2-4 Adopt a Comprehensive Plan Map that identifies planned uses for all land within the Redmond Urban Growth Boundary (UGB). The land use designations in the above***



***table will be used on the Comprehensive Plan Map to designate areas intended for the land uses described. The table also includes a list of City and County zoning designations that are compatible with the associated Comprehensive Plan Map designation. All property added to the UGB from the Urban Reserve Area (URA) is considered to have an Urban Holding Area Comprehensive Plan designation and an Urban Holding-10 (UH-10) zone. Urban development consistent with the Plan designation may not be approved until the land is annexed to the City of Redmond and rezoned consistent with the zoning categories listed.***

***&***

***POLICY 14-1-5 When land is brought into the UGB, it shall be designated Urban Holding (UH-10) on the comprehensive plan map.***

***&***

***POLICY 14-1-6 The UH-10 plan designation may be changed when the land is annexed and approved for urban zoning through a Master Plan approval process.***

***&***

***POLICY 14-1-7 Land that is designated UH-10 on the Comprehensive Plan Map shall be planned for urban development using a Master Development Plan or Partial Master Development Plan. Such plans may be approved through a quasi-judicial land use process and should be prepared so that contiguous UH-10 zoned parcels are covered by the plan. Minority property holdings that abut or are surrounded by a proposed Master Development Plan or Partial Master Development Plan may be included in the plan without landowner consent, but City annexation and rezoning may be delayed until requested by the landowner.***

***&***

***POLICY 14-1-8***

***Master Development Plans (MDP(s)) or Partial Master Development Plans (PMDP(s)) will be used to support rezoning land zoned Urban Holding-10 (UH-10), whether or not the land is inside City limits. City approval of an MDP or PMDP will require an amendment to the comprehensive plan map and zone change to reflect the new land use designations. Properties may be annexed concurrently with the City's approval of an MDP or PMDP unless otherwise approved by the City. [...]***

**Response:** These policies establish the rezoning process during UGB expansions for moving from county comprehensive plan designation to city. Inclusion lands are first zoned county UH-10, and then once a MDP is approved the area is allowed to be rezoned to city zoning.

This application package contains five sequential land use applications. Part 3 contains the requested MDP approval. Ultimately, we are requesting the city and county rezone the subject site from county EFU to county UH-10, and then to city PF in a sequential decision process, adhering to the rezoning process established in these policies. The rezone and annexation request in this application narrative (Part 4) is to rezone the subject site from UH-10 to PF, consistent with the approved MDP for this area. The requested applications are consistent with the process described in these policies.

**POLICY 15-1-10 [sic<sup>3</sup>] Upon annexation, roads and rights-of-way will be accepted by the City under the City's annexation regulations.**

- **Annexation of roads and rights-of-way will include the full width of existing and new rights-of-way along the frontage of annexing properties.**
- **In addition to annexing right-of-way along the frontage of annexing properties, annexation of right-of-way will include the full length and width of the existing road and right-of-way within the UGB, including road and right-of-way segments that do not adjoin annexing properties, so as to avoid creating segments of alternating jurisdictional authority over the road within the UGB. In locations where annexation of road and right-of-way segments that do not adjoin annexing properties conflicts with adopted City legislation, jurisdictional transfer, in accordance with the procedures given in ORS 373.270 and by intergovernmental agreement under the authority given in ORS 190.010 and ORS 223.930, shall be required.**
- **All annexed rights-of-way shall require a transfer of jurisdictional authority from the County to the City per ORS 373.270.**

**Response:** All roadways and rights-of-way surrounding the property will also be annexed into the city limits along with the subject site. These roadways are sufficient to support the new PF zone and the CORE3 facility on the subject site, as shown in Appendix E. Transportation Studies (TGR – TPR).

## 2.4 RDC 8.0760(4) That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning.

**Response:** Regional emergency management agencies have been discussing the concept of the CORE3 facility for well over ten years. Organizing efforts culminated in a June 2018 report prepared by the University of Oregon's Partnership for Disaster Resilience that found a strong need for an emergency services center for regional agencies in Central Oregon (See Appendix G.3. Central Oregon Emergency Services Center Viability Assessment). COIC then published a Strategic Business Plan in October 2020 that assessed current training facilities and programming needs, conducted a financial assessment for the project, developed a list of site layout considerations, and identified the City of Redmond as the optimal location for this facility (See Appendix G.1. Strategic Business Plan).

RCP policy 11-1-7 establishes the need for the CORE3 facility in Redmond. This documented need—paired with the fact that no suitable site could be identified within the existing UGB—has created a change in circumstances that justified the UGB expansion contained in Part 2 of the application package. The UGB expansion, in turn, has created another change of circumstances that warrants the rezoning and annexation of the subject site, consistent with Part 3. MDP.

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<sup>3</sup> This numbering reflects a typo in the Redmond Comprehensive Plan. The policy is contained in "Statewide Planning Goal 14 Urbanization" chapter and therefore should be numbered "14-1-10".

### 3 Annexation into the City of Redmond

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Annexation into the City of Redmond is guided by the Redmond-Deschutes County Joint Management Agreement (JMA) (see Appendix G.2.). This agreement is also recorded as “Joint Agreement – Redmond URA/UGB – DC Document No. 2007-110”. Annexation procedures are contained in section 10(A) of the JMA. Responses to this section are addressed as follows:

#### ***JMA Section 10(A) Annexations to City Limits***

##### ***1) City and County may rely on this agreement as a prerequisite to annexation under ORS 195.205(2)(a)(B) and statutes referenced therein.***

**Response:** ORS 195.205(2)(a)(B) does not apply to this proposal. The statute allows cities, who provide urban services to areas, the ability to incorporate those areas in their cities through a vote, as long as the area is subject to an urban services agreement.

##### ***2) City annexations will occur only within the RUGB***

**Response:** The subject site is being brought into the UGB. The UGB amendment proposal is contained in Part 2 of this application package. This proposed rezone and annexation application follows after the UGB amendment and MDP approval. The annexation will occur only on Redmond UGB land.

##### ***3) Specific annexation decisions will comply with applicable land use law and be consistent with City annexation policies.***

**Response:** Section 2 demonstrates compliance with applicable ORSs, Statewide Planning Goals, and RCP policies. The proposed annexation complies with local and state land use law.

##### ***4) City will provide County at least 15 days’ notice prior written notice to review and comment on annexation decisions.***

**Response:** The city will provide proper noticing for the annexation hearing. Additionally, Part 5 of this application package directly addresses Deschutes County requirements for rezoning county land. The county will receive their own set of application materials, thereby providing notice of the intent to annex.

##### ***5) When annexing territory, City will also annex roads and road rights of way adjacent to such territory provided that such rights of way are entirely located within the RURA.***

**Response:** All roadways and rights-of-way surrounding the property will also be annexed into the city limits along with the subject site.

##### ***6) Transfer of authority upon annexation:***

- a. Upon annexation, jurisdiction of all land use approvals within the territory annexed will automatically transfer from County to City. Permits will remain effective and will be recognized by City as if they were made by City.***
- b. Upon annexation, City will administer all land use approvals in the annexed territory, implement and enforce such approvals together with all implementing agreements. This includes improvement agreements, conditions of approval agreements, bonds and other similar arrangements.***

- c. For land use approvals within the RUGA after the date of this agreement, all improvement agreements, conditions of approvals agreements, annexation agreements, utility agreements and similar agreements will be approved and signed by the Council and the BOCC jointly. All bonds must designate both City and County as the assured agencies.**

**Response:** We will adhere to any jurisdiction transfer and the proper proceedings regarding that transfer.

## 4 Conclusion

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The narrative provides findings for the rezone and annexation of the CORE3 facility site. The proposed rezone will redesignate the subject site from UH-10 to PF, consistent with the RDC, RCP, and MDP. The proposed applications comply with all applicable local and state criteria, and city-county management agreements.

Central Oregon Intergovernmental Council:

# Central Oregon Ready, Responsive, Resilient (CORE3) Facility

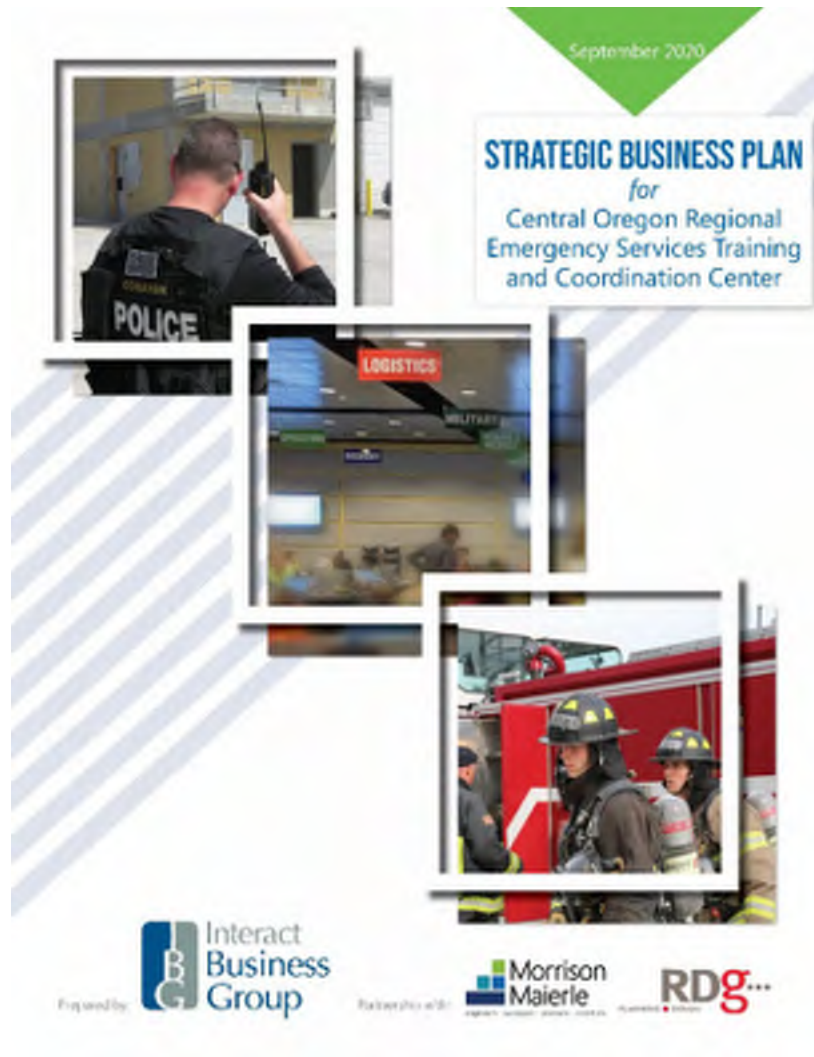


Figure 1 Strategic Business Plan for CORE3

## Part 5. Deschutes County Plan Map, Zone Change

Prepared by Winterbrook Planning

In coordination with SERA Architects, Kittelson & Associates, and HHPR Inc.

This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

December, 2023



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## Application Narratives:

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Introduction to Land Use Applications

Part 1. Comprehensive Plan Text Amendment

Part 2. Urban Growth Boundary Amendment

Part 3. Master Development Plan

Part 4. Redmond Zone Change & Annexation



**Part 5. Deschutes County Plan Map & Zone Change**

## General Information

|                  |                                                                                                                                                                                                                                                                                                                      |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant:       | Central Oregon Intergovernmental Council (COIC)<br>Scott Aycock, COIC Community and Economic Development<br>Director,<br>1250 NE Bear Creek Rd.<br>Bend, OR 97701<br>541-390-4653, SCotta@COIC.org                                                                                                                   |
| Representative:  | Jesse Winterowd, AICP, Winterbrook Planning<br>610 SW Alder Street, Suite 810<br>Portland, OR 97205<br>503-827-4422 ext. 109, Jesse@WinterbrookPlanning.com                                                                                                                                                          |
| Property Owner:  | Kristie Bollinger, Deschutes County Property Management<br>14 NW Kearney Avenue<br>Bend, OR 97703<br>541-385-1414                                                                                                                                                                                                    |
| Site Address:    | No Situs                                                                                                                                                                                                                                                                                                             |
| Tax Lot ID:      | 151300-00-00103                                                                                                                                                                                                                                                                                                      |
| Current Zoning:  | Deschutes County Exclusive Farm Use – Alfalfa Subzone                                                                                                                                                                                                                                                                |
| Proposed Zoning: | City of Redmond Public Facility                                                                                                                                                                                                                                                                                      |
| Proposal:        | Part 5 in a series of five narrative parts necessary to permit the CORE3 facility. This application is for the rezoning of the CORE3 facility site from County EFU to County UH-10 and a comprehensive plan map amendment to redesignate the CORE3 facility site from Agriculture/RURA to Redmond Urban Growth Area. |

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## Reference Documents

- City of Redmond Comprehensive Plan (2020)
- City of Redmond Transportation System Plan (2020)
- City of Redmond Economic Opportunity Analysis (2020)
- City of Redmond Parks Master Plan (2018)
- Deschutes County Transportation System Plan (2010)
- City of Redmond UGB Adjustment, Redmond Ordinance No. 2020-01 (2019)

## Abbreviations

- (BLM) Federal Bureau of Land Management
- (BOCC) Board of Deschutes County Commissioners
- (COIC) Central Oregon Intergovernmental Council
- (CORE3) Central Oregon Ready, Responsive, Resilient
- (DLCD) the Oregon Department of Land Conservation and Development
- (DCC) Deschutes County Code
- (DCCP) Deschutes County Comprehensive Plan
- (ECC) Emergency Communications Center
- (EFU) Deschutes County Exclusive Farm Use Zone
- (EOA) Economic Opportunities Analysis
- (EVOC) Emergency Vehicle Operator Course
- (FEMA) Federal Emergency Management Agency
- (JMA) Redmond-Deschutes County Joint Management Agreement
- (MDP) City of Redmond Master Development Plan
- (OAR) Oregon Administrative Rules
- (ODOT) Oregon Department of Transportation
- (ORS) Oregon Revised Statutes
- (PF) City of Redmond Public Facility Zone
- (RCP) Redmond Comprehensive Plan
- (RDC) Redmond Development Code
- (RUUGA) Redmond Unincorporated Urban Growth Area
- (TGR) Trip Generation Report
- (TPR) Transportation Planning Rule – OAR Chapter 660, Division 012
- (TSP) Transportation System Plan
- (UGB) or (RUGB) Redmond Urban Growth Boundary
- (UGB Rule) the Urban Growth Boundary Rule – OAR Chapter 660, Division 024
- (URA) or (RURA) Redmond Urban Reserve Area
- (UH-10) Deschutes County Urban Holding Zone

# 1 Relation to Other Land Use Applications

---

This application narrative part contains findings to support a Deschutes County Comprehensive Plan and Zone Map amendment for a 228-acre site within the Redmond Urban Reserve Area (RURA). This narrative is the fifth in a series of five narrative parts containing seven applications to develop the Central Oregon Ready, Responsive, Resilient (CORE3) facility site. Three unattached applications include two partition applications and a variance to final plat requirements. An overview of the project and additional information on required applications are contained in the Introduction to Land Use Applications.

This application narrative is organized by the following:

- **Section 2** contains findings for approval criteria for map amendments within the RUUGA (DCC 20.36.030)
- **Section 3** contains findings for approval criteria for zone changes within Deschutes County (DCC 18.136.020).

Responses to these criteria and supporting evidence are described in the sections to follow. Winterbrook's responses are shown in standard font. All Statewide Planning Goals, OARs, ORSs, RCP policies, DCCP policies, and the DCC are shown in **bold italic font**.

## 2 DCC 20.36.030 Criteria for Map Amendments

---

The proposed comprehensive plan amendment will redesignate the subject site from Deschutes County Agriculture to Redmond Urban Growth Area and the proposed rezone will redesignate the subject site from Deschutes County EFU to UH-10. Proposed zoning and map amendments in the RUUGA must meet DCC 20.36.020 Criteria for Map Amendments. DCC 20.36.020 reads:

1. **Conforms with the applicable state statutes;**
2. **Conforms with the applicable state-wide planning goals and Oregon Administrative Rules (OAR) whenever they are determined to be applicable;**
3. **Conforms with the City Comprehensive Plan.**

Responses to each of these criteria are contained in sections 2.1 through 2.4.

### 2.1 DCC 20.36.030(1) Conforms with the applicable state statutes;

#### **ORS 197.250 Compliance with goals required**

**Response:** Adopted comprehensive plans – and land use regulations to carry out those comprehensive plans – must comply with all Statewide Planning Goals and implementing administrative rules. The proposed amendment to the Deschutes County Comprehensive Plan (DCCP) Map will comply with all applicable goals, as demonstrated in response to DCC 20.36.030(2) (see section 2.2) and Appendix G: Statewide Planning Goal Analysis.

**ORS 197.610 Submission of proposed comprehensive plan or land use regulation changes to Department of Land Conservation and Development; rules.**

**Response:** Deschutes County has an adopted development code and an adopted comprehensive plan, both acknowledged by the State of Oregon, that follows provisions in ORS 197. The county will provide notice to DLCD 35 days prior to the first evidentiary hearing, as required by OAR 660-018-0020.

**2.2 DCC 20.36.030(2) Conforms with the applicable state-wide planning goals and Oregon Administrative Rules (OAR) whenever they are determined to be applicable;**

**Response:** The proposed comprehensive plan and zoning map amendments will comply with all applicable statewide planning goals, as demonstrated in Appendix G. Statewide Planning Goal Analysis.

OAR Chapter 660 Division 14 guides the implementation of Goal 14 as it applies to annexation and urban development on previously rural lands. Because the UGB was expanded onto the subject site to satisfy a demonstrated public facility land need, the subject site must be annexed into the Redmond city limits and rezoned PF, consistent with OAR 660-024-0050. The requested comprehensive map change from Agriculture to Redmond Urban Growth Area and zone change from EFU to UH-10 is consistent with the UGB expansion justification to include the land for a demonstrated public facilities land need. The requested application directly supports the requirements of OAR 660-024-0050.

**2.3 DCC 20.36.030(3) Conforms with the City Comprehensive Plan.**

The following RCP policies are applicable to the requested comprehensive plan and zoning map amendments.

***POLICY 7-3-1 Plan and prepare for the Cascadia earthquake to reduce the City's vulnerability to loss of life and property and build capacity for local, regional and state relief.***

**Response:** During a Cascadia subduction event, the CORE3 facility will act as the State Resiliency Center. The proposed UGB amendment to establish the CORE3 facility in Redmond directly supports this policy to build local, regional, and state resiliency during a major earthquake.

Redmond will become the state's center for relief if ever a Cascadia Subduction Zone Earthquake event occurs. For more context on the CORE3 facility functions, please see the Introduction, Part 3. MDP, and Appendix G.1. Strategic Business Plan.

***POLICY 7-3-2 Support plans and programs to expedite the restoration of critical services following a natural hazard event, including lifeline transportation routes.***

**Response:** As discussed in the Introduction to Land Use Applications, Redmond and the region currently lack both a centralized public safety training facility and a coordination center for emergency response operations. The proposed map amendments directly support this policy by allowing land brought into the UGB for the CORE3 facility to develop as the CORE3 facility – a



facility that will better equip emergency service personnel and provide a centralized location for disaster response.

***POLICY 9-5-1 Ensure that the City's planning for economic development increases economic resiliency, mitigating long-run economic risks such as future disruptions such as: infrastructure issues, technological disruptions, natural disasters, or national economic recessions.***

**&**

***POLICY 15-1-15 Redmond shall develop strategies that improve resiliency in times of crisis and reduce the potential negative impact to the whole city should any one system falter or fail. Improving resiliency means Redmond should maximize the variety of business types.***

**Response:** The programmatic elements of the CORE3 facility and the physical space of the facility will better prepare emergency service personnel and create a coordination center for emergency response operations. Although the facility itself will not be a major employment center, the facility's programmatic elements will better equip Redmond's and the region's emergency service personnel. Planning for the CORE3 facility through the proposed map amendments is consistent with these policies and will allow the city to mitigate an identified economic long-run risk – natural disasters.

***POLICY 9-5-6 Ensure that Redmond has the services and amenities necessary to for residents of Redmond. These services and amenities include those in Policy 9-5-6 but also include parks and open space, public library, and public safety services. Redmond should also ensure that there are opportunities for development of housing and services for seniors, such as assisted living and other senior housing opportunities.***

**&**

***POLICY 11-1-4 Maintain and enhance the provision of police, fire and emergency medical services for residents.***

**Response:** The proposed map amendments are consistent with these policies because it will allow for a CORE3 facility to satisfy local and regional needs for a centralized public safety training facility and a coordination center for emergency response operations. Programmatic facility elements will enhance Redmond's public safety services. Redmond's current and future residents will be better served by police, fire, and emergency medical services through the facility's development.

***POLICY 11-2-1 Coordinate public facility planning for the Redmond UGB with participation and assistance from Deschutes County and the following service providers:***

- ***Transportation – Deschutes County, Oregon Department of Transportation,***
- ***Burlington Northern Santa Fe Railroad, Central Oregon Intergovernmental Council – Cascade East Transit.***
- ***Water – Brentwood Water Association, Avion Water, Central Oregon Irrigation District***
- ***Sewer***
- ***Storm Drainage – Deschutes County, Central Oregon Irrigation District***
- ***Parks – Deschutes County, RAPRD, Redmond School District.***

**Response:** Appendix D. Public Facilities Plan and Appendix E. Transportation Studies (TGR – TPR) demonstrate orderly, economic, and efficient public facility serviceability for the subject site. With previous inclusion in the UGB, prior to 2019, the subject site has been included in past discussions between service providers regarding public facility planning. Development of the CORE3 facility will require more detailed discussions with service providers during future land use and building permit reviews.

***POLICY 2-2-4 Adopt a Comprehensive Plan Map that identifies planned uses for all land within the Redmond Urban Growth Boundary (UGB). The land use designations in the above table will be used on the Comprehensive Plan Map to designate areas intended for the land uses described. The table also includes a list of City and County zoning designations that are compatible with the associated Comprehensive Plan Map designation. All property added to the UGB from the Urban Reserve Area (URA) is considered to have an Urban Holding Area Comprehensive Plan designation and an Urban Holding-10 (UH-10) zone. Urban development consistent with the Plan designation may not be approved until the land is annexed to the City of Redmond and rezoned consistent with the zoning categories listed.***

***&***

***POLICY 14-1-5 When land is brought into the UGB, it shall be designated Urban Holding (UH-10) on the comprehensive plan map.***

***&***

***POLICY 14-1-6 The UH-10 plan designation may be changed when the land is annexed and approved for urban zoning through a Master Plan approval process.***

***&***

***POLICY 14-1-7 Land that is designated UH-10 on the Comprehensive Plan Map shall be planned for urban development using a Master Development Plan or Partial Master Development Plan. Such plans may be approved through a quasi-judicial land use process and should be prepared so that contiguous UH-10 zoned parcels are covered by the plan. Minority property holdings that abut or are surrounded by a proposed Master Development Plan or Partial Master Development Plan may be included in the plan without landowner consent, but City annexation and rezoning may be delayed until requested by the landowner.***

***&***

***POLICY 14-1-8***

***Master Development Plans (MDP(s)) or Partial Master Development Plans (PMDP(s)) will be used to support rezoning land zoned Urban Holding-10 (UH-10), whether or not the land is inside City limits. City approval of an MDP or PMDP will require an amendment to the comprehensive plan map and zone change to reflect the new land use designations. Properties may be annexed concurrently with the City's approval of an MDP or PMDP unless otherwise approved by the City. [...]***

**Response:** These policies establish the rezoning process during UGB expansions for moving from county comprehensive plan designation to city. Inclusion lands are first rezoned to county UH-10, and then, once a MDP is approved, the area is allowed to be rezoned to a different city zoning.

This application package contains seven sequential land use applications, in addition to three unattached applications. Part 3 contains the requested MDP approval. Ultimately, we are requesting the city and county rezone the subject site from county EFU to county UH-10, and then to city PF in a sequential decision process, adhering to the rezoning process established in these policies. The proposed map amendments in this narrative (Part 5) will redesignate the subject site from EFU to UH-10, consistent with the JMA. The requested applications are consistent with the process described in these policies.

***POLICY 15-1-10 [sic<sup>1</sup>] Upon annexation, roads and rights-of-way will be accepted by the City under the City's annexation regulations.***

- ***Annexation of roads and rights-of-way will include the full width of existing and new rights-of-way along the frontage of annexing properties.***
- ***In addition to annexing right-of-way along the frontage of annexing properties, annexation of right-of-way will include the full length and width of the existing road and right-of-way within the UGB, including road and right-of-way segments that do not adjoin annexing properties, so as to avoid creating segments of alternating jurisdictional authority over the road within the UGB. In locations where annexation of road and right-of-way segments that do not adjoin annexing properties conflicts with adopted City legislation, jurisdictional transfer, in accordance with the procedures given in ORS 373.270 and by intergovernmental agreement under the authority given in ORS 190.010 and ORS 223.930, shall be required.***
- ***All annexed rights-of-way shall require a transfer of jurisdictional authority from the County to the City per ORS 373.270.***

**Response:** All roadways and rights-of-way surrounding the property will also be annexed into the city limits along with the subject site. These roadways are sufficient to support the eventual rezone to Redmond PF and the CORE3 facility on the subject site, as shown in Appendix E. Transportation Studies (TGR – TPR).

### 3 DCC 18.136.020 Rezoning Standards

---

The proposed comprehensive plan amendment will redesignate the subject site from Deschutes County Agriculture to Redmond Urban Growth Area and the proposed rezone will redesignate the subject site from Deschutes County EFU to UH-10. Proposed quasi-judicial zoning and map amendments must also comply with DCC 18.136.020 Rezoning Standards. DCC 18.136.020 reads:

---

<sup>1</sup> This numbering reflects a typo in the Redmond Comprehensive Plan. The policy is contained in "Statewide Planning Goal 14 Urbanization" chapter and therefore should be numbered "14-1-10".

- A. *That the change conforms with the Comprehensive Plan, and the change is consistent with the plan's introductory statement and goals.*
- B. *That the change in classification for the subject property is consistent with the purpose and intent of the proposed zone classification.*
- C. *That changing the zoning will presently serve the public health, safety and welfare considering the following factors:*
  - 1. *The availability and efficiency of providing necessary public services and facilities.*
  - 2. *The impacts on surrounding land use will be consistent with the specific goals and policies contained within the Comprehensive Plan.*
- D. *That there has been a change in circumstances since the property was last zoned, or a mistake was made in the zoning of the property in question.*

Responses to these criteria are contained in sections 3.1 through 3.5 of this narrative.

### 3.1 DCC 18.136.020(A) That the change conforms with the Comprehensive Plan, and the change is consistent with the plan's introductory statement and goals.

#### 3.1.1 DCCP Section 1.3 – Land Use Planning

***Goal 1 Maintain an open and public land use process in which decisions are based on the objective evaluation of facts.***

***&***

***Goal 2 Promote regional cooperation and partnerships on planning issues.***

***&***

***Policy 1.3.11 Participate in and, where appropriate, coordinate regional planning efforts.***

***a. Provide affected agencies, including irrigation districts, an opportunity to comment and coordinate on land use policies or actions that would impact their jurisdictions.***

**Response:** This proposal has come together through a high level of coordination between COIC, the City of Redmond, Deschutes County, and state and federal agencies. Agencies involved include the Department of Public Safety Standards and Training (DPSST), State Fire Marshal, State Police, and Oregon Emergency Management; Governor Brown's Regional Solutions; the US Forest Service; local public safety agencies; and others.

All land use entitlements contained in this proposed application package have required inter-governmental coordination – including the City of Redmond and Deschutes County – to provide an appropriate site for development of a needed regional public facility. And, as evidenced in this application narrative, the proposal will be processed with proper public noticing and hearings before the Deschutes County's Board of County Commissioners. As adopted in DLCD acknowledged documents, the land use processes and review criteria applicable to this application proposal are in conformance with statewide planning Goals 1 and 2.

### 3.1.2 DCCP Section 2.2 – Agricultural Lands

***Policy 2.2.1 Retain agricultural lands through Exclusive Farm Use zoning.***

***&***

***Policy 2.2.3 Allow comprehensive plan and zoning map amendments, including for those that qualify as non-resource land, for individual EFU parcels as allowed by State Statute, Oregon Administrative Rules and this Comprehensive Plan.***

***&***

***Policy 2.2.4 Develop comprehensive policy criteria and code to provide clarity on when and how EFU parcels can be converted to other designations.***

**Response:** The subject site is currently zoned EFU and designated as Redmond Urban Reserve Area. The proposal in this narrative (Part 5) is to move from EFU to UH-10, and Ag to RUUGA, concurrent with the proposed UGB expansion contained in Part 2. Statewide Planning Goals 3&4 and their implementing comprehensive plan goals and policies are not applicable to UGB amendments and concurrent zone changes; however, it is interesting to note that DEQ has also determined that the site is not appropriate for any agricultural use (see Appendix G.5).

The proposed plan and zone map amendments follow requirements of state statutes, OARs, and the DCCP. See section 2.1 for compliance with ORS's. See section 2.2 for compliance with applicable OARs. Reference this section for compliance with other portions of the DCCP.

***Policy 2.2.5 Uses allowed in Exclusive Farm Use zones shall comply with State Statute and Oregon Administrative Rule.***

**Response:** The proposal will rezone the subject site from EFU to UH-10. No development or uses are proposed prior to this rezoning. No development or uses are proposed while zoned UH-10. A sequential zone change application (contained in Part 4) will rezone the property from UH-10 to PF, consistent with the MDP. At that point, the property will have urban zoning and will be able to develop urban uses and at urban intensities. Therefore, ORSs and OARs guiding uses on EFU lands do not apply to this development proposal.

***Policy 2.2.13 Identify and retain accurately designated agricultural lands***

**Response:** Although the subject site is currently zoned EFU and designated Ag in the comprehensive plan, it is designated with the Redmond URA combining zone and therefore first priority for inclusion into the Redmond UGB when a UGB expansion is necessary to accommodate an identified land need.

To designate Redmond URAs, the city conducted an extensive analysis that required identifying UGB expansion alternatives considering agricultural land capabilities, among other factors. The subject site has been designated Redmond URA through these state-approved and acknowledged analyses.

This application package proposes a UGB expansion. A site selection analysis (Appendix F) contains evidence to support this expansion onto the subject site. Through this analysis and findings

contained in application narrative Part 2, the subject site will be redesignated RUUGA and rezoned UH-10. Redesignation and rezoning allow the site to be annexed and developed.

The findings related to (1) designating the land as Redmond Urban Growth Area and then to (2) UGB inclusion and rezoning provide evidence to show that the subject site is best suited for future urban development and not retained as designated agricultural land.

### **3.1.3 DCCP Section 2.5 – Water Resources**

***Goal 6 Coordinate land use and water policies.***

**&**

***Policy 2.5.24 Ensure water impacts are reviewed and, if necessary, addressed for significant land uses or developments.***

**Response:** The proposed zone change and annexation will not change any applicable Goal 6 policies or measures that relate to water resource quality. Actual development of the CORE3 facility will require subsequent development reviews and compliance with Redmond land use and water policies. Development will require coordination with and approvals from Redmond public works, and state and federal entities. If any water impacts are identified, these will be addressed during the development application process.

### **3.1.4 DCCP Section 2.8 – Energy Resources**

**Response:** The Goals and Policies contained in this section provide County directives to encourage energy conservation and resiliency. Winterbrook has confirmed with County Staff Planner Haleigh King on March 20, 2023, that DCCP Section 2.8 Goals and Policies do not apply to the requested DCCP map and zone change. Compliance with DCCP Section 2.8 is met through addressing Statewide Planning Goal 13 (see Section 2.2.11 in this narrative) and relevant energy-related goals and policies in the RCP.

### **3.1.5 DCCP Section 2.9 – Environmental Quality**

***Goal 1 Maintain and improve the quality of the air, water and land.***

**Response:** There are some proposed elements and activities that may impact air quality if not for mitigation. As described in section 2.2.4 in response to Statewide Planning Goal 6, the siting, design, and operation programming of these elements were targeted to reduce any potential air impacts and to mitigated impacts unable to be addressed through the design process.

Further, developing the CORE3 facility will require additional reviews and approvals from federal, state, and local offices regulating air, water, and land quality. Development will require any impacts to be identified and mitigated.

***Goal 2 Promote sustainable building practices that minimize the impacts on the natural environment.***

**Response:** A master development plan is included in this application package (Part 3) that requires the CORE3 facility to meet applicable City of Redmond Great Neighborhood Principles. Among those principles are “green design.” As a resiliency facility for emergency services, the buildings for the CORE3 campus will be held to a high standard of efficiency and performance to ensure the

optimal use of resources and support emergency operations. Occupied buildings will be designed to meet the State's goals with LEED Silver equivalency, and SEED (20% above current energy code).

### 3.1.6 DCCP Section 2.10 – Surface Mining

**Goal 1 Protect and utilize mineral and aggregate resources while minimizing adverse impacts of extraction, processing and transporting the resource.**

&

**Policy 2.10.3 Balance protection of mineral and aggregate resources with conflicting resources and uses**

**Response:** Negus Landfill is located north of the proposed subject site (see Figure 2 following this response). The 300-acre subject site will not contain the inventoried natural resource (Deschutes County Surface Mining Mineral and Aggregate Inventory #482). The proposed area of the dual map amendments (the subject site) does not contain any county Statewide Planning Goal 5 resources or any potential City of Redmond Statewide Planning Goal 5 resources.

| #   | Taxlot                   | Name             | Type    | Quantity* | Quality    | Access/Location |
|-----|--------------------------|------------------|---------|-----------|------------|-----------------|
| 443 | 150917-00-00600          | Willamette Ind   | Rock    | 150,000   | Fair       |                 |
| 453 | 161209, 10-00-00600, 301 | Robert Fullhart  | S & G   | 704,000   | ODOT Specs |                 |
| 459 | 141131-00-05200          | Deschutes County | Cinders | 50,000    | Good       |                 |
| 465 | 141333-00-00900          | Oregon State Hwy | Cinders | 100,000   | Good       |                 |
| 466 | 141333-00-00600          | Fred Elliott     | Cinders | 5.5 M     | Good       |                 |
| 467 | 141333-00-00601          | Knorr Rock Co    | Cinders | 5 M       | Good       |                 |
| 469 | 141131-00-00100          | Deschutes County | Cinders | 2 M       | Fair       |                 |
| 475 | 151012-00-00600          | Deschutes County | Cinders | 200,000   | Good       | Cloverdale Road |
| 482 | 151300-00-00103          | Deschutes County | Dirt    | 2 M       | Good       | Negus Landfill  |
| 488 | 161230-00-00100, 600     | Bend             | S & G   | 400,000   | ODOT       |                 |

Figure 2 DCCP Table 5.8.1

### 3.1.7 DCCP Section 3.4 – Rural Economy

**Goal 1 Maintain a stable and sustainable rural economy, compatible with rural lifestyles and a healthy environment.**

&

**Policy 3.4.4 Support regional educational facilities and workforce training programs.**

**Response:** As discussed in the Introduction to Land Use Applications, Redmond and the region currently lack both a centralized public safety training facility and a coordination center for emergency response operations. The CORE3 facility will provide support to rural emergency services, thereby stabilizing current and future rural economies. The proposed map amendments



will allow the development of the CORE3 facility inside the Redmond City Limits. Locating this facility inside an existing urban area will help maintain the rural economy while being compatible with the County's rural lifestyle and supporting a healthy environment. The classrooms and practical learning spaces of the proposed CORE3 facility will serve regional rural economic needs while concentrating development within urban areas.

### **3.1.8 DCCP Section 3.5 – Natural Hazards**

***Goal 1 Protect people, property, infrastructure, the economy and the environment from natural hazards.***

**Response:** The CORE3 facility is a centralized public safety training facility and coordination center for emergency response operations. The CORE3 facility will act as the State Resiliency Center during a Cascadia subduction event. The proposed map amendments will allow for siting the CORE3 facility in Redmond. This is consistent with – and directly implements – Statewide Planning Goal 7 requirements and this DCCP policy because the CORE3 facility will provide local, regional, and state emergency response capacity to respond to natural disasters and hazards.

***Policy 3.5.3 Coordinate with emergency service providers when new development is proposed.***

**Response:** Input on the proposal has been received by emergency service providers. Coordination has occurred during the conceptual stages and the creation of the MDP contained in Part 3 of the application package. Further communication will continue with providers as future development applications are necessary to permit the CORE3 facility on the subject site.

***Policy 3.5.6 Critical facilities (schools, churches, hospitals and other facilities as defined by the Federal Emergency Management Agency) should be located outside high risk natural hazard areas, where possible.***

**Response:** The CORE3 facility will be a regional coordination and state resiliency center during the event of major natural disasters. As such, the CORE3 facility should be located outside of any high risk natural hazard areas.

The subject site is outside of any flood areas, and it does not contain any steep slopes nor wetlands. The subject site is shown within the Deschutes County Wildfire Zone<sup>2</sup>. This zone requires the use of specialty building codes, per DCC 15.04.085 and DCC 15.04.010(A).

Actual development of the CORE3 facility will occur within the City of Redmond's jurisdiction and will require subsequent land use reviews and compliance with Statewide Goal 7, including wildfire mitigation measures, where applicable.

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<sup>2</sup> See Deschutes County Wildfire Mitigation Advisory Committee Final Report (April, 2020)

***Policy 3.5.7 Address wildfire danger particularly in the wildland urban interface.***

***a. Survey and map wildfire hazard at risk areas using the Wildfire Hazard Identification and Mitigation System.***

***b. Survey and map all areas not protected by structural fire protection agencies.***

**Response:** These policies direct Deschutes County to survey and map wildfire risk areas and areas not protected by structural fire protection agencies, and therefore are not directly applicable. But, the subject site is shown on the Deschutes County Wildfire Zone and so these policies are indirectly addressed.

The subject site will be served by City of Redmond fire protection services, and the site will be designed for fire resiliency. For more details, see Part 3. MDP.

***Policy 3.5.9 Support local fire protection districts and departments in providing and improving fire protection services.***

**Response:** The CORE3 facility will serve as a training facility for police, fire, and emergency services. Development of the CORE3 facility will directly support firefighter training, and thus improve fire protection services.

### **3.1.9 DCCP Section 3.6 – Public Facilities and Services**

***Goal 1 Support the orderly, efficient and cost-effective siting of rural public facilities and services.***

***&***

***Policy 3.6.9 New development shall address impacts on existing facilities and plans through the land use entitlement process.***

**Response:** Statewide Planning Goals 11 and 12 guide the orderly, economic, and efficient provision of public utilities and services. Responses to these goals are contained in Appendix J: Statewide Planning Goal Analysis. Supplemental information supporting the availability and future efficiency of public facilities and transportation systems are contained in Appendix D. Public Facility Plan and Appendix E. Transportation Studies (TGR – TPR).

***Policy 3.6.7 Before disposing of County-owned property review whether the land is appropriate for needed public projects such as schools, health clinics, fire stations or senior centers.***

**Response:** The subject site is currently owned by Deschutes County. The proposed map amendments are necessary to permit the CORE3 facility, a needed regional public facility project. Although the county will not own the CORE3 facility, the facility will fulfill a demonstrated local and regional public facility land need.

### **3.1.10 DCCP Section 3.7 – Transportation (Appendix C)**

***Goal 1 Achieve an efficient, safe, convenient and economically viable transportation and communication system. This system includes roads, rail lines, public transit, air, pipeline, pedestrian and bicycle facilities. The Deschutes County transportation system shall be designed to serve the existing and projected needs of the unincorporated communities and***

***rural areas within the County. The system shall provide connections between different modes of transportation to reduce reliance on any one mode.***

**&**

***Goal 3 The transportation plan and facilities of Deschutes County shall be coordinated with the plans and facilities of incorporated cities within Deschutes County, adjacent counties and the State of Oregon.***

Response: The subject site abuts E. HWY 126. Development of the site requires coordination with ODOT, City, and County officials (see Appendix E. Transportation Studies (TGR – TPR)). COIC is coordinating the proposed UGB expansion, map amendments, and Master Plan with the City of Redmond, Deschutes County, and ODOT. The CORE3 facility is a unique public training facility that requires restricted public access. Because of this, no through transportation connections are planned through the site. However, internal transportation design will not prevent city or county transportation connections that would negatively impact the efficiency of existing or future transportation networks. Further findings detailing compliance with Statewide Planning Goal 12 are found in Appendix J: Statewide Planning Goal Analysis.

***Policy 3.1 Deschutes County shall notify ODOT concerning:***

***a. All land use proposals or actions that would create access onto a state highway or add >100 ADT to any County road intersection with a state highway;***

***b. Any proposed land use or development within 500 feet of a state highway or public use airport within the County; and***

***c. Require ODOT road approach permits.***

**Response:** The subject site is adjacent to E. HWY 126. Appendix E. Transportation Studies (TGR – TPR) will be reviewed by ODOT, as required by the RDC.

### **3.1.11 DCCP Section 4.2 – Urbanization**

***Goal 1 Coordinate with cities, special districts and stakeholders to support urban growth boundaries and urban reserve areas that provide an orderly and efficient transition between urban and rural lands.***

**&**

***Policy 4.2.1 Participate in the processes initiated by cities in Deschutes County to create and/or amend their urban growth boundaries.***

**&**

***Policy 4.2.2 Promote and coordinate the use of urban reserve areas.***

**Response:** Part 2. UGB Amendment in this application package contains findings to support UGB expansion onto the subject site. The subject site is currently in the Redmond URA, but the series of applications within this larger proposal incorporate the subject site into the RUUGA and then into the City of Redmond.

This application process has involved coordination with both the City of Redmond and Deschutes County, and the application will need to be heard by both city and county hearings bodies. The proposed UGB expansion onto the subject site is an orderly, economic, and efficient transition between urban and rural lands, as demonstrated in Appendix D. Public Facility Plan and Appendix E. Transportation Studies (TGR – TPR).

***Policy 4.2.11 Collaborate with the City of Redmond to assure that the County-owned 1,800 acres in the RURA is master planned before it is incorporated into Redmond's urban growth boundary.***

**Response:** The subject site is a portion of the county-owned parcel identified in this policy. Part 3. MDP of this application package contains a master development plan for the subject site. This is required for rezone and annexation into the City of Redmond by the RDC. Development on the subject site will be guided by this MDP, as required by the RDC.

### 3.2 DCC 18.136.020(B) That the change in classification for the subject property is consistent with the purpose and intent of the proposed zone classification.

**Response:** The proposed map amendments will change the comprehensive plan designation from Agriculture to Redmond Urban Growth Area and the zoning from county Exclusive Farm Use (EFU) to county Urban Holding – 10 (UH-10). The purpose statement of the UH-10 zone is:

#### ***DCC 20.12.010 Purpose***

***The following regulations shall apply in areas designated Urban Holding Zone (UH-10) on the Deschutes County Title 20 Zoning map. This zone is intended to be used to retain large undeveloped or underdeveloped land areas for future urban development. The UH-10 zone is a holding zone and is considered agricultural or rural residential and it will allow agricultural uses to continue operation until such time as urbanization takes place after annexation.***

**Response:** As described, the County UH-10 zone is a holding zone. Lands within this zone are intended to be master planned, annexed and rezoned into the City of Redmond. Part 3 of this application package contains an MDP for the subject site. Part 4 contains a request for rezoning and annexing the subject property. This application narrative (Part 5) contains a request to the county for dual map amendments for the subject site to be rezoned from EFU to UH-10 to allow for the site to then be rezoned PF. The subject site will not be urbanizable until the entirety of this application package is approved by both city and county hearings bodies.

### 3.3 DCC 18.136.020(C)(1) The availability and efficiency of providing necessary public services and facilities.

**Response:** Statewide Planning Goals 11 and 12 guide the orderly, economic, and efficient provision of public utilities and services. Responses to these goals are contained in Appendix J: Statewide Planning Goal Analysis. Supplemental information supporting the availability and future

efficiency of public facilities and transportation systems are contained in Appendix D. Public Facility Plan and Appendix E. Transportation Studies (TGR – TPR).

Appendix D. Public Facilities Plan shows that the site can be served by a proposed public water line and a proposed public sanitary sewer line. Potable water service will be provided by extending the existing 16" public water main from the south side of Highway OR126 at SE Ochoco Way approximately 1,200 LF easterly to future SE 21<sup>st</sup> Avenue. From there, the public water main will be extended northerly in SE 21<sup>st</sup> Avenue approximately 550 LF to the project access road. The CORE3 site will be served by a single potable water service and a single fire service. All on-site domestic and fire water will be private and isolated from the public water main system.

Wastewater (sanitary sewer) service will be provided by connecting to the existing 12" public sanitary sewer main along the south of Highway OR126. The project connection will require crossing OR126 and extending a public sewer main northerly approximately 600 LF in future SE 21<sup>st</sup> Avenue to the project access road.

The CORE 3 site will be served by a single sanitary service. All on-site sanitary sewer will be private and gravity served where possible. Due to project topography, lower lying areas will be served by a private lift station/force main system.

All stormwater will be contained on-site. Stormwater will be collected and dispersed on-site via swales, underground injection control (UIC) devices such as drywells, or a combination of both methods.

A certified engineer has determined that the 16' water line and the 12" sanitary sewer line would be adequate to serve the project, discussed in Appendix D.2.

Appendix E analyses the zone change from Deschutes County EFU to city PF. The zoning from EFU to PF will have a more significant change than zoning from EFU to UH-10, and therefore encompasses any transportation impacts from rezoning EFU to UH-10.

### 3.4 DCC 18.136.020(C)(2) The impacts on surrounding land use will be consistent with the specific goals and policies contained within the Comprehensive Plan.

**Response:** Consistency with the Redmond Comprehensive Plan is demonstrated in section 2.3. Further, Redmond requires a MDP for the proposed rezone and annexation into the city limits. MDP's must be consistent with Redmond's Great Neighborhood Principles. These principles ensure compatibility with surrounding land uses, urban and rural.

### 3.5 DCC 18.136.020(D) That there has been a change in circumstances since the property was last zoned, or a mistake was made in the zoning of the property in question.

**Response:** Regional emergency management agencies have been discussing the concept of the CORE3 facility for well over ten years. Organizing efforts culminated in a June 2018 report prepared by the University of Oregon's Partnership for Disaster Resilience that found a strong need for an emergency services center for regional agencies in Central Oregon (See Appendix I.3. Central

Oregon Emergency Services Center Viability Assessment). COIC then published a Strategic Business Plan in October 2020 that assessed current training facilities and programming needs, conducted a financial assessment for the project, developed a list of site layout considerations, and identified the City of Redmond as the optimal location for this facility (See Appendix I.1. Strategic Business Plan).

RCP policy 11-1-7 establishes the need for the CORE3 facility in Redmond. This documented need—paired with the fact that no suitable site could be identified within the existing UGB—has created a change in circumstances that justified the UGB expansion contained in Part 2 of the application package. The UGB expansion, in turn, has created another change of circumstances that warrants the rezoning and annexation of the subject site, consistent with Part 3. MDP. The proposed Deschutes County comprehensive plan and zoning map amendments from UH-10 to PF are necessary in order to develop the CORE3 facility, a facility spurred through regional planning and codified in the RCP.

## 4 Conclusion

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This narrative part provides findings for the proposed comprehensive plan and zoning map amendments of the CORE3 facility site. The proposed comprehensive plan amendment will redesignate the subject site from Deschutes County Agriculture to Redmond Urban Growth Area and the proposed rezone will redesignate the subject site from Deschutes County EFU to UH-10, consistent with the RDC, RCP, Redmond MDP for the area, the DCCP, and the DCC. The proposed applications in this narrative comply with all applicable local, county, and state criteria.

Central Oregon Intergovernmental Council:

# Central Oregon Ready, Responsive, Resilient (CORE3) Facility



Figure 1 Planning for the CORE3 Facility

## Appendix H: Great Neighborhood Principles Findings

Prepared by Winterbrook Planning  
In coordination with SERA Architects, Kittelson & Associates, and HHPR Inc.  
This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

December, 2023





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## Appendices

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- City of Redmond Transportation System Plan (2020)
- City of Redmond Economic Opportunity Analysis (2020)
- City of Redmond Parks Master Plan (2018)
- Deschutes County Transportation System Plan (2010)
- City of Redmond UGB Adjustment, Redmond Ordinance No. 2020-01 (2019)

## Abbreviations

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- (FEMA) Federal Emergency Management Agency
- (JMA) Redmond-Deschutes County Joint Management Agreement
- (MDP) City of Redmond Master Development Plan
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# Great Neighborhood Principles.

MDPs must demonstrate consistency with applicable Great Neighborhood Principles, in addition to other local criteria (RDC 8.0270.3.B.1). The CORE3 facility campus will have controlled access for security and safety reasons, limiting access to the general public. The facility's proposed program elements, buildings, and internal transportation system will be restricted to only authorized users. As such, the primary applicability of Great Neighborhood Principles is most relevant around the CORE3 facility's edges. Edge conditions and internal buffer areas have been designed with the Great Neighborhood Principles in mind to better integrate the proposed facility with existing and future adjacent urban uses and the adjacent rural interface. The following principles are applicable and addressed individually in the pages that follow: Transportation; Open Spaces, Greenways, Recreation; Integrated Design Elements; Scenic Views; Urban-Rural Interface; and Green Design.

Additional design refinement will occur with site and design review applications during the next stage of the land use process. Site and design review also require findings to support the Great Neighborhood Principles.

## Transportation

***Connect people and places through a complete grid street network and trail system that invites walking and bicycling and provides convenient access to parks, schools, neighborhood service centers, and possible future transit stops. Traffic calming techniques and devices may be required to slow vehicles. Curved streets are encouraged to provide interest and variety in neighborhood design. Trails shall be provided to link with existing or planned pedestrian facilities.***

A new public road is proposed along the western side of the site. This road will connect to E. HWY 126, providing access to undeveloped areas within the URA. This road is consistent with Redmond's Eastside Framework Plan. No other transportation facilities are proposed, because CORE3 will be a secure facility that is unavailable to the public.

## Open Spaces, Greenways, Recreation

***All new neighborhoods shall provide useable open spaces with recreation amenities that are integrated to the larger community. Central parks and plazas shall be used to create public gathering places and should be located in or near the center of the project to the extent practicable. New neighborhoods should retain and incorporate significant geological features such as rock outcroppings or stands of clustered native trees into the design and lot layout. Neighborhood and community parks shall be developed in locations consistent with the Redmond's Parks Master Plan.***

While there will not be public access into the site, buffer zones at the northern and western side of the property could include native vegetation that can be viewed from adjacent properties and could contribute to a larger green space context that supports local habitat.

## Integrated Design Elements

***Streets, civic spaces, signage, and architecture shall be coordinated to establish a coherent and distinct character for the MDP. MDPs may integrate design themes with adjacent developed or planned areas.***

The character of the proposed MDP will be directly related to its function as a centralized public safety training facility and a coordination center for emergency response operations. This fits well into the character of the Ochoco Highway route into and out of Redmond, which includes the adjacent airfield and facilities to the south of the site. The proposed plan incorporates buffers and includes a north-south transportation connection to enable a positive interaction with current and future neighboring land uses.

## Scenic Views

***Identify and preserve scenic views and corridors of the Cascade Range, Ochoco Mountains, and Smith Rock, such as in street view sheds or park areas. Streets and common, or public, open spaces should be located and oriented to capture and preserve scenic views for the public. Minimize visual clutter from signs and utilities within scenic corridors.***

While still very much in concept stage, the CORE3 campus was designed to accommodate view corridors to key landmarks: Smith Rock to the north, the Cascade Range including the South Sister to the southwest and Mount Jefferson to the northwest, and the Ochoco Mountains to the east. A planned north-south connection will establish a view corridor to the north, towards Smith Rock, as well as providing potential NW and SW views toward the Cascades. Buildings will be generally low profile and the design incorporates space between structures to preserve view corridors across the site, as shown by the MDP.

## Urban – Rural Interface

***Urban development shall interface with rural areas through landscaped open space buffers at least 100 feet wide and the length of the urban development, excluding public streets, or shall be transitioned from higher density development to lower density development at the urban - rural interface.***

Land to the west is currently within the UGB and planned for development. Land to the north is within the RURA and will eventually be developed at urban densities. Land to the east is outside of the UGB and RURA and will likely never develop since it's owned by the Federal government. Large buffer areas, exceeding 100 feet, are planned along the western and northern edges of the site. These buffer areas are planned to deliberately manage the interface between the campus and its surroundings. These buffer areas will include native vegetation that can be viewed from adjacent properties and could contribute to a larger green space context of the area.

## Green Design

***Energy-efficient design through solar access setbacks, xeriscaping, and planting of drought-resistant trees to minimize water usage and provide shade.***

As a resiliency facility for emergency services, the buildings for the CORE3 campus will be held to a high standard of efficiency and performance to ensure the optimal use of resources and support emergency operations. Occupied buildings will be designed to meet the State's goals with LEED

Silver equivalency, and SEED (20% above current energy code). Native and drought-tolerant vegetation will be prioritized as part of the planting design.

Central Oregon Intergovernmental Council:

# Central Oregon Ready, Responsive, Resilient (CORE3) Facility



Figure 1 Planning for the CORE3 Facility

## Appendix J: Statewide Planning Goal Analysis

Prepared by Winterbrook Planning  
In coordination with SERA Architects, Kittelson & Associates, and HHPR Inc.  
This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

December, 2023





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Seven applications for CORE3 land use entitlements are presented in a package that contains 5 narrative parts. Three unattached applications include two partition applications and a variance to final plat requirements. The following applications, divided into narrative parts, require demonstration of compliance with applicable statewide planning goals.

- Part 1: Comprehensive Plan Text Amendment
- Part 2. UGB amendment
- Part 4. Redmond Zone Change and Annexation
- Part 5. Deschutes County Plan Map and Zone Change

This Statewide Goal Analysis provides demonstration of compliance with applicable statewide planning goals for the applications. Findings for compliance are often applicable across applications. Applicable goals to the proposed applications are defined in OAR 660-024-0020 and are: Goal 1 (Citizen Involvement), Goal 2 (Land Use Planning), Goal 5 (Open Spaces, Scenic, and Historic Areas), Goal 6 (Air, Water, and Land Resources Quality), Goal 7 (Areas Subject to Natural Disasters and Hazards), Goal 8 (Recreation Needs), Goal 9 (Economy of the State), Goal 10 (Housing), Goal 11 (Public Facilities and Services), Goal 12 (Transportation), Goal 13 (Energy), Goal 14 (Urbanization).

# 1 Statewide Planning Goals:

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## Goal 1: Citizen Involvement

***To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.***

**Response:** Goal 1 calls for the opportunity for the public to be involved in all phases of the planning process and is applicable to all proposed amendments. The City of Redmond and Deschutes County have adopted and acknowledged procedures within the RDC that are consistent with Goal 1. The proposal will be processed with proper public noticing and hearings before the Redmond Urban Area Planning Commission – the city's formal citizen advisory committee – and the Redmond City Council for the City of Redmond applications. For Deschutes County applications, the proposal will be processed with proper public noticing and hearings before Deschutes County's Board of County Commissioners. By meeting applicable city and county notice requirements, the application will be in conformity with Goal 1.

## Goal 2: Land Use Planning

***To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions.***

**Response:** Goal 2 generally requires consideration of alternatives, coordination with affected units of government, and that comprehensive plan policies be implemented by local land use regulations. Goal 2 applies to all proposed amendments. This proposal has come together through a high level of coordination between the Central Oregon Intergovernmental Council (COIC), the City of Redmond, Deschutes County, and state and federal agencies. Agencies involved include the Department of Public Safety Standards and Training (DPSST), State Fire Marshal, State Police, and Oregon Emergency Management; Governor Brown's Regional Solutions; the US Forest Service; local public safety agencies and Districts; and others. A Steering Team completed a Strategic Business Plan in 2020 that developed, among other things, site layout considerations and facility needs for the site.

Goal 2 requires jurisdictions to establish a factually-based planning process for all land use decisions. This planning process includes the creation of a comprehensive plan and other supporting planning documents that inventory a city's built and natural environments, providing a basis for policy goals and implementation measures.

The proposed comprehensive text amendment will establish an identified need for a regional public facility use with specific required characteristics. The amendment is crafted to enable evaluation and potential urban growth consistent with the RCP and public facility infrastructure, and it is consistent with RCP policies as demonstrated in Section 3.3 of Part 1. Comprehensive Plan Text Amendment.

The proposed UGB amendment will designate the expansion area for public facility use. UGB expansions are regulated by ORS 197, as implemented by OAR 660-024; therefore, the proposed UGB expansion process and requirements supersede conceptual planning contained in the Eastside Framework Plan. Through adoption of the proposed UGB amendment, the RCP designation of Public Facilities will be the controlling land use designation for the proposed expansion area. The RCP designation of the site for public facilities is relevant to the MDP application in Part 3, and subsequent annexation applications in Parts 4 and 5.

City of Redmond policy mandates that the land added to the UGB will remain with an Urban Holding Area (UH-10) zoning designation until time of annexation. The annexation applications for both the city and Deschutes County (Parts 4 and 5) are part of this application package and will rezone the land as Public Facilities (PF) upon city annexation.

In 2007, the City of Redmond and Deschutes County signed a joint management agreement, an intergovernmental agreement to establish the process for eventual plan and map amendments in the Redmond URA. The agreement states that the "City will accept and process all legislative and quasi-judicial applications, including County initiated ones, for comprehensive plan, plan map, zoning map and zoning regulations text amendments." (See JMA section 4(D) in Appendix G.2).

City of Redmond policy mandates that the land added to the UGB will remain with an Urban Holding Area (UH-10) zoning designation until time of annexation. This application narrative requests annexation into the City of Redmond concurrent with the requested zone change from

UH-10 to PF. The requested zone change is consistent with the MDP contained in Part 3 of the application package, and the justification for UGB expansion to meet public facility land need contained in Part 2 of the application package. The requested land use actions are consistent with the DCCP, DCC, and JMA.

The proposed amendments are consistent with Goal 2.

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### **Goal 3 Agricultural Lands and Goal 4 Forest Lands:**

Goals 3 and 4 are not applicable to lands within UGBs or to UGB amendments, per OAR 660-024-0020(1)(b) "Adoption or Amendment of a UGB".

### **Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources**

***To protect natural resources and conserve scenic and historic areas and open spaces.***

**Response:** The area of the proposed annexation and zone change does not include any inventoried or potential Goal 5 resources. Actual development of the CORE3 facility will require subsequent land use reviews and compliance with Goals 5, if and where applicable. Portions of Tax lot 151300-00-00103 contain an inventoried Deschutes County Goal 5 resource: the Negus Landfill. This resource is listed as #482 on Table 5.8.1 within the Deschutes County Comprehensive Plan. Although a portion of the tax lot containing the subject site is an inventoried Goal 5 resource, the proposed UGB expansion area onto the subject site is south of the Negus Landfill and will not include this resource. Moreover, there are no other potential Goal 5 resources on the subject site that could be incorporated into the City of Redmond Goal 5 inventories. Goal 5 is met.

### **Goal 6: Air, Water and Land Resources Quality**

***To maintain and improve the quality of the air, water and land resources of the state.***

**Response:** The Redmond Comprehensive Plan text amendment (Part 1) does not affect any Goal 6 policies. The proposed map amendments will not change any applicable Goal 6 policies or measures that relate to air or water resource quality. However, the CORE3 facility will include burn buildings and a wildfire training area that could have impacts on air quality. To reduce impacts from these facilities on surrounding lands, element siting, design and operational program has been developed to best meet state and federal air quality standards.

The State of Oregon Department of Public Safety Standards and Training has adopted the 2019 Edition of the National Fire Protection Association's 1001 Standard for Fire Fighter Professional Qualifications. The Class A Burn Building and Class B Drill Tower (see Appendix C. MDP) are essential training components to provide a safe, secure and consistent training environment to fulfill certification requirements for fire behavior, search and rescue, ventilation, water supply, hose management, fire control, fire streams, sprinkler control, scene safety, and the practical use of self-contained breathing apparatus.

The Class A and Class B Burn Buildings are currently programmed for approximately 510 training hours annually. Of those training hours, Class A live burn training, using combustible materials such as hay and wood, will represent a small fraction of the total training hours annually. Class A live burn training operations are expected to occur a few times a month with the actual burns lasting

less than hour. Class B fire training operations utilize propane fueled fire training props and theatrical smoke that is engineered to dissipate quickly.

As part of the CORE3 facility operation plan, live burn training operations must meet environmental parameters such as wind speed and direction to promote the rapid dissipation of smoke. The Class A and Class B training structures are strategically located on the site to take advantage of prevailing wind patterns to optimize the dissipation of smoke from populated areas.

The Recycling Pond component of the plan helps to capture and store water used in the fire training exercises in the tactical village and holds it for reuse in future exercises. Utilizing the pond to recycle water used in onsite trainings preserves water resources by reducing the overall water used.

The CORE3 development contains a gun range/firearms training area that is planned to be an open-air enclosed and fully-baffled gun range with sound mitigation measures integrated into the design. The no-blue sky configuration is to be designed so errant rounds cannot escape the perimeters of the range.

The fuel island component of the site is envisioned as a minimum of (1) 12,000-gallon gas fuel tank and (1) 12,000-gallon diesel fuel tank with two pumps to fuel training vehicles used on site. The fuel stations will be designed with appropriate spill control and mitigation measures and will meet or exceed local, state, and federal regulations.

Construction of the CORE3 facility will require additional local, state, and federal reviews to ensure that all potential air, land, and water quality impacts are mitigated through element siting, structure designs, and operational program development, thereby complying with Goal 6.

## **Goal 7: Areas Subject to Natural Disasters and Hazards**

***To protect people and property from natural hazards.***

**Response:** Goal 7 requires local governments to adopt natural hazard inventories, policies, and implementing measures. RCP policies 7-3-1 and 7-3-2 require the City to “plan and prepare” for the Cascadia earthquake and to “support plans and programs to expedite the restoration of critical services following a natural hazard event”. There are three DCCP policies that implement Goal 7 and support the development of the CORE3 facility: Section 3.5 Goal 1, Policy 3.5.6, and Policy 3.5.9. Part 5 addresses each policy in detail in Section 3.1 of Part 5 Deschutes County Plan Map and Zone Change.

The CORE3 facility is a centralized public safety training facility and coordination center for emergency response operations. The CORE3 facility will act as the State Resiliency Center during a Cascadia subduction event. The proposed UGB amendment will allow for siting the CORE3 facility in Redmond. This is consistent with – and directly implements – Goal 7 requirements, RCP policies, and Deschutes County Natural Hazard Mitigation Plan Action Item #9. This is because the CORE3 facility will provide local, regional, and state emergency response capacity to respond to natural disasters and hazards.

Further, the subject site is outside of any flood areas. It does not contain steep slopes (slopes over 15% are a development constraint and considered unsuitable for employment uses in the Redmond Economic Opportunity Analysis, an adopted and acknowledged document). And the



subject site does not contain any wetlands<sup>1</sup> – nor does Deschutes County regulate wetland areas. Wetland areas and steep slopes in relation to the subject site are shown in Figure 2.

The subject site is shown within the Deschutes County Wildfire Zone<sup>2</sup>. This zone requires the use of specialty building codes, per DCC 15.04.085 and DCC 15.04.010(A).

Actual development of the CORE3 facility will occur within the City of Redmond's jurisdiction and will require subsequent land use reviews and compliance with Statewide Goal 7, including wildfire mitigation measures, where applicable. Thus, the proposed amendments comply with Goal 7.

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<sup>1</sup> <https://maps.dsl.state.or.us/swi/>

<sup>2</sup> See Deschutes County Wildfire Mitigation Advisory Committee Final Report (April, 2020)

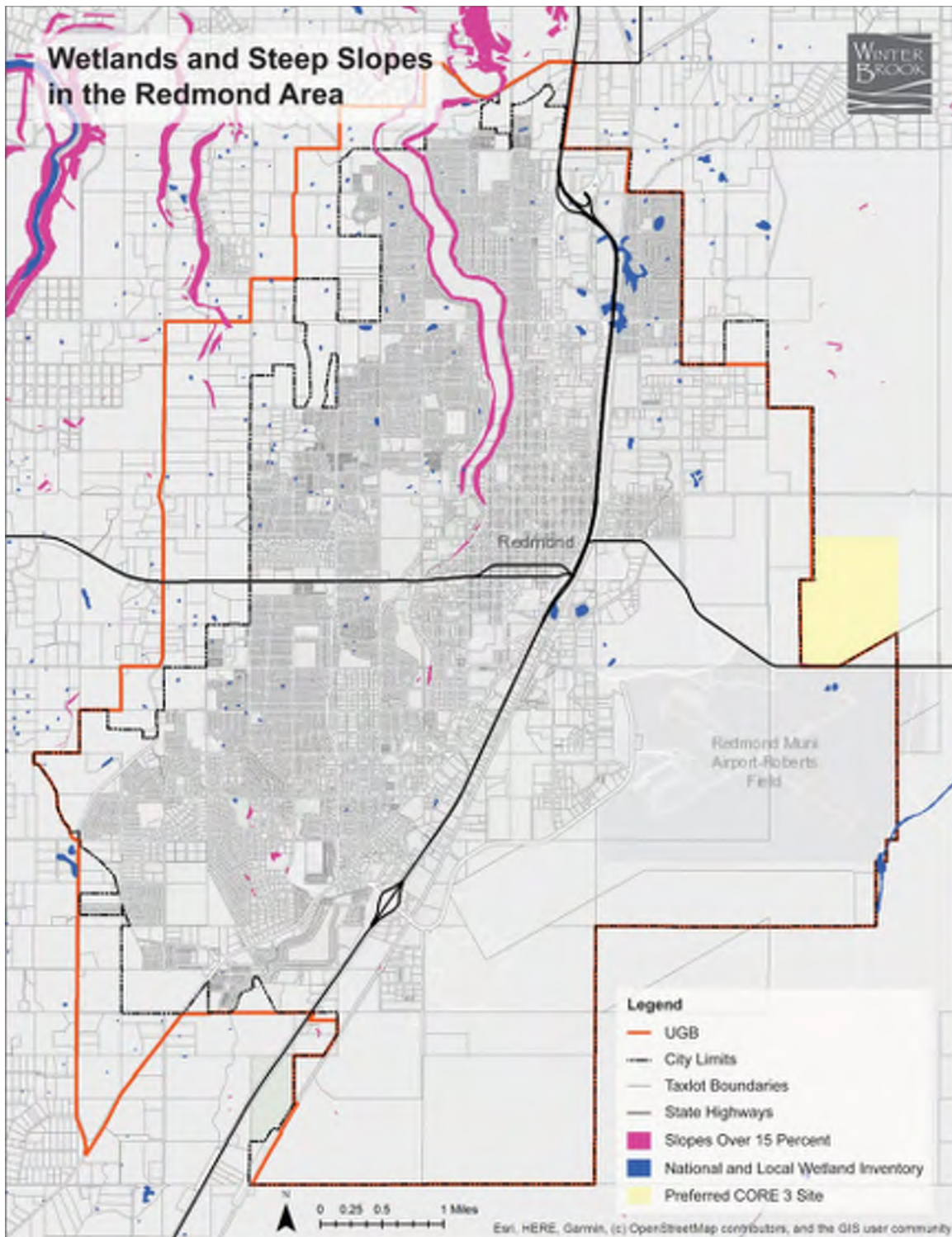


Figure 2: Redmond Area Wetlands and Steep Slopes

## Goal 8: Recreation Needs

***To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.***

**Response:** Goal 8 is not applicable to the proposed amendments because there are no potential park or recreational facilities on the subject site (as identified in the Redmond Parks Master Plan and Deschutes County Comprehensive Plan), and no park or recreational facilities are proposed. The proposed development is a unique public facility use that will not be a major employment center or residential center that would create an excess of potential park users that would strain existing recreational resources. While the site will contain open buffer areas and vegetation, for safety and security reasons the site will not be open to the general public for recreation. The proposed Comprehensive Plan text amendment has no impact on compliance with Goal 8.

## Goal 9: Economy of the State

***To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.***

**Response:** A 156-acre portion of the subject site was originally inventoried as industrial land in the 2019 Redmond EOA. Since then, the subject site has been removed from the UGB and redesignated as county agricultural land (see reference document City of Redmond UGB Adjustment, Redmond Ordinance No. 2020-01). A separate 156-acre portion of URA was included and zoned the same industrial designations as the subject site was previously. Because of this land swap, the subject site is currently non-contributing to the City of Redmond's employment lands inventory. The subject site is currently designated as agricultural land within the Redmond URA for future urbanization. The site is currently non-contributing to Deschutes County economic activities.

The subject site is proposed to be designated as public facility land with PF zoning. The CORE3 facility *itself* will not be a major employment center. However, establishment of the site will have some positive impact on the local economy because development and use of the facility will increase economic activity within the City of Redmond. The facility will serve as a training center for personnel from regional and state agencies, increasing visitors to Redmond and consumer spending at local commercial establishments. The proposed map amendments are compliant with Goal 9.

The proposed Comprehensive Plan text amendment has no impact on compliance with Goal 9.

## Goal 10: Housing

***To provide for the housing needs of citizens of the state.***

**Response:** Goal 10 is not applicable to the proposed amendments because the site does not contain residential land and no housing is proposed.

## Goal 11: Public Facilities and Services

***To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.***

**Response:** Goal 11 requires communities to consider the provision of public facilities and services in their planning and development decisions, this goal is applicable to all proposed amendments.

The CORE3 facility is critical to the provision of local and regional public safety and emergency response services. For more details on programmatic elements of the CORE3 facility, see Introduction to Land Use Applications and Part 3. MDP.

The proposed UGB amendment, comprehensive plan and zoning map amendments – and the ultimate construction of the CORE3 facility – will allow the City of Redmond, Deschutes County and the greater region to efficiently serve current and future residents' public safety needs, consistent with Goal 11.

Goal 11 and Goal 14 require that public facilities and services planned in urbanizable areas be adequate to serve planned development. Part 3 Master Development Plan and Appendix D. Public Facilities Plan demonstrate how the proposed provision of public facilities and services to serve the CORE3 facility will be orderly, economic, and efficient.

Appendix D. Public Facilities Plan shows that the site can be served by a proposed public water line and a proposed public sanitary sewer line. Potable water service will be provided by extending the existing 16" public water main from the south side of Highway OR126 at SE Ochoco Way approximately 1,200 LF easterly to future SE 21<sup>st</sup> Avenue. From there, the public water main will be extended northerly in SE 21<sup>st</sup> Avenue approximately 550 LF to the project access road. The CORE3 site will be served by a single potable water service and a single fire service. All on-site domestic and fire water will be private and isolated from the public water main system.

Wastewater (sanitary sewer) service will be provided by connecting to the existing 12" public sanitary sewer main along the south of Highway OR126. The project connection will require crossing OR126 and extending a public sewer main northerly approximately 600 LF in future SE 21<sup>st</sup> Avenue to the project access road.

The CORE 3 site will be served by a single sanitary service. All on-site sanitary sewer will be private and gravity served where possible. Due to project topography, lower lying areas will be served by a private lift station/force main system.

All stormwater will be contained on-site. Stormwater will be collected and dispersed on-site via swales, underground injection control (UIC) devices such as drywells, or a combination of both methods.

A certified engineer has determined that the 16' water line and the 12" sanitary sewer line would be adequate to serve the project, discussed in Appendix D.2.

## Goal 12: Transportation

***To provide and encourage a safe, convenient, and economic transportation system.***

**Response:** This goal applies to all proposed map amendments. The proposed text amendment in Part 1 itself does not affect the TSP or change any plan designation or zoning within the UGB. Therefore, the adoption of the proposed comprehensive plan text amendment will not impact the city's ability to plan for and provide an efficient transportation system.

OAR Chapter 660 Division 12 – the Transportation Planning Rule (TPR) – is the implementing rule for Goal 12. Although compliance with OAR 660-012-0060 (which requires that zone and map amendments consider the impact on the transportation system from the proposed change) does not necessarily apply to UGB amendments per OAR 660-024-0020[1][d]<sup>3</sup>, they do apply to the zoning map changes from city UH-10 to city PF. See application Part 4. Redmond Zone Change & Annexation.

In order to reach compliance with OAR 660-012-0060, the proposed zone and map amendment from UH-10 to PF must consider the impact on the transportation system from the proposed change. Applicants must demonstrate that there will be no significant effect on the transportation system. If rezoning would alter the total trips or functional classifications of roads and streets, then feasible transportation mitigation strategies are required.

## Goal 13: Energy

***To conserve energy***

**Response:** Goal 13 directs jurisdictions to evaluate land use planning proposals with consideration of efficient use of land and energy and applies to all the proposed applications. By consolidating training facilities for over 20 regional organizations and agencies, the CORE3 facility will improve energy efficiency by reducing vehicle trips and vehicle miles traveled from the current condition where training facilities are dispersed between multiple sites. In the event of a major natural hazard event, the CORE3 facility's relative location adjacent to the airport and E. HWY 126 will shorten regional emergency response travel. Overall, the proposed UGB amendment will further the objectives of Goal 13, allowing for conservation of energy by reducing excessive travel linked largely to fossil fuel consumption.

Due to the emergency functionality needed during power outages and natural disasters, it is in the project's best interest to utilize efficient building systems in order to minimize the size and costs of back-up systems. This will allow this facility to function off-grid, as well as reduce on-going operational costs. And as a resiliency facility for emergency services, the buildings for the CORE3 campus will be held to a high standard of efficiency and performance to ensure the optimal use of

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<sup>3</sup> OAR 660-024-0020(1)(d) The transportation planning rule requirements under OAR 660-012-0060 need not be applied to a UGB amendment if the land added to the UGB is zoned as urbanizable land, either by retaining the zoning that was assigned prior to inclusion in the boundary or by assigning interim zoning that does not allow development that would generate more vehicle trips than development allowed by the zoning assigned prior to inclusion in the boundary;

resources and support emergency operations. Occupied buildings will be designed to meet the State's goals with LEED Silver equivalency, and SEED (20% above current energy code).

## Goal 14: Urbanization

***To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.***

### ***Land Need***

***Establishment and change of urban growth boundaries shall be based on the following:***

- (1) Demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments, or for cities applying the simplified process under ORS chapter 197A, a 14-year forecast; and***
- (2) Demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories in this subsection (2). In determining need, local government may specify characteristics, such as parcel size, topography or proximity, necessary for land to be suitable for an identified need. Prior to expanding an urban growth boundary, local governments shall demonstrate that needs cannot reasonably be accommodated on land already inside the urban growth boundary.***

**Response:** Goal 14 and its implementing rule OAR 660-024 guide cities to plan for the efficient accommodation of all urban uses, such as public facilities. This goal is applicable to all of the proposed actions. The proposed plan amendment incorporates the identified<sup>4</sup> regional need for a centralized public safety training facility and coordination center for emergency response operations in the City of Redmond. By codifying this identified need through the adoption of this policy, the City can plan to accommodate this need within its UGB.

Part 2. UGB Amendment and Appendix F. Site Selection Analysis and Division 24 findings evaluate land sufficiency of the UGB to accommodate the identified need, consistent with OAR 660-024 requirements.

As described in detail in Part 2. UGB Amendment of this application package, this land must be brought into the UGB and annexed into the city to meet a regional need for a consolidated emergency response training facility. OAR Chapter 660 Division 14 guides the implementation of Goal 14 as it applies to annexation and urban development on previously rural lands. Because the UGB was expanded onto the subject site to satisfy a demonstrated public facility land need, the subject site must be annexed into the Redmond city limits and rezoned PF, consistent with OAR 660-024-0050:

***(6) When land is added to the UGB, the local government must assign appropriate urban plan designations to the added land, consistent with the need determination and the requirements of section (7) of this rule, if applicable. The local government must also apply appropriate zoning to the added land consistent with the plan designation or may maintain***

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<sup>4</sup> See Appendix G.1. Strategic Business Plan

***the land as urbanizable land until the land is rezoned for the planned urban uses, either by retaining the zoning that was assigned prior to inclusion in the boundary or by applying other interim zoning that maintains the land's potential for planned urban development. The requirements of ORS 197.296 regarding planning and zoning also apply when local governments specified in that statute add land to the UGB.***

***(7) Lands included within a UGB pursuant to OAR 660-024-0065(3) to provide for a particular industrial use, or a particular public facility, must be planned and zoned for the intended use and must remain planned and zoned for that use unless the city removes the land from the UGB.***

The requested Deschutes County zone change from EFU to UH-10 and comprehensive map change from Ag to RUGA is consistent with the UGB expansion justification to include the land for a demonstrated public facilities land need. The requested applications directly support the requirements of the UGB Rule, and therefore the requirements of Goal 14.

Once brought into the UGB, the CORE3 facility is proposed to be designated in the RCP as Public Facility and zoned City Public Facility (PF), consistent with the UGB expansion justification to include land for a demonstrated public facilities land need. Application Part 4. Redmond Zone Change & Annexation provides the rationale for rezoning the site from county UH-10 to the PF zone, consistent with the proposed Master Development Plan (see Part 3. MDP).

The requested applications directly support the requirements of the UGB Rule, and therefore the requirements of Goal 14.

## **Goals 15-19**

These goals are not applicable to the proposed requests, as they apply to specific geographic locations unrelated to Central Oregon.



Central Oregon Intergovernmental Council:

# Central Oregon Ready, Responsive, Resilient (CORE3) Facility

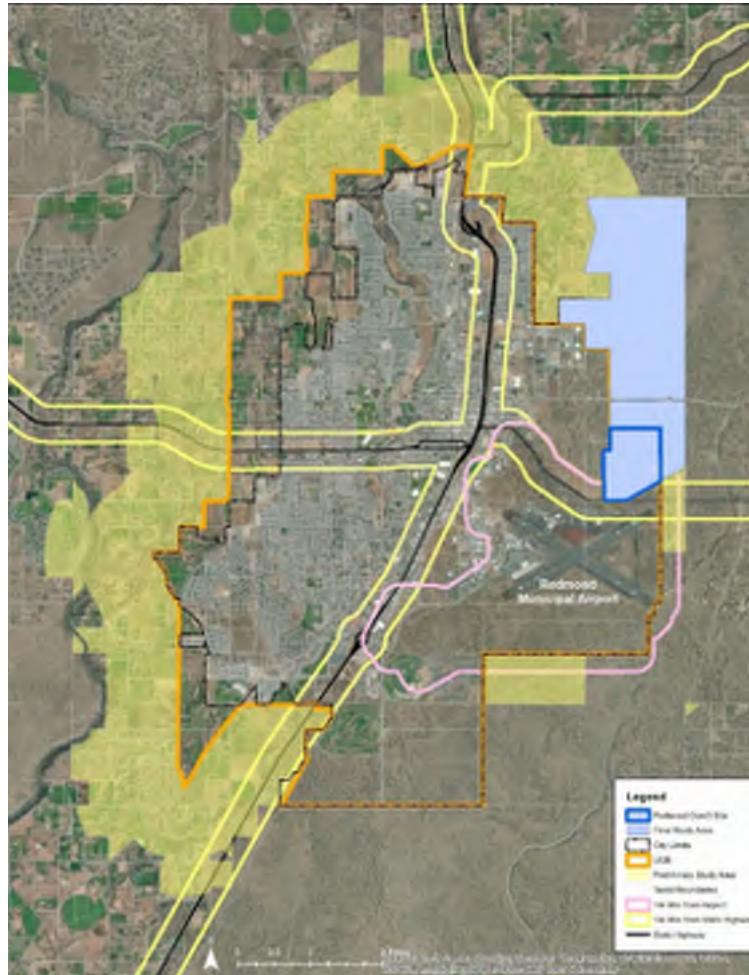


Figure 1 UGB Study Area and CORE3 Site

## Appendix F. Site Selection Analysis and Division 24 Findings

Prepared by Winterbrook Planning  
 In coordination with SERA Architects, Kittelson & Associates, and HHPR Inc.  
 This project is funded by Oregon general fund dollars through the Department of Land Conservation and Development. The contents of this document do not necessarily reflect the views or policies of the State of Oregon.

December, 2023



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## Reference Documents

- City of Redmond Comprehensive Plan (2020)
- City of Redmond Transportation System Plan (2020)
- City of Redmond Economic Opportunity Analysis (2020)
- City of Redmond Parks Master Plan (2018)
- Deschutes County Transportation System Plan (2010)
- City of Redmond UGB Adjustment, Redmond Ordinance No. 2020-01 (2019)

## Data Sources

### Deschutes County Data Portal<sup>1</sup>

- Tax Lots, published June 4, 2021
- Zoning, published June 4, 2021
- Urban Growth Boundaries, published June 4, 2021
- Urban Reserve Areas, published June 4, 2021
- Zoning Airport Safety, published June 4, 2021
- State Routes, published June 4, 2021
- Wetland National and Local Inventory, published June 4, 2021

### Oregon Department of Geology and Mineral Industries

- Digital Elevation Modeling 1M, Ohio grid: 44121-C2

## Abbreviations

- (BLM) Federal Bureau of Land Management

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<sup>1</sup> <https://data.deschutes.org/>

- (BOCC) Board of Deschutes County Commissioners
- (COIC) Central Oregon Intergovernmental Council
- (CORE3) Central Oregon Ready, Responsive, Resilient
- (DLCD) the Oregon Department of Land Conservation and Development
- (DCC) Deschutes County Code
- (DCCP) Deschutes County Comprehensive Plan
- (ECC) Emergency Communications Center
- (EFU) Deschutes County Exclusive Farm Use Zone
- (EOA) Economic Opportunities Analysis
- (EVOC) Emergency Vehicle Operator Course
- (FEMA) Federal Emergency Management Agency
- (JMA) Redmond-Deschutes County Joint Management Agreement
- (MDP) City of Redmond Master Development Plan
- (OAR) Oregon Administrative Rules
- (ODOT) Oregon Department of Transportation
- (ORS) Oregon Revised Statutes
- (PF) City of Redmond Public Facility Zone
- (RCP) Redmond Comprehensive Plan
- (RDC) Redmond Development Code
- (RUUGA) Redmond Unincorporated Urban Growth Area
- (TGR) Trip Generation Report
- (TPR) Transportation Planning Rule – OAR Chapter 660, Division 012
- (TSP) Transportation System Plan
- (UGB) or (RUGB) Redmond Urban Growth Boundary
- (UGB Rule) the Urban Growth Boundary Rule – OAR Chapter 660, Division 024
- (URA) or (RURA) Redmond Urban Reserve Area
- (UH-10) Deschutes County Urban Holding Zone

# 1 Purpose & Overview

This appendix describes evaluation methodology for analyzing lands in and around the City of Redmond to site the CORE3 facility. OAR 660-024-0065(3) allows specific site characteristics to be used to identify a site for public facilities, including but not limited to, size, topography, and proximity. As defined in RCP policy 11-1-7, required site characteristics for the CORE3 facility are:

- 300 contiguous acres of suitable vacant land;
- Within one-quarter mile of the Redmond Airport; and
- With direct access to a state highway without the need to travel through designated residential or commercial areas.

While a 300 acre need for a CORE3 facility was identified, the first phases of the facility buildout, reflected in the Master Development Plan, will require 228 acres, therefore, the site selection analysis will include sites that can accommodate 300 acres, but for the purposes of this UGB expansion request, only 228 acres are proposed to be brought into the UGB.

The site selection analysis concludes that the area within tax lot 151300-00-00103 is the only suitable site for the CORE3 facility. This 228-acre area is outside of the Redmond UGB but within the Redmond URA. The subject site covers the southern portion of tax lot 151300-00-00103 and is shown in Figure 2 in blue as the proposed CORE3 site area.

This document will explain the statutory requirements in evaluation that led to selecting the subject site for the proposed CORE3 facility in Redmond and compliance with Division 24 (the UGB Rule).

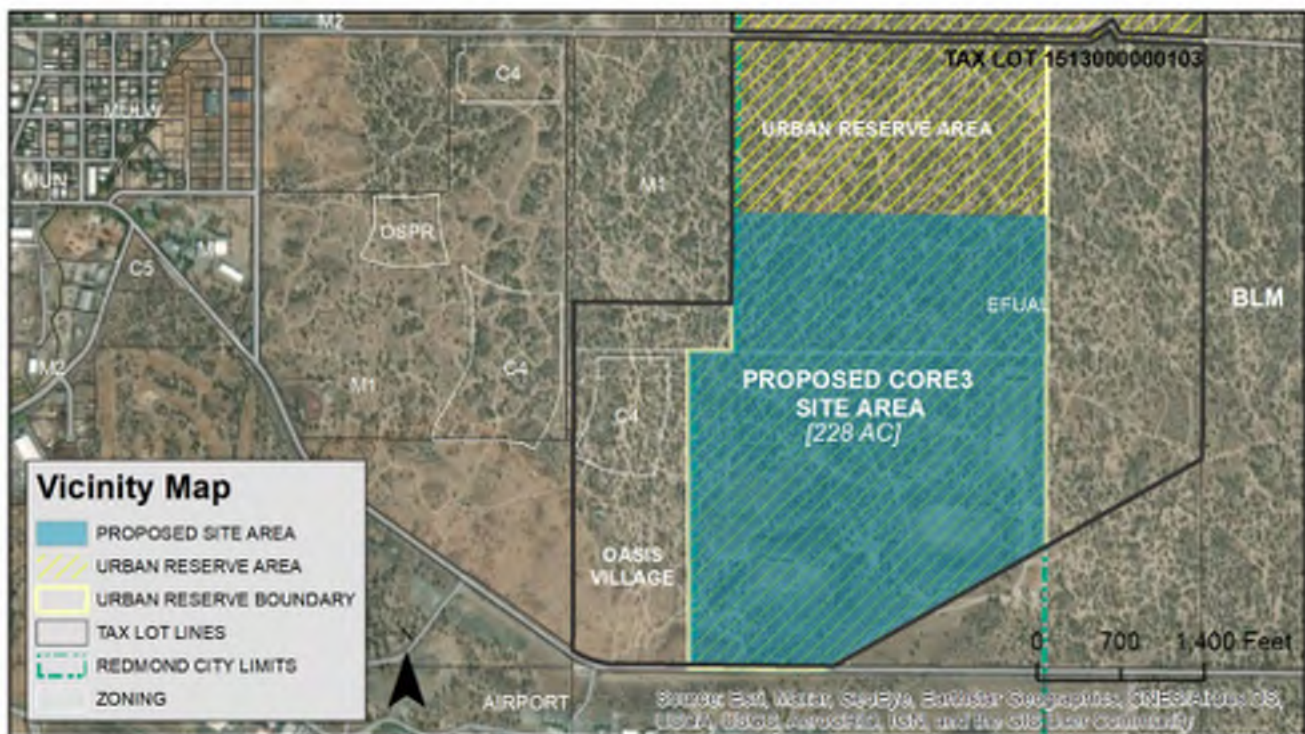


Figure 2 Proposed CORE3 Site Area



## 2 Regulatory Framework

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This analysis is controlled by Statewide Planning Goal 14 (Urbanization)<sup>2</sup>, its implementing rule OAR Chapter 660, Division 024 (the UGB Rule), and ORS 197.298 and 197A.320. Goal 14 includes two Land Need factors:

***Establishment and change of urban growth boundaries shall be based on the following:***

- (1) Demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments, or for cities applying the simplified process under ORS chapter 197A, a 14-year forecast; and***
- (2) Demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories in this subsection (2). In determining need, local government may specify characteristics, such as parcel size, topography or proximity, necessary for land to be suitable for an identified need. Prior to expanding an urban growth boundary, local governments shall demonstrate that needs cannot reasonably be accommodated on land already inside the urban growth boundary.***

The proposed UGB amendment to include the subject site is based on a demonstrated public facility land need. This need is codified in RCP "Public Facilities – Policy 11-1-7", which reads:

***To implement the Central Oregon Emergency Services Center Viability Assessment and the related Strategic Business Plan, the City has determined a need for a suitable site for the Central Oregon Ready, Responsive, Resilient (CORE3) regional public facility as a new community element. The CORE3 facility requires the following site and locational characteristics:***

- 300 contiguous acres of suitable vacant land;***
- Within one-quarter mile of the Redmond Municipal Airport; and***
- Direct access to a state highway without the need to travel through designated residential or commercial areas.***

OAR 660-024-0040(1) requires cities to accommodate demonstrated land needs within their UGBs:

### **OAR 660-024-0040 Land Need**

***(1) The UGB must be based on the appropriate 20-year population forecast for the urban area as determined under rules in OAR chapter 660, division 32, and must provide for***

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<sup>2</sup> Goal 14 reads in relevant part:

*To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.*

#### ***Urban Growth Boundaries***

*Urban growth boundaries shall be established and maintained by cities, counties and regional governments to provide land for urban development needs and to identify and separate urban and urbanizable land from rural land. Establishment and change of urban growth boundaries shall be a cooperative process among cities, counties and, where applicable, regional governments.*

*An urban growth boundary and amendments to the boundary shall be adopted by all cities within the boundary and by the county or counties within which the boundary is located, consistent with intergovernmental agreements, [...]*



**needed housing, employment and other urban uses such as public facilities, streets and roads, schools, parks and open space over the 20-year planning period consistent with the land need requirements of Goal 14 and this rule. The 20-year need determinations are estimates which, although based on the best available information and methodologies, should not be held to an unreasonably high level of precision. Local governments in Crook, Deschutes or Jefferson Counties may determine the need for Regional Large-Lot Industrial Land by following the provisions of OAR 660-024-0045 for areas subject to that rule.**

And OAR 660-024-0040(3) allows cities to review and amend their UGB based on only one category of land, like public facilities.

**(3) A local government may review and amend the UGB in consideration of one category of land need (for example, housing need) without a simultaneous review and amendment in consideration of other categories of land need (for example, employment need).**

To satisfy this demonstrated land need, lands inside the existing Redmond UGB and lands adjacent to the Redmond UGB were evaluated. The following sections show the process of evaluation, following the UGB Rule and ORSs.

### 3 Establishing Study Area for Evaluation

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OAR 660-024-0065(3) allows for the narrow establishment of a study area specific to public facility needs:

**OAR 660-024-0065 Establishment of Study Area to Evaluate Land for Inclusion in the UGB**

**(3) When the primary purpose for expansion of the UGB is to accommodate a particular industrial use that requires specific site characteristics, or to accommodate a public facility that requires specific site characteristics, and the site characteristics may be found in only a small number of locations, the preliminary study area may be limited to those locations within the distance described in section (1) or (2), whichever is appropriate, that have or could be improved to provide the required site characteristics. For purposes of this section:**

**(a) The definition of “site characteristics” in OAR 660-009-0005(11) applies for purposes of identifying a particular industrial use.**

**(b) A “public facility” may include a facility necessary for public sewer, water, storm water, transportation, parks, schools, or fire protection. Site characteristics may include but are not limited to size, topography and proximity.**

UGBs may be amended in consideration of one category of land need without a simultaneous review of other categories, and local governments can identify specific site requirements for public facilities for purposes of UGB expansion.

RCP policy 11-1-7 demonstrates (1) public facility land need and (2) defines necessary site and locational characteristics. RCP policy 11-1-7 reads:

To implement the Central Oregon Emergency Services Center Viability Assessment and the related Strategic Business Plan, the City has determined a need for a suitable site for the

Central Oregon Ready, Responsive, Resilient (CORE3) regional public facility as a new community element. The CORE3 facility requires the following site and locational characteristics:

- 300 contiguous acres of suitable vacant land;
- Within one-quarter mile of the Redmond Municipal Airport; and
- Direct access to a state highway without the need to travel through designated residential or commercial areas.

The UGB may be amended in consideration of this demonstrated public facility need without simultaneous review of other land use categories, and the analysis can use the specific site requirements outlined in this policy for the purposes of UGB expansion. The first phases of the Core3 facility will require 228 acres.

ORS 197A.320(6) also allows a narrow study area establishment:

***(6) When the primary purpose for expansion of the urban growth boundary is to accommodate a particular industry use that requires specific site characteristics, or to accommodate a public facility that requires specific site characteristics and the site characteristics may be found in only a small number of locations, the city may limit the study area to land that has, or could be improved to provide, the required site characteristics. Lands included within an urban growth boundary for a particular industrial use, or a particular public facility, must remain planned and zoned for the intended use:***

Winterbrook relied on RCP policy 11-1-7 to define the narrow study area. The policy provides three site and locational needs for the CORE3 facility. The subject site must be:

- 1) At least 300 contiguous acres of vacant land;
- 2) Within one-quarter mile of the Redmond Municipal Airport; and
- 3) Within one-quarter mile of a state highway.

Winterbrook interpreted the RCP policy section "Direct access to a state highway without the need to travel through designated residential or commercial areas" to mean within one-quarter mile of a state highway. This proximal boundary limits the likelihood of access conflicts through residential or commercial areas, which is the intention of the RCP policy section. While a 300 acre need for a CORE3 facility was identified, the Master Development Plan included in this application package plans for only 228 acres for Phase 1 and the Future Phase. Therefore, the site selection analysis will include sites that can accommodate 300 acres, but for the purposes of this UGB expansion request, only 228 acres will be considered to be brought into the UGB.

Using the above site and locational characteristics, lands inside the existing UGB were first evaluated to see if they could satisfy the demonstrated public facility land need.

## 4 Evaluating Lands Within Redmond's UGB

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The UGB Rule (OAR 660-0024-0050[1]) requires cities first to look inside their UGBs to satisfy urban land demands.

## **OAR 660-024-0050**

### ***Land Inventory and Response to Deficiency***

***(1) When evaluating or amending a UGB, a local government must inventory land inside the UGB to determine whether there is adequate development capacity to accommodate 20-year needs determined in OAR 660-024-0040. [...]***

**Response:** Cities must first look at lands within their UGBs to satisfy an identified need before considering a UGB expansion. Winterbrook evaluated lands inside the current UGB based on the land's ability to meet defined site characteristics in RCP policy 11-1-7. No sites within the UGB will meet CORE3 facility site requirements (OAR 660-024-0050[1]). Therefore, the CORE3 facility cannot be reasonably accommodated within the current UGB, and the City of Redmond must amend its UGB (OAR 660-024-0050[4]).

Sites inside the UGB were first identified based on their total vacant acreage. In the case of tax lots that fell partially within and partially outside of the UGB, only the portions of tax lots that fell inside the UGB were considered. Contiguous tax lots under the same ownership were considered a single site.

Winterbrook identified five sites over 300 acres, shown in Figure 3. Winterbrook used a combination of aerial imagery, assessor data, and information from the 2019 Redmond Economic Opportunities Analysis to confirm vacancy or current use of the sites. Four sites within the UGB have established land uses and are not available for development of the CORE3 facility:

- 1) Juniper Golf Course (Tax lot 151332-00-01000)
- 2) Deschutes County Fair & Expo Center (Tax lot 151328-00-00100)
- 3) Redmond Municipal Airport (Tax lots 151322-00-00100, 151300-00-01500, and other contiguous parcels under City of Redmond ownership)<sup>3</sup>
- 4) Two tax lots under Central Oregon Irrigation District ownership (Tax lots 151315-00-00101 and 151315-00-00102)

Because these four sites are either developed or committed – and therefore not vacant and available for the CORE3 facility site – they were removed from consideration.

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<sup>3</sup> While the airport does hold buildings of similar use to the CORE3 facility (the Redmond Air Center, for instance, is a training and resources hub for wildland firefighting owned by the U.S. Forest Service), the airport already has its own Master Plan, and not enough vacant or uncommitted land remains on the site to support the 300 acres required for CORE3.



Figure 3 300-Acre Sites within UGB

After removing these four sites from consideration, one site remains. This site is shown on Figures 3 and 4 as "Large Lot Industrial" – its designation in RCP. Although this vacant site is large enough to accommodate the CORE3 facility, the site does not meet the locational requirements identified in RCP policy 11-1-7. The Large Lot Industrial site is farther than one-quarter miles away from the Redmond Municipal Airport. Further, this site is a planned part of the Central Oregon Large Lot Industrial Land program (OAR 660-024-0045) and is unable to be developed for the CORE3 facility per RDC 8.0186 and OAR 660-024-0045(9) and (10). Therefore, this site is removed from consideration, and there are no remaining sites within the UGB that meet CORE3 facility siting requirements.



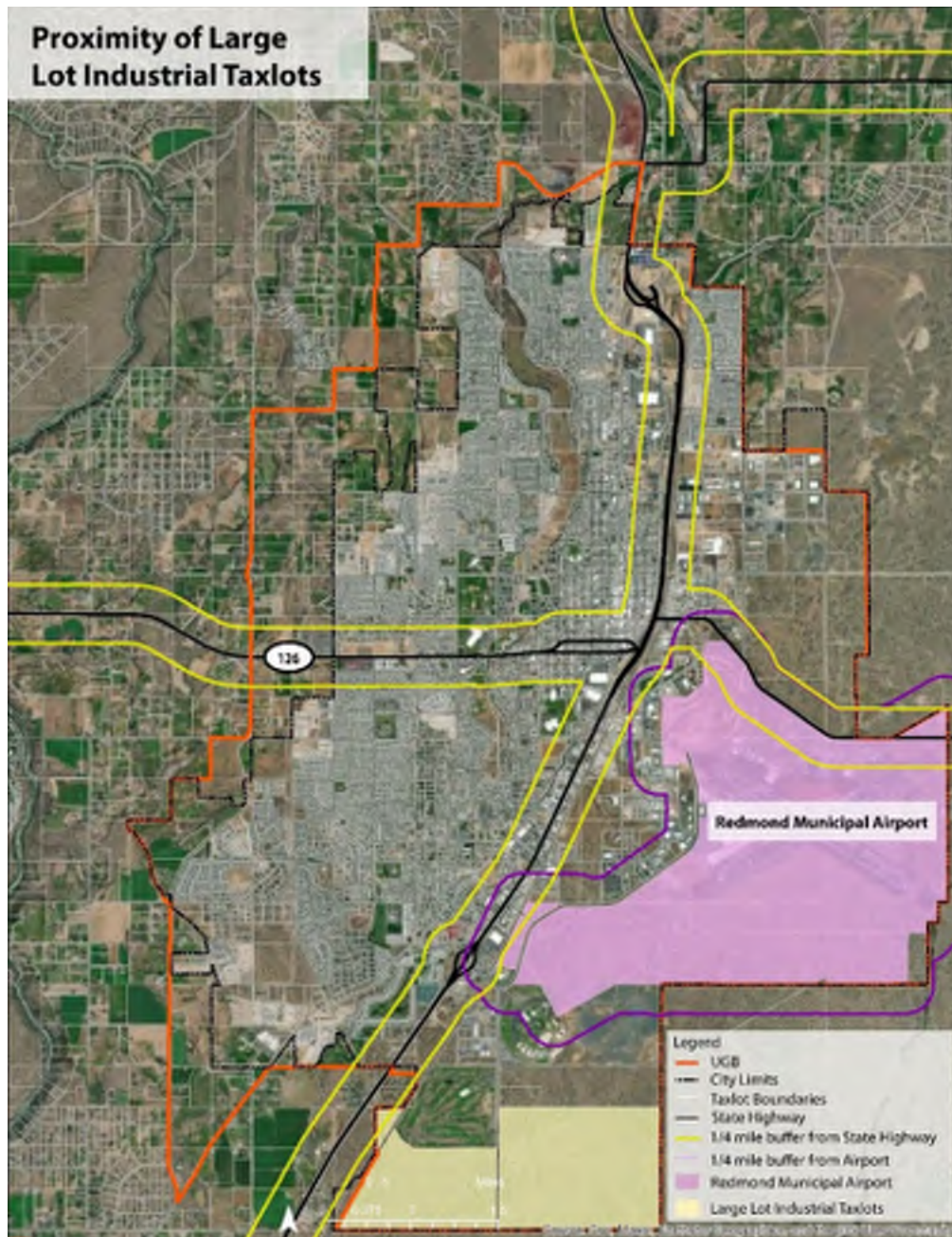


Figure 4 Proximal Evaluation of Large Lot Industrial Site

With no vacant and suitable land within the existing UGB to satisfy demonstrated public facility land needs, the City of Redmond must amend their UGB to accommodate the land need, per OAR 660-024-0050(4):

***(4) If the inventory demonstrates that the development capacity of land inside the UGB is inadequate to accommodate the estimated 20-year needs determined under OAR 660-024-0040, the local government must amend the plan to satisfy the need deficiency, either by increasing the development capacity of land already inside the city or by expanding the UGB, or both, and in accordance with ORS 197.296 where applicable. Prior to expanding the UGB, a***

**local government must demonstrate that the estimated needs cannot reasonably be accommodated on land already inside the UGB. If the local government determines there is a need to expand the UGB, changes to the UGB must be determined by evaluating alternative boundary locations consistent with Goal 14 and applicable rules at OAR 660-024-0060 or 660-024-0065 and 660-024-0067.**

## 5 Evaluating Lands Outside Redmond's UGB

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### 5.1 Establishing Preliminary Study Area

As previously explained, OAR 660-024-0065 guides the establishment of a preliminary study area and the refinement of that study area based on the narrow evaluation of the study area, per OAR 660-024-0065(3) and ORS 197A.320(6). The preliminary study area shall include:

#### **660-024-0065**

##### **Establishment of Study Area to Evaluate Land for Inclusion in the UGB**

**(1) When considering a UGB amendment to accommodate a need deficit identified in OAR 660-024-0050(4), a city outside of Metro must determine which land to add to the UGB by evaluating alternative locations within a “study area” established pursuant to this rule. To establish the study area, the city must first identify a “preliminary study area” which shall not include land within a different UGB or the corporate limits of a city within a different UGB. The preliminary study area shall include:**

**(a) All lands in the city’s acknowledged urban reserve, if any;**

**(b) All lands that are within the following distance from the acknowledged UGB:**

**(A) For cities with a UGB population less than 10,000: one-half mile;**

**(B) For cities with a UGB population equal to or greater than 10,000: one mile;**

**(c) All exception areas contiguous to an exception area that includes land within the distance specified in subsection (b) and that are within the following distance from the acknowledged UGB:**

**(A) For cities with a UGB population less than 10,000: one mile;**

**(B) For cities with a UGB population equal to or greater than 10,000: one and one-half miles;**

The initial preliminary study area includes:

- 1) Redmond's four URAs;
- 2) All tax lots within one mile of the existing Redmond UGB; and
- 3) All exception areas<sup>4</sup> within one and one-half mile from the existing Redmond UGB.

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<sup>4</sup> For this analysis, lands with the following zoning designations were used to determine status as exception area: Rural Residential, Rural Industrial, Multiple Use Agricultural, Surface Mining and Open Space.

Cities can exclude certain lands from the preliminary study area, per OAR 660-024-0065[4]<sup>5</sup>. Generally, the exclusions include lands that are impracticable to serve with public facilities, lands with significant natural hazards, lands with natural resources or other protections, or land that is owned by the federal government and managed for rural purposes. Lands owned and managed by the Federal Bureau of Land Management (BLM) were therefore removed from consideration in the preliminary study area.

After exclusions per OAR 660-024-0065[4], figure 5 shows the preliminary study area. The total acreage of this preliminary study area is over 9,700 acres—over 30 times the amount of land needed to accommodate the 300-acre CORE3 facility. This complies with OAR 660-024-0065[5]:

***(5) After excluding land from the preliminary study area under section (4), the city must adjust the area, if necessary, so that it includes an amount of land that is at least twice the amount of land needed for the deficiency determined under OAR 660-024-0050(4) or, if applicable, twice the particular land need described in section (3). Such adjustment shall be made by expanding the distance specified under the applicable section (1) or (2) and applying section (4) to the expanded area.***

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<sup>5</sup> (4) The city may exclude land from the preliminary study area if it determines that:

- (a) Based on the standards in section (7) of this rule, it is impracticable to provide necessary public facilities or services to the land;
- (b) The land is subject to significant development hazards, due to a risk of:
  - (A) Landslides: The land consists of a landslide deposit or scarp flank that is described and mapped on the Statewide Landslide Information Database for Oregon (SLIDO) Release 3.2 Geodatabase published by the Oregon Department of Geology and Mineral Industries (DOGAMI) December 2014, provided that the deposit or scarp flank in the data source is mapped at a scale of 1:40,000 or finer. If the owner of a lot or parcel provides the city with a site-specific analysis by a certified engineering geologist demonstrating that development of the property would not be subject to significant landslide risk, the city may not exclude the lot or parcel under this paragraph;
  - (B) Flooding, including inundation during storm surges: the land is within the Special Flood Hazard Area (SFHA) identified on the applicable Flood Insurance Rate Map (FIRM);
  - (C) Tsunamis: the land is within a tsunami inundation zone established pursuant to ORS 455.446;
- (c) The land consists of a significant scenic, natural, cultural or recreational resource described in this subsection:
  - (A) Land that is designated in an acknowledged comprehensive plan prior to initiation of the UGB amendment, or that is mapped on a published state or federal inventory at a scale sufficient to determine its location for purposes of this rule, as:
    - (i) Critical or essential habitat for a species listed by a state or federal agency as threatened or endangered;
    - (ii) Core habitat for Greater Sage Grouse; or
    - (iii) Big game migration corridors or winter range, except where located on lands designated as urban reserves or exception areas;
  - (B) Federal Wild and Scenic Rivers and State Scenic Waterways, including Related Adjacent Lands described by ORS 390.805, as mapped by the applicable state or federal agency responsible for the scenic program;
  - (C) Designated Natural Areas on the Oregon State Register of Natural Heritage Resources;
  - (D) Wellhead protection areas described under OAR 660-023-0140 and delineated on a local comprehensive plan;
  - (E) Aquatic areas subject to Statewide Planning Goal 16 that are in a Natural or Conservation management unit designated in an acknowledged comprehensive plan;
  - (F) Lands subject to acknowledged comprehensive plan or land use regulations that implement Statewide Planning Goal 17, Coastal Shoreland, Use Requirement 1;
  - (G) Lands subject to acknowledged comprehensive plan or land use regulations that implement Statewide Planning Goal 18, Implementation Requirement 2;
- (d) The land is owned by the federal government and managed primarily for rural uses.



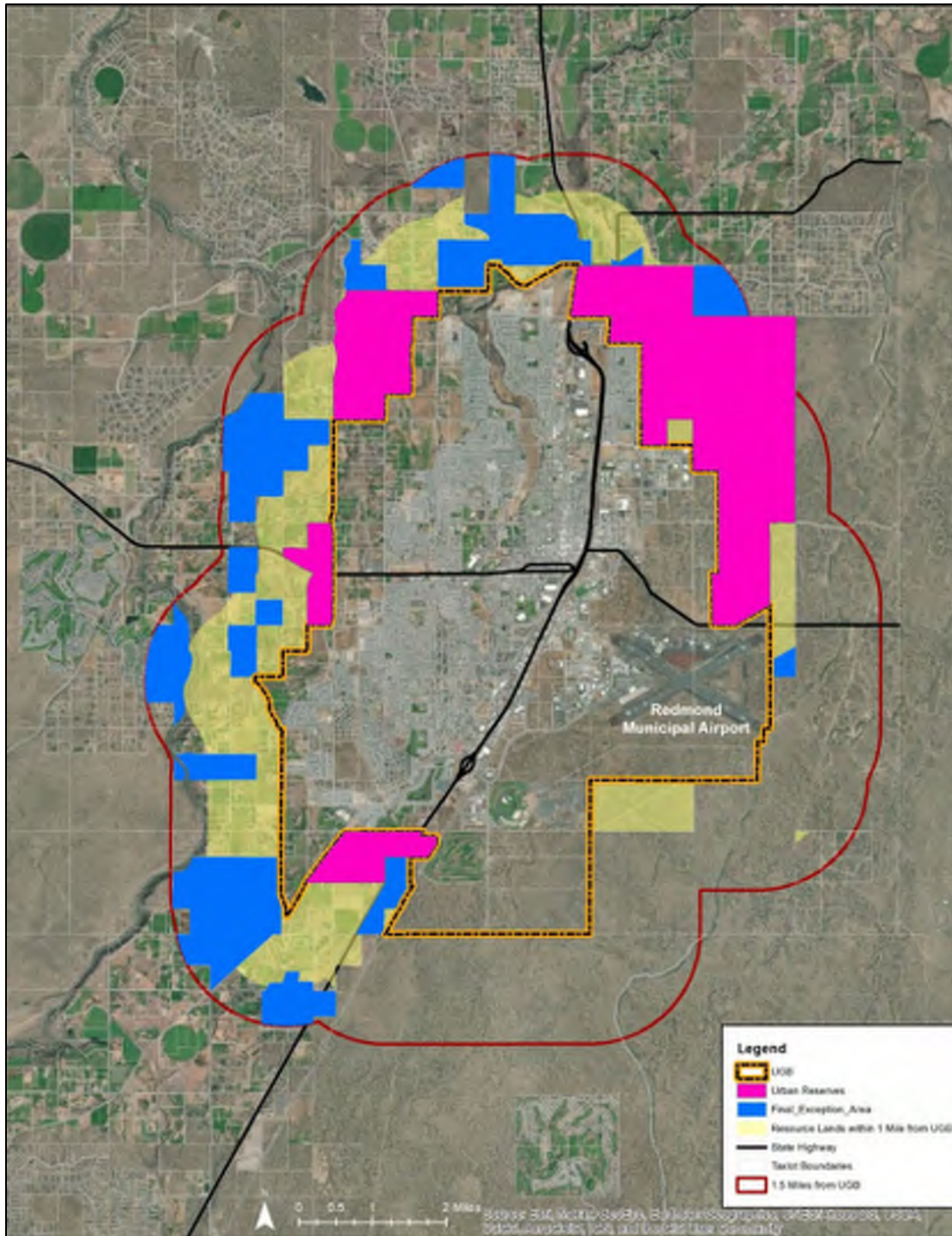


Figure 5 Preliminary Study Area

## 5.2 Refining Preliminary Study Area

As with the UGB lands evaluation, lands within this preliminary study area were evaluated based on their ability to satisfy the CORE3 facility's site and locational needs.

- 1) At least 300 contiguous acres of vacant land;
- 2) Within one-quarter mile of the Redmond Municipal Airport; and
- 3) Within one-quarter mile of a state highway.

Winterbrook identified four vacant sites in the preliminary study area over 300 acres. These sites are shown on Figure 6.

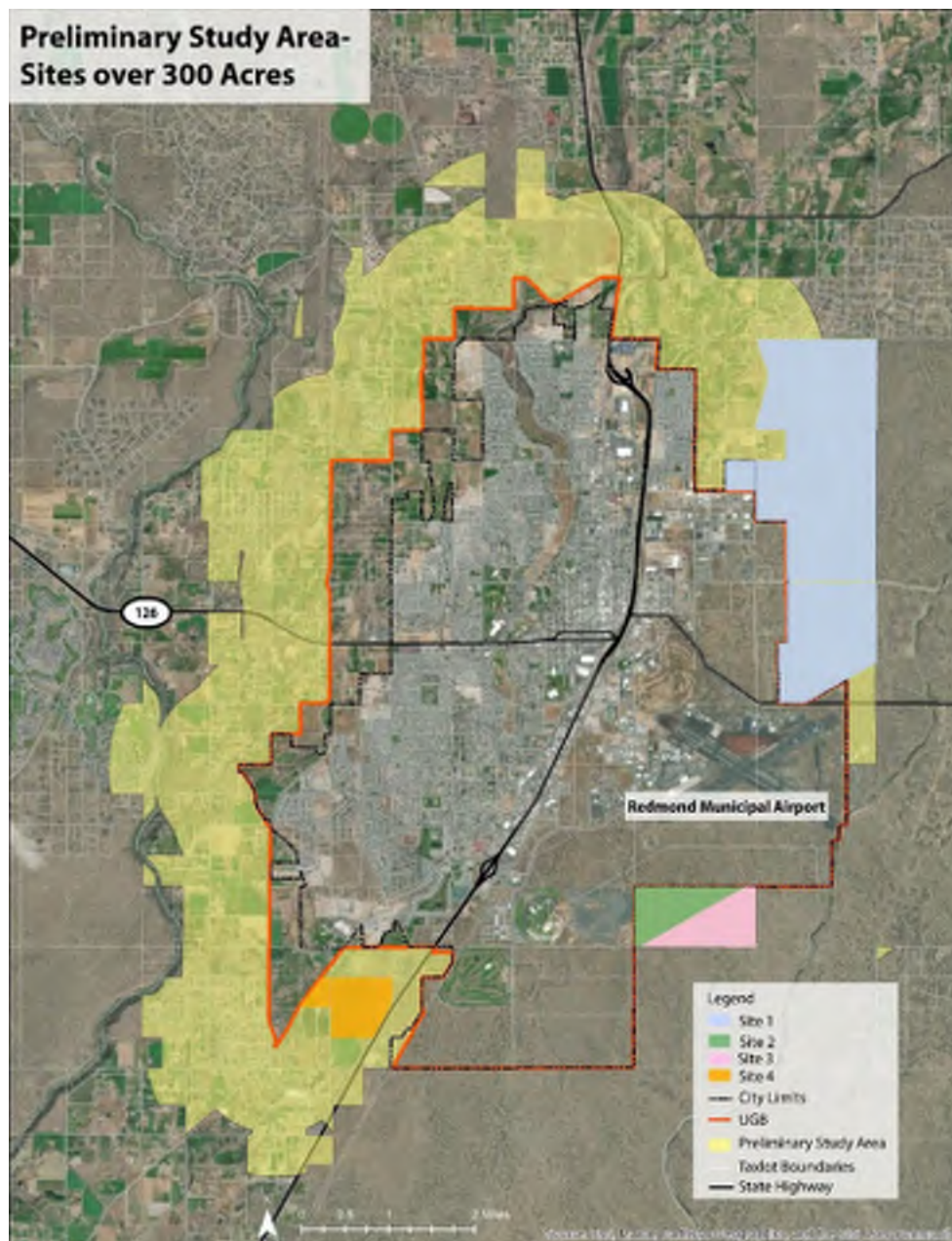


Figure 6 Sites Over 300 Acres in the Preliminary Study Area

Of these four sites, only Site 1 is within both one-quarter miles of the Redmond Municipal Airport and within one-quarter miles of a state highway. Sites 2, 3, and 4 are not within this proximity; they were excluded from the preliminary study area. All four sites are shown in context with one-quarter mile buffers in Figure 7.



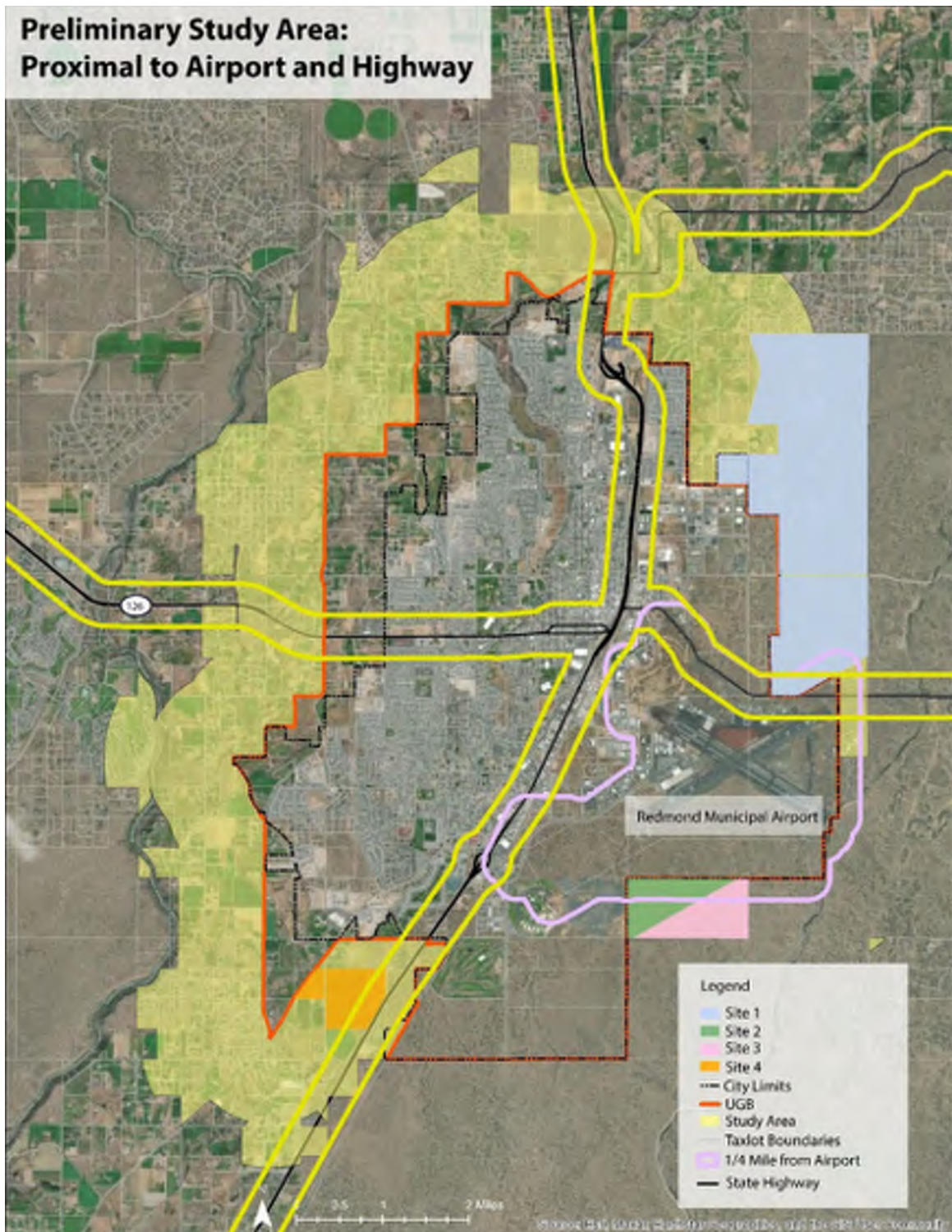


Figure 7 Sites Over 300 Acres and Near Redmond Airport in Preliminary Study Area

Site #1 (tax lot 151300-00-00103) is the only site within the preliminary study area to meet CORE3's site and locational needs: at least 300-acres of contiguous vacant land within on-quarter miles of both the Redmond Municipal Airport and a state highway.

Site 1 is within the eastern Redmond URA. The site is owned by Deschutes County and contains roughly 1,800 acres. Only 300-acres are needed for the entirety of the CORE3 facility. The preferred location of Phase 1 and the Future Phase CORE3 facility is shown on figure 8, and contains 228 acres. This preferred location meets all three site and locational needs of the CORE3 facility and is considered the final study area.

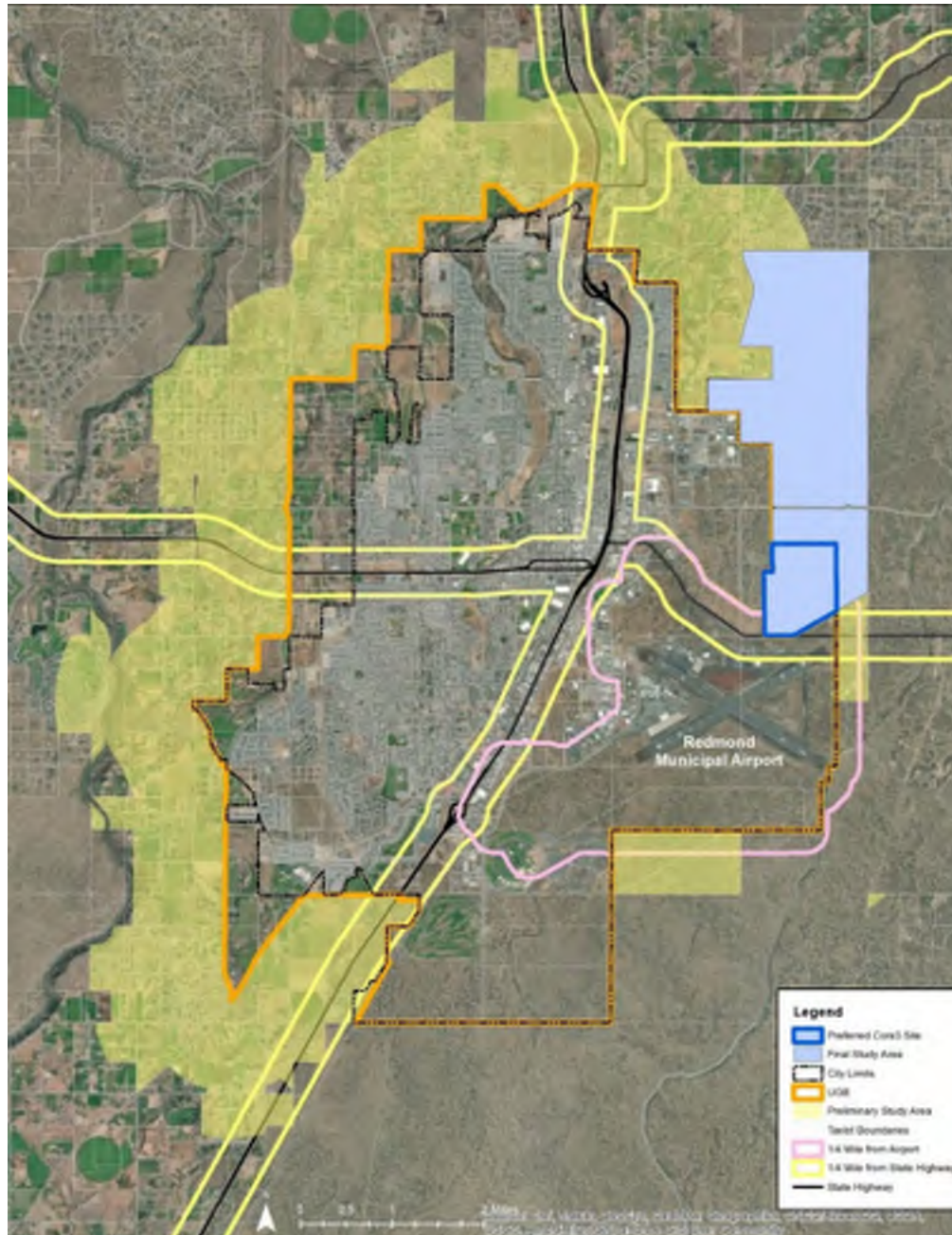


Figure 8 Final Study Area



## 5.3 Evaluating Final Study Area

ORS 197.298[1][a] and OAR 660-024-0067(2) establish a system of prioritization for lands to be included in the UGB. They require that URAs be among the first priority for inclusion in the UGB. Site 1 is within the URA and therefore first priority land for UGB inclusion.

### **660-024-0067 Evaluation of Land in the Study Area for Inclusion in the UGB; Priorities**

#### **(2) Priority of Land for inclusion in a UGB:**

**(a) First Priority is urban reserve, exception land, and nonresource land. Lands in the study area that meet the description in paragraphs (A) through (C) of this subsection are of equal (first) priority:**

**(A) Land designated as an urban reserve under OAR chapter 660, division 21, in an acknowledged comprehensive plan;**

**(B) Land that is subject to an acknowledged exception under ORS 197.732; and**

**(C) Land that is nonresource land.**

**(b) Second Priority is marginal land: land within the study area that is designated as marginal land under ORS 197.247 (1991 Edition) in the acknowledged comprehensive plan.**

**(c) Third Priority is forest or farm land that is not predominantly high-value farm land: land within the study area that is designated for forest or agriculture uses in the acknowledged comprehensive plan and that is not predominantly high-value farmland as defined in ORS 195.300, or that does not consist predominantly of prime or unique soils, as determined by the United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS). In selecting which lands to include to satisfy the need, the city must use the agricultural land capability classification system or the cubic foot site class system, as appropriate for the acknowledged comprehensive plan designation, to select lower capability or cubic foot site class lands first.**

**(d) Fourth Priority is agricultural land that is predominantly high-value farmland: land within the that is designated as agricultural land in an acknowledged comprehensive plan and is predominantly high-value farmland as defined in ORS 195.300. A city may not select land that is predominantly made up of prime or unique farm soils, as defined by the USDA NRCS, unless there is an insufficient amount of other land to satisfy its land need. In selecting which lands to include to satisfy the need, the city must use the agricultural land capability classification system to select lower capability lands first.**

**[...]**

**(5) With respect to section (1), a city must assume that vacant or partially vacant land in a particular priority category is "suitable" to satisfy a need deficiency identified in OAR 660-024-0050(4) unless it demonstrates that the land cannot satisfy the specified need based on one or more of the conditions described in subsections (a) through (g) of this section:**

**Existing parcelization, lot sizes or development patterns of rural residential land make that land unsuitable for an identified employment need; as follows:**

**[...]**

**(e) With respect to a particular industrial use or particular public facility use described in OAR 660-024-0065(3), the land does not have, and cannot be improved to provide, one or more of the required specific site characteristics.**

**[...]**

**(8) The city must apply the boundary location in coordination with service providers and state agencies, including the Oregon Department of Transportation (ODOT) with respect to Factor 2 regarding impacts on the state transportation system, and the Oregon Department of Fish and Wildlife (ODFW) and the Department of State Lands (DSL) with respect to Factor 3 regarding environmental consequences. "Coordination" includes timely notice to agencies and service providers and consideration of any recommended evaluation methodologies.**

ORS 197.298 priority:

**197.298 Priority of land to be included within urban growth boundary.**

**(1) In addition to any requirements established by rule addressing urbanization, land may not be included within an urban growth boundary of Metro except under the following priorities:**

**(a) First priority is land that is designated urban reserve land under ORS 195.145, rule or metropolitan service district action plan.**

**(b) If land under paragraph (a) of this subsection is inadequate [...]**

ORS 197A.320 priority:

**197A.320 Priority of land to be included within urban growth boundaries outside Metro; rules. (2)(c)(A):**

**(c) When evaluating the priority of land for inclusion under paragraph (b) of this subsection:**

**(A) The city shall evaluate the land within the study area that is designated as an urban reserve under ORS 195.145 in an acknowledged comprehensive plan, land that is subject to an acknowledged exception under ORS 197.732 or land that is nonresource land and select as much of the land as necessary to satisfy the need for land using criteria established by the commission and criteria in an acknowledged comprehensive plan and land use regulations.**

**Response:** Per OAR 60-024-0067(2)(a), land within the URA is first priority for UGB inclusion. The study area contains one site that is entirely within the URA, as shown on Figure 8. The subject area within tax lot 151300-00-00103 is vacant and meets identified site needs. It is therefore suitable (OAR 660-024-0067[5]).

OAR 660-24-0067(8) requires that cities apply the boundary location factors of Goal 14<sup>6</sup> in coordination with service providers and state agencies.

- Efficiency and compatibility in compliance with Goal 14 boundary location factors 1 and 2 are demonstrated by Appendix D. Public Facility Plan and Appendix E. Transportation Studies (TGR – TPR).
- To address locational factor 3, adopted Deschutes County Goal 5 inventories, the State's wetland database<sup>7</sup>, and the RCP were consulted. There are no identified Goal 5 resources – or potential Goal 5 resources – on the southern portion of the subject site, the proposed area for UGB inclusion. (See figure 5).
- Finally, the proposed CORE3 facility has been designed with consideration of adjacent agricultural land. Application Part 3. MDP details the urban-rural buffers to ensure compatibility, consistent with the Great Neighborhood Principles. The proposed UGB expansion area will only accommodate the CORE3 facility. No other urban uses will be permitted. Therefore, the MDP for CORE3 addresses any urban uses within the proposed UGB expansion area, and therefore any potential urban-rural conflicts.

There are no other suitable sites which require the four boundary location factors to be weighed against one another on alternative sites.

In evaluation, a city must consider all urban reserves in the study area and select for inclusion “as much of the land as necessary to satisfy the need for land.” (ORS 197A.320[2][c][A] and OAR 660-024-0067[1][a]<sup>8</sup>). RCP policy 11-1-7 has defined the land need for the CORE3 facility as 300-acres, and the locational requirements as near the Redmond Municipal Airport and near a state highway. Phase 1 and the Future Phase depicted in the Master Development Plan included requires 228 acres. The southern portion of Site #1 is nearest to the Redmond Municipal Airport and E. HWY 126. Therefore, 228 acres of the southern portion of Site #1 should be included in the UGB to satisfy the demonstrated public facility land need for this phase of the CORE3 facility. While tax lot 151300-00-00103 contains roughly 1800 acres, 76.5 of which are already within the Redmond UGB, this portion of the site is already planned for and committed to The Oasis Village shelters. Additionally, the programmatic elements depicted in the Master Development Plan require site contiguity, the western portion of tax lot 151300-00-00103 has a public road running along the edge

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<sup>6</sup>For reference, the four locational factors of Goal 14 are:

- (1) Efficient accommodation of identified land needs;
- (2) Orderly and economic provision of public facilities and services;
- (3) Comparative environmental, energy, economic and social consequences; and
- (4) Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.

<sup>7</sup> <https://maps.dsl.state.or.us/swi/>

<sup>8</sup> 660-024-0067

Evaluation of Land in the Study Area for Inclusion in the UGB; Priorities

(1) A city considering a UGB amendment must decide which land to add to the UGB by evaluating all land in the study area determined under OAR 660-024-0065, as follows

(a) Beginning with the highest priority category of land described in section (2), the city must apply section (5) to determine which land in that priority category is suitable to satisfy the need deficiency determined under OAR 660-024-0050 and select for inclusion in the UGB as much of the land as necessary to satisfy the need.



of the current Urban Growth Boundary, a public road running through the CORE3 facility would present security and access issues.

## 6 Conclusion

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This site selection analysis has identified Site #1 as the ideal site for the CORE3 facility. Site #1, hereafter referred to as the subject site and referred to in the proposed application parts as the subject site, is vacant and suitable for the CORE3 facility. The subject site meets all special siting characteristics required in RCP policy 11-1-7. The subject site is large enough to accommodate the 228-acres needed for Phase 1 and the Future Phase of the master plan, and the subject site is proximal to the Redmond Municipal Airport and a state highway. The 228-acre portion of the subject site is located in the Redmond URA – the first priority for inclusion into UGBs as guided by the UGB Rule and ORSs.

The Redmond UGB should be expanded to include the subject site to meet a demonstrated public facility land need.



Central Oregon Intergovernmental Council

February 16, 2023

To: Property Landowners Adjacent to Proposed CORE3 Site  
From: Central Oregon Intergovernmental Council

RE: Neighborhood meeting to discuss the proposed land use applications for the CORE3 project in Redmond, Oregon.

Dear Deschutes County Property Landowners,

On March 13, 2023 from 5-6:30pm at Redmond City Hall (411 SW 9<sup>th</sup> St. Redmond, OR 97756, Civic Rooms 207/208), the Central Oregon Intergovernmental Council will be holding a neighborhood meeting to discuss the proposed land use applications for the CORE3 project in Redmond, Oregon. This meeting will also be held online via Zoom at (<https://us06web.zoom.us/j/85247944825?pwd=M2tsS3BaMUU5MnJBSE4rejhSYnZOQT09>) and the recording will be posted to the CORE3 website at [core3center.org](http://core3center.org).

Deschutes County owns a +/- 1,670-acre tract of land in east Redmond, which was acquired by a federal land patent in 1965. The property known as Map and Tax Lot 1513000000103 borders Highway 126 to the south and NE Upas Avenue to the north, various roads and undeveloped property to the west and undeveloped Bureau of Land Management (BLM) property to the east. In 2022, the Deschutes County Board of County Commissioners entered into a Memorandum of Understanding along with local and regional agency partners, districts and other stakeholders to memorialize the vision of the CORE3 project and to reserve +/- 300-acres of County owned property located at the south end of TL 103 for said project.

In September of 2020, Central Oregon Intergovernmental Council, on behalf of local and state public safety partners, developed a Strategic Business Plan (SBP) identifying a need for, and preliminary siting requirements for, a centralized public safety training facility. This Central Oregon Ready, Responsive, Resilient (CORE3) facility will address a critical need for both a centralized public safety training facility and a coordination center for emergency operations.

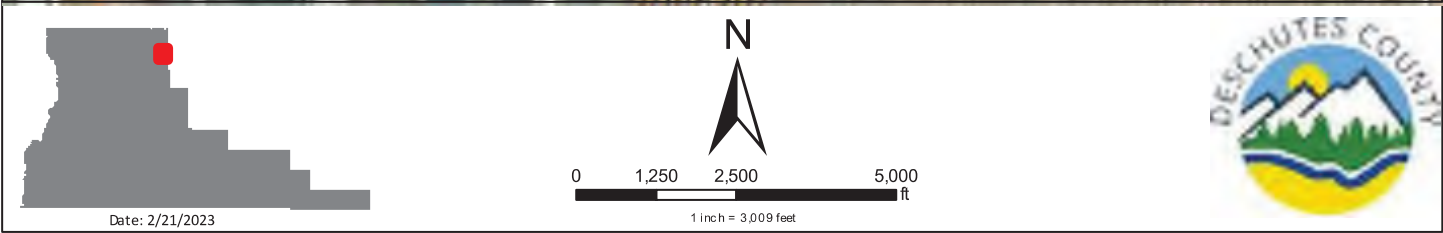
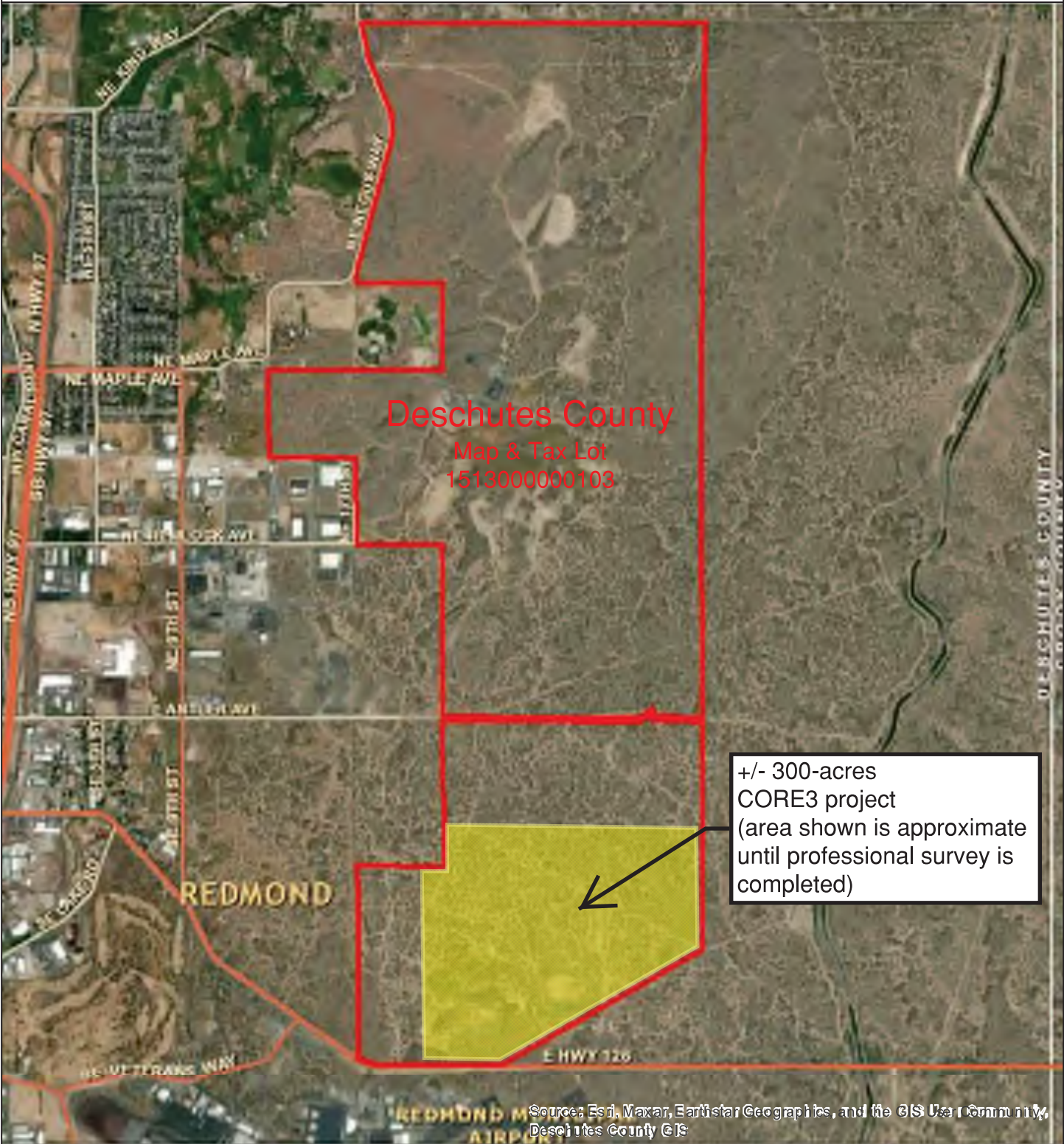
The SBP highlighted some preliminary sites that could support the CORE3 facility in and around the City of Redmond. Specifically, the report defined locational needs and site characteristics for any future CORE3 site and identified a preferred site – the southern 300 acres of the property identified above, near the Redmond Municipal Airport. The property is outside the City of Redmond limits and Urban Growth Boundary (UGB), but within the City's Urban Reserve Area (URA). A copy of the GIS map that clearly identifies the location of the proposed development site is attached as well as the facility's conceptual site plan.

The purpose of the neighborhood meeting is to provide a forum for the applicant, surrounding neighbors, and interested members of the community to meet and consider the proposed facility,

the land use applications, and to discuss issues/concerns regarding the proposal prior to application submittal. Neighborhood meetings encourage citizen participation early in the development process, and an opportunity to revise the land use application to address the issues prior to application submittal.

To learn more about the CORE3 project, please visit [core3center.org](http://core3center.org). For additional questions, you may also reach out to Scott Aycock, Community & Economic Development Director for COIC at [scotta@coic.org](mailto:scotta@coic.org) or at (541)390-4653.

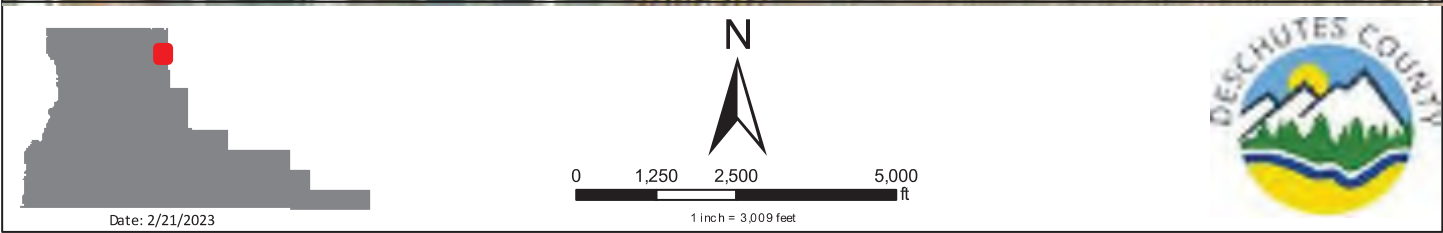
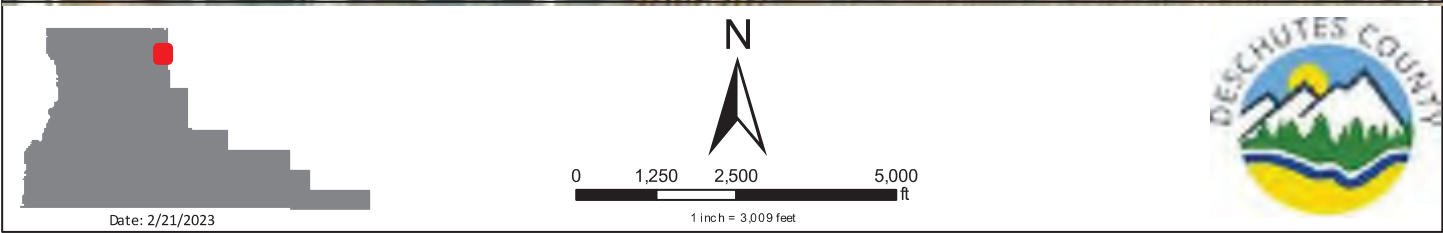
|               |
|---------------|
| 1513000000103 |
|---------------|



Date: 2/21/2023

1 inch = 3,009 feet

DESCHUTES COUNTY





SECONDARY ENTRANCE  
(LONG-TERM)

ACCESS TO FUTURE DEVELOPMENT

COOT TRAINING  
(12 ac)

WILDLIFE TRAINING  
(12 ac)

EVOC COURSE  
(12 ac)

OFF-ROAD  
TRAINING AREA

VICTIM USE PAD  
(MOBILE PROTECT)  
(12 ac)

RECYCLING  
POND  
(12 ac)

TACTICAL VILLAGE  
(12 ac)

DRIVING SKILLS PAD  
(12 ac)

EMERGENCY EXIT  
(SHORT TERM)

RAINFOREST COMPLEX  
(12 ac)

SOLAR  
PANELS  
(12 ac)

AGENCY 1 ECC  
(12 ac)

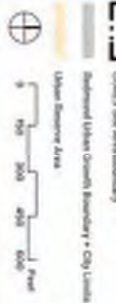
DRAFT

NOTE:  
All program element  
sizes and locations  
are conceptual only.

SERA

#### CORE SITE PLAN DIAGRAM

- 1 ALTERNATIVE (12 ac)
- 2 CLASSROOM BUILDING
- 3 USAR
- 4 CLASS & BUNK BUILDING
- 5 CLASS & GYM TOWER
- 6 INDOOR HOUSE STRIKE
- 7 SHOOTING - TACTICAL MARK
- 8 MARK STRIKE POINT
- 9 KILL CROSSING / KILL CAR
- 10 RANGE SUPPORT BUILDING
- 11 KILLHOUSE STRIKE
- 12 FIRE ISLAND
- 13 VEHICLE RESPONSE
- 14 VEHICLE STRIKE
- 15 MULTI-AGENCY BARRACKS
- 16 MULTI-AGENCY DRILL HALL & FITNESS
- 17 COMBAT TOWER
- 18 EXPANDED VILLAGE
- 19 VEHICLE
- 20 VEHICLE STRIKE
- 21 LEFT TURN LANE
- 22 PHASE 1
- 23 PHASE 2
- 24 PHASE 3
- 25 PHASE 4
- 26 STRUCTURE



### **CORE3 Neighborhood Meeting**

March 13<sup>th</sup>, 2023 | 5-6:30pm | Redmond City Hall or Virtually via Zoom

411 SW 9<sup>th</sup> St., Civic Rooms 207/208, Redmond, OR 97756

Zoom Link: <https://us06web.zoom.us/j/85247944825?pwd=M2tsS3BaMUU5MnJBSE4rejhSYnZOQT09> |

Meeting ID: 852 4794 4825 | Passcode: 311315 | Dial-in: +1 253 215 8782

#### AGENDA

1. Introduction to the CORE3 Project
2. Land Use Process Detailed Conversation
3. Public Comment and Q&A



Addresses for CORE3 Neighborhood Meeting

| Account | MapTaxlot     | Owner                                    | Agent                           | InCareOf               | Property Owner Address      | CityStZip                 | Site Address         | SiteCityStZip     |
|---------|---------------|------------------------------------------|---------------------------------|------------------------|-----------------------------|---------------------------|----------------------|-------------------|
| 184746  | 151316DD00114 | 2K PROPERTIES INC                        | C/O ROBERT & VICKI KRONBERG (A) |                        | PO BOX 1416                 | REDMOND, OR 97756         | 1409 LAKE RD         | REDMOND, OR 97756 |
| 123164  | 151315BB04300 | 416 SE JACKSON STREET TRUST              |                                 |                        | 2660 NE HIGHWAY 20 #610-523 | BEND, OR 97701            | 416 JACKSON ST       | REDMOND, OR 97756 |
| 123144  | 151315BB02400 | ABBAS & NISSEN INVESTMENTS LLC           |                                 |                        | PO BOX 357                  | REDMOND, OR 97756         | 122 FRANKLIN ST      | REDMOND, OR 97756 |
| 123066  | 151315BA08400 | ABBAS, ROGER A & LINDA S                 |                                 |                        | 6827 NE 33RD ST             | REDMOND, OR 97756         | 145 6TH ST           | REDMOND, OR 97756 |
| 123128  | 151315BB02000 | ADAME, OMAR                              |                                 |                        | 123 SE JACKSON ST           | REDMOND, OR 97756         | 123 JACKSON ST       | REDMOND, OR 97756 |
| 123111  | 151315BB00100 | ALBERT WESLEY PAYTON TRUST               |                                 |                        | 1857 NW 57TH ST             | REDMOND, OR 97756         | 108 JACKSON ST       | REDMOND, OR 97756 |
| 123160  | 151315BB04700 | AMEZOLA, FAVIOLA GARCIA                  |                                 |                        | 2763 NE WALNUT AVE          | REDMOND, OR 97756         |                      |                   |
| 155228  | 151315BA11502 | ANDERSON, HOLLY R                        |                                 |                        | 1387 SW 51ST ST             | REDMOND, OR 97756         | 545 EVERGREEN AVE    | REDMOND, OR 97756 |
| 123135  | 151315BB03201 | ARELLANO, HIPOLITO                       |                                 |                        | 64900 HUNNELL RD #3         | BEND, OR 97703            | 303 DESCHUTES AVE    | REDMOND, OR 97756 |
| 123087  | 151315BA10600 | BALDWIN,FRED W & DEBRA A                 |                                 |                        | 2821 NW LYNCH LN            | REDMOND, OR 97756         | 251 5TH ST           | REDMOND, OR 97756 |
| 123061  | 151315BA06900 | BEAUVAIS LLC                             | C/O ES-Q-EN TB LLC              |                        | 5858 SW CHINOOK LN          | CULVER, OR 97734          | 627 BLACK BUTTE BLVD | REDMOND, OR 97756 |
| 264486  | 151315CB01000 | BECKER HOLDINGS LLC                      |                                 |                        | PO BOX 8505                 | BEND, OR 97708            | 931 4TH CT           | REDMOND, OR 97756 |
| 124142  | 151316DC00100 | BELL CO LLC                              |                                 |                        | PO BOX 607                  | MERIDIAN, ID 83680        | 1214 HWY 97          | REDMOND, OR 97756 |
| 201214  | 151315BA11801 | BENWAY, PAUL EDWARD                      |                                 |                        | PO BOX 2256                 | REDMOND, OR 97756         | 407 7TH ST           | REDMOND, OR 97756 |
| 123100  | 151315BA11300 | BLACK, CHARLES H                         |                                 |                        | 436 SE DESCHUTES AVE        | REDMOND, OR 97756         | 436 DESCHUTES AVE    | REDMOND, OR 97756 |
| 123099  | 151315BA11301 | BLACK, CHARLES HENRY                     |                                 |                        | 432 SE DESCHUTES AVE        | REDMOND, OR 97756         | 432 DESCHUTES AVE    | REDMOND, OR 97756 |
| 123079  | 151315BA09100 | BOERSMA TRUST                            |                                 |                        | 150 SW 85TH ST              | REDMOND, OR 97756         | 506 BLACK BUTTE BLVD | REDMOND, OR 97756 |
| 123150  | 151315BB03700 | BRENT T MCGARRY TRUST                    |                                 |                        | 374 INFLECTION ST           | HENDERSON, NV 89011       | 308 FRANKLIN ST      | REDMOND, OR 97756 |
| 123161  | 151315BB04600 | BRIAN & HEATHER TURNER FAMILY TRUST      |                                 |                        | PO BOX 5203                 | BEND, OR 97708            | 419 JACKSON ST       | REDMOND, OR 97756 |
| 123158  | 151315BB04900 | BROCK, ROBERT L & HELEN J                |                                 |                        | PO BOX 1264                 | REDMOND, OR 97756         | 304 DESCHUTES AVE    | REDMOND, OR 97756 |
| 123131  | 151315BB01700 | BROOKS, SHERRY                           | C/O LANCE WOODBURY              |                        | PO BOX 8756                 | BEND, OR 97708            | 157 JACKSON ST       | REDMOND, OR 97756 |
| 123117  | 151315BB01301 | BUILDING MANAGEMENT SERVICES LLC         |                                 |                        | 315 SE JACKSON ST           | REDMOND, OR 97756         | 315 JACKSON ST       | REDMOND, OR 97756 |
| 201458  | 151316DC00899 | BURLINGTON NORTHERN & SANTA FE RAILWAY   |                                 |                        | PO BOX 961089               | FORT WORTH, TX 76161-0089 | 711 VETERANS WAY     | REDMOND, OR 97756 |
| 123152  | 151315BB03500 | BURZYNSKI, ANDREW                        |                                 |                        | 324 SE FRANKLIN ST          | REDMOND, OR 97756         | 324 FRANKLIN ST      | REDMOND, OR 97756 |
| 127489  | 151315BA11700 | BUSTAMANTE, OLGA SUSANA SEGOVIANO        |                                 |                        | PO BOX 2305                 | REDMOND, OR 97756         | 615 EVERGREEN AVE    | REDMOND, OR 97756 |
| 277879  | 151316DD00122 | CAHILL, PAUL C & FAULKNER,KENNETH ROY JR |                                 |                        | 63765 DESCHUTES MARKET RD   | BEND, OR 97701            | 1263 LAKE RD         | REDMOND, OR 97756 |
| 123058  | 151315BA07200 | CANDELARIO, SANTOS SIERRA ET AL          |                                 |                        | 246 SE 6TH ST               | REDMOND, OR 97756         | 246 6TH ST           | REDMOND, OR 97756 |
| 123088  | 151315BA10500 | CARLA ANN MCGINLEY REV LV TRUST          |                                 |                        | 5194 SE JERRY DR            | PRINEVILLE, OR 97754      | 243 5TH ST           | REDMOND, OR 97756 |
| 123086  | 151315BA10700 | CARROLL, ANDREW B                        |                                 |                        | 1668 NE WELLS ACRES RD      | BEND, OR 97701            | 305 5TH ST           | REDMOND, OR 97756 |
| 123156  | 151315BB05100 | CARSON OIL COMPANY INC                   |                                 |                        | PO BOX 6030                 | PORTLAND, OR 97228-6030   | 244 ANTLER AVE       | REDMOND, OR 97756 |
| 150595  | 151315BB05201 | CASCADE NATURAL GAS CORP                 | C/O TAMI CHAPIN (A)             |                        | 222 FAIRVIEW WAY N          | SEATTLE, WA 98109         |                      |                   |
| 123013  | 151315BA01700 | CASPER DEVELOPMENT LLC                   |                                 |                        | 20525 SWALLEY RD            | BEND, OR 97703            | 398 8TH ST           | REDMOND, OR 97756 |
| 123155  | 151315BB05200 | CCC LAND LLC                             |                                 |                        | 255 SE BLACK BUTTE BLVD     | REDMOND, OR 97756         | 255 BLACK BUTTE BLVD | REDMOND, OR 97756 |
| 123060  | 151315BA07000 | CECIL,ROGER D                            |                                 |                        | 210 SE 6TH ST               | REDMOND, OR 97756         | 210 6TH ST           | REDMOND, OR 97756 |
| 264816  | 1513150000101 | CENTRAL OREGON IRRIGATION DISTRICT       |                                 |                        | 1055 SW LAKE CT             | REDMOND, OR 97756         | 901 HWY 126          | REDMOND, OR 97756 |
| 162184  | 151316DD00107 | CHARRON PROPERTIES INC                   |                                 |                        | 6930 FAIRVIEW RD            | HOLLISTER, CA 95023       | 1266 LAKE RD         | REDMOND, OR 97756 |
| 123159  | 151315BB04800 | CISNEROS, ROBERT                         |                                 |                        | 428 SE WARSAW ST            | REDMOND, OR 97756         | 428 WARSAW ST        | REDMOND, OR 97756 |
| 150598  | 1513150000300 | CITY OF REDMOND - COMMUNITY DEVELOPMENT  |                                 |                        | 411 SW 9TH ST               | REDMOND, OR 97756         | 139 VETERANS WAY     | REDMOND, OR 97756 |
| 124123  | 151316DA00100 | CLM INDUSTRIES LLC                       |                                 |                        | 6306 SW VALLEY VIEW RD      | POWELL BUTTE, OR 97753    | 833 1ST ST           | REDMOND, OR 97756 |
| 123122  | 151315BB00900 | COONROD, SCOTT D                         |                                 |                        | 20470 SE BRAELEN LN         | BEND, OR 97702            | 330 JACKSON ST       | REDMOND, OR 97756 |
| 122999  | 151315BA01100 | CRABTREE, KEVIN & SHARI                  | C/O JUSTIN WIMMER (A)           |                        | 3067 SW HEMHOLTZ WAY        | REDMOND, OR 97756         | 411 9TH ST           | REDMOND, OR 97756 |
| 284827  | 151315BA09802 | CRAWFORD, JULIA                          |                                 |                        | 421 SW 120TH ST             | SEATTLE, WA 98146         |                      |                   |
| 123070  | 151315BA08000 | CRENSHAW, HELEN M                        |                                 |                        | 235 SE 6TH ST               | REDMOND, OR 97756         | 235 6TH ST           | REDMOND, OR 97756 |
| 123108  | 151315BB00400 | CROSS, TROY                              |                                 |                        | PO BOX 25557                | EUGENE, OR 97402          | 210 JACKSON ST       | REDMOND, OR 97756 |
| 123056  | 151315BA07400 | CROTHWELL,CLINTON CALHOUN JR             |                                 |                        | 542 SE CASCADE AVE          | REDMOND, OR 97756         | 542 CASCADE AVE      | REDMOND, OR 97756 |
| 169794  | 1513150000201 | DA DEVELOPMENT LLC                       |                                 |                        | 565 SE LAKE RD              | REDMOND, OR 97756         | 565 LAKE RD          | REDMOND, OR 97756 |
| 123136  | 151315BB03200 | DAHLBERG, KENNETH HUNTER                 |                                 |                        | 44 SE BRIDGEFORD BLVD #140  | BEND, OR 97702            | 334 WARSAW ST        | REDMOND, OR 97756 |
| 123180  | 151315BB05900 | DAHOCO LLC ET AL                         |                                 |                        | 63557 JEFFERS CT            | BEND, OR 97701            | 147 EVERGREEN AVE    | REDMOND, OR 97756 |
| 123154  | 151315BB03300 | DANIEL B HAMLET TRUST                    |                                 |                        | 2763 NE SPRING WATER PL     | BEND, OR 97701            | 352 FRANKLIN ST      | REDMOND, OR 97756 |
| 123141  | 151315BB02700 | DEAN, DANNY R                            |                                 |                        | 5353 NW 19TH ST             | TERREBONNE, OR 97760      | 208 FRANKLIN ST      | REDMOND, OR 97756 |
| 180204  | 151316DD00113 | DEL & RITA BARBER JOINT TRUST            | C/O RONALD L BRYANT (A)         |                        | 61170 BILLADEAU RD          | BEND, OR 97702            | 511 VETERANS WAY     | REDMOND, OR 97756 |
| 150687  | 151316DD00100 | DENNIS & JODI CLARK JOINT REV TR         |                                 |                        | 16047 NE SEALY SPRINGS RD   | PRINEVILLE, OR 97754      |                      |                   |
| 123098  | 151315BA11400 | DESCHUTES COUNTY                         |                                 |                        | PO BOX 5536                 | BEND, OR 97708            |                      |                   |
| 123097  | 151315BA11500 | DESCHUTES COUNTY                         |                                 |                        | PO BOX 6005                 | BEND, OR 97708-6005       |                      |                   |
| 123175  | 151315BB06300 | DIAMOND IN THE ROUGH DETAILING LLC       |                                 |                        | 407 SE WARSAW ST            | REDMOND, OR 97756         | 407 WARSAW ST        | REDMOND, OR 97756 |
| 123123  | 151315BB00801 | DIBARI PROPERTIES LLC                    |                                 |                        | PO BOX 1585                 | REDMOND, OR 97756         | 322 JACKSON ST       | REDMOND, OR 97756 |
| 123149  | 151315BB03800 | DICE, RICKEY LEE & CARRIE A              |                                 |                        | PO BOX 758                  | REDMOND, OR 97756         | 206 RAILROAD BLVD    | REDMOND, OR 97756 |
| 123179  | 151315BB05901 | DK & DO HOLDINGS INC                     |                                 |                        | 148 SE DESCHUTES AVE        | REDMOND, OR 97756         | 148 DESCHUTES AVE    | REDMOND, OR 97756 |
| 123093  | 151315BA09700 | DOAN, RONALD N                           |                                 |                        | PO BOX 2064                 | TERREBONNE, OR 97760      | 137 5TH ST           | REDMOND, OR 97756 |
| 177536  | 151316DD00112 | DRYDEN-EBERHARD-BRYANT PROP LLC          |                                 |                        | PO BOX 457                  | REDMOND, OR 97756         | 1303 LAKE RD         | REDMOND, OR 97756 |
| 123174  | 151315BB06301 | EDWARDS, KRISTINA                        | C/O VALLEY FREIGHTLINER INC (A) |                        | 411 SE EVERGREEN AVE        | REDMOND, OR 97756         | 411 EVERGREEN AVE    | REDMOND, OR 97756 |
| 123069  | 151315BA08100 | EVERHART,LEON M & DORIS M                |                                 |                        | 221 SE 6TH ST               | REDMOND, OR 97756         | 221 6TH ST           | REDMOND, OR 97756 |
| 123071  | 151315BA07900 | FINER HOMES & CONSTRUCTION INC           |                                 |                        | 7205 SW SPARROW DR          | TERREBONNE, OR 97760      | 535 CASCADE AVE      | REDMOND, OR 97756 |
| 123106  | 151315BB00600 | FINLEY, MICHAEL N                        |                                 |                        | PO BOX 1428                 | REDMOND, OR 97756         | 240 JACKSON ST       | REDMOND, OR 97756 |
| 123067  | 151315BA08300 | FITE, JEREMIAH EUGENE SHOEMAKER          |                                 |                        | 531 SE BLACK BUTTE BLVD     | REDMOND, OR 97756         | 531 BLACK BUTTE BLVD | REDMOND, OR 97756 |
| 123074  | 151315BA07600 | FLEWELLING, TIMOTHY W & TANA C           |                                 |                        | PO BOX 744                  | REDMOND, OR 97756         | 508 CASCADE AVE      | REDMOND, OR 97756 |
| 123126  | 151315BB02200 | FOSTER, LEONA D & DAVID B                |                                 |                        | PO BOX 244                  | ARLINGTON, OR 97812       | 105 JACKSON ST       | REDMOND, OR 97756 |
| 173615  | 1513150000202 | FRED HODECKER INC                        |                                 |                        | PO BOX 488                  | REDMOND, OR 97756         | 1011 LAKE RD         | REDMOND, OR 97756 |
| 123189  | 151315BC00301 | FRED HODECKER INC                        |                                 | %TEAM MILLWORK LLC (A) | PO BOX 828                  | MADRAS, OR 97741          | 630 1ST ST           | REDMOND, OR 97756 |
| 124141  | 151316DC00200 | G & R LOT LLC                            |                                 |                        | 11619 SW PACIFIC HWY        | TIGARD, OR 97223          | 1242 HWY 97          | REDMOND, OR 97756 |
| 123121  | 151315BB01000 | GARY R DIFENDERFER TRUST                 | C/O VALLEY FREIGHTLINER INC (A) |                        | 517 NW 35TH ST              | REDMOND, OR 97756         | 348 JACKSON ST       | REDMOND, OR 97756 |
| 263796  | 151316DD00121 | GB REDMOND LLC                           |                                 |                        | 277 STEWART RD              | PACIFIC, WA 98047         |                      |                   |
| 123023  | 151315BA02700 | GILES, BRYAN                             |                                 |                        | PO BOX 6498                 | BEND, OR 97708            |                      |                   |
| 123138  | 151315BB03000 | GONZALEZ, VICENTE SANCHEZ                |                                 |                        | 60345 ARNOLD MARKET RD      | BEND, OR 97702            | 310 WARSAW ST        | REDMOND, OR 97756 |
| 124153  | 151316DC00900 | GR BEND LLC                              |                                 |                        | PO BOX 1668                 | REDMOND, OR 97756         | 1302 HWY 97          | REDMOND, OR 97756 |
| 123120  | 151315BB01100 | GRAHAM, JASON M & MOSER, KENDRA E        |                                 |                        | 102 E KISLING AVE           | BROWNSVILLE, OR 97327     | 347 JACKSON ST       | REDMOND, OR 97756 |
| 123105  | 151315BB00700 | GREENE, SHAWNA K                         |                                 |                        | 256 SE JACKSON ST           | REDMOND, OR 97756         | 256 JACKSON ST       | REDMOND, OR 97756 |
| 123162  | 151315BB04500 | GRENNINGER, JEDEDIAH & TRENTITY          |                                 |                        | 407 SE JACKSON ST           | REDMOND, OR 97756         | 407 JACKSON ST       | REDMOND, OR 97756 |
| 123132  | 151315BB01601 | HAMMAGREN REVOCABLE LIVING TRUST         |                                 |                        | 240 VISTA RIM DR            | REDMOND, OR 97756         | 205 JACKSON ST       | REDMOND, OR 97756 |
| 123007  | 151315BA02300 | HARPER, BRIAN & ANGIE                    |                                 |                        | PO BOX 493                  | STAYTON, OR 97325         | 216 8TH ST           | REDMOND, OR 97756 |
| 123083  | 151315BA08700 | HENDRIX, LINNIE & MCDANIEL, SKIP         | %TEAM MILLWORK LLC (A)          |                        | 520 E ANTLER AVE            | REDMOND, OR 97756         | 520 ANTLER AVE       | REDMOND, OR 97756 |
| 123075  | 151315BA09500 | HOLLANDER, LEWIS E JR & KAREN S          |                                 |                        | PO BOX 388                  | FLORENCE, OR 97439        | 111 5TH ST           | REDMOND, OR 97756 |
| 123127  | 151315BB02100 | HOLLY,ALAN & JEAN F                      |                                 |                        | 230 NW DOGWOOD AVVE         | REDMOND, OR 97756-1668    |                      |                   |
| 191779  | 151315BB04001 | HOLT WEST LLC                            |                                 |                        | 338 SE RAILROAD BLVD        | REDMOND, OR 97756         |                      |                   |
| 198051  | 151315BB07000 | HOMESTEAD SHOPPES LLC                    |                                 |                        | PO BOX 451                  | REDMOND, OR 97756         | 337 RAILROAD BLVD    | REDMOND, OR 97756 |
| 123084  | 151315BA08600 | HUFFMAN, CHARLES E & MICHELINA E         |                                 |                        | 113 SE 6TH ST               | REDMOND, OR 97756         | 113 6TH ST           | REDMOND, OR 97756 |
| 123137  | 151315BB03100 | HYDES CUSTOM LLP                         |                                 |                        | 20506 SE BRAELEN LN         | BEND, OR 97702            |                      |                   |
| 123129  | 151315BB01900 | IEONG,KEANG KAI                          |                                 |                        | 3412 HILLCREST AVE          | REDMOND, OR 97756         | 133 JACKSON ST       | REDMOND, OR 97756 |
| 123094  | 151315BA09600 | IKE ABBAS TRUST                          |                                 |                        | PO BOX 321                  | TERREBONNE, OR 97760      | 121 5TH ST           | REDMOND, OR 97756 |
| 183917  | 1513150000209 | JC FAMILY ENTERPRISES LLC                |                                 |                        | PO BOX 446                  | REDMOND, OR 97756         | 875 LAKE RD          | REDMOND, OR 97756 |
| 264483  | 151315CB00700 | JOHNSON, LAWRENCE W JR                   | JUDIE D NEEL FAMILY LLC         |                        | 20920 KACHINA AVE           | REDMOND, OR 97756         | 932 4TH CT           | REDMOND, OR 97756 |
| 124155  | 151316DC00800 | JUDIE D NEEL FAMILY LLC                  |                                 |                        | 700 SHELOKUM                | SILVERTON, OR 97381       | 1438 HWY 97          | REDMOND, OR 97756 |

|        |               |                                                            |                                  |                                      |                                     |                      |                   |
|--------|---------------|------------------------------------------------------------|----------------------------------|--------------------------------------|-------------------------------------|----------------------|-------------------|
| 124165 | 151316DD00104 | K&E EXCAVATING INC                                         |                                  | 3871 LANGLEY ST SE                   | SALEM, OR 97317                     |                      |                   |
| 123055 | 151315BA07500 | KEUDELL, JOHN G ET AL                                      |                                  | 528 SE CASCADE AVE                   | REDMOND, OR 97756                   | 528 CASCADE AVE      | REDMOND, OR 97756 |
| 123130 | 151315BB01800 | LANTZ, MICHAEL                                             |                                  | 145 SE JACKSON ST                    | REDMOND, OR 97756                   | 145 JACKSON ST       | REDMOND, OR 97756 |
| 123191 | 151315BC00100 | LANTZ, MICHAEL F & MARY A                                  |                                  | 323 SW CANYON DR                     | REDMOND, OR 97756                   | 106 EVERGREEN AVE    | REDMOND, OR 97756 |
| 180205 | 1513150000203 | LARWIN FAMILY TRUST                                        |                                  | 3003 NE MORENO PL                    | BEND , OR 97701                     | 430 EVERGREEN AVE    | REDMOND, OR 97756 |
| 123151 | 151315BB03600 | LARSON, LARRY K                                            |                                  | 314 SE FRANKLIN ST                   | REDMOND, OR 97756                   | 314 FRANKLIN ST      | REDMOND, OR 97756 |
| 199668 | 151316DB01703 | LINDSA Y MICKLES TRUST                                     |                                  | PO BOX 2598                          | PETALUMA, CA 94953                  |                      |                   |
| 123047 | 151315BA06300 | LOZA, CRISTINA E BERNABE ET AL                             |                                  | 654 E ANTLER AVE                     | REDMOND, OR 97756                   | 654 ANTLER AVE       | REDMOND, OR 97756 |
| 123077 | 151315BA09300 | LUTTRULL, MARY                                             |                                  | 1205 NW DAVIDSON WAY                 | TERREBONNE, OR 97760                | 236 5TH ST           | REDMOND, OR 97756 |
| 123142 | 151315BB02600 | LUTTRULL, DANIEL J & JENNIFER E                            |                                  | 1205 NW DAVIDSON WAY                 | TERREBONNE, OR 97760                | 321 BLACK BUTTE BLVD | REDMOND, OR 97756 |
| 123090 | 151315BA10300 | MAGNAMARA, KEITH & TONIE                                   |                                  | 223 SE 5TH ST                        | REDMOND, OR 97756                   | 223 5TH ST           | REDMOND, OR 97756 |
| 123091 | 151315BA10100 | MAGNUSON, SHERRY                                           | C/O MARLENE SEVERSON             | 211 SE 5TH ST                        | REDMOND, OR 97756                   | 211 5TH ST           | REDMOND, OR 97756 |
| 156838 | 151315BB04602 | MARTINEZ, SALVADOR LARA ET AL                              |                                  | 1504 NE 3RD ST                       | REDMOND, OR 97756                   | 451 JACKSON ST       | REDMOND, OR 97756 |
| 123045 | 151315BA06500 | MCDANIEL, LAMBERT C & JUDITH                               |                                  | 616 SE ANTLER AVE                    | REDMOND, OR 97756                   | 616 ANTLER AVE       | REDMOND, OR 97756 |
| 124118 | 151316DA00403 | MERRILL HOLDINGS LLC                                       |                                  | PO BOX 639                           | BEND, OR 97709                      | 1001 1ST ST          | REDMOND, OR 97756 |
| 124154 | 151316DC00801 | MOK, MAN WAI & ZHOU, DEREK                                 |                                  | 203 WESTBROOK AVE                    | DALY CITY, CA 94015                 | 1362 HWY 97          | REDMOND, OR 97756 |
| 123157 | 151315BB05000 | MOL PROPERTIES LLC                                         | C/O JUD LONGAKER/ MESHER SUPPLY  | 312 SE STARK PO BOX 14768            | PORTLAND, OR 97214                  | 323 FRANKLIN ST      | REDMOND, OR 97756 |
| 127488 | 151315BA11701 | MONTREUIL, JEAN-PAUL R ET AL                               |                                  | 609 SE EVERGREEN                     | REDMOND, OR 97756                   | 609 EVERGREEN AVE    | REDMOND, OR 97756 |
| 201221 | 151315BA11802 | OLDS FAMILY REVOCABLE TRUST                                |                                  | 16847 SW STEELHEAD RD                | TERREBONNE, OR 97760                | 636 EVERGREEN AVE    | REDMOND, OR 97756 |
| 123046 | 151315BA06400 | OLSON, HANNAH & SCHILLING, JOHN                            |                                  | 632 E ANTLER AVE                     | REDMOND, OR 97756                   | 632 ANTLER AVE       | REDMOND, OR 97756 |
| 150597 | 151315B000506 | OPPORTUNITY FOUNDATION OF CEN ORE                          |                                  | PO BOX 430                           | REDMOND, OR 97756-0430              | 835 HWY 126          | REDMOND, OR 97756 |
| 193390 | 151316DD00116 | OREGON BEVERAGE RECYCLING CORP                             |                                  | 17300 SE 120TH AVE                   | CLACKAMAS, OR 97015                 | 1204 LAKE RD         | REDMOND, OR 97756 |
| 123170 | 151315BB07200 | OREGON DEPARTMENT OF TRANSPORTATION                        | RIGHT OF WAY SECTION             | 4040 FAIRVIEW INDUSTRIAL DR SE #MS 2 | SALEM, OR 97302-1142                | 475 RAILROAD BLVD    | REDMOND, OR 97756 |
| 123089 | 151315BA10400 | ORF, SHANNON                                               |                                  | 235 SE 5TH ST                        | REDMOND, OR 97756                   | 235 5TH ST           | REDMOND, OR 97756 |
| 150686 | 151316DD00101 | PACIFIC GAS TRANSMISSION                                   | %TANNER,JILL A MGR TAX DEPT      | 121 SW MORRISON #STE 500             | PORTLAND, OR 97204                  | 1440 LAKE RD         | REDMOND, OR 97756 |
| 183918 | 1513150000206 | PARR LUMBER COMPANY                                        | C/O NW STRUCTURAL COMPONENTS LLC | 5630 NW CENTURY BLVD                 | HILLSBORO, OR 97124                 | 1000 LAKE RD         | REDMOND, OR 97756 |
| 123115 | 151315BB01400 | PAT C DEAN REVOCABLE LMING TRUST                           |                                  | 5343 NW 19TH ST                      | TERREBONNE, OR 97760                | 255 JACKSON ST       | REDMOND, OR 97756 |
| 123110 | 151315BB00200 | PAYTON, ALBERT W                                           |                                  | 1857 NW 57TH WAY                     | REDMOND, OR 97756                   | 134 JACKSON ST       | REDMOND, OR 97756 |
| 123153 | 151315BB03400 | PETERS, DEREK                                              |                                  | 336 SE FRANKLIN ST                   | REDMOND, OR 97756                   | 336 FRANKLIN ST      | REDMOND, OR 97756 |
| 251937 | 151315BC00401 | PG DEVELOPMENT COMPANY LLC ET AL                           |                                  | 63765 DESCHUTES MARKET RD            | BEND, OR 97701                      | 665 LAKE RD          | REDMOND, OR 97756 |
| 123178 | 151315BB06000 | PLATT, GLE E & SUE                                         |                                  | 3555 NW IVANCOVICH WAY               | REDMOND, OR 97756                   | 229 EVERGREEN AVE    | REDMOND, OR 97756 |
| 124137 | 151316DA00404 | PLATT, BRIAN E & CHRISTINE DENESE                          |                                  | PO BOX 610                           | REDMOND, OR 97756                   | 1104 LAKE RD         | REDMOND, OR 97756 |
| 123065 | 151315BA08500 | PRESLEY, MICAYLA R & BROWN, SHANE M                        |                                  | 113 SE 6TH ST                        | REDMOND, OR 97756                   |                      |                   |
| 123064 | 151315BA06600 | RAMIREZ, MARCO A & AMELIA                                  |                                  | 128 SE 6TH ST                        | REDMOND, OR 97756                   | 128 6TH ST           | REDMOND, OR 97756 |
| 123139 | 151315BB02900 | RDW FRANKLIN PROPERTIES LLC                                |                                  | 236 SE FRANKLIN ST                   | REDMOND, OR 97756                   | 236 FRANKLIN ST      | REDMOND, OR 97756 |
| 127490 | 151315BB06900 | REDMOND LOCKERS & COLD STORAGE                             |                                  | 353 S RAILROAD BLVD                  | REDMOND, OR 97756                   | 353 RAILROAD BLVD    | REDMOND, OR 97756 |
| 123165 | 151315BB05600 | REDUCTION DRIVE MOTORS LLC                                 | C/O JOEL HALL, MANAGER           | 338 SE RAILROAD BLVD                 | REDMOND, OR 97756-2343              | 338 RAILROAD BLVD    | REDMOND, OR 97756 |
| 123183 | 151315BB05601 | RIS RENTS LLC                                              |                                  | 806 SW WESTWOOD DR                   | PORTLAND, OR 97239                  |                      |                   |
| 123145 | 151315BB04200 | ROBBINS YB2 LLC                                            |                                  | 88 OAK RD                            | ORINDA, CA 94563                    |                      |                   |
| 123006 | 151315BA02400 | ROCK & ROLL 845 LLC                                        |                                  | 233 SW WILSON AVE #204               | BEND, OR 97702                      | 194 8TH ST           | REDMOND, OR 97756 |
| 252495 | 151316DD00120 | ROYAL BLUE INVESTMENTS LLC                                 |                                  | 1180 SW LAKE RD #201                 | REDMOND, OR 97756                   | 1180 LAKE RD         | REDMOND, OR 97756 |
| 284816 | 151316DD00123 | RVK PROPERTIES LLC                                         |                                  | PO BOX 2151                          | REDMOND, OR 97756                   | 501 VETERANS WAY     | REDMOND, OR 97756 |
| 150599 | 1513150000100 | S A PIAZZA & ASSOCIATES LLC                                |                                  | 15815 SE PIAZZA AVE                  | CLACKAMAS, OR 97015                 | 1050 ANTLER AVE      | REDMOND, OR 97756 |
| 194583 | 151316DA00409 | SAA PROPERTIES LP                                          |                                  | 23456 MADERO #STE 230                | MISSION VIEJO, CA 92691-7909        | 1000 LAKE CT         | REDMOND, OR 97756 |
| 193391 | 151316DD00117 | SAMUEL A DELEONE TRUST                                     |                                  | 1258 SW LAKE RD                      | REDMOND, OR 97756                   | 1258 LAKE RD         | REDMOND, OR 97756 |
| 123080 | 151315BA09000 | SANDERS, JAMES A & PATRICIA L                              |                                  | 168 SE 5TH ST                        | REDMOND, OR 97756                   | 168 5TH ST           | REDMOND, OR 97756 |
| 123133 | 151315BB01600 | SCHLEGEL, DEAN & JENNIFER                                  |                                  | 3129 SW REINDEER CT                  | REDMOND, OR 97756                   | 225 JACKSON ST       | REDMOND, OR 97756 |
| 123124 | 151315BB00800 | SCHMIDT, TODD J                                            |                                  | 2046 LOS ENCINOS RD                  | OJAI, CA 93023                      | 300 JACKSON ST       | REDMOND, OR 97756 |
| 123076 | 151315BA09400 | SHAW, STEVEN                                               |                                  | 449 SW CANYON DR                     | REDMOND, OR 97756                   | 250 5TH ST           | REDMOND, OR 97756 |
| 124151 | 151316DC01000 | SHEPHERDS HOUSE MINISTRIES                                 |                                  | PO BOX 5484                          | BEND, OR 97708                      | 1350 HWY 97          | REDMOND, OR 97756 |
| 196500 | 151316DB01702 | SIEVERS, JAMES W                                           |                                  | PO BOX 161432                        | BIG SKY, MT 59716                   | 1154 HWY 97          | REDMOND, OR 97756 |
| 180207 | 1513150000205 | SKIDGEL PROPERTIES LLC                                     |                                  | PO BOX 890                           | REDMOND, OR 97756                   | 1060 LAKE RD         | REDMOND, OR 97756 |
| 123104 | 151315BA10900 | SMITH, NITA L                                              |                                  | 331 SE 5TH ST                        | REDMOND, OR 97756                   | 331 5TH ST           | REDMOND, OR 97756 |
| 124148 | 151316DC01201 | SOCIETY OF ST VINCENT DEPAUL                               | ATTN: JAMIE T KANSKI             | 1616 SW VETERANS WAY                 | REDMOND, OR 97756                   | 651 VETERANS WAY     | REDMOND, OR 97756 |
| 123048 | 151315BA06200 | STEELE, BETTY                                              |                                  | 710 E ANTLER AVE                     | REDMOND, OR 97756                   | 710 ANTLER AVE       | REDMOND, OR 97756 |
| 177535 | 151316DD00111 | STERNBERG, JUSTIN                                          |                                  | PO BOX 895                           | POST FALLS, ID 83877                | 1259 LAKE RD         | REDMOND, OR 97756 |
| 123078 | 151315BA09200 | STIEBK, JAMES W & CAROL M                                  |                                  | 1550 SW QUARTZ AVE                   | REDMOND, OR 97756                   | 224 5TH ST           | REDMOND, OR 97756 |
| 123107 | 151315BB00500 | STOLTZ, SAVALLAH                                           |                                  | 226 SE JACKSON ST                    | REDMOND, OR 97756                   | 226 JACKSON ST       | REDMOND, OR 97756 |
| 123040 | 151315BA05000 | SULLENS, UTAH & KATHRYN                                    |                                  | 585 SE EVERGREEN AVE                 | REDMOND, OR 97756                   | 585 EVERGREEN AVE    | REDMOND, OR 97756 |
| 123072 | 151315BA07800 | SULLENS, BONNIE L                                          |                                  | 354 SE 5TH ST                        | REDMOND, OR 97756                   | 354 5TH ST           | REDMOND, OR 97756 |
| 123039 | 151315BA05100 | SULLENS, UTAH & KATHRYN D                                  |                                  | 585 SE EVERGREEN AVE                 | REDMOND, OR 97756                   | 365 7TH ST           | REDMOND, OR 97756 |
| 123177 | 151315BB06100 | SWEET, ELOISE TRUSTEE ET AL                                |                                  | 63308 LA MOINE ST                    | BEND, OR 97701                      | 311 EVERGREEN AVE    | REDMOND, OR 97756 |
| 189063 | 151316DA00500 | T & T DEVELOPMENT LLC                                      |                                  | PO BOX 189                           | REDMOND, OR 97756                   | 1130 LAKE RD         | REDMOND, OR 97756 |
| 123057 | 151315BA07300 | TAPIA, ELIZABETH & TAPIA, JUAN M                           |                                  | 256 SE 6TH ST                        | REDMOND, OR 97756                   | 256 6TH ST           | REDMOND, OR 97756 |
| 264484 | 151315CB00800 | TEPHRA INDUSTRIAL LLC                                      |                                  | 1712 PIONEER AVE #433                | CHEYENNE, WY 82001                  | 942 4TH CT           | REDMOND, OR 97756 |
| 123176 | 151315BB06200 | THERMO FLUIDS INC                                          | C/O IVS                          | PO BOX 92108                         | AUSTIN, TX 78709                    | 327 EVERGREEN AVE    | REDMOND, OR 97756 |
| 127487 | 151315BA11800 | THYKEN, MICHAEL                                            |                                  | 649 SE EVERGREEN AVE                 | REDMOND, OR 97756                   | 649 EVERGREEN AVE    | REDMOND, OR 97756 |
| 123073 | 151315BA07700 | TOHMEH, MOHAMMAD BASEM ET AL                               |                                  | 5205 EDMONT CIR                      | CYPRESS, CA 90630                   | 330 5TH ST           | REDMOND, OR 97756 |
| 123102 | 151315BA11100 | TRYTHALL, LAURIE ANN                                       |                                  | 343 SE 5TH ST                        | REDMOND, OR 97756                   | 343 5TH ST           | REDMOND, OR 97756 |
| 264480 | 151315CB00400 | UNITED STATES BAKERY                                       |                                  | 315 NE 10TH AVE                      | PORTLAND, OR 97232                  | 902 4TH CT           | REDMOND, OR 97756 |
| 150552 | 1513000000100 | USA                                                        |                                  | 4375 E HWY 126                       |                                     | 4375 HWY 126         | REDMOND, OR 97756 |
| 123119 | 151315BB01200 | VANDERWOOD LLC                                             |                                  | 1839 YORK BUTTE AVE SE               | SALEM, OR 97306                     | 335 JACKSON ST       | REDMOND, OR 97756 |
| 123068 | 151315BA08200 | VANNEVEL, NOLAN DONALD                                     |                                  | 211 SE 6TH ST                        | REDMOND, OR 97756                   | 211 6TH ST           | REDMOND, OR 97756 |
| 250688 | 151315CB00100 | VANNEVEL, SCOTT C & LANETTE R                              |                                  | 8295 NW 31ST ST                      | TERREBONNE, OR 97760                | 919 LAKE RD          | REDMOND, OR 97756 |
| 150685 | 151316DD00102 | VFW #4108                                                  |                                  | 491 SW VETERANS WAY                  |                                     | 491 VETERANS WAY     | REDMOND, OR 97756 |
| 123062 | 151315BA06800 | VIRAMONTES, MOISES                                         |                                  | 148 SE 6TH ST                        | REDMOND, OR 97756                   | 148 6TH ST           | REDMOND, OR 97756 |
| 164036 | 151315BB05202 | WENDLER, KEVIN J & ROXANNA I                               |                                  | PO BOX 1557                          | REDMOND, OR 97756                   | 124 RAILROAD BLVD    | REDMOND, OR 97756 |
| 124119 | 151316DA00402 | WESTERN PACIFIC INVESTMENTS LLC                            | %RONALD L BRYANT (A)             | PO BOX 457                           | REDMOND, OR 97756                   |                      |                   |
| 123193 | 151315BB06400 | WINGER, MARK A                                             |                                  | PO BOX 15                            | REDMOND, OR 97756                   | 517 EVERGREEN AVE    | REDMOND, OR 97756 |
| 123192 | 151315BB06500 | WINGER, MARK A & LEASA KAY                                 |                                  | PO BOX 15                            | REDMOND, OR 97756                   | 519 EVERGREEN AVE    | REDMOND, OR 97756 |
| 123173 | 151315BB05300 | WREN PARTNERSHIP,                                          |                                  | PO BOX 175                           | REDMOND, OR 97756                   | 218 ANTLER AVE       | REDMOND, OR 97756 |
| 183916 | 151315BC00400 | ZBK HOLDINGS LLC<br>Deschutes County Community Development |                                  | PO BOX 1847<br>117 NW Lafayette Ave  | REDMOND, OR 97756<br>Bend, OR 97703 | 605 LAKE RD          | REDMOND, OR 97756 |

**Affidavit of Mailing Inside City Limits**

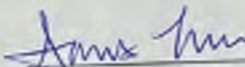
Date: March 3, 2023

STATE OF OREGON            )

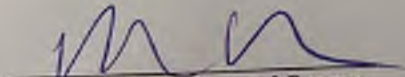
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Deschutes County         )

I, Stammers Taylor representative of the COTC proposed development project do hereby certify that the attached notice to adjacent property owners and recognized neighborhood organizations that are within 250 feet of the subject property, was placed in a U.S. Postal receptacle on 03/03/2023.

  
Signature

Subscribed and sworn to, or affirmed, before me on this 3 day of March, 2023 by the name of Stammers Taylor  
Signer

  
Notary Public - State of Oregon





**Affidavit of Posting Notice**

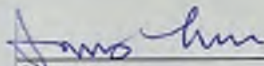
Date: March 6, 2023

STATE OF OREGON            )

)

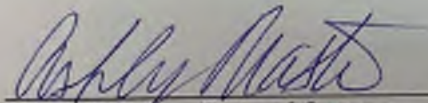
Deschutes County         )

I, Sommers Taylor, representative of the COTC proposed development project do hereby certify that the sign was posted at Redmond Fore3 Facility on 6<sup>th</sup> day of March 2023.

  
Signature

Subscribed and sworn to, or affirmed, before me on this 6 day of March, 2023 by the name of Sommers Taylor.

Signer

  
Notary Public - State of Oregon



**Affidavit of Mailing Outside City Limits**

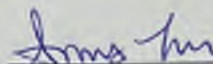
Date: March 3, 2023

STATE OF OREGON            )

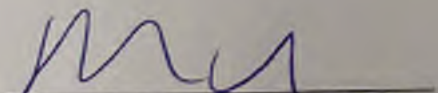
)

Deschutes County         )

I, Sommers Taylor representative of the COTC proposed development project do hereby certify that the attached notice to adjacent property owners and recognized neighborhood organizations that are within 750 feet of the subject property, was place in a U.S Postal receptacle on 03/03/2023

  
Signature

Subscribed and sworn to, or affirmed, before me on this 3 day of March 20 23 by the name of Sommers Taylor  
Signer

  
Notary Public - State of Oregon





## CORE3 NEIGHBORHOOD MEETING

Monday, March 13th, 5-6:30pm

REDMOND CITY HALL, Civic Room 267/308  
(411 SW 9th St, Redmond, OR 97756)

OR ONLINE VIA ZOOM:

<https://us06web.zoom.us/j/85267944825?pwd=MTZ0c3R0aUJSM0R0c24wYkZlYzZ0OT09>

FOR MORE INFORMATION, VISIT [CORE3CENTER.ORG](http://CORE3CENTER.ORG) OR USE THE QR CODE BELOW



PROJECT CONTACT INFORMATION:  
SCOTT AYCOCK: [scott@core3.org](mailto:scott@core3.org)



# CORE3 Neighborhood Meeting

March 13<sup>th</sup>, 2023 | 5-6:30pm | Redmond City Hall or Virtually via Zoom

411 SW 9<sup>th</sup> St., Civic Rooms 207/208, Redmond, OR 97756

## NOTES

Project Members in Attendance: Scott Aycock, Sommers Taylor, and Sienna Fitzpatrick (COIC); Matt Piccone, Erin Roeme (SERA); Lt. Brian Beekman (Bend Police), Commissioner Brian Barney (Crook County), Chief Jeff Blake (Jefferson County Fire & EMS), Sgt. Nathan Garibay (Deschutes County Sheriff's Office), Kristie Bollinger (Deschutes County Property Manager).

Members of the Public in Attendance: Tim and Tania Flewelling, BJ Stoper, David Sonnier, Solimar Fiske, Joe Strong, Lena Berry, Rob Brown, Joshua Songstad, Hilary Dunsmoor, Chad Schlottmann, Linda Sorum, Peter Ostrovsky, Tracee Tuesday, Karl Lundeen, J Carson, Brian Wilkinson, John Schimmoller, Ben Schimmoller, Tom Mooney.

*A recording of this public meeting is available at [www.core3center.org](http://www.core3center.org). This meeting was organized and facilitated by the Central Oregon Intergovernmental (COIC) staff team on behalf of the CORE3 Center Executive Council Members.*

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### 1. Introduction to the CORE3 Project

Scott Aycock gave an overview of the agenda and conducted introductions for attendees online and in-person. He then walked through a presentation (with consultants from SERA) that gave an overview of the CORE3 project, including:

- *Partner agencies and budget*
- *The potential phases of build out for the CORE3 Center*
  - *Priority services and facilities*

Scott passed the presentation over to Erin Roeme with SERA Architects to cover the Land Use components.

### 2. Land Use Process Detailed Conversation

Erin explained the second portion of the presentation focused on land use and site details.

- *Site Selection, including*
  - *Necessary characteristics for the project*
  - *Redmond Site – visuals and current issues (e.g. waste and remediation)*
  - *Conceptual Site Design Features*

The project is not in the designing phase yet; we are still working on the land use process, so the design presented at this meeting is purely conceptual.



- *Land Use Process*

This is the current stage of the project. The design phase will come after the completion of this land use process.

- *Project Timeline and Milestones*

The presentation concluded, and Scott opened the floor up to questions and comments from virtual and in-person members of the public in attendance.

### **3. Public Comment and Q&A**

BJ Stoper: The website markets this as a disaster response center, but it also has some tactical training and other purposes. How will shooting ranges help our officers be trained better in use of force and other conflicts? The attendee also asked where the money is coming from to pay for this.

Scott responded: regarding funding, one third of it is local, one third is state, and one third is federal. The County donated the land which covers part of the local contribution, plus the partner agencies are pitching in. The state has provided \$9.5M as well, plus a \$500k contribution from the Oregon State Fire Marshal's Office, and we requested an additional \$5.5M from the legislature. Federal contributions are harder to raise; we received a small Congressionally Directed Spending obligation of \$750K, but we're hoping to raise more to meet the federal amount. The info on the website focuses on the disaster recovery and preparedness component of the facility because it's the state's main interest in the project.

Lt. Beekman responded on the training component of the facility: The overall concept for the center is for major disaster preparedness and local fire, law enforcement, and other public safety personnel training. The facility would offer training for all kinds of needs for law enforcement and fire, including de-escalation and tactical training. Fire arm training is required for law enforcement, so the firearm training space is included in this project. There are many components of the facility, and firearm training is not the main focus.

BJ Stoper asked a follow-up question: Is there a potential for this facility to be part of the safe police academy given the back-up on training for officers around the state?

Lt. Beekman: There's a deficit in the region/state for the training needed for public safety personnel. He doesn't know if the state is planning to address this through the Department of Public Safety Standards and Training.

Chief Blake: There have been very preliminary talks with DPSST because of the need and backlog within the police academy. They're not committed yet since that is a major decision. For fire and police, Blake and Beekman have worked together with others on the active threat trainings, and they've had to use local schools for training and other needs. Those opportunities and spaces for



training can be few and far between, so this training center helps with joint responses. It would also reduce costs of outsourcing training for most organizations east of the Cascades.

Sgt. Garibay: Deschutes County Sheriff's Office is focused on need for this facility for large scale operations and training center. They envision this used for the big bad days for the region and state, and for high quality training and coordination between entities. The facility would also have an urban search and rescue (USAR) training space for rubble piles, trench rescue, and other situations that search and rescue personnel would need to train for. Collaboration in training makes us more prepared. A "tactical village" is not quite the right term, it's more of a scenario village to help personnel prepare for all kinds of events.

Question from John Schimmoller: The land is currently owned by Deschutes County, expansion of UGB is time consuming. Will this happen in a reasonable time period? Will it accomplish what we hope to accomplish?

Response from Scott: Land use changes are not an easy or short process, but the City of Redmond is relatively efficient in the region. There is no land in the UGB that will fit the needs of this facility, which is why we're pursuing this process.

Question from Lena Berry: Are their limitations on future growth of the facility? Will there be more land allocated to this project?

Response from Scott Aycock: We are starting to survey the land and get started on partitioning it. It's possible we could need additional land in the future, but there's no immediate needs we're aware of. There could be a desire to add land in the future, but right now, we're partitioning it with the expectation that this is what we get. There's nothing to prevent it but no plans to do it right now.

Matt Piccone added: This is a long process, we're trying not to have to do it again in the future and anticipate all our needs and future uses up front. This is part of the reason for the phasing.

Question from Joshua Songstad: Who set the prerequisites for the needs for the location of this project?

Scott Aycock: This was determined by the partner agencies based on their needs. Redmond is centrally located, near the highway and the airport, the size for the facility was roughly determined based on the needs, and the cost of public land makes this location more appealing.

Chief Blake: When dealing with emergencies and thinking about staging resources, people, and apparatus, we want to limit the amount of time all of that is in a residential space. This location will help avoid that kind of impact, as well as impacts on the highway. Regarding size, other facilities have a similar profile for this kind of center.

Question from Joshua Songstad: What strings are attached with the federal money?

Scott: The federal money raises the bar on certain kinds of procedures we have to meet, but there are no requirements for the programs or use of the site that come with this funding.



Question from Joshua Songstad: What will funding for the future phases of this project look like? Will it include bond measures?

Scott Aycock: We don't have a plan yet. It could potentially include a bond measure, but we're totally focused on phase one at this point. There are many options for consideration as far as long-term funding and sustainably covering operations. We will need to be opportunistic, likely.

Question from BJ Stoper: Has there been any discussion with Jefferson and Crook Counties contributing to this project? Also, would the shooting facility be open to the public at all?

Chief Blake: Jefferson County and the Sheriff's Office have put money towards the facility. The phased approach for the project will also allow for additional partners to join in down the road. This project is being developed from a tri-county, regional perspective.

Scott Aycock: The facility will also be a closer, more feasible option for training for more local agencies that would otherwise have to travel over the Cascades. Commissioner Tony DeBone of Deschutes County is the Chair of the CORE3 Executive Council and is looking into public-private partnerships that could work with this facility, including opening it up to public use.

Lt. Beekman noted that this phase of the project is prioritizing an indoor range given the need in the region.

Chief Blake: User fees would be attached to the use of the facility, especially for agencies that haven't participated in this project. We're focused on building the facility and not operations quite yet.

Question from Lena Berry: Are there limitations on the center being privatized?

Scott Aycock: COIC is an intergovernmental council formed by the cities and counties of the region. We won't be an operator, but the operator will be an interagency public group. There's no talk of privatization at this point, but there made be some options for the public or private entities to use the space on a fee-basis.

Question from BJ Stoper: If State Measure 114 is found to be constitutional, is there any discussion from this project on how they will handle training at the facility?

Scott Aycock: We're not aware of any discussion on that topic at this table.

Sgt. Garibay: There's a lot of uncertainty around this, we're not speculating right now.

Question from David Sonnier from Deschutes County: There are many people living out on those lands and adjacent; can someone speak to the outreach to these people?

Scott Aycock: COIC is heavily involved in houselessness and housing issues; we're highly aware and concerned about it. We have time between now and groundbreaking to prepare the folks who are out there. The City of Redmond and the County also have protocols for addressing this.



Kristie Bollinger: Now is a good time to start talking about this and building a plan to remove those individuals and their encampments. We're just in the land use phase but it is something we anticipate to support as part of moving forward with this project.

Scott Aycock: This project is also being discussed in the context of Oasis Village, which is the City of Redmond's project to support houseless folks. CORE3 may share utility installation and other costs to support that project given its importance.

Anyone who is interested in staying engaged on this project should be sure to sign in to get on our communications list as well.

The meeting adjourned with no other comments or questions.



## SIGN-UP / SIGN-IN SHEET

CORE3 Neighborhood Meeting | March 13<sup>th</sup>, 2023 | 5-6:30pm | Redmond City Hall & Zoom

| PRINT NAME        | EMAIL ADDRESS                                                              | PHONE NUMBER | HOME ADDRESS                           |
|-------------------|----------------------------------------------------------------------------|--------------|----------------------------------------|
| BJ SOPER          | BTC@PROS.US                                                                | 541-460-0114 | 6400 SW HANLEY AVE. REDMOND            |
| D Sonnier         | claudi.sonnier@deschutes.or.us<br><del>David.Sonnier@deschutes.or.us</del> | 541-419-6710 | 6325 Red Pkwy Bend, OR                 |
| Tim Flewelling    | timtana@msn.com                                                            | 541 923 4681 | 508 SE Cascade Redmond                 |
| Solimar Fiske     | solimar.fiske@deschutes.or.us                                              |              | Deschutes County, Bhumar               |
| Tara Flewelling   | —                                                                          | 541-815-0891 | 508 SE Cascade Redmond                 |
| Joe Strong        | joe.strong@redmond.com                                                     | 541-647-8313 | 511 SW Veterans Way                    |
| Kristie Bollinger | Kristie.Bollinger@deschutes.org                                            | 541-395-1414 | 14 NW Kearney Ave Bend, 97703          |
| Joshua Engstael   | HANDLERCORP@att.net                                                        | 541-213 8580 | 2673 NE Sunrise Ln Prineville OR 97754 |
| Hilary Dunsmoor   | hilaryd@tenoverstudio.com                                                  | 541-508-4544 | 856 Bend St. Suite 200 Bend 97703      |
| CHAO SCHLOTTMANN  | CHAO.SCHLOTTMANN@SKANSKA.COM                                               | 541-948-2005 | 2275 NE DOCTORS DR. BEND OR 97701      |
| Linda Sorun       | LISA.M.SORUN@netscape.net                                                  | 541-420 8243 | 4472 WAVECR RDN                        |
| Peter Ostrovsky   | peter@hauverconsulting.com                                                 | 206 856 7204 | 2950 NW WISSET BEND, OR 97703          |



## SIGN-UP / SIGN-IN SHEET

CORE3 Neighborhood Meeting | March 13<sup>th</sup>, 2023 | 5-6:30pm | Redmond City Hall & Zoom

[illegible]

**RECORD OF DECISION**

**REMEDIAL ACTION**

**For**

**Deschutes County Shooting Range  
Redmond, OREGON  
ECSI #s 4710, 5054**

**Prepared By**

**OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY  
Eastern Region Office**

**July 2020**

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# **1. INTRODUCTION**

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## **1.1 INTRODUCTION**

This document presents the recommended remedial action for the Deschutes County Shooting Range Site on E. Highway 126 in Redmond, Oregon. The proposed action was developed in accordance with Oregon Revised Statutes (ORS) 465.200 et seq. and Oregon Administrative Rules (OAR) Chapter 340, Division 122, Sections 010 through 115.

The recommended remedial action is based on the administrative record for this Site. A copy of the Administrative Record Index is attached as section 7. This report summarizes the more detailed information contained in the site assessment reports and feasibility study report (Apex 2018) completed for this Site.

## **1.2 SCOPE AND ROLE OF THE RECOMMENDED REMEDIAL ACTION**

The recommended remedial action addresses the presence of elevated concentrations of contaminants in soil. The primary contaminants of concern include lead and polynuclear aromatic hydrocarbons (PAHs). Other contaminants found at concentrations above ecological screening levels include antimony, arsenic, barium, cadmium, copper, iron, manganese, mercury, selenium, silver and zinc. The recommended remedial action consists of the following elements:

- Excavation and on-site disposal of contaminated soil,
- Excavation and off-site disposal of dried, contaminated sludge,
- Engineering controls
- Institutional controls
- Monitoring
- Periodic land and water use review

## 2. SITE HISTORY AND DESCRIPTION

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### 2.1 SITE LOCATION AND LAND USE

The Deschutes County Shooting Range Site is located on the north side of East Highway 126 in Redmond, Oregon, Township 15 South, Range 13 East, Section 14, Deschutes County (See **Figure 1.**) The Site latitude is 44.2673° North, longitude is 121.1399° West. The Site consists of a 250-acre portion of tax lot 103, which has a total area of 1,825 acres. The 250 acres included in this investigation are within the Redmond urban growth boundary (UGB)/City limit. The remainder of the property (1,610 acres) is outside UGB/City, and has rural zoning (exclusive farm use, or EFU).

The 250-acre area that was subject to this investigation is zoned Light Industrial (M-1). Properties zoned M-1 are intended, but not limited to, most commercial and industrial uses. Other conditional allowed uses could include child care centers, homeless shelters, schools, churches, and motels. Deschutes County intends to market the property for sale for redevelopment for light industrial or commercial uses. The approximate ground elevation of the Site is 3,030 feet above mean sea level.

Land adjacent to the west, north, and east sides of the Site is vacant. Land south of the Site (across Highway 126) is occupied by Roberts Field, the City of Redmond airport.

### 2.2 PHYSICAL SETTING

#### 2.2.1 Climate

Redmond is located in the Blue Mountain Ecoregion as defined by EPA. Overall, the ecoregion has short, dry summers and long, cold winters. According to Oregon State University's Oregon Weather and Climate Data Website (2013), precipitation averages 8.64 inches per year, with approximately 65 percent of the precipitation occurring between October 1 and March 31. Monthly average temperatures range from a low of approximately 22°F in January to a high of approximately 85°F in July.

### 2.2.2 Geology

According to the 1975 *Geologic Map of the Redmond Area* by Peterson and Groh, the Site is underlain with intracanyon and plateau forming pahoehoe flows of medium gray diktytaxitic olivine basalts.

According to the USDA soil information included in Deschutes County LAVA database, three NRCS soils are mapped for the subject property: Deschutes-Stukel complex, dry, 0 to 8 percent slopes (358); Redmond Sandy Loam, 0 to 3 percent slopes (104A); and Stukel-Rock outcrop-Deschutes complex, dry, 0 to 8 percent slopes (1428). According to USDA, NRCS soil information, each of these soils is well-drained and relatively shallow with basalt between 18 inches to 31 inches below ground surface (bgs) and bedrock between 10 inches and 40 inches bgs.

### 2.2.3 Surface Water and Stormwater Features

The nearest surface water is an irrigation canal, the North Unit Canal, which is located approximately 1.1 miles southeast of the Site. The nearest wetland is associated with this canal.

## 2.3 SITE HISTORY

The Site is largely undeveloped. **Figure 2** shows the locations of key Site features and sampling locations.

The Redmond Rod and Gun Club (RRGC) operated several small arms firing ranges at the east portion of the Site from 1956 until 2017. RRGC facilities included a skeet range, rifle and pistol ranges, and a sporting clay range. The pistol and rifle range closed in 2017 consisted of several lanes that are oriented north-south, with berms at all but the south side of the ranges. The previously closed rifle and pistol range, also oriented approximately north-south, is located at the southeast part of the Site (mostly off County property). This range was abandoned and relocated to its current location in 2007 to avoid potential conflicts with aircraft approach paths to the nearby Redmond Municipal Airport. A soil stockpile, containing lead shot and clay pigeon fallout, remains in this area.

The origin of the stockpile has not been confirmed, but it appears to contain, in part, residuals from former firing range operations. While a significant portion of the former range is not located on County property, the entire area is incorporated into the “Site” designation, and is considered in this report. The skeet range consists of several shotgun firing areas at the south side of the range, with the shotfall area to the north. The sporting clay range has numerous shotfall areas, determined by various shooting areas and orientations in the range.

The Sheriff’s Range consists of four north-south oriented lanes, constructed with lateral and end berms to contain shot and bullets. The Sheriff’s shooting range was used starting in the late 1970s, until recently. The Deschutes County Sheriff’s Office reportedly trained with copper (lead free) ammunition after 2007.



The disposal area (landfill area and landfill trench area) is located in the west-central portion of the Site. The approximate boundaries of the disposal area are shown on Figure 2. The disposal area material primarily consists of metal and glass debris, but also contains smaller amounts of other materials, including empty paint and oil containers. The waste thickness in the landfill varies, and ranges to approximately 14 feet. A substantial portion of this waste appears to have been burned.

Just north of the disposal area are a series of shallow excavated trenches. At one of the trenches, there are a few 2- to 3-inch-thick surface accumulations of a weathered tar-like sludge.

Development of the disposal area apparently occurred between 1944 and 1951 (Apex, 2014), a period that corresponds with the time of transfer (1946) of the Redmond Municipal Airport from the U.S. Army Air Forces to the City of Redmond (David Evans and Associates, 2008).

As noted above, the landfill and landfill trench area contain a variety of wastes. Primary contaminants associated with shooting activities are lead from bullets, and PAHs from clay pigeons. Other metals have been detected at elevated concentrations. Some of these may be associated with shooting activities but this is not known.

## **3. RESULTS OF INVESTIGATIONS**

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### **3.1 NATURE AND EXTENT OF CONTAMINATION**

#### **3.1.1 Locality of facility**

OAR 340-122-115 defines locality of facility as any point where a human or an ecological receptor contacts, or is reasonably likely to come into contact with, facility-related hazardous substances. Given that the contaminants of potential concerns (PAHs and metals) have low mobility, and based on Site sampling results, we conclude that the locality of facility is does not extend horizontally beyond the property boundary, and does not extend vertically more than a few feet below the ground surface for the shooting range areas. Testing also indicates that contamination does not extend significantly below the bottom of the waste in the landfill area. The thickness of the waste layer in the landfill is ranges from approximately 1.5 to 14 feet.

The locality of facility is not expect to include groundwater or surface water. The nearest surface water body, the North Unit Canal, is 1.1 miles southeast of the Site. Groundwater is more than 300 feet bgs.

#### **3.1.2 Groundwater**

A review of the Oregon Water Resources well database was conducted by David Evans and Associates (DEA) (DEA, 2008). According to the database, the closest water well (and only recorded water well within Section 14) is on a portion of the subject property at the Redmond Rod and Gun Club. According to the well log, the static water level in this well is 330 feet bgs. This well is approximately 370 feet deep and is uncased in the interval between 20 and 370 feet.

Because the contaminants at this Site are fairly immobile, and given that groundwater is greater than 300 feet, impacts to groundwater are quite unlikely. DEQ therefore did not require installation of groundwater monitoring wells. We did, however, request that the onsite production well be sampled. This was done in October 2019. The static water level was found to be 335 feet bgs. Sample results are discussed in section 3.2.2.

A second well log was found for a well in the NE quarter of Section 23 (south of the subject property). The static water level in this well is documented at 375 feet bgs.

### **3.1.3 Surface Water**

As noted above, the nearest surface water is an irrigation canal, the North Unit Canal, which is located approximately 1.1 miles southeast of the Site. Impacts to surface water are therefore not expected.

### **3.1.4 Soil**

Soil sampling was conducted at the various areas of concern. As shown in **Figure 2**, these include the landfill and trench area, the former Sheriff's Office Shooting Range, and the various shooting ranges operated by the Redmond Rod and Gun Club. Sample results are compared to applicable human health and ecological risk screening levels in section 3.2.

## **3.2 RISK ASSESSEMENT**

### **3.2.1 Conceptual Site Model**

Risk assessments are based on a conceptual site model that identifies complete exposure pathways. A conceptual site model considers:

- Sources of contamination,
- Pathways by which contamination reaches or could reach human or ecological receptors,
- The circumstances under which a human or ecological receptor could come into contact with the contaminant.

As shown in **Figure 3**, human receptors that could be exposed include:

- Occupational workers exposed to contamination in surface soil. Pathways include inhalation, ingestion and dermal contact.
- Construction and excavation workers exposed to contamination in surface and subsurface soil. Pathways include inhalation, ingestion and dermal contact.
- Occupational workers could be exposed to contaminants in groundwater because the Site currently has a supply well. In the future, the County plans to provide water from its supply system so exposure to contaminants in this well would be eliminated. It should also be noted that October 2019 testing of this well indicates that groundwater is not impacted by waste on the Site.
- Terrestrial ecological receptors could be exposed to contaminants in surface soil. Burrowing animals could be exposed to contaminants in subsurface soil. Pathways include inhalation, ingestion and dermal contact.

### 3.2.2 Human Health Risk Screening

Results of Site sampling are presented in Apex 2020. The tables in this report also include screening level values for human and ecological receptors. Human health risk based concentrations (RBCs) are taken from Oregon DEQ 2018.

**Table 1** compares maximum detected contaminant concentrations to applicable human health RBCs and ecological screening level values (Oregon DEQ 2001). As shown in this table, two metals (arsenic and lead) were found at concentrations that exceeds one or more applicable RBCs, and also exceed background metal concentrations published in Oregon DEQ 2013. Five PAHs were found at concentrations that exceed one or more RBCs. These contaminants include benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. Diesel and heavy oil-range petroleum hydrocarbons exceed applicable RBCs for diesel and heavy oil.

**Cumulative Risk.** In accordance with OAR 340-122-0084(1)(i), cumulative risk from multiple hazardous substances was assessed by adding the risk posed separately by individual non-carcinogenic and carcinogenic hazardous substances in the locality of the facility. These calculations are summarized in **Table 2**. As shown, this considers those contaminants for which the maximum detected concentration exceeds the lowest applicable RBC.

Cumulative carcinogenic risk is estimated to be  $1 \times 10^{-4}$ , which is an order of magnitude greater than the acceptable risk level, as defined in OAR 340-122-0115. Cumulative noncarcinogenic risk is approximately 30 times the acceptable risk level. This is due primarily to the high concentration of lead.

**Groundwater testing.** As noted above, the locality of facility is not expected to include groundwater, which is at a depth greater than 330 feet. However, the onsite production well, which is not currently used, was tested. Two samples were collected. The first (S-1) was collected at the beginning of the well purging process, in case the well yielded insufficient water for sample collection following purging. The second sample (S-2) was collecting after purging, and is considered representative of groundwater quality.

Both samples were analyzed for lead (total and dissolved) and PAHs. Dissolved lead was less than 0.0001 milligrams per liter (mg/L) in both samples. Total lead was found in S-1 and S-2 at concentrations of 0.0117 and 0.00948 mg/L. These concentrations are less than the drinking water RBC of 0.015 mg/L.

PAHs were less than the reporting limit of 0.1 micrograms per liter (ug/L) with one exception: in the pre-purge sample, S-1, benzo(a)pyrene was found at a concentration of 0.130 ug/L. This is less than the drinking water RBC, 0.47 ug/L.

### **3.2.3 Ecological Risk Screening**

As noted above, Table 1 of this report compares maximum detected contaminant concentrations to applicable human health RBCs and ecological screening level values (Oregon DEQ 2001). As shown in this table, several metals were found at concentrations above one or more ecological SLVs, and were also found above background metal concentrations published in Oregon DEQ 2013. These include aluminum, antimony, arsenic, cadmium, copper, iron, lead, mercury, selenium, silver, tin and zinc.

A review by GeoEngineers indicates there are no threatened or endangered species on the Site (GeoEngineers 2009).

## **3.3 BENEFICIAL USE AND HOT SPOT DETERMINATION**

### **3.3.1 Land Beneficial Use Determination**

Historical land uses have included the disposal area in the west and central portions of the Site, and small arms firing range uses on the central and east portions of the Site. Additional historical land uses have not been identified.

The remainder of the Site is vacant or unused, including the disposal area and the Sheriff's Range.

Future allowed uses are described in the 2007 City of Redmond Eastside Framework Plan, which indicates that the Site is zoned Light Industrial (M-1). Properties zoned M-1 are intended, but not limited to, most commercial and industrial uses. Other conditional allowed uses could include child care centers, homeless shelters, schools, churches, and motels. Deschutes County intends to market the property for sale for redevelopment for light industrial or commercial uses.

### **3.3.2 Water Beneficial Use Determination**

GeoEngineers reviewed well logs filed with the Oregon Water Resources Department (OWRD) for the area within approximately ½-mile of the Site (GeoEngineers 2009). The review included portions of Sections 13, 14, 15, 22, and 23 of Township 15 South, Range 13 East, Willamette Meridian. Three well logs (no. DESC 3878, DESC 3953 and DESC 3954) were identified in the search area. Well log DESC 3878 apparently described the onsite production well. The other wells logs (DESC 3953 and DESC 3954) are for wells located outside of the locality of facility.

The OWRD database reports that no groundwater points of diversion are present within 1 mile of the Site.

The nearest surface water to the Site is an irrigation canal, the North Unit Main Canal, which is located approximately 1.1 miles southeast of the Site. A wetland area is associated with this canal.

An onsite production well provides water to the Site; however, the City of Redmond intends to provide municipal water to the Site in the future. The City of Redmond's primary source of water is a network of wells that are screened in a deep (~750 feet bgs) aquifer. The municipal wells are located outside of the estimated LOF.

The U.S. Fish and Wildlife Service Wetlands Online Mapper indicates that the closest wetland to the Site is a riverine wetland, associated with the North Unit Main Canal, that is located approximately 1.1 miles southeast of the Site.

The findings of the beneficial water use survey can be summarized as follows:

- An onsite production well provides drinking water for the Site.
- Municipal water will likely be available at the Site in the future.
- There is no surface water at the Site.
- No groundwater or surface water points of diversion were identified within approximately 3,000 feet of the Site.
- Wetlands are not present at the Site.
- The threat to groundwater at the Site is minimal. In the unlikely event that groundwater is impacted by Site-derived contaminants in the future, human exposure is unlikely because municipal water will likely be supplied to the Site.

### **3.3.3 Hot Spots**

The criteria used to evaluate remedial alternatives for groundwater and surface water depend on whether a "hot spot" is present or not, as determined by a loss of "current or reasonably likely future" beneficial use of the water resource.

OAR 3401-122-115(9) defines beneficial uses of water as:

any current or reasonably likely future beneficial use of groundwater or surface water by humans or ecological receptors.

OAR 340-122-115(32) defines hot spot of contamination as:

(a) For groundwater or surface water, hazardous substances having a significant adverse effect on beneficial uses of water or waters to which the hazardous substances would be reasonably likely to migrate and for which treatment is reasonably likely to restore or protect such beneficial uses within a reasonable time, as determined in the feasibility study; and

(b) For media other than groundwater or surface water, (e.g., contaminated soil, debris, sediments, and sludges; drummed wastes; "pools" of dense, non-aqueous phase liquids submerged beneath groundwater or in fractured bedrock; and non-aqueous phase liquids floating on groundwater), if hazardous substances present a risk to human health or the environment exceeding the acceptable risk level, the extent to which the hazardous substances:

(A) Are present in concentrations exceeding risk-based concentrations corresponding to:



- (i) 100 times the acceptable risk level for human exposure to each individual carcinogen;
  - (ii) 10 times the acceptable risk level for human exposure to each individual noncarcinogen; or
  - (iii) 10 times the acceptable risk level for exposure of individual ecological receptors or populations of ecological receptors to each individual hazardous substance.
- (B) Are reasonably likely to migrate to such an extent that the conditions specified in subsection (a) or paragraphs (b)(A) or (b)(C) would be created; or
- (C) Are not reliably containable, as determined in the feasibility study.

**Human health hot spots.** As noted above, there are no current or planned uses of groundwater or surface water within the locality of facility. This hot spot evaluation is therefore limited to soil. As shown in **Table 3**, a hot spot evaluation for human health was conducted based on a comparison of the maximum detected contaminant concentrations to the lowest applicable RBCs. Based on this evaluation, there are soil hot spots for lead, but not for other contaminants.

**Ecological hot spots.** Sensitive species or environments are not present at the Site; therefore, for birds and mammals, hazardous constituent concentrations that do not exceed the corresponding Level II Screening Level Value (SLV) by a factor greater than 5 (also referred to as “Q=5”) are considered acceptable for ecological risk screening. For invertebrates and plants, a constituent concentration/SLV ratio less than one (Q=1) is considered acceptable.

For soil, OAR 340-122-0115 defines a hot spot of contamination, based on ecological exposure, as a soil concentration that is present at 10 times the acceptable risk level for exposure of individual ecological receptors or populations of ecological receptors to each individual hazardous substance.

Therefore, the hot spot criterion for invertebrates and plants (individual receptors) is equivalent to an ER of 10 and the hot spot criterion for birds and mammals (populations) is equivalent to an ER of 50.

As shown in **Table 4**, six metals were found at concentrations above ecological hot spot levels.

## 4. DESCRIPTION OF REMEDIAL ACTION OPTIONS

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### 4.1 REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are medium-specific goals for protecting human health and the environment. RAOs provide the framework for developing and evaluating potential remedial action alternatives. The following RAOs have been developed for the Site:

**Human Health.** The human health RAO for the Site is to prevent direct contact of occupational, construction, and excavation workers with soil that contains hazardous substances at concentrations above applicable RBCs.

**Ecological.** The ecological RAO for the Site is to prevent exposure of plants, invertebrates, birds, and mammals to soil that contains hazardous substances at concentrations above acceptable risk levels for ecological exposure.

Acceptable risk levels, as defined in OAR 340-122-115(1) through (6), and remedial action objectives were developed based on the identified beneficial uses, exposure pathways and the risk assessment.

**Hot Spots.** To the extent practicable, as defined by DEQ rules, eliminate hot spots of contamination through treatment or excavation and offsite disposal.

#### 4.1.1 Acceptable Risk Levels

Acceptable risk levels for human health are the lowest applicable RBCs shown in Table 1. Acceptable risk levels for ecological receptors are the lowest ecological screening level values (SLVs). These are also shown in Table 1.

Site-specific remedial action objectives (RAOs) were developed for soil for the purpose of achieving protection of human health, ecological receptors, and beneficial uses, as required by OAR 340-122-040.

## 4.2 REMEDIAL ACTION OPTIONS

General response actions and remedial technologies were screened in the feasibility study. General response actions are broad categories of remedial measures that address the RAOs. The general response actions considered in the feasibility study included the following:

- No action
- Institutional controls
- Containment
- Removal and Disposal
- In-situ or Ex-situ solidification/stabilization

Table 11 of Apex 2018 identifies technologies associated with each of these options, as well as a discussion of effectiveness, implementability and cost. This table also identifies which of these technologies is accepted or rejected for further consideration, and the basis for those decisions. This table is included here as **Attachment 1**.

## **5. EVALUATION OF REMEDIAL ACTION OPTIONS**

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### **5.1 EVALUATION CRITERIA**

The criteria used to evaluate the remedial action alternatives are defined in OAR 340-122-090, and establish a two-step approach to evaluate and select a remedial action. The first step evaluates whether a remedial action is protective; if not, the alternative is unacceptable and the second step evaluation is not required. The remedial alternatives considered protective are evaluated and compared with each other using five balancing factors. The five balancing factors are 1) effectiveness in achieving protection, 2) long-term reliability, 3) implementability, 4) implementation risk, and 5) reasonableness of cost.

Where a hot spot has been identified, an evaluation of how each alternative achieves the specific requirements for treatment of hot spots is also included. The alternative that compares most favorably against these balancing factors, and complies with the hot spot criteria, is selected for implementation.

### **5.2 PROTECTIVENESS**

The protectiveness of a given remedial action is evaluated based on whether the action prevents or adequately reduces current or reasonably likely future exposure pathways. At this Site, those exposure pathways include direct exposure to occupational, construction and excavation works through ingestion, inhalation or dermal absorption.

OAR 340-122-090 states that protectiveness may be achieved by any of the following methods:

- Treatment
- Excavation and offsite disposal
- Engineering controls
- Institutional controls
- Any other method of protection
- A combination of the above

With the exception of hot spots, there is no preference for any one of the above methods for achieving protectiveness. Where a hot spot has been identified, OAR 340-122-090(4) establishes a preference for treatment to the extent feasible, including a higher threshold for evaluating the reasonableness of costs for treatment.

### **5.2.1 Alternative 1 - No Action**

Alternative 1 would not take any action to minimize potential human or environmental exposure. The potential for future exposure of human or ecological receptors exposed to contaminated soil and debris that exceed the acceptable risk levels would still exist. Therefore, Alternative 1 is not protective and will not be evaluated further.

### **5.2.2 Alternative 2 – Onsite Disposal**

Onsite disposal of contaminated soil from the firing ranges and debris from the disposal area is considered protective, provided that the cover is sufficiently robust, is adequately inspected maintained, and is supported by institutional controls alerting future occupants of the presence of the contamination. This alternative does not include treatment or removal of hot spots. This is discussed further in section 6.

### **5.2.3 Alternative 3 – Offsite disposal**

Offsite disposal of contaminated soil from the firing ranges and debris from the disposal area is considered protective, provided that the disposal facility is operated in accordance with its permit and current standards of practice. In addition, this alternative address the preference for treatment of hot spots, because offsite disposal is considered a treatment option.

## **5.3 BALANCING FACTORS**

The two remedial action alternatives determined to be protective are evaluated against the following balancing factors defined in OAR 340-122-090(3):

- **Effectiveness in achieving protection.**
- **Long-term reliability.**
- **Implementability.**
- **Implementation Risk.**
- **Reasonableness of Cost.**

Balancing factors are evaluated in Apex 2018. This evaluation is summarized in **Attachment 2**.

## **6. RECOMMENDED REMEDIAL ACTION ALTERNATIVE**

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Based on the evaluation of the alternatives above, Alternative 2, Onsite Disposal, is recommended for implementation at this Site.

Under this alternative, hot spots would be managed, but there would be no reduction in contaminant mass or toxicity. The soil contaminants are not mobile, so the lead and PAHs in soil would be reliably contained under the excavation and onsite disposal alternative, provided the cover is sufficiently robust, and is adequately inspected and maintained.

The excavation and offsite disposal alternative would remove the contaminant mass and associated toxicity and place it in a permitted landfill for disposal. Therefore, the excavation and offsite disposal alternative would result in the highest level of hot spot treatment.

Given the significant difference in cost (\$5,180,000 for alternative 2 compared to \$9,360,000 for alternative 3), alternative 2 (onsite disposal) is recommended despite the preference for treatment of hot spots.



## **7. PUBLIC NOTICE AND COMMENT**

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DEQ issued public notice on June 1, 2020 requesting comments from the public by July 1, 2020. No comments were received.

## 8. APPENDIX

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### **ADMINISTRATIVE RECORD INDEX** **Deschutes County Shooting Range** **Redmond, Oregon**

The Administrative Record consists of the documents on which the recommended remedial action for the Site is based. The primary documents used in evaluating remedial action alternatives for the Deschutes County Shooting Range Site are listed below. Additional background and supporting information can be found in the Site project file located at DEQ Eastern Region Office, 400 E. Scenic Drive, Suite 2.307, The Dalles, Oregon.

#### **SITE-SPECIFIC DOCUMENTS**

2019. Voluntary Letter Agreement, Deschutes County Shooting Range, ECSI Nos. 4710 & 5054. Signed April 4, 2019.

Apex. 2014. *Draft Data Gap Report, Deschutes County Property at Redmond Rod and Gun Club, Redmond, Oregon.* May 22, 2014.

Apex. 2018. *Revised Feasibility Study, Deschutes County Shooting Range Property, Redmond, Oregon.* November 16, 2018.

Apex. 2020. *Revised Feasibility Study, Deschutes County Shooting Range Property, Redmond, Oregon.* May 4, 2020

David Evans and Associates, Inc. 2008. *Phase I Environmental Site Assessment For A Portion of Tax Lot 103 Located in Sec 14, of T.15S., R.13E., W.M. Redmond, Oregon 97756.* July 16, 2008.

David Evans and Associates, Inc. 2009. *Targeted Brownfield Assessment Report and Analysis of Brownfield Cleanup Alternatives, Deschutes County Shooting Range, Redmond, Oregon.* March 5, 2009.

GeoEngineers. 2009. *Targeted Brownfield Assessment, Report and Analysis of Brownfield Cleanup Alternatives, Deschutes County Shooting Range, Redmond, Oregon.* March 5, 2009.

Kleinfelder. 2008. *Phase I Environmental Site Assessment, Deschutes County Leased Property, Approximately 140 Acres, East Highway 126 Redmond, Oregon.* July 3, 2008.

Oregon DEQ. 2001. Guidance for Ecological Risk Assessment: Levels I, II, III, IV. April 1998 (updated December 2001).

Oregon DEQ. 2013. *Development of Oregon Background Metals Concentrations in Soil*. March 2013.

Oregon DEQ. 2018. Risk Based Concentrations, last updated May 2018.  
<https://www.oregon.gov/deq/Hazards-and-Cleanup/env-cleanup/Pages/Risk-Based-Decision-Making.aspx>.

### **List of Tables**

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Table 2. Cumulative Human Health Risk

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### **List of Figures**

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### **List of Attachments**

Attachment 1. Soil Technology Screening (Reference: Apex 2020, Table 11)

Attachment 2. Comparative Evaluation of Alternatives (Reference: Apex 2020, Table 16)



**Table 2. Cumulative Human Health Risk (all concentrations in mg/kg)**

|                                        | <b>Max conc</b> | <b>lowest applicable RBC</b> | <b>Conc/RBC</b> | <b>Carcinogenic Risk</b> |
|----------------------------------------|-----------------|------------------------------|-----------------|--------------------------|
| <b>CARCINOGENS</b>                     |                 |                              |                 |                          |
| Arsenic                                | 13.9            | 1.9                          | 7.3             | 7.E-06                   |
| Benz[a]anthracene                      | 136             | 21                           | 6.5             | 6.E-06                   |
| Benzo(a)pyrene                         | 191             | 2.1                          | 91.0            | 9.E-05                   |
| Benzo[b]fluoranthene                   | 28.8            | 21                           | 1.4             | 1.E-06                   |
| Dibenz[a,h]anthracene                  | 26.2            | 2.1                          | 12.5            | 1.E-05                   |
| Indeno[1,2,3-cd]pyrene                 | 124             | 21                           | 5.9             | 6.E-06                   |
| Polychlorinated biphenyls (Total PCBs) | 1.98            | 0.59                         | 3.4             | 3.E-06                   |
|                                        |                 | <b>Sum:</b>                  | <b>127.9</b>    |                          |
| <b>Sum x 10-6 = cumulative risk:</b>   |                 |                              | <b>1.E-04</b>   |                          |

|                                 |        |        | <b>Noncarcinogenic risk</b> |
|---------------------------------|--------|--------|-----------------------------|
| <b>NONCARCINOGENS</b>           |        |        |                             |
| Lead                            | 21,600 | 800    | 27.0                        |
| Generic diesel/heating oil      | 10,300 | 4,600  | 2.2                         |
| Generic mineral/insulating oil  | 12,100 | 11,000 | 1.1                         |
| <b>Sum = hazard index (HI):</b> |        |        | <b>30</b>                   |

**Table 3. Hot Spot Evaluation for Contaminants Exceeding Human Health Risk Based Concentrations (RBCs) in Soil**

|                                        | <b>Max conc</b> | <b>lowest applicable RBC</b> | <b>Hot spot level</b> | <b>Hot spot? Y/N</b> |
|----------------------------------------|-----------------|------------------------------|-----------------------|----------------------|
| <b>CARCINOGENS</b>                     |                 |                              |                       |                      |
| Arsenic                                | 13.9            | 1.9                          | 190                   | N                    |
| Benz[a]anthracene                      | 136             | 21                           | 2,100                 | N                    |
| Benzo(a)pyrene                         | 191             | 2.1                          | 210                   | N                    |
| Benzo[b]fluoranthene                   | 28.8            | 21                           | 2,100                 | N                    |
| Dibenz[a,h]anthracene                  | 26.2            | 2.1                          | 210                   | N                    |
| Indeno[1,2,3-cd]pyrene                 | 124             | 21                           | 2,100                 | N                    |
| Polychlorinated biphenyls (Total PCBs) | 1.98            | 0.74                         | 74                    | N                    |
| <b>NONCARCINOGENS</b>                  |                 |                              |                       |                      |
| Lead                                   | 21,600          | 800                          | 8,000                 | Y                    |
| Generic diesel/heating oil             | 10,300          | 4,600                        | 46,000                | N                    |

**NOTES:**

For carcinogens, the hotspot concentration is 100 times the lowest applicable RBC, per OAR 340-122-0115.

For noncarcinogens, the hotspot concentration is 10 times the lowest applicable RBC, per OAR 340-122-0115.



Table 4. Hot Spot Evaluation for Contaminants Exceeding Ecological Screening Levels in Soil

|                |            |                                             | Ecological Screening Level Values (SLVs)   |        |         |       |         |                 |                  |
|----------------|------------|---------------------------------------------|--------------------------------------------|--------|---------|-------|---------|-----------------|------------------|
| Contaminant    | Max. conc. | Hotspot conc<br>for plants<br>and inverts * | Hotspot conc<br>for birds and<br>mammals * | Plants | Inverts | Birds | Mammals | Default<br>bkgd | Hot spot?<br>Y/N |
| Aluminum       | 23,900     | 500                                         | 5,350                                      | 50     | 600     | 450   | 107     | NL              | Y                |
| Antimony       | 218        | 50                                          | 750                                        | 5      | NL      | NL    | 15      | 1.3             | Y                |
| Arsenic        | 13.9       | 100                                         | 500                                        | 10     | 60      | 10    | 29      | 6.8             | N                |
| Barium         | 826        | 5,000                                       | 4,250                                      | 500    | 3000    | 85    | 638     | 700             | N                |
| Cadmium        | 14.2       | 40                                          | 300                                        | 4      | 20      | 6     | 125     | 0.4             | N                |
| Chromium (III) | 37.3       | 4                                           | 200                                        | 1      | 0.4     | 4     | 340,000 | 170             | N                |
| Copper         | 479        | 500                                         | 9,500                                      | 100    | 50      | 190   | 390     | 29              | N                |
| Iron           | 78,400     | 100                                         | --                                         | 10     | 200     | NL    | NL      | NL              | Y                |
| Lead           | 21,600     | 500                                         | 800                                        | 50     | 500     | 16    | 4,000   | 18              | Y                |
| Manganese      | 702        | 1,000                                       | 206,250                                    | 500    | 100     | 4125  | 11,000  | 1,300           | N                |
| Mercury        | 5.36       | 1                                           | 75                                         | 0.3    | 0.1     | 1.5   | 73      | 0.04            | Y                |
| Nickel         | 65.1       | 300                                         | 16,000                                     | 30     | 200     | 320   | 625     | 78              | N                |
| Selenium       | 4.04       | 10                                          | 100                                        | 1      | 70      | 2     | 25      | 0.46            | N                |
| Tin            | 391        | 500                                         | --                                         | 50     | 2000    | NL    | NL      | NL              | N                |
| Vanadium       | 105        | 20                                          | 1,250                                      | 2      | NL      | 47    | 25      | 300             | N                |
| Zinc           | 3,260      | 500                                         | 3,000                                      | 50     | 200     | 60    | 20,000  | 130             | Y                |

NL: No value is listed for this contaminant.

Default background concentrations for metals are taken from DEQ 2013, and represent the Deschutes-Columbia Plateau physiographic province.

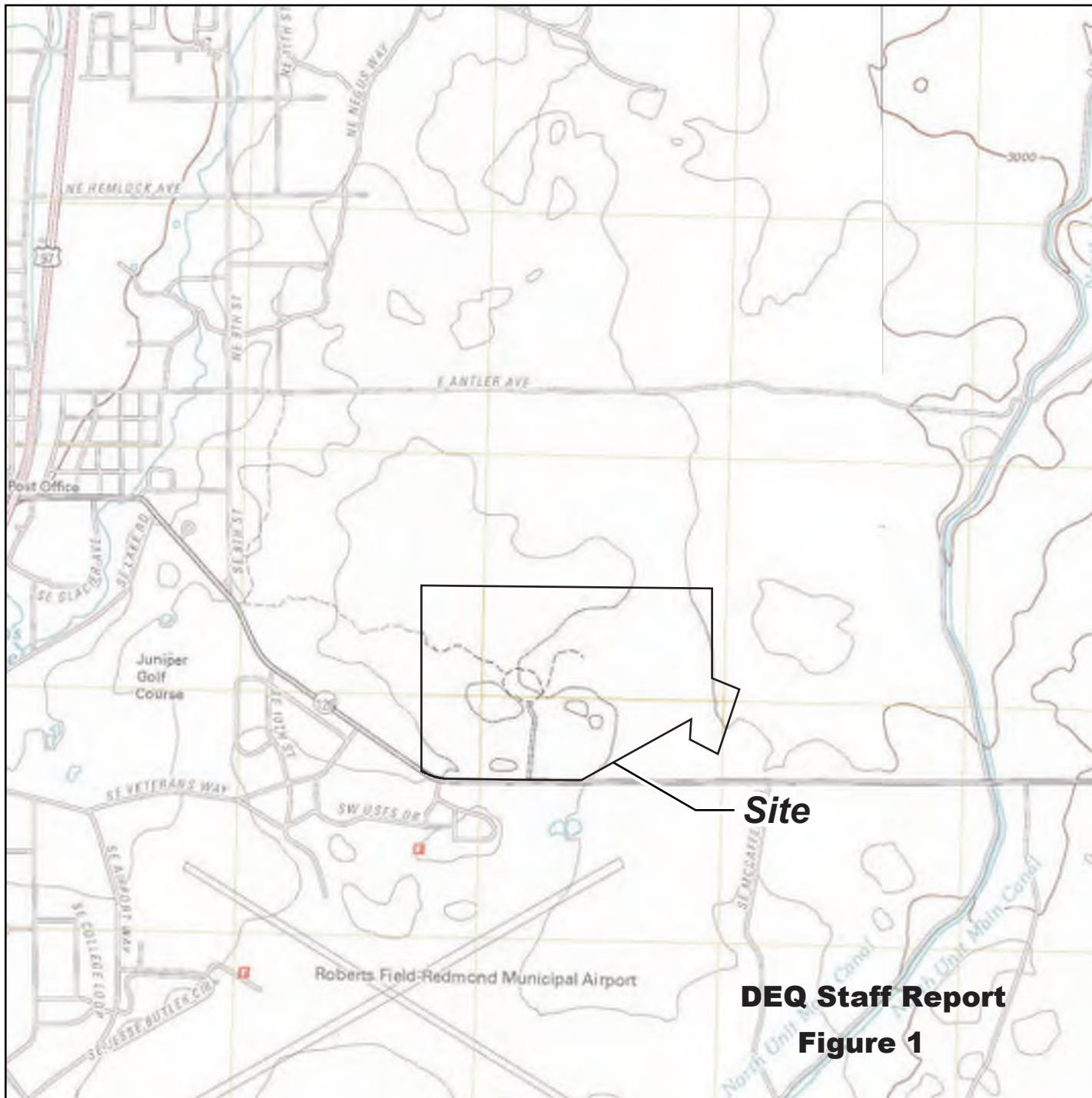
Yellow shading: The maximum detected concentration exceeds the ecological hot spot level, and exceeds the default background concentration for metals.

Orange shading: The default background concentration is higher than the highest detected concentration at this site. There are therefore no hot spots for soil for this contaminant.

\* The hot spot level is defined as 10 times the ecological SLV for plants and invertebrates (individuals) and 50 times the SLV for birds and mammals (populations).

**Table 5. Summary of Costs for Onsite Disposal  
and Offsite Disposal**

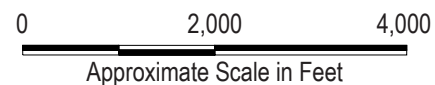
|                         |                      |                  |
|-------------------------|----------------------|------------------|
| <b>Onsite Disposal</b>  |                      |                  |
|                         | Firing Ranges        | 1,810,000        |
|                         | Former Disposal Area | 3,370,000        |
|                         | <b>Total:</b>        | <b>5,180,000</b> |
|                         |                      |                  |
| <b>Offsite Disposal</b> |                      |                  |
|                         | Firing Ranges        | 4,460,000        |
|                         | Former Disposal Area | 4,900,000        |
|                         | <b>Total:</b>        | <b>9,360,000</b> |



**Site**

**DEQ Staff Report  
Figure 1**

**Note:** Base map prepared from USGS 7.5-minute quadrangles of Redmond and O'Neil, OR, dated 2011 as provided by USGS.gov.



## Site Location Map

Feasibility Study  
Deschutes County Shooting Range Property  
Deschutes County, Oregon

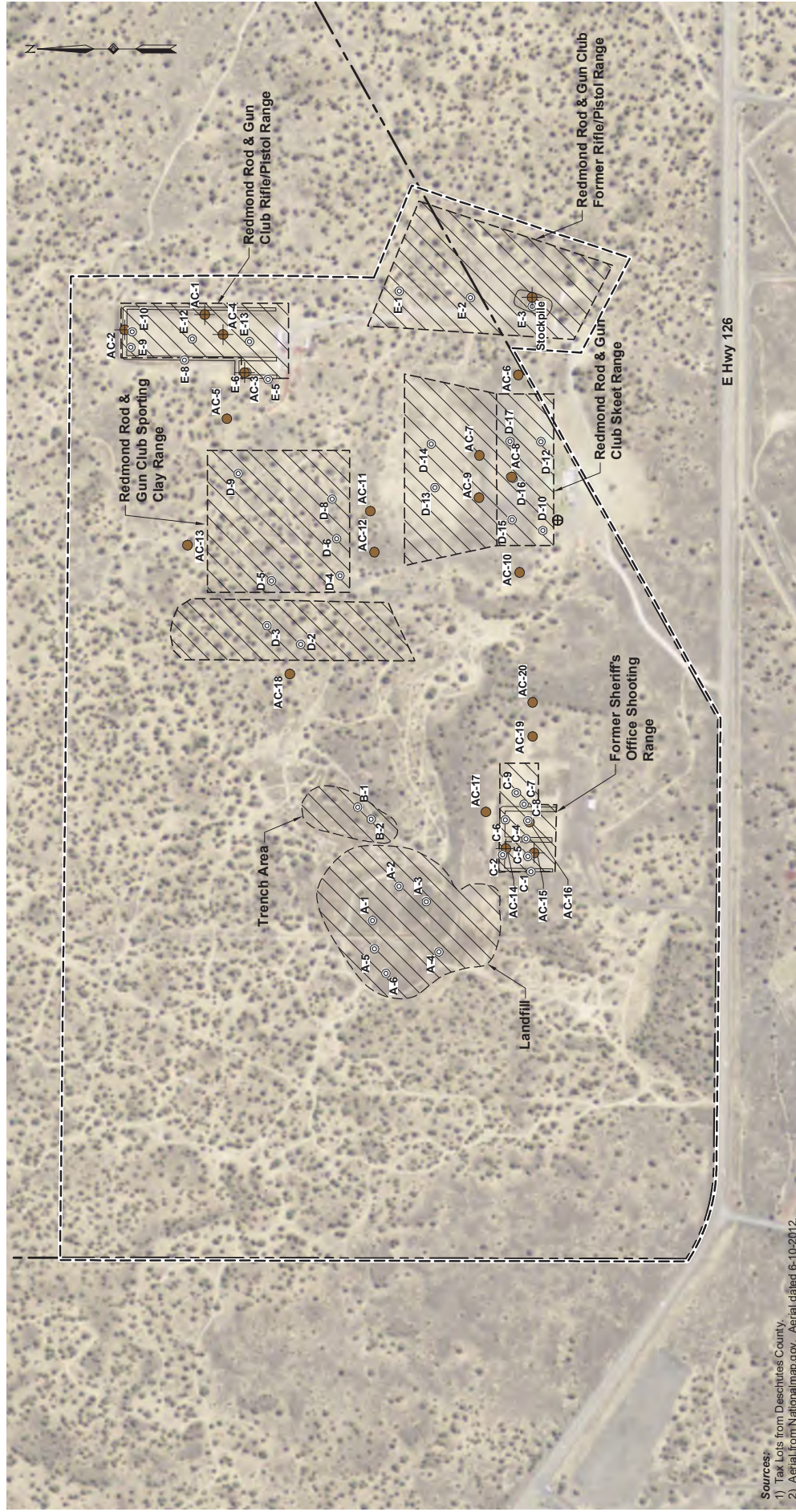


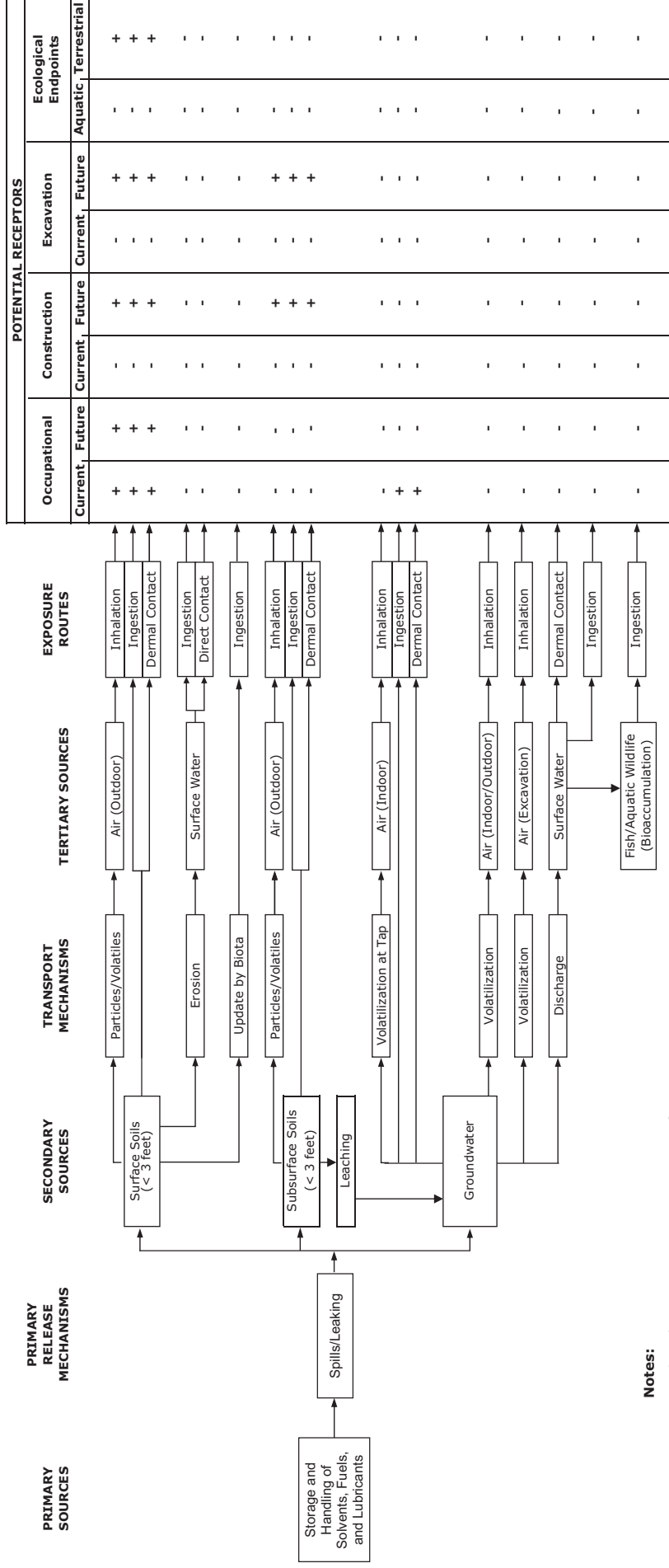
Apex Companies, LLC  
3015 SW First Avenue  
Portland, Oregon 97201

|                |         |
|----------------|---------|
| Project Number | 2112-05 |
| November 2018  |         |

Figure  
**1**







**Notes:**

- + This route is a primary source of exposure.
- There is no exposure by this route.

**DEQ Staff Report  
Figure 3**

**Conceptual Site Model**  
Feasibility Study  
Deschutes County Shooting Range Property  
Deschutes County, Oregon

**DEQ Staff Report  
Attachment 1**

**Table 11  
Soil Technology Screening  
Deschutes County Shooting Range  
Redmond, OR**

| General Response Action             | Technology                                     | Description                                                                                                                                                                                          | Screening Criteria                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                      |                                  | Screening Comments                                                                                                  |
|-------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------|
|                                     |                                                |                                                                                                                                                                                                      | Effectiveness                                                                                                                                                                                                                                                                                       | Implementability                                                                                                                                                                                                                                     | Cost                             |                                                                                                                     |
| NO ACTION                           | No Action                                      | No Action                                                                                                                                                                                            | Not effective in achieving RAOs                                                                                                                                                                                                                                                                     | Easy to implement                                                                                                                                                                                                                                    | No capital or O&M costs incurred | Does not meet threshold criteria, but required to be retained for comparison purposes.                              |
| INSTITUTIONAL CONTROLS              | Legal Restrictions, Regulations, and Covenants | May include restrictions such as: deed restrictions, easements, and covenants, attached to property-related documents; legal bans or controls of activities.                                         | Can be effective at controlling human exposures, but less effective (or not effective) at controlling ecological exposures. Is not effective at controlling or reducing migration. Most suitable for use in conjunction with other active technologies.                                             | Easy to implement.                                                                                                                                                                                                                                   | Low                              | Potentially applicable in conjunction with other technologies and/or to address residual contamination.             |
|                                     | Soil Management Plan                           | Development and publication of protocols for handling and managing contaminated sediments/soil during future work to protect workers, public health, ecological exposures, and the environment.      | Effective for management of contaminated sediments/soils. Not effective at preventing human or ecological exposures without other active technologies.                                                                                                                                              | Easy to implement.                                                                                                                                                                                                                                   | Low                              | Potentially applicable in conjunction with other technologies and/or to address residual contamination.             |
|                                     | Signage/Notifications/Advisories               | Posting of signs and/or distribution of notifications regarding health concerns in area of contamination.                                                                                            | Can be effective at reducing human exposures via public education, but not effective at controlling ecological exposures. Is not effective at controlling or reducing migration. Most suitable for use in conjunction with other active technologies.                                               | Easy to implement.                                                                                                                                                                                                                                   | Low                              | Retained for signage around contaminant area (if needed).                                                           |
|                                     | Monitoring                                     | Laboratory analysis of samples collected from sediment/soil.                                                                                                                                         | Effective for documenting site conditions and exposure risks; evaluating migration and naturally occurring processes, and effectiveness of remediation actions. Does not address contaminant reduction or receptor exposures.                                                                       | Easy to implement                                                                                                                                                                                                                                    | Low                              | Potentially applicable to confirm effectiveness of technologies.                                                    |
| ENGINEERING CONTROLS                | Fencing                                        | Fencing placed around the contaminated areas to prevent access.                                                                                                                                      | Is not effective at controlling or reducing migration. Does not address ecological exposure.                                                                                                                                                                                                        | Likely to require acceptance and cooperation of multiple parties to implement. Relatively simple technology to implement. Not compatible with future development.                                                                                    | Moderate                         | Not retained because technology does not address ecological exposures and human health exposures areas are limited. |
| CONTAINMENT                         | Soil Cap or Cover                              | Installation of an engineered cap or soil cover over impacted soil.                                                                                                                                  | Should be effective for site contaminants that have low-solubility (i.e., chemicals likely to remain bound to soil). Effective in removing impacted soil.                                                                                                                                           | Generally uses proven technologies.                                                                                                                                                                                                                  | Moderate                         | Retained as applicable technology.                                                                                  |
| REMOVAL AND DISPOSAL                | Excavation                                     | Mechanical removal of contaminated soil.                                                                                                                                                             | Landfills are controlled, managed facilities that are effective in preventing future exposures. Addresses direct exposure pathways and migration by removing contaminant mass from site.                                                                                                            | Excavation equipment is readily available.                                                                                                                                                                                                           | High                             | Applicable for removal of impacted soil.                                                                            |
|                                     | Off-Site Disposal                              | Off-site disposal of excavated soil at a permitted solid waste landfill.                                                                                                                             |                                                                                                                                                                                                                                                                                                     | Implementation involves transportation of contaminated soil on public roads for potentially long distances.                                                                                                                                          | High                             | Not a stand alone technology. Applicable for handling of excavated soil.                                            |
| IN-SITU PHYSICAL/CHEMICAL TREATMENT | Solidification/Stabilization                   | Contaminants are physically bound or enclosed in a stabilized mass (solidification) or chemical reactions are induced between the reagent and contaminants to reduce their mobility (stabilization). | Most suitable to inorganic contaminants. Resilient sediments may not provide suitable ecological habitat. Difficult to demonstrate that soil stabilization is effective for human and ecological exposures at site. Would require more intensive long term monitoring to demonstrate effectiveness. | Soil stabilization for shallow soils is not common, and it would be difficult to integrate a stabilization area with a commercial or industrial redevelopment. It is difficult to estimate the useful life of a stabilization area.                  | Moderate to High                 | Retained as a common element for remedial alternative to stabilize potentially hazardous waste.                     |
| IN-SITU BIOLOGICAL TREATMENT        | Enhanced Bioremediation                        | Addition of nutrients, electron acceptors, or other amendments to sediment to enhance bioremediation.                                                                                                | Not likely to be effective for many of the contaminants of concern.                                                                                                                                                                                                                                 | Blending of amendments into sediment would require disturbance of sediment and would potentially cause significant resuspension.                                                                                                                     | Moderate                         | Not retained because not effective on many of contaminants of concern.                                              |
|                                     | Phytoremediation                               | The process of using plants to remove, transfer, stabilize and/or destroy contaminants in soil or sediment.                                                                                          | Can be effective at removing a variety of organic and inorganic compounds from soil/sediment through plant uptake in the plant rhizosphere.                                                                                                                                                         | Would require planting of suitable plants for site conditions, or changing of site conditions to accommodate plants (such as the construction of an engineered wetlands). Would not likely be compatible with future industrial and commercial uses. | Moderate                         | Not retained because incompatible with site conditions.                                                             |
| IN-SITU NATURAL PROCESSES           | Natural Attenuation                            | Naturally occurring physical and biological processes (biodegradation) reduce contaminant concentrations. Process is monitored to verify exposures.                                                  | Not effective for soils with high molecular weight PAHs and metals.                                                                                                                                                                                                                                 | Easy to implement. Monitoring of COI concentrations in soil would require long-term monitoring. May require significant timeframe to reach cleanup goals.                                                                                            | Low                              | Not applicable to site contaminants.                                                                                |



Table 11

## Soil Technology Screening

Deschutes County Shooting Range

Redmond, OR

| General Response Action             | Technology                                     | Description                                                                                                                                                                                                                                                                                                                                             | Screening Criteria                                                                                                                                                                                                  |                                                                                                                                                                                                                                             | Cost            | Screening Comments                                                                                                                                                  |
|-------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     |                                                |                                                                                                                                                                                                                                                                                                                                                         | Effectiveness                                                                                                                                                                                                       | Implementability                                                                                                                                                                                                                            |                 |                                                                                                                                                                     |
| EX/SITU PHYSICAL/CHEMICAL TREATMENT | Separation                                     | Use of physical means to separate coarser fractions for beneficial reuse of debris or to reduce toxicity prior to further treatment or disposal.                                                                                                                                                                                                        | Effective for contaminant reduction, but will not attain RAOs.                                                                                                                                                      | Commercial equipment is available for separation (i.e., sieves).                                                                                                                                                                            | Low to Moderate | Retained as a common element for remedial alternative for possible mass/toxicity reduction prior to disposal.                                                       |
|                                     | Soil Washing                                   | Contaminants are separated from the excavated soil with wash water augmented with additives to help remove contamination.                                                                                                                                                                                                                               | Most suitable for semi-volatile organics or inorganic contamination. More effective for coarser sediments/soils.                                                                                                    | Elutriate would require treatment and disposal, which could significantly increase the overall cost of treatment. Bench-scale testing would be required during design. Air quality standards may be affected by open-air treatment methods. | High            | Not retained because more cost-effective and implementable options available.                                                                                       |
|                                     | Solidification/Stabilization                   | Contaminants are physically bound or encased in a stabilized mass (solidification) or chemical reactions are induced between the stabilizing agent and contaminants to reduce their mobility (stabilization). Methods may include the addition of Portland cement, lime, kiln dust, pozzolan, sorbent clay (i.e., bentonite), and proprietary reagents. | Can be effective at reducing mobility of contaminants (most suitable to inorganics) or solidifying for disposal.                                                                                                    | Generally uses proven technologies.                                                                                                                                                                                                         | Moderate        | Retained as a common element for remedial alternative to stabilize potentially hazardous waste.                                                                     |
| EX/SITU BIOLOGICAL TREATMENT        | Land Treatment/Landfarming                     | Land treatment reduces contaminant concentrations through biological processes. Excavated soils are placed in controlled cells and manipulated as necessary to improve biological conditions (such as by tilling to aerate soil).                                                                                                                       | Effective at removing some organic contamination from soil, but not likely to address more persistent organics. Does not address metals.                                                                            | Requires area for soil treatment or transport to an off-site facility. Bench-scale testing would be required to define operating parameters. Air quality standards may be affected by open-air treatment methods.                           | Moderate        | Not retained because does not adequately address all contaminants of concern.                                                                                       |
|                                     | Composting                                     | Excavated soil is mixed with bulking agents and organic amendments to promote microbial activity.                                                                                                                                                                                                                                                       | Effective at removing organic contamination from sediment. Most effective with control of moisture, heat, nutrients, oxygen, and pH to enhance biodegradation. Does not address metals or more persistent organics. | Requires area for soil treatment or transport to an off-site facility. Bench-scale testing would be required to define operating parameters.                                                                                                | Moderate        | Not retained because does not adequately address all contaminants of concern.                                                                                       |
| EX/SITU THERMAL TREATMENT           | Incineration                                   | High temperatures are used to combust (in the presence of oxygen) organic constituents in hazardous wastes.                                                                                                                                                                                                                                             | High temperatures result in generally complete decomposition of organic chemicals. Effective across wide range of sediment characteristics. Not effective for metals.                                               | Requires air pollution control device and transport to permitted facility located at distance from site. Involves high energy consumption.                                                                                                  | Very High       | Significant cost for transportation and treatment. Other less expensive technologies available. Most suitable to high concentrations or highly toxic contamination. |
|                                     | Thermal Desorption/Pyrolysis/Hot Gas Oxidation | Waste soils are heated to either volatilize (desorption and hot gas) or to anaerobically decompose (pyrolysis) organic contaminants. Off-gas is collected and treated.                                                                                                                                                                                  | Effective at removing organic materials from excavated sediment (soil particularly volatile organics). Pyrolysis generally used for semi-volatiles or pesticide wastes. Does not address metals.                    | Requires transport to off-site treatment facility. Treatment of chlorinated hydrocarbons difficult (may generate acid in off-gas). Off-gas treatment required.                                                                              | High            | Significant cost for transportation and treatment. Other less expensive technologies available.                                                                     |

**DEQ Staff Report  
Attachment 2**

**Table 16  
Comparative Evaluation of Alternatives  
Deschutes County Shooting Range  
Redmond, OR**

| Release Area Alternative            | Protective | Balancing Factors |   |   |                       |   |   |                  |   |   |                     |   |   |                        |   |   | Score | Rank |
|-------------------------------------|------------|-------------------|---|---|-----------------------|---|---|------------------|---|---|---------------------|---|---|------------------------|---|---|-------|------|
|                                     |            | Effectiveness     |   |   | Long-term Reliability |   |   | Implementability |   |   | Implementation Risk |   |   | Reasonableness of Cost |   |   |       |      |
|                                     |            | A                 | B | C | A                     | B | C | A                | B | C | A                   | B | C | A                      | B | C |       |      |
| A) No Action                        | No         |                   | - | - |                       | - |   | +                | + |   | -                   | - |   | +                      | + |   | -2    | na   |
| B) Excavation and On-site Disposal  | Yes        | +                 |   | 0 | +                     |   | 0 |                  | - |   | 0                   |   |   | -                      |   | + | 1     | 2    |
| C) Excavation and Off-site Disposal | Yes        | +                 | 0 |   | +                     | 0 |   | -                | 0 |   |                     | - |   | -                      | - |   | -3    | 1    |

**Notes:**

- + = The alternative is favored over the compared alternative (score=1)
- 0 = The alternative is equal with the compared alternative (score=0)
- = The alternative is less favorable than the compared alternative (score=-1)
- na = Not protective, therefore not ranked

|              |   |   |   |
|--------------|---|---|---|
| Technology A |   | B | C |
| Technology B | A |   | C |
| Technology C | A | B |   |



***Revised Feasibility Study  
Deschutes County Shooting Range Property  
Redmond, Oregon***

**Prepared for:  
Deschutes County**

**May 4, 2020  
2112-01**



***Revised Feasibility Study  
Deschutes County Shooting Range Property  
Redmond, Oregon***

**Prepared for:  
Deschutes County**

**May 4, 2020  
2112-01**



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*John Foxwell, R.G.  
Principal*

A blue ink handwritten signature, appearing to be 'H. Clough', written over a horizontal line.

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*Herb Clough, P.E.  
Principal Engineer*

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- C Well Logs
- D CPEC Screening Tables and Pro UCL Backup

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## **1.0 Introduction**

This document presents the feasibility study (FS) for the Deschutes County Shooting Range property (the Site) located in Redmond, Oregon. The Site consists of a 250-acre parcel that is a portion of Tax Lot 103, in Township 15 South, Range 13 E, located north of the Roberts Field, the Redmond Municipal Airport (Figure 1). The Site includes the small arms firing ranges formerly used by the Redmond Rod and Gun Club (RRGC), a small arms firing range formerly used by the Deschutes County Sheriff's Office, and an unpermitted disposal area. The remainder of the parcel is undeveloped. The Site layout is shown on Figure 2. The FS was prepared in accordance with Oregon Administrative Rules (OAR) 340-122-0085 through -0090 and Oregon Department of Environmental Quality (DEQ) *Guidance for Conducting Feasibility Studies* (DEQ, 2017).

This report summarizes the background and Site investigations in Section 2. A conceptual site model is presented in Section 3. Human Health and ecological risk assessments are presented in Sections 4 and 5. Remedial action alternatives are developed and evaluated in Sections 6 through 9 with supporting information in Appendix A. The developed alternatives are compared in Section 10 and the recommended alternative is described in Section 11. The residual risk assessment (projected post-remediation conditions) is presented in Section 12.

The majority of the Site is vacant and undeveloped. There are three impacted areas at the Site (Figure 2), two of which are related to current or former tenant activities. The tenant areas include: (1) the former Deschutes County Sheriff's Office small arms firing range (Sheriff's Range), used since approximately the mid-1970s until recently, towards the center of the Site; and (2) the RRGC small arms firing ranges, used from 1956 to present, at the eastern portion of the Site. The third area is an unpermitted disposal area that has been present in the west and central portions of the Site since approximately the late 1940s.

### **1.1 Purpose and Scope**

The purpose of this FS is to develop and evaluate a range of remedial action alternatives that would reduce or mitigate current and potential future risks to human health and the environment associated with contamination in soil at the Site. This FS is used to select a protective and feasible remedial alternative to be implemented at the Site.

The County's goal for this work is to develop a "pre-approved" cleanup alternative that can be readily implemented during future redevelopment of the Site. In this context, "pre-approved" means obtaining a Record of Decision (ROD) from DEQ that approves a cleanup alternative that can readily be implemented by a future owner.

---

## **2.0 Background and Site Investigations**

The Site is largely undeveloped. Figure 2 shows the locations of the shooting ranges and the disposal area.

### **2.1 Site Location and Description**

The RRGCC has operated several small arms firing ranges at the east portion of the Site since 1956. RRGCC facilities include a skeet range, rifle and pistol ranges (current and former), and a sporting clay range. The active pistol and rifle range consists of several lanes that are oriented north-south, with berms at all but the south side of the ranges. The former rifle and pistol range, also oriented approximately north-south, is located at the southeast part of the Site (mostly off of County property). The former range was abandoned and relocated to its current location in 2007 to avoid potential conflicts with aircraft approach paths to the nearby Redmond Municipal Airport. A soil stockpile, containing lead shot and clay pigeon fallout (CPF), remains in this area. The origin of the stockpile has not been confirmed, but it appears to contain, in part, residuals from former firing range operations. While a significant portion of the former range is not located on County property, the entire area is incorporated into the "Site" designation, and this FS. The skeet range consists of several shotgun firing areas at the south side of the range, with the shotfall area to the north. The sporting clay range has numerous shotfall areas, determined by various shooting areas and orientations in the range.

The Sheriff's Range consists of four north-south oriented lanes, constructed with lateral and end berms to contain shot and bullets. The Sheriff's shooting range was used starting in the late 1970s, until recently. The Deschutes County Sheriff's Office reportedly trained with copper (lead free) ammunition after 2007.

The disposal area (landfill area and landfill trench area) is located in the west-central portion of the Site. The approximate boundaries of the disposal area are shown on Figure 2. The disposal area material primarily consists of metal and glass debris, but also contains smaller amounts of other materials, including empty paint and oil containers. Just north of the disposal area are a series of shallow excavated trenches. At one of the trenches, there are a few 2- to 3-inch-thick surface accumulations of a weathered tar-like sludge. Development of the disposal area apparently occurred between 1944 and 1951, a period that corresponds with the time of transfer (1946) of the Redmond Municipal Airport from the U.S. Army Air Forces to the City of Redmond (David Evans and Associates, 2008).

### **2.2 Site Investigations**

Three Site investigations were performed between 2008 and 2009. These investigations include:

1. *Phase I Environmental Site Assessment for a Portion of Tax Lot 103*; prepared by David Evans and Associates, July 16, 2008.
2. *Phase I Environmental Site Assessment, Deschutes County Leased Property, Approximately 140 acres, East Highway 126, Redmond, Oregon*; prepared by Kleinfelder, Inc., July 3, 2008.

- 
3. *Targeted Brownfield Assessment Report and Analysis of Brownfield Cleanup Alternatives, Deschutes County Shooting Range, Redmond, Oregon*; prepared by GeoEngineers, Inc. (GeoEngineers), March 5, 2009.

In preparation for this report, a Feasibility Study Data Gap Investigation (data gap investigation) was performed in 2014. The scope and results of this investigation are presented in Section 2.2.2.

The Targeted Brownfield Assessment (TBA; GeoEngineers, 2009) and the 2014 Feasibility Study Data Gap Investigation comprise the chemical dataset for the Site. The 2009 and 2014 data are described below. Figure 3 shows the 2009 and 2014 sample locations. Figures 4 and 5 show concentrations of lead and benzo(a)pyrene [BaP] in soil. Tables 1 through 5 summarize the chemical data.

### **2.2.1 Targeted Brownfield Assessment**

A TBA was performed at the Site in March 2009 (GeoEngineers, 2009). The TBA included shallow soil sampling at the disposal area, shooting range floors, and shooting range berms. The sampling areas corresponded with shotfall and clay pigeon fallout (CPF) zones at the skeet and trap and sporting clay ranges, rifle/pistol range floors, and rifle/pistol range berms.

Tables 1 through 4 present data collected during the TBA, as well as human health and ecological screening levels. Concentrations of metals, polycyclic aromatic hydrocarbons (PAHs), or other compounds were present at concentrations above human health or ecological screening levels<sup>1</sup> at the following locations.

- At the RRG ranges and Sheriff's Range, concentrations of BaP, and other PAHs to a lesser extent, exceed DEQ Risk Based Concentrations (RBCs) for occupational, construction, or excavation workers. Concentrations of PAHs did not exceed DEQ ecological screening level values.
- At the RRG ranges and Sheriff's Range, concentrations of lead exceed RBCs for occupational, construction, and excavation workers, as well as ecological screening level values for plants, birds, and invertebrates.
- At the disposal area (landfill area and landfill trench area), detected concentrations of lead exceed human health and ecological screening levels, with the highest concentration detected in samples A-3. Other metals were also occasionally detected in disposal area samples at concentrations that exceed ecological screening criteria.
- At the disposal area (landfill trench area), concentrations of petroleum hydrocarbons, polychlorinated biphenyls (PCBs), and BaP in the weathered sludge exceed several human health RBCs, and concentrations of metals in the weathered sludge exceed several ecological screening levels.

---

<sup>1</sup> Ecological screening levels are DEQ Level II Screening Level Values (SLVs). Standard SLVs for birds and mammals have been increased by a factor of five to account for the absence of threatened and endangered species at this Site (see Section 5) for further ecological risk discussion.

---

Data collected during the TBA indicate that metals and other contaminants at the firing floors and shotfall areas are generally limited to surface soil, and concentrations decrease rapidly with depth. For example, in soil more than 0.5 feet below ground surface (bgs) on the shooting range floors, concentrations of most contaminants are lower than screening levels. Contaminants in the disposal area appear confined to the debris and dried sludge and apparently have not affected underlying soil. Firing range berms exhibit more widespread (i.e. deeper) contamination; concentrations of lead and PAHs exceeding screening levels are present throughout the berms.

### **2.2.2 Data Gap Sampling**

In preparation for the FS, in early 2014, Apex evaluated the results of the TBA to identify data gaps. Two data gaps were identified.

- Limited additional surface and near-surface soil sampling data were necessary to better delineate the lateral and vertical extent of contamination and assess human and ecological risks.
- Additional information was required to assess the risks that lead in soil poses to groundwater at the Site.

To resolve these data gaps, a limited soil sampling and chemical analytical program was implemented in June 2014. The locations of the samples collected during the data gap investigations are shown on Figure 3. The goals of the data gap assessment were as follows.

- Obtain data from outside the perimeter of the firing ranges to define the extent of soil contamination.
- Obtain data from the floors of the firing ranges to provide additional characterization where assessment data gaps were present. These areas include the intermediate portion of the skeet range where PAH and lead data were limited (samples AC-7 and AC-9), the Sheriff's Range near former sample C-8 (sample AC-16); and the skeet range near former sample D-16 (sample AC-8). Additional sampling was proposed near former sample locations C-8 and D-16 because these locations historically exhibited disproportionately high PAH concentrations.
- Evaluate the leachability of lead in firing range soil. Composite samples (AC-1, AC-2, AC-3, AC-4, AC-14, and AC-15) were collected from the shooting range floor and berms. These samples are intended to be representative of the total lead concentration that is available for leaching.

Soil samples were collected using clean, stainless steel sampling equipment. Sampling equipment was decontaminated between uses. Soil samples consisted of both discrete and composite samples, as follows.

- Samples from the perimeter of the firing ranges (samples AC-5, AC-6, AC-10, AC-11, AC-12, AC-13, AC-17, AC-18, AC-19, and AC-20) were discrete samples collected from a depth interval of 0 to 12 inches bgs.

- 
- Samples from the floors of the skeet range (samples AC-7 through AC-9), RRGC firing range (AC-4), and the Sheriff's Range (sample AC-15 and AC-16) were collected from intervals of 0 to 6 inches and 6 to 12 inches bgs.
  - Samples for the leachability evaluation (samples AC-1, AC-2, AC-3, AC-4, AC-14, and AC-15) were collected from the shooting range floor and berms. Each composite sample is comprised of five subsamples collected from the immediate vicinity of the sampling location shown on Figure 3.

Laboratory analyses was completed using U.S. Environmental Protection Agency (EPA) methods capable of attaining Method Reporting Limits (MRLs) that are below relevant human health and ecological screening levels. Laboratory analyses completed for the 2014 data gap assessment are listed below.

- All samples were analyzed for lead, using EPA Method 6020A.
- Samples outside and within the perimeter of the sporting clay and skeet ranges were analyzed for PAHs using EPA Method 8270 SIM.
- Samples collected in the vicinity of locations C-8 and D-16 were analyzed for PAHs using EPA Method 8270 SIM.
- Samples collected from the floors and berms at the Sheriff's Range and the RRGC ranges were analyzed for leachable lead using EPA Method 1312/6020A.

Tables 1 through 5 list the analytical results from the data gap investigation. Appendix B includes a quality assurance review, and the laboratory data for the data gap assessment.

**Firing Range Delineation Samples.** Samples AC-5, AC-6, AC-10, AC-11, AC-12, AC-13, AC-17, AC-18, AC-19, and AC-20 were collected near the perimeter of the firing ranges and analyzed for total lead to delineate the extent of impacts in soil. Lead concentrations in all samples were below applicable human and ecological screening levels, with the exception of sample AC-5, which exhibited a lead concentration (51 mg/kg) that only slightly exceeded the minimum screening level (50 mg/kg for plants). These results confirm that the extent of contamination is limited to the delineated shooting range floors and berms.

**Sheriff's Range, RRGC Range, and Skeet Range.** Samples collected from the floor of the Sheriff's Range (AC-14, AC-15, and AC-16), RRGC rifle/pistol range (AC-4), and skeet range (AC-7 through AC-9) were analyzed for lead and/or PAHs.

PAHs were detected above human health screening levels (benzo(a)anthracene, BaP, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-c,d)pyrene) in the RRGC skeet range (samples AC-7 and AC-8). PAHs were not detected in the sample from the floor of the Sheriff's Range (AC-16). At the Sheriff's Range, note that the disproportionately high PAH concentrations exhibited by sample C-8 (collected during the 2009 TBA) were not replicated in AC-16. At the RRGC skeet range, the relatively high concentrations exhibited by sample D-16 (collected during the 2009 TBA) were confirmed in samples AC-7 and AC-8. Samples AC-7 and



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AC-8 were collected in an area with a high concentration of CPF. Samples collected from the floor of the skeet range (AC-7 through AC-9) show PAH concentrations that decrease rapidly with depth (Figure 5). Based on these depth profiles, PAH concentrations above the screening levels are confined to the top one foot of soil in the floors of the shooting ranges, and slightly deeper in the center of the skeet range where CPF is most concentrated.

Lead was below applicable screening levels in all 2014 samples with the exception of samples AC-1, AC-2, AC-8, and AC-14. Samples AC-1, AC-2, and AC-14 confirm that lead concentrations in firing range berms exceed human and/or ecological screening criteria. The lead concentration at location AC-8 increases slightly with depth, ranging from approximately 38 mg/kg in the 0- to 6-inch interval and 58 mg/kg in the 6- to 12-inch interval; the lower interval slightly exceeds the ecological screening criterion for plants. Other floor sample locations where depth discrete sampling was performed (AC-7, AC-9, and AC-16) show decreasing lead concentrations with depth. These results indicate the lead concentration on the floors of the shooting ranges are confined to the top one foot of soil

**Leachability Testing.** Lead leachability was analyzed for samples from the floors and berms of the Sheriff's Range and the RRG ranges. These results were compared to the acceptable RBC established by DEQ of 1.5 milligrams per liter (mg/L) lead leachate concentration (DEQ, 2017). All samples were below 1.5 mg/L with the exception of sample AC-2, 1.7 mg/L, which only slightly exceeds the acceptable leachate concentration.

DEQ's RBC for lead leachate is conservative for the Site because the RBC is based on the assumption that a minimum of a 10-foot-thick clean soil buffer is present between the lead contaminated soil and groundwater. In fact, groundwater is nearly 300 feet deep at the Site, and therefore, the buffer between impacted soil and groundwater (and the potential for contaminant attenuation) is more than an order of magnitude greater than DEQ's default assumption. Based on these site-specific conditions, the leachable lead concentrations in Site soil are not a significant risk to groundwater.

### **2.2.3 Well Sampling**

An on-site well is located near the southwest corner of the skeet range. The well supplied water for the Site and is not currently being used. The well is cased to a depth of 20 feet bgs and completed to a depth of 370 feet bgs. On October 31, 2019, Apex staff collected a water sample from the well using low flow techniques. Prior to collection of the groundwater sample, the depth to water was measured at 334.95 feet bgs. In addition, approximately three gallons of water were purged from the well using a bladder pump. The sample was collected with laboratory supplied sample containers. Upon collection, the samples were labeled and immediately placed into a chilled ice chest. The sample was transported, under chain-of-custody protocols, to Neilson Research Corporation (Neilson) located in Medford, Oregon for analysis of PAHs using the EPA Method 8270C and lead (total and dissolved) using EPA Method 200.8.

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Two groundwater samples (S-1 and S-2) were collected for analysis. Sample S-1 was collected at the beginning of the purge process because of uncertainty in the quantity of water that would be available for sampling. Sample S-2 was collected after purging and is considered representative of the groundwater in the well location.

The laboratory report for samples S-1 and S-2 is included in Appendix B. The analytical results of samples S-1 and S-2 are summarized in Tables 6 and 7. Dissolved lead was not detected above the laboratory reporting limit in sample S-1 or S-2. Total lead was detected in samples S-1 and S-2 at concentrations of 0.0117 and 0.00948 mg/L, respectively. These detected concentrations are less than the DEQ RBC of 0.015 mg/L. Benzo(a)pyrene was detected in sample S-1 at a concentration of 0.130 micrograms per liter (ug/L), which is less than the DEQ RBC of 0.47 ug/L for the occupational ingestion/inhalation pathway. PAHs were not detected above laboratory reporting limits in sample S-2.

### **3.0 Conceptual Site Model**

Figure 6 shows the extent of contamination using isoconcentration lines showing the general extent of soil contamination that exceeds human and ecological risk screening criteria. Isoconcentration lines for the most conservative (i.e. lowest) applicable screening level for human health (BaP exposure for occupational workers) and for ecological receptors (lead exposure for plants). Sample results at the disposal area that exceed an occupational RBC are noted on Figure 6, but not contoured because of the discontinuous nature of the contamination in the disposal area. The data tabulated in Tables 1 through 5 and shown on Figure 6 indicate that lead and BaP are indicator chemicals for the Site. That is, in every sample that contains a constituent that exceeds human or ecological screening criteria BaP and/or lead are also present at concentrations that exceed screening criteria.

Figure 7 shows the CSM for the Site. This model provides the framework for assessing potential exposure pathways to be considered for risk screening. To be considered complete, an exposure pathway must have: (1) an identified contaminant source; (2) a release/transport mechanism from the source; and (3) a human receptor or ecological endpoint to which contact can occur. The following summarizes the evaluation of these factors that were used to develop the CSM.

### **3.1 Nature and Extent of Contamination**

Figures 4 and 5 and Tables 1 through 5 summarize the available chemical data for the Site. Figure 6 shows the extent of contamination.

#### **3.1.1 Soil**

**Shooting Ranges.** Hazardous substance concentrations that exceed human and/or ecological screening criteria are present over the majority of each shooting range in the berms and floors of the ranges, and within CPF areas. The depth of shooting range contamination is limited to surface soils (generally 2 feet or less)

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and the firing range soil berms. Contaminant sources are metals, principally lead associated with shot and bullets; and PAHs, principally BaP from binders in clay pigeons that historically used coal tar or other hydrocarbon-based binders.

**Disposal Area.** Debris in the disposal area contains low concentrations of metals and organic chemicals. The data indicate the contamination is not widespread, is collocated with disposal area debris, and has not migrated to underlying soil. The thin layer of weathered sludge in shallow trenches north of the disposal area contains petroleum hydrocarbons, metals, and PCBs.

### **3.1.2 Groundwater**

The depth to groundwater at the Site is greater than 300 feet and the contaminants that are present are not highly mobile or are present at concentrations that do not indicate a potential source of impacts to groundwater. Lead leachability testing during the 2014 data gap assessment indicates that concentrations of lead in Site soil will not leach and migrate to groundwater at concentrations that would result in unacceptable risks to groundwater.

Additionally, the results of the representative water sample (S-2) collected from the on-site well did not contain PAHs or dissolved lead at concentrations above the laboratory reporting limit and the total lead concentration detected in sample S-2 was less than the DEQ RBC, indicating the groundwater has not been impacted.

## **3.2 Locality of Facility**

The locality of facility (LOF) is defined by DEQ (1998b) as: “any point where a human or an ecological receptor contacts or is reasonably likely to come into contact with facility-related hazardous substances. The LOF takes into account the likelihood of the contamination migrating over time so is typically larger than the facility.” At the Site, this corresponds to the area comprising the disposal area and adjacent shallow trench area, and the ranges and berms at the RRG and Sheriff's Range. The extent of contamination shown on Figure 6 corresponds to the LOF.

The vertical extent of the LOF includes the entire vertical thickness of the solid waste and debris at the disposal area, the immediate vicinity of the areas where weathered sludge is present at the disposal area trenches, the soil berms at each range, and 1 to 2 feet of surface soil at the surface of each range.

Based on the limited migration observed from each contaminant source, groundwater and surface water are not impacted, and therefore are not included in the LOF.

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### 3.3 Land Uses

The TBA included a determination of the current and reasonably likely land use at the LOF in accordance with Consideration of Land Use in Environmental Remedial Actions (DEQ, 1998b). The conclusions of the TBA were updated as necessary and are summarized below.

- Historical land uses have included the disposal area in the west and central portions of the site and small arms firing range uses on the central and east portions of the site. Additional historical land uses have not been identified.
- Current land uses include only the RRGc shooting ranges. The remainder of the Site is vacant or unused, including the disposal area and the Sheriff's Range.
- Future allowed uses are described in the 2007 City of Redmond Eastside Framework Plan, which indicates that the Site is zoned Light Industrial (M-1). Properties zoned M-1 are intended, but not limited to, most commercial and industrial uses. Other conditional allowed uses could include child care centers, homeless shelters, schools, churches, and motels. Deschutes County intends to market the property for sale for redevelopment for light industrial or commercial uses.

### 3.4 Water Uses

The TBA included a determination of beneficial water uses in accordance with Guidance for Conducting Beneficial Water Use Determinations at Environmental Cleanup Sites (DEQ, 1998b). The conclusions of the TBA were updated as necessary and are summarized below.

- An onsite production well provides water to the Site and is not currently in use. The wellhead equipment and pump were removed in October 2019 and the wellhead was secured with a bolted cap. Historically, the water was used for domestic purposes by RRGc. The well has a casing installed to 20 feet below grade and is completed at a depth of 370 feet in the basalt and sandstone bedrock. Well construction details are shown on well log DESC 3878 (Appendix C). The TBA beneficial use determination identified two other wells within approximately ½ mile of the Site (DESC 3953 and DESC 3954), but outside of the LOF.
- No wetlands or surface water bodies are present at the Site. No groundwater points of diversion were identified within one mile of the Site. The nearest surface water is an irrigation canal, the North Unit Canal, which is located approximately 1.1 miles southeast of the Site. The nearest wetland is associated with this canal.
- The City of Redmond intends to provide municipal water to the Site in the future. The City of Redmond's primary water source is a network of wells screened in a deep (~750 feet deep) aquifer. These wells are located outside of the LOF.

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## 3.5 Potentially Exposed Populations

The land use analysis demonstrated that current and reasonably likely future land uses in the LOF are primarily industrial and commercial, although allowed uses could include schools, churches, and daycare facilities. The County intends to develop the property for commercial or industrial uses.

Groundwater beneath the Site is currently used for general use, including consumption. Future use of groundwater is possible; however, the City of Redmond intends to provide water to the Site from municipal sources. Based on the limited vertical extent of contamination (the upper two feet of soil) and the results of the leachability evaluation (Section 2.2.2), it is unlikely that soil contamination has migrated to groundwater or will migrate to groundwater in the future.

For a future industrial facility, potential populations include full- or part-time employees. Facility maintenance or new construction could require construction and excavation workers. Therefore, potential receptors include occupational workers, construction workers, and excavation workers. The current use as a recreational facility ceased in 2014. Therefore, recreational exposures were not considered.

### 3.5.1 Soil Exposure

The exposure pathways to receptors that are evaluated include:

- Direct Contact – Incidental ingestion of, dermal contact with, and inhalation of dust/particulates from soil (occupational, construction worker, and excavation worker receptors). This exposure pathway is evaluated for soil containing Chemicals of Potential Concern (COPCs) for each potential receptor.
- Leaching to Groundwater – As discussed in Section 2.2.2, lead and other hazardous substances in soil are limited to the upper two feet and concentrations are insufficient to leach to groundwater at levels that would pose a significant risk. Therefore, the leaching to groundwater exposure pathway is considered incomplete.

### 3.5.2 Groundwater Exposure

Groundwater occurs at depths of approximately 300 feet bgs at the Site. There are no known impacts to groundwater and future impacts are unlikely. Therefore, exposure to contaminants in groundwater via direct contact or ingestion is not likely under current or future exposure scenarios.

### 3.5.3 Air and Vapor Exposure

Hazardous substances at the Site (PAHs and metals) are non-volatile; therefore, indoor air and outdoor air exposure pathways are incomplete.

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### 3.6 Ecological Description

An overall description of the location, physical features, current uses, and history of the Site is presented in Section 2.1. The following sections are intended to supplement that information for elements relevant to the Ecological Risk Assessment (ERA) Level II Screening that is presented in Section 5.

Redmond is located in the Blue Mountain Ecoregion as defined by EPA. Overall, the ecoregion has short, dry summers and long, cold winters. According to Oregon State University's Oregon Weather and Climate Data Website (2013), precipitation averages 8.64 inches per year, with approximately 65% of the precipitation occurring between October 1 and March 31. Monthly average temperatures range from a low of approximately 22°F in January to a high of approximately 85°F in July.

Habitats within the ecoregion include desert-like shrubland, bluebunch grasslands, pine forest, and alpine highlands as well as riverbanks and wetlands. The Site is comprised solely of desert-like shrubland. Potential natural vegetation includes Wyoming big sagebrush, antelope bitterbrush, basin big sagebrush, mountain big sagebrush, bluebunch wheatgrass, Idaho fescue, and needle-and-thread on the sagebrush steppe, with western juniper on shallow, rocky soils.

The Site is generally flat with elevation ranging from 3,040 to 3,070 feet above sea level. There is a slight decrease in elevation present from the high point of the Site (Sherriff's Range) to the disposal area.

A threatened and endangered (T&E) species database report was obtained from the Oregon Natural Heritage Information Center (ORNHIC) as part of the TBA. No T&E species are likely to be present at the Site based on the ORNHIC report. To further evaluate potential risks to ecological receptors, Apex reviewed an updated 2013 list of T&E species potentially present in either the Blue Mountain Ecoregion or Deschutes County (Oregon Biodiversity Information Center; <http://orbic.pdx.edu/index.html>). Gray Wolf, Canada Lynx, Grizzly Bear, Wolverine, and Kit Fox were identified as T&E species that have been sighted in either the Blue Mountain Ecoregion or Deschutes County. Each of the species listed above, except the Kit Fox, inhabit boreal habitats that are not present at the site. The Kit Fox habitat includes sagebrush and grasslands. However, the primary range of the Kit Fox includes the southwestern states (Nevada, Utah, southeastern California, Arizona, New Mexico, and western Texas) and Mexico, and is not expected to include the significantly disturbed impacted areas at the Site. Therefore, listed species and critical habitat features are not present at the Site.

No impacts on ecological receptors were observed at the Site. No signs of toxic stress from CPECs were observed during the Site visit. Such signs could include stressed or dead vegetation, patches of barren soil, or dead or dying animals that could not be explained based on other factors. Signs of disturbance from human use were present including grading in the shooting range areas, tracks from all-terrain vehicles, and fire pits. Debris is present in the disposal area of the Site. Broken glass, plastic, wood and other debris were present



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at the surface throughout the disposal and trench area. Much of the debris was protruding from the ground, showing that buried debris is present.

Hazardous substances are present in soil at concentrations that exceed some ecological risk screening criteria. Therefore, despite the apparent absence of sensitive species and environments, additional evaluation of risks to ecological receptors is required. Section 5 presents a Level II ecological risk screening evaluation.

## **4.0 Summary of Baseline Risk Screening**

Section 3 summarized the development of the CSM, including the exposure pathway evaluation. Human health risk screening was conducted for the receptors and complete exposure pathways identified in Section 3.5. The concentrations of detected compounds were compared to DEQ generic RBCs (DEQ, 2017 and 2018) for Occupational, Excavation, and Construction workers (Tables 1 through 4). Table 8 lists the DEQ RBCs that were used for the risk screening.

### **4.1 Surface Soil Human Health Risk Screening**

The surface soil interval is defined as the upper 3 feet (36 inches) of soil. The direct contact pathway (e.g. incidental ingestion, skin contact) for occupational, excavation, and construction workers is a potentially complete soil exposure scenario at the Site. Surface soil data and the corresponding risk screening levels are listed on Tables 1 through 4. Figure 8 shows the exceedance ratios (ERs; calculated as the constituent concentration divided by the corresponding screening level) for samples where a soil concentration exceeds the corresponding RBC. Concentrations of metals or other PAHs are above human health or ecological screening levels at the following locations:

- At sporting clay and skeet ranges at the RRG:
  - Concentrations of B(a)P, and to a lesser extent benzo(a)anthracene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-c,d)pyrene, in multiple surface soil samples exceed RBCs for occupational and/or construction workers; and
- At the RRG rifle/pistol range and the Sheriff's Range:
  - Concentrations of lead in berm samples C-2 and C-6, E-6, E-9, E-10, and AC-2 exceed RBCs for occupational, construction, and/or excavation workers. The arsenic concentration in berm sample E-6 also exceeds RBCs for occupational workers;
  - Concentration of B(a)P in berm sample E-6 exceeds RBC for occupational workers; and
  - In surface soil sample C-8, concentration of B(a)P exceeds RBCs for occupational and construction workers and concentrations of benzo(b)fluoranthene and dibenz(a,h)anthracene exceed RBCs for occupational workers. Note that these results were not repeated in the 2014 sample (AC-16), collected from a location close to former sample C-8.

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- At the disposal area (landfill area), detected concentrations of contaminants do not exceed human health screening levels, with limited exception:
    - Concentrations of lead and arsenic in sample A-3 (5.5 – 6 feet bgs) exceed the occupational, excavation, and/or construction worker RBC.
  - At the disposal area trenches (landfill trench area), concentrations of TPH, PCBs, and PAHs exceeded the following RBCs:
    - Concentrations of diesel- and oil-range hydrocarbons in samples B-1 and B-2 exceed the RBCs for construction workers;
    - Concentrations of PCBs in samples B-1 and B-2 exceed the RBCs for occupational workers; and
    - Concentrations of B(a)P in samples B-1 and B-2 exceed the RBC for occupational workers.

## 4.2 Soil Human Health Hot Spots

In Oregon, hot spots consist of areas affected by high contaminant concentrations that may pose a relatively high risk to human health. OAR 340-122-0115 defines a hot spot of contamination based on human exposure as a soil concentration that is present at either:

- 100 times the acceptable risk level for human exposure to each individual carcinogen; or
- 10 times the acceptable risk level for human exposure to each individual non-carcinogen

Soil lead and B(a)P hot spots were identified as samples with lead concentrations greater than 8,000 mg/kg and B(a)P concentrations greater than 21 mg/kg (i.e. 10 times the lowest RBC). Soil lead hot spots are present in the berms of the Sheriff's Range (sample C-2), and RRGC berm (Sample AC-2). Each of these locations is highlighted in red on Figure 8.

## **5.0 Summary of Level II Ecological Risk Screening**

Section 3 summarized the development of the CSM, including an expanded ecological description. This section presents the Level II Ecological Risk Screening for terrestrial candidate assessment endpoints (plants, invertebrates, birds, and mammals). As described in Section 3.0, there is no aquatic habitat at the Site and threatened or endangered species and sensitive environments have not been identified at the Site.

Sensitive species or environments are not present at the Site; therefore, for birds and mammals, hazardous constituent concentrations that do not exceed the corresponding Level II Screening Level Value (SLV) by a factor greater than 5 (also referred to as "Q=5") are considered acceptable for ecological risk screening. For invertebrates and plants, a constituent concentration: SLV ratio less than one (Q=1) is considered acceptable.

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Contaminants of Potential Environmental Concern (CPEC) for ecological receptors were identified following DEQ Level II ecological risk screening guidance (DEQ, 2001). Table 9 lists constituents that have been detected in Site soil and the corresponding Level II SLVs. Table D-1, in Appendix D, presents a CPEC screening table. Table 10 summarizes the CPECs that were identified for the site and the corresponding detection frequency.

CPEC at the Site include antimony, arsenic, barium, cadmium, copper, iron, lead, manganese, mercury, selenium, silver, zinc. Constituents exceed ecological screening criteria at the following areas.

Sporting Clay and Skeet Ranges at the RRG:

- The lead concentration in samples D-2, D-12, D-13, and AC-8 exceed the SLV for plants, and the lead concentration in D-12 also exceeds the bird SLV.

RRGC Firing Range Berms:

- Concentrations of lead in samples AC-2, E-5, E-6, E-9, and E-10 exceed the SLV for birds and plants. The lead concentrations in samples AC-2, E-6, E-9, and E-10 exceed the SLV for invertebrates. The lead concentration in AC-1 exceeds the SLV for plants.
- The concentrations of antimony in samples E-6, E-9, and E-10 exceed the SLV for plants.

Sheriff's Range Firing Range Berms:

- With the exception of sample C-4, concentrations of lead at each sample location from the Sheriff's Range berms exceed the SLV for birds and plants. The concentrations of lead in sample C-2 and C-6 also exceed the SLV for invertebrates. Sample C-2 is the only sample collected at the Site that exhibited a lead concentration that exceeds the SLV for mammals.
- Concentrations of antimony and copper were also detected in samples C-2 and C-6 at concentrations that exceed screening criteria for plants, invertebrates, and/or mammals.

Ground Surface at Shooting Ranges:

- The concentration of lead in sample C-8 and C-9 exceed the SLVs for birds and plants. The concentrations of antimony in sample C-9 exceeds the SLV for plants.
- There were no SLV exceedances in surface soil samples from the RRG rifle/pistol range floor.

Former Disposal Area:

- Concentrations of lead in sample A-3 exceeds the SLVs for plants, invertebrates, and birds and in sample A-2 exceeds the SLV for plants, and in sample A-5 exceeds the SLV for plants and birds. Concentrations of antimony, arsenic, cadmium, copper, iron, mercury, selenium, and zinc also exceed SLVs for plants, invertebrates, and/or birds in samples A-2, A-3, and A-5. At the disposal

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area trenches, concentrations of antimony, barium, cadmium, copper, mercury, selenium, silver, and zinc exceed SLVs for plants, invertebrates, and/or birds.

## 5.1 Soil Ecological Hot Spots

For soil, OAR 340-122-0115 defines a hot spot of contamination, based on ecological exposure, as a soil concentration that is present at:

- 10 times the acceptable risk level for exposure of individual ecological receptors or populations of ecological receptors to each individual hazardous substance.

Therefore, the hot spot criterion for invertebrates and plants (individual receptors) is equivalent to an ER of 10 and the hot spot criterion for birds and mammals (populations) is equivalent to an ER of 50.

Soil hot spots based on ecological risk are highlighted in red on Figure 9, and include the following locations:

- In the RRGC berms in association with lead in samples AC-2, E-6, E-9, and E-10;
- In the Sheriff's Range berms in association with sample C-2 (lead and antimony), C-6 (lead), and C-9 (lead);
- At the disposal area in the vicinity of sample A-3 (lead and zinc); and
- In the weathered sludge at the trenches area (copper, mercury, silver, and zinc).

## **6.0 Remedial Action Objectives and Evaluation Criteria**

### 6.1 Remedial Action Objectives

Remedial action objectives (RAOs) are medium-specific goals for protecting human health and the environment. RAOs provide the framework for developing and evaluating potential remedial action alternatives. The following RAOs have been developed for the Site:

**Human Health.** The human health RAO for the Site is:

- Prevent direct contact of occupational, construction, and excavation workers with soil that contains hazardous substances at concentrations above applicable RBCs.

**Ecological.** The ecological RAO for the Site is:

- Prevent exposure of plants, invertebrates, birds, and mammals to soil that contains hazardous substances at concentrations above acceptable risk levels for ecological exposure.

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**Hot Spots.** To the extent practicable, as defined by DEQ rules, eliminate hot spots of contamination through treatment or excavation and offsite disposal.

In lieu of conducting a detailed risk assessment, published RBCs, DEQ Level II SLVs, and background concentrations were used to represent concentrations corresponding to acceptable risk levels for the RAOs. Tables 8 and 9 present the human health and ecological acceptable risk levels corresponding to the RAOs.

## 6.2 Evaluation Criteria

Consistent with OAR 340-122-085(4), the evaluation of potentially feasible remediation alternatives was based on the following criteria.

**Protectiveness.** Protectiveness is a threshold requirement; only alternatives that meet the protectiveness requirements were evaluated (OAR 340-122-0040). The protectiveness standards are:

- Ability of remedial action to protect present and future public health, safety, and welfare;
- Ability of remedial action to achieve acceptable risk levels specified in OAR 340-122-115;
- Ability of remedial action to prevent or minimize future releases and migration of hazardous substances in the environment; and
- Requirements for long-term monitoring, operation, maintenance, and review.

**Balancing Factors.** Balancing Factors include the following (OAR 340-122-090(3)):

- Effectiveness: Ability and timeframe of remedial action to achieve protection through eliminating or managing risk;
- Long-Term Reliability: Reliability of remedial action to eliminate or manage risk and associated uncertainties;
- Implementability: Ease or difficulty of implementing a remedial action considering technical, mechanical, and regulatory requirements; this will include evaluation of compatibility of the remedy with potential future drainage district maintenance dredging requirements;
- Implementation Risk: Potential impacts to workers, the community, and the environment during implementation; and
- Reasonableness of Costs: Considers capital costs, operations and maintenance, and periodic review, and includes a net-present-value evaluation of the remedial action.

**Treatment or Removal of Hot Spots.** Hot spots are evaluated based on the feasibility of treatment/control/removal of the hot spot using the above balancing factors with a higher threshold for cost reasonableness (OAR 340-122-085(5,6,7), -090(4)). The higher threshold is applied only as long as the hot spot exists.

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## **7.0 Remedial Action Areas**

Exceedance Ratios (ERs) at soil sample locations that exceed the screening and hot spot levels are shown on Figures 4 and 5. Concentrations of BaP that exceed DEQ's most conservative relevant RBC (occupational - 2.1 mg/kg) and concentrations of lead that exceed DEQ's Level II SLV for plants (50 mg/kg; Q=5) are shown on Figure 6. The Remedial Action Areas (RAA) at the Site are defined based on the extent of contamination exceeding these human health and ecological screening levels and the characteristics of the waste.

### **7.1 Solid Waste Disposal Area and Sludge Area**

The solid waste disposal area occupies an area in the range of 320,000 square feet and appears to be 1.5 to 14 feet thick, representing a disposal area volume on the order of 77,000 cubic yards. The actual volume is unknown because detailed surveys of the disposal area have not been performed. During final design, more detailed soil assessment of the disposal area and use of mechanical separation could lead to reduced volumes of soil and debris requiring containment. The characteristics of the disposal area present significant barriers to redevelopment. The refuse and debris in the disposal area cannot be covered and built upon because, regardless of the concentrations and extent of hazardous materials in the waste, this material is not suitable for structural applications (i.e. buildings and parking structures cannot be constructed over the debris without costly mitigation).

Approximately ten cubic yards of dried weathered sludge are present in a thin layer on the ground surface adjacent to and northeast of the disposal area. Detailed evaluation of remedial alternatives for the weathered sludge is not completed because: (1) the weathered sludge is limited in volume and extent; (2) the costs to excavate and dispose this limited area of contamination are relatively low. Therefore, under both of the remedial alternatives described below (not including the No Action alternative), the weathered sludge will be excavated and disposed of at a licensed disposal facility.

### **7.2 Firing Range Areas**

The remedial action areas for the firing ranges were developed using an iterative process where the exposure point concentration (EPC) is calculated for all soil (surface soil, berms, disposal area), and then the highest concentration soil data are "removed" until the resulting EPC is below human health and ecological screening levels. Additionally, because plants and invertebrates are stationary or have a limited range, screening for these receptors is performed on a point by point basis. This additional screening (plants and invertebrates) was completed by confirming that the data points outside of the RAA that was established using the exposure point concentration (EPC) approach do not exceed SLVs for plants or invertebrates (Q=1).

The EPC for lead and BaP in soil under baseline conditions was calculated using EPA's ProUCL software version 5.0, applying a 90% upper confidence limit (UCL) of the mean. The 90% UCL is representative of the



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reasonable maximum exposure (RME) concentration. As discussed in Section 3.0, lead and BaP are the primary CPEC and COC at the Site and there are no instances at the ranges where other compounds are present above acceptable risk levels that are not co-located with either lead or benzo(a)pyrene concentrations that are above risk levels. Under current conditions, the 90% UCL for lead is 1630 mg/kg, calculated using a non-parametric distribution, and the 90% UCL for benzo(a)pyrene is 17.4, also calculated using a non-parametric distribution. The ProUCL input and output tables are included in Appendix D.

The extent of the Remedial Action Area (RAA) was determined as follows.

- Sequentially removing the highest relative concentrations of COCs or CPECs from the data set until the resulting EPCs calculated for lead and BaP were below acceptable risk levels. This included the following.
  - Samples representative of berm soils at the RRGCC and Sheriff's Range and the stockpile at the former RRGCC rifle/pistol range.
  - Samples representative of the RRGCC skeet range surface soils and the Sheriff's Range floor surface soils.
  - The area in the vicinity of sample locations D-2, D-8, and D-9. These limited removal areas at the RRGCC sporting clay range pose an elevated risk based on higher relative BaP concentrations, compared to other locations within the sporting clay range. These locations correspond to the center of the range where CPF is the most concentrated.
  - For lead, naturally occurring background concentrations of lead were accounted for in the projected EPC by including twenty (20) sample locations with lead concentrations equal to or less than the default background level (18 mg/kg).

After removing the chemical concentrations of the data points that would be remediated, the projected post-remediation soil concentration was calculated. The resulting 90% UCL after remediating soil in the areas listed above would be approximately 0.90 mg/kg for BaP, calculated using a non-parametric distribution, and 48 mg/kg for lead, calculated with a lognormal distribution. Both concentrations are below the most stringent RBC (0.2.1 mg/kg for BaP) and 50 mg/kg for lead (equal to the plant SLV of 50 mg/kg). Therefore, the RAAs consist of:

- The RRGCC skeet range floor;
- The Sheriff's Range floor;
- The berms of the RRGCC and the Sheriff's Range and stockpile of soil at the former RRGCC rifle/pistol range; and
- Limited areas at the sporting clay range corresponding to a 20-foot radius of sample locations D-2, D-8, and D-9.

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The area and volumes of soil that would be affected under the remediation approach outlined above are described below. Calculations are summarized in Appendix A.

- The stockpile located near the unused rifle/pistol range was estimated in the field to be approximately 3,300 cubic yards (cy).
- The approximate volume of the Sheriff's Range firing range berms was estimated to be 10,000 cy, based on field measured dimensions.
- The approximate volume of the RRG firing range berms is 8,000 cy.
- The volume of impacted soil (upper one foot) in the floor of the Sheriff's Range is approximately 3,000 cy, over an area of 80,000 square feet.
- The depth of impacted soil in the floor of the Skeet Range is approximately one foot, although a thicker impacted interval (approximately two feet) is present at the center of the range, where relatively concentrated accumulations of CPF were observed. The remediation volume for the skeet range is approximately 18,000 cy, over an area of 400,000 square feet.
- For excavation areas at D-2, D-8, and D-9, the excavation area is based on a 20-foot radius excavation around each sample location. This corresponds to a removal volume of 150 cubic yards for the three areas. If visible CPF is present outside of a 20-foot radius, the excavations would be expanded to remove the visible CPF.
- The total remediation volume from the range areas is approximately 43,000 cubic yards of soil.

During final design, more detailed assessment of the firing range berms could lead to reduced volumes of soil requiring containment.

## **8.0 Technology Screening and Remedial Action Alternatives**

This section describes the development of the remedial action alternatives that are evaluated in Sections 9 and 10. The alternative development process includes identifying general response actions and corresponding technologies, screening technologies to eliminate technologies that are clearly not feasible, and assembling remaining technologies into a list of Site-specific RAAs.

### **8.1 Technology Screening**

Initially, technologies associated with a list of general response actions were screened for applicability based on site conditions and contaminant type. General response actions are broad categories of remedial measures that address the RAOs. Technologies and corresponding response actions may be stand-alone remedial action alternatives or a component of a comprehensive alternative.

Table 11 provides a listing of the general response actions together with representative remedial action technologies. Based on site use and type and extent of contaminants, these remedial action technologies were screened to identify a list of technologies to include in a more detailed evaluation of potential remedial action alternatives. The results of the screening are shown in Table 11, with the shaded technologies eliminated from further consideration. Comments on the table explain the rationale for eliminating technologies from further consideration. Technologies remaining for further evaluation after the initial screening are listed below.

| General Response Action                         | Technology                                                                              |
|-------------------------------------------------|-----------------------------------------------------------------------------------------|
| No Action                                       | No Action                                                                               |
| Institutional Controls                          | Legal Restrictions/Regulations/Covenants<br>Soil Management Plan<br>Signs<br>Monitoring |
| Containment                                     | Soil Cover or Cap                                                                       |
| Removal and Disposal                            | Excavation<br>Off-Site Disposal<br>On-Site Disposal                                     |
| In-Situ or Ex-Situ Solidification/Stabilization | Separation<br>Soil Stabilization                                                        |

## 8.2 Development of Remedial Action Alternatives

**Common Elements.** Several of the technologies retained for evaluation are only suitable for use in conjunction with other technologies and would not be considered as standalone alternatives. The supporting technologies which are common to each remedial action alternative (except No Action) are:

- Legal restrictions/regulations/covenants;
- Soil management plan (SMP);
- Signs;
- Monitoring;
- Excavation and off-site disposal of weathered sludge at trenches;
- Separation; and
- Stabilization required based on waste designation.

**Remedial Action Alternatives.** The remaining remedial technologies are the primary technologies to address soil impacts. These alternatives include soil cover or capping, and excavation and disposal. These

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technologies, together with the supporting technologies, are incorporated into remedial action alternatives that will be evaluated in detail. The remedial action alternatives, therefore, include the following.

- No Action – This alternative is retained for comparison with other remedial action alternatives listed below.
- Excavation and On-Site Disposal – This alternative assumes that the contaminated media are excavated from their current locations and placed in a designated management area that is subsequently capped or covered. This alternative could also include capping of contaminated soils in-place with a soil, gravel, asphalt-concrete (AC), or Portland cement concrete (PCC) cap. Capping material could be constructed as part of a Site redevelopment (e.g. a building foundation or parking lot).
- Excavation and Off-Site Disposal – The excavation and disposal alternative includes removing contaminated soils from the Site, stabilizing soil to reduce leachable concentrations of lead (to classify soil as non-hazardous), and disposal at a licensed disposal facility (e.g. Knott Landfill).

These alternatives are evaluated in detail in Section 9.

## **9.0 Detailed Analysis of Remedial Action Alternatives**

This section describes and evaluates each of the remedial action alternatives identified in Section 8. The feasibility of each of the alternatives is evaluated using the criteria listed in Section 6.2.

Following the evaluation, a comparative analysis of each alternative relative to the other alternatives was completed (Section 10). The comparative analysis serves as the basis for selecting the recommended remedial action alternative (Section 11).

### **9.1 No Action**

**Description.** According to OAR 340-122-085(2), a No Action alternative must be evaluated as a remedial action alternative. The No Action alternative assumes that no action is taken, no monitoring is performed, and no costs are incurred. Evaluation criteria are discussed below.

**Protectiveness.** The No Action alternative is not protective because it allows contaminants to be left in place at concentrations that exceed protective levels as determined from the baseline risk screening.

**Effectiveness.** The No Action alternative does not effectively manage or eliminate baseline risk.

**Long-Term Reliability.** The No Action alternative is not reliable because it does not manage or eliminate baseline risk.

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**Implementability.** The No Action alternative is the easiest of the alternatives to implement.

**Implementation Risk.** Since there are no construction or remediation activities associated with the No Action alternative, there is no risk to workers, the public, or environment during implementation of this alternative.

**Reasonableness of Cost.** There is no cost associated with the No Action alternative.

**Treatment or Removal of Hot Spots.** This alternative does not treat or remove the hot spots.

## 9.2 Excavation and On-Site Disposal

**Description.** The on-site disposal alternative relies on construction of a soil and gravel cover with sufficient thickness to contain the impacted media and prevent human and ecological exposure. This alternative assumes that approximately 43,000 cy of contaminated soils and 77,000 cy of disposal area debris are excavated from their current locations and placed in a designated management area that is subsequently capped or covered. This would result in a berm that is slightly larger than 10 acres (4.4 acres for the firing ranges and 6.0 acres for the disposal area), assuming 6 feet of contaminated soil is placed under 1.5 feet of gravel and 0.5 feet of topsoil.

For cost estimating purposes, we have assumed that this alternative is implemented as a stand-alone project. Because this alternative relies on a physical barrier to contain the contaminated soil, there are opportunities to integrate the final alternative with the final land use to reduce costs.

This alternative evaluated for this FS includes placing the contaminated soils and debris in a containment berm on the site. Other forms of capping or containment could be acceptable. The contaminated soils and debris would be placed in the berm area, covered with at least 1.5 feet (compacted depth) of gravel, covered with topsoil, and revegetated. Signage and deed notices (or other institutional controls) would be required to prevent unplanned future soil disturbance.

Excavation and on-site disposal could be readily integrated into a Site redevelopment project. A building foundation or paved parking area could be used as a cap, reducing overall costs. The use of building foundations, parking structures, or other infrastructure to cap or contain contaminated soil would be protective of future workers.

Barrier technology could be utilized to eliminate the gravel cap. This would include a geotextile fabric with a stainless-steel wool (or similarly impenetrable material) that is used to contain the contaminated soil. These fabrics are costly – approximately \$50 per square yard for purchase, not including installation. If a more cost-effective product became available, use of barrier technology would be consistent with an onsite disposal alternative. Barrier technology across limited areas could also be used as a component of a larger design. For example, the barrier could be used to seal the edges of a larger paved parking area.

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**Protectiveness.** The on-site disposal alternative is protective because it prevents exposure to humans and ecological receptors. Ecological risks for burrowing mammals were found to be acceptable.

**Effectiveness.** The on-site disposal alternative manages risk by removing the direct contact pathway.

**Long-Term Reliability.** The on-site disposal alternative has good long-term reliability. Routine maintenance, institutional controls (deed restrictions) and periodic monitoring will be required in-perpetuity to ensure the integrity of the cover or cap is maintained.

**Implementability.** The on-site disposal alternative is readily implementable with common earth moving equipment and earthwork construction practices.

**Implementation Risk.** The on-site disposal alternative has low implementation risk because all contaminated soils are maintained on-site. Dust control will be required to prevent airborne migration and worker exposure. Offsite soil trucking is not required, so the corresponding implementation risk to the public is low.

**Reasonableness of Cost.** The estimated cost for the on-site disposal alternative (excavate soils in RAAs and place in containment berm) is approximately \$5,180,000. Of this amount, approximately \$1,810,000 is allocated to excavation and covering firing range soil and approximately \$3,370,000 is allocated to excavation, handling, and cover of the disposal area debris. Cost estimates for this alternative are presented in Tables 12 (firing range soil) and Table 13 (disposal area debris).

**Treatment or Removal of Hot Spots.** This alternative does not treat or remove the hot spots. Hot spot soils are contained beneath the soil cover or cap.

### 9.3 Soil/Debris Excavation and Off-Site Disposal

**Description.** The excavation and off-site disposal alternative rely on excavation of contaminated soils and debris and off-site disposal of those materials at a licensed disposal facility. This alternative assumes that approximately 43,000 cubic yards of contaminated soil and 77,000 cubic yards of debris from the solid waste area are excavated from their current locations and transported to the landfill for disposal. For the purposes of the cost estimate, we have assumed that firing range soils would be treated using stabilization methods to reduce the leachability of lead, resulting in the soil being designated a non-hazardous waste. In the event stabilization is not effective, removed soil may be classified as a hazardous waste, resulting in substantially increased disposal costs. This alternative further assumes that excavated debris would be crushed in an on-site compactor to reduce volume prior to off-site transport. Field screening during debris excavation would be completed to minimize the possibility that hazardous substances or other incompatible materials (e.g. tires) are segregated and transported to appropriate disposal facilities.



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As discussed in Section 7, under this alternative, like the Excavation and On-site Disposal alternative, weathered sludge at the disposal area would be excavated and transported off-site for disposal.

**Protectiveness.** The excavation and off-site disposal alternative is protective because it removes the contaminated soil and debris and places them in a managed and permitted landfill.

**Effectiveness.** The excavation and off-site disposal alternative is effective because it removes the contaminated soil and debris and mitigates the corresponding risks.

**Long-Term Reliability.** The excavation and off-site disposal alternative has good long term reliability because the impacted media is removed for offsite disposal. This alternative would not require long term monitoring or maintenance.

**Implementability.** The removal and off-site disposal alternative is readily implementable with common earth moving equipment and earthwork construction practices.

**Implementation Risk.** Implementation risks include potential impacts to the community, site workers, and the environment during implementation, summarized as follows.

- Community – Assuming 43,000 cy of soil and 77,000 cy of solid waste debris are transported to the Knott Landfill in 30-yard truck and trailers, approximately 4,000 round trip loads would be required through the adjacent residential communities and rural areas. This brings noise and air pollution to the region. Motor vehicle accidents, including the potential for vehicle/pedestrian or vehicle/bicycle accidents, are a possibility.
- Site Workers – Risks to construction workers include physical hazards from heavy construction equipment and inhalation of dust. These risks are readily addressed with engineering controls (e.g. high visibility gear, dust suppression) and personal protective gear.
- Environment – Equipment and trucks used for the work would be diesel powered, contributing greenhouse gases to the atmosphere. Assuming the landfill is located within approximately 25 miles of the Site (e.g. the Knott Landfill), the project would generate approximately 200,000 truck miles.

**Reasonableness of Cost.** The estimated cost for the off-site disposal alternative is approximately \$9,360,000. Of this amount, approximately \$4,460,000 is allocated for remediating soil at the firing ranges and approximately \$4,900,000 is allocated for remediating debris in the solid waste disposal area. Cost estimates for this alternative are presented in Table 14 (firing range soil) and Table 15 (disposal area debris).

**Treatment or Removal of Hot Spots.** This alternative removes hot spots from the Site.

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## **10.0 Comparative Analysis of Remedial Action Alternatives**

This section of the FS presents an evaluation of the remedial action alternatives relative to one another. The comparative analysis is summarized in Table 16. In the table, each alternative is compared to each of the other alternatives for each evaluation criterion. An alternative is ranked as favorable (+), equal (0), or unfavorable (-) in relation to every other alternative. The scores are summed at the right of the table for each alternative and the alternatives are ranked. The following discussion provides the rationale for the comparative evaluation presented in Table 16.

### **10.1 Protectiveness**

The No Action alternative provides no protection from exposure to site contaminants. The excavation and on-site disposal alternative provides a high level of protectiveness because it will prevent contact with site contaminants. The excavation and off-site disposal alternative also provides a high level of protectiveness because this alternative removes contaminated soil and debris and places them in a permitted landfill for disposal.

### **10.2 Effectiveness**

The No Action alternative is not effective because nothing is done to address site contamination sources and associated exposures. The excavation and disposal (on- or off-site) alternatives are equally effective because the RAOs are met immediately once the remedial action is complete. Neither alternative relies on a physical, chemical, or biological process to treat contamination to certain levels before the RAOs are achieved. Each alternative would require confirmation sampling below soil removal areas to confirm that the excavation aspect of the alternative was effective. The excavation and disposal (on- or off-site) alternatives are considered equally effective.

### **10.3 Long-Term Reliability**

The No Action alternative provides no long-term reliability. The excavation and on-site disposal alternative will be reliable in the long term, and the timeframe to complete the remedial action is short. The excavation and on-site disposal alternative will require long term monitoring and periodic maintenance. The excavation and off-site disposal alternative is also considered to be a reliable remedial action in the long term because contamination is removed from the site. The excavation and on-site disposal and the excavation and off-site disposal alternatives are considered equally reliable in the long term.

### **10.4 Implementability**

The No Action alternative is the most implementable remedial action. The excavation and on-site disposal alternative and excavation and off-site disposal are both considered to be equally implementable. Both

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alternatives rely on common earth moving equipment and trucking to complete the remedial action. Also, both alternatives can accommodate overages if excavation volumes exceed estimates.

## **10.5 Implementation Risk**

There is no implementation risk to the community or workers with the No Action alternative. Minor implementation risk is associated with the excavation and on-site disposal alternative. This implementation risk is mostly associated with risks to excavation and construction workers while undertaking the remedial action. Implementation risk is highest for excavation and off-site disposal alternative. Excavation and off-site disposal would require approximately 4,000 truck trips (round trip) to a licensed disposal facility, presenting some risk to the community during transport.

## **10.6 Reasonableness of Cost**

The following summarizes the present-worth total cost estimates for each alternative from Tables 12 through 15, listed from least to most costly:

- No Action – \$0;
- Excavation and On-Site Disposal – \$5,180,000 (approximately \$1,810,000 for excavation and covering firing range soil and approximately \$3,370,000 for disposal area materials); and
- Excavation and Off-Site Disposal – \$9,360,000 (approximately \$4,460,000 for removing soil at the firing ranges and approximately \$4,900,000 for disposal area materials).

## **10.7 Treatment or Removal of Hot Spots**

Hot spots are managed with the excavation and on-site disposal alternative, but there is no reduction in contaminant mass or toxicity. The soil contamination is not mobile, so the lead and PAHs in soil will be reliably contained under the excavation and on-site disposal alternative. The excavation and off-site disposal alternative will remove the contaminant mass and associated toxicity and place it in a permitted landfill for disposal, which addresses hot spots to the highest level. Because the recommended alternative (on-site disposal) will be protective (COCs are not considered leachable and will be contained), the additional cost for off-site disposal (\$4,180,000) is considered disproportionate to the benefit.

# **11.0 Recommended Remedial Action Alternative**

## **11.1 Recommended Alternative**

Based on the evaluation of remedial alternatives in Section 10, the recommended remedial action for the Site is the excavation and on-site containment alternative. This alternative is recommended for the following reasons.

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- The alternative is protective of human health and the environment by removing contaminated soils and consolidating the soils in a containment berm with gravel cover. The point of compliance would be surface soil throughout the Site.
  - The alternative overall ranks the highest of the protective alternatives when considering the balancing factors with equal weighting.
  - Upon completion of the soil excavation, contact with high-concentration hot spots by direct contact of human and ecological terrestrial receptors will be prevented by the cap or cover. While this alternative does not treat hot spots, the implementation cost for the excavation and off-site disposal alternative, which would remove the hot spots, is disproportionate to the marginal benefits (removal and disposal was estimated to be \$4,180,000 more costly).

## 11.2 Conceptual Implementation Approach

This feasibility study describes the approach and estimated costs for two general remedial alternatives that would be protective of human and ecological health. The alternatives and costs presented herein are general in nature and intended to be sufficient for evaluating the relative merits of each alternative, relative to the requirements for conducting FS. In practice, however, the cost of the recommended alternative (excavation and on-site disposal) could be substantially reduced if the alternative is implemented in a phased approach where capping is integrated with Site redevelopment plans, similar to the conceptual implementation approach described below.

- Parking areas, access roads, and building foundations would function as a cap over contaminated soil.
- Construction would be performed using equipment and personnel mobilized to the site for the overall development project. Some additional worker health and safety training and monitoring would be needed, however the same equipment would largely in service for a large-scale project.
- Site preparation activities would largely involve consolidating the contaminated soils beneath the future development pads, parking lots, and roadways. Materials separation and additional segregation of contaminated soils would be used to reduce volumes.
- Remediation preparation costs would not include mobilization, utility locating, erosion control, a construction entrance, survey control, dust control, and site clearing because these costs would be incurred as normal site development costs.
- No costs would be incurred for import and placement of the gravel cover material because those areas would be covered by buildings, parking areas, and or a similar paved feature.
- Re-vegetation requirements would be limited to areas not covered by pavements or buildings, and would be expected to largely consist of landscaping that would be completed for the overall redevelopment, limiting remediation costs.

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If integrated with redevelopment, a conceptual remediation approach as described above would be consistent with the recommended alternative and potentially save significant costs compared to constructing the excavation and on-site containment as a stand-alone remedial action.

### **11.3 Permit Requirements, Resource Studies, and Periodic Reviews**

Implementation of the recommended remedial alternative will require permits, including:

- 1200-C NPDES permit; and
- Construction grading permit.

Prior to permitting and implementation of a remedial action at the disposal area, a cultural resources study may be required to evaluate materials in the disposal area.

After implementation of the project, periodic reviews will be required to document the effectiveness of the on-site disposal areas.

## **12.0 Residual Risk Assessment**

After remediation, residual risks are predicted to be acceptable. Contaminated soils and debris from the disposal area will be contained in a containment cell or under a cap, preventing exposure to humans and ecological receptors. Weathered sludge from the trench area will be removed and disposed.

Excavation at remedial action areas will be completed until: (1) average concentrations of lead, B(a)P, and other contaminants of concern are lower than RBCs and SLVs; and (2) individual sample concentrations are lower than SLVs for plants and invertebrates. As described in Section 7, no sample locations outside of the remedial action areas exceed SLVs for plants or invertebrates (Q=1). Therefore, cleanup of the soil remedial action areas will also address point by point ecological risk for plants and invertebrates.

After removing the chemical concentrations of the data points that would be remediated, and accounting for background concentrations of lead, the projected 90% UCL soil concentrations would be approximately 0.90 mg/kg for BaP and 48 mg/kg for lead. Both projected concentrations are below the most stringent human health and ecological screening criteria (RBC of 2.1 mg/kg for BaP) and (plant SLV of 50 mg/kg for lead).

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## **13.0 References**

- David Evans and Associates, 2008. *Phase I Environmental Site Assessment for a Portion of Tax Lot 103, Redmond, Oregon*. July 16, 2008.
- GeoEngineers, Inc., 2009. *Targeted Brownfield Assessment - Report and Analysis of Brownfield Cleanup Alternatives, D*. March 5, 2009.
- Kleinfelder, 2008. *Phase I Environmental Site Assessment, Deschutes County Leased Property, Approximately 140 Acres, East Highway 126, Redmond, Oregon*. July 3, 2008.
- Oregon Department of Environmental Quality (DEQ), 1998. *Guidance for Ecological Risk Assessment: Levels I, II, III, IV*. April 1998. (Level II Screening Benchmark Values updated December 2001.)
- DEQ, 1998a. *Final Guidance – Consideration of Land Use in Environmental Remedial Actions*. July 1, 1998.
- DEQ, 1998b. *Guidance for Conducting Beneficial Water Use Determinations at Environmental Cleanup Sites*. July 1, 1998.
- DEQ, 2017. *Risk-Based Decision Making for Remediation of Contaminated Sites*. September 22, 2003 (Updated October 2, 2017).
- DEQ, 2017. *Guidance for Conducting Feasibility Studies, Oregon Department of Environmental Quality*. July 1, 1998 (Updated December 1, 2017).
- DEQ, 2018. *Risk-Based Concentrations for Individual Chemicals, Oregon Department of Environmental Quality*. Revision May 2018.
- Oregon State University, 2013. Oregon Climate Service. <http://www.ocs.orst.edu/oregon-climate-data>. June 11, 2014.



Table 1  
Summary of Soil Data - Petroleum Hydrocarbons and Polychlorinated Biphenyls  
Deschutes County Shooting Range  
Redmond, OR

| Sample ID                                                                                     | Date      | Depth BGS<br>(ft.) | Total Petroleum Hydrocarbons (TPH) |              |           | Polychlorinated<br>Biphenyls (PCBs)                               |
|-----------------------------------------------------------------------------------------------|-----------|--------------------|------------------------------------|--------------|-----------|-------------------------------------------------------------------|
|                                                                                               |           |                    | Gasoline Range                     | Diesel Range | Oil Range |                                                                   |
| Landfill Area                                                                                 |           |                    |                                    |              |           | ND<br><br>0.123<br><br>ND<br><br>ND<br><br>ND<br><br>ND<br><br>ND |
| A-1(5.5-6)                                                                                    | 1/21/2009 | 5.5-6              | <4.29                              | <14.5        | <28.9     |                                                                   |
| A-2(0.5-1)                                                                                    | 1/21/2009 | 0.5-1              | <4.53                              | 14.8         | 52.5      |                                                                   |
| A-3(5.5-6)                                                                                    | 1/21/2009 | 5.5-6              | <4.41                              | <14.2        | <28.4     |                                                                   |
| A-3(13.5-14)                                                                                  | 1/21/2009 | 13.5-14            | <4.56                              | <14.8        | <29.5     |                                                                   |
| A-4(6-6.5)                                                                                    | 1/21/2009 | 6-6.5              | <4.53                              | <14.5        | <28.9     |                                                                   |
| A-5(0.5-1)                                                                                    | 1/21/2009 | 0.5-1              | <4.63                              | <14.4        | <28.8     |                                                                   |
| A-6(1-1.5)                                                                                    | 1/21/2009 | 1-1.5              | <4.74                              | <14.9        | 34.7      |                                                                   |
| Landfill Trench Area                                                                          |           |                    |                                    |              |           |                                                                   |
| B-1(0)                                                                                        | 1/22/2009 | 0                  | <362                               | 10,300       | 12,100    | 1.98                                                              |
| B-2(0)                                                                                        | 1/22/2009 | 0                  | <365                               | 8,920        | 11,900    | 1.74                                                              |
| DEQ Risk-Based Concentrations for Soil Ingestion, Dermal Contact, and Inhalation <sup>1</sup> |           |                    |                                    |              |           |                                                                   |
| Occupational Worker                                                                           |           |                    | 20,000                             | 14,000       | 36,000    | 0.59                                                              |
| Construction Worker                                                                           |           |                    | 9,700                              | 4,600        | 11,000    | 4.9                                                               |
| Excavation Worker                                                                             |           |                    | --                                 | --           | --        | 140                                                               |
| DEQ Ecological Level II Screening Level Values in Soil <sup>2</sup>                           |           |                    |                                    |              |           |                                                                   |
| Plants                                                                                        |           |                    | --                                 | --           | --        | 40                                                                |
| Invertebrates                                                                                 |           |                    | --                                 | --           | --        | --                                                                |
| Birds                                                                                         |           |                    | --                                 | --           | --        | --                                                                |
| Mammals                                                                                       |           |                    | --                                 | --           | --        | 20                                                                |

1. Risk-Based Concentrations for Individual Chemicals Spreadsheet, May 2018 update.
2. Guidance for Ecological Risk Assessment, April 1998. SLVs for birds and mammals are increased by a factor of 5 to for the absence of T&E species.
3. mg/kg = milligrams per kilogram
4. Bold indicates analyte detected above method reporting limit
5. < = Analyte was not detected above method reporting limit
6. -- = Risk-based concentration or screening level value has not been established
7. ND = Analyte was not detected above method reporting limit
8. Shading indicates concentration above Occupational Worker risk-based concentration
9. Shading indicates concentration above Construction Worker risk-based concentration
10. BGS = Feet below ground surface



Table 3

Summary of Soil Data - Polycyclic Aromatic Hydrocarbons  
Deschutes County Shooting Range  
Redmond, OR

| Sample ID                                     | Date      | Depth<br>(feet bgs) | Acenaphthene  | Acenaphthylene | Anthracene   | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene      | Dibenz(a,h)anthracene | Fluoranthene  | Fluorene | Indeno(1,2,3-cd)pyrene | Naphthalene | Phenanthrene | Pyrene        |
|-----------------------------------------------|-----------|---------------------|---------------|----------------|--------------|--------------------|----------------|----------------------|----------------------|----------------------|---------------|-----------------------|---------------|----------|------------------------|-------------|--------------|---------------|
| <b>Landfill Area</b>                          |           |                     |               |                |              |                    |                |                      |                      |                      |               |                       |               |          |                        |             |              |               |
| Measured in mg/kg                             |           |                     |               |                |              |                    |                |                      |                      |                      |               |                       |               |          |                        |             |              |               |
| A-1(5-6)                                      | 1/21/2009 | 5-6                 | <0.0154       | <0.0154        | <0.0154      | <0.0154            | <0.0154        | <0.0154              | <0.0154              | <0.0154              | <0.0154       | <0.0154               | <0.0154       | <0.0154  | <0.0154                | <0.0154     | <0.0154      | <0.0154       |
| A-2(0.5-1)                                    | 1/21/2009 | 0.5-1               | <0.0156       | <0.0156        | <0.0156      | <0.0156            | <b>0.0257</b>  | <b>0.0316</b>        | <b>0.0177</b>        | <b>0.026</b>         | <b>0.017</b>  | <0.0156               | <0.0156       | <0.0156  | <0.0156                | <0.0156     | <b>0.023</b> | <0.0156       |
| A-3(5-6)                                      | 1/21/2009 | 5-6                 | <0.0155       | <0.0155        | <0.0155      | <0.0155            | <0.0155        | <b>0.0287</b>        | <0.0155              | <0.0155              | <0.0155       | <0.0155               | <0.0155       | <0.0155  | <0.0155                | <0.0155     | <0.0155      | <0.0155       |
| A-3(13.5-14)                                  | 1/21/2009 | 13.5-14             | <0.0159       | <0.0159        | <0.0159      | <0.0159            | <0.0159        | <0.0159              | <0.0159              | <0.0159              | <0.0159       | <0.0159               | <0.0159       | <0.0159  | <0.0159                | <0.0159     | <0.0159      | <0.0159       |
| A-4(6-6.5)                                    | 1/21/2009 | 6-6.5               | <0.0155       | <0.0155        | <0.0155      | <0.0155            | <0.0155        | <0.0155              | <0.0155              | <0.0155              | <0.0155       | <0.0155               | <0.0155       | <0.0155  | <0.0155                | <0.0155     | <0.0155      | <0.0155       |
| A-5(0.5-1)                                    | 1/21/2009 | 0.5-1               | <0.0157       | <0.0157        | <0.0157      | <0.0157            | <0.0157        | <0.0157              | <0.0157              | <0.0157              | <0.0157       | <0.0157               | <0.0157       | <0.0157  | <0.0157                | <0.0157     | <0.0157      | <0.0157       |
| A-6(1-1.5)                                    | 1/21/2009 | 1-1.5               | <0.016        | <0.016         | <0.016       | <0.016             | <0.016         | <0.016               | <0.016               | <0.016               | <0.016        | <0.016                | <0.016        | <0.016   | <0.016                 | <0.016      | <0.016       | <0.016        |
| <b>Landfill Trench Area</b>                   |           |                     |               |                |              |                    |                |                      |                      |                      |               |                       |               |          |                        |             |              |               |
| B-1(0)                                        | 1/22/2009 | 0                   | <2.01         | <2.01          | <2.01        | <2.01              | <b>4.38</b>    | <b>2.18</b>          | <b>3.03</b>          | <2.01                | <b>3.47</b>   | <2.01                 | <2.01         | <2.01    | <2.01                  | <2.01       | <2.01        | <2.01         |
| B-2(0)                                        | 1/22/2009 | 0                   | <2.02         | <2.02          | <2.02        | <2.02              | <b>4.37</b>    | <2.02                | <b>2.77</b>          | <2.02                | <b>4.66</b>   | <2.02                 | <2.02         | <2.02    | <2.02                  | <2.02       | <2.02        | <2.02         |
| <b>Sheriff Shooting Range - Floor Samples</b> |           |                     |               |                |              |                    |                |                      |                      |                      |               |                       |               |          |                        |             |              |               |
| C-5(0-0.5)                                    | 1/21/2009 | 0-0.5               | <0.016        | <0.016         | <0.016       | <0.016             | <0.016         | <0.016               | <0.016               | <0.016               | <0.016        | <0.016                | <0.016        | <0.016   | <0.016                 | <0.016      | <0.016       | <0.016        |
| C-8(Surface)                                  | 1/22/2009 | 0-0.5               | <5.39         | <5.39          | <5.39        | <b>18.9</b>        | <b>23.7</b>    | <b>24.6</b>          | <b>24.7</b>          | <b>15.5</b>          | <b>23.9</b>   | <b>7.56</b>           | <5.39         | <5.39    | <b>20.1</b>            | <5.39       | <b>8.67</b>  | <b>21.9</b>   |
| C-8(0-0.5)                                    | 1/23/2009 | 0-0.5               | <0.017        | <0.017         | <0.017       | <b>0.0192</b>      | <b>0.0359</b>  | <b>0.0197</b>        | <b>0.0293</b>        | <0.017               | <b>0.0273</b> | <0.017                | <0.017        | <0.017   | <0.017                 | <0.017      | <0.017       | <b>0.0255</b> |
| Duplicate-3                                   | 1/23/2009 | 0-0.5               | <0.0148       | <0.0148        | <0.0148      | <b>0.0157</b>      | <b>0.0272</b>  | <b>0.0186</b>        | <b>0.0247</b>        | <0.0148              | <b>0.0224</b> | <0.0148               | <0.0148       | <0.0148  | <b>0.0154</b>          | <0.0148     | <0.0148      | <b>0.02</b>   |
| C-9(0-0.5)                                    | 1/22/2009 | 0-0.5               | <0.0148       | <0.0148        | <0.0148      | <0.0148            | <b>0.0188</b>  | <b>0.0164</b>        | <b>0.0163</b>        | <0.0148              | <b>0.0151</b> | <0.0148               | <0.0148       | <0.0148  | <0.0148                | <0.0148     | <0.0148      | <0.0148       |
| AC-16 (0-6)                                   | 6/16/2014 | 0-0.5               | <0.00912      | <0.00912       | <0.00912     | <0.00912           | <0.00912       | <0.00912             | <0.00912             | <0.00912             | <0.00912      | <0.00912              | <0.00912      | <0.00912 | <0.00912               | <0.00912    | <0.00912     | <0.00912      |
| AC-16 (6-12)                                  | 6/16/2014 | 0.5-1.0             | <0.00943      | <0.00943       | <0.00943     | <0.00943           | <0.00943       | <0.00943             | <0.00943             | <0.00943             | <0.00943      | <0.00943              | <0.00943      | <0.00943 | <0.00943               | <0.00943    | <0.00943     | <0.00943      |
| <b>Sheriff Shooting Range - Berm Samples</b>  |           |                     |               |                |              |                    |                |                      |                      |                      |               |                       |               |          |                        |             |              |               |
| C-1(0-0.5)                                    | 1/21/2009 | 0-0.5               | <0.0292       | <0.0292        | <0.0292      | <0.0292            | <b>0.0303</b>  | <0.0292              | <b>0.0315</b>        | <0.0292              | <0.0292       | <0.0292               | <0.0292       | <0.0292  | <0.0292                | <0.0292     | <0.0292      | <0.0292       |
| C-1(1-1.5)                                    | 1/23/2009 | 1-1.5               | <0.0292       | <0.0292        | <0.0292      | <0.0292            | <0.0292        | <0.0292              | <0.0292              | <0.0292              | <0.0292       | <0.0292               | <0.0292       | <0.0292  | <0.0292                | <0.0292     | <0.0292      | <0.0292       |
| C-2(0-0.5)                                    | 1/21/2009 | 0-0.5               | <0.0296       | <0.0296        | <0.0296      | <0.0296            | <0.0296        | <0.0296              | <0.0296              | <0.0296              | <0.0296       | <0.0296               | <0.0296       | <0.0296  | <0.0296                | <0.0296     | <0.0296      | <0.0296       |
| C-2(1-1.5)                                    | 1/23/2009 | 1-1.5               | <0.0302       | <0.0302        | <0.0302      | <0.0302            | <0.0302        | <0.0302              | <0.0302              | <0.0302              | <0.0302       | <0.0302               | <0.0302       | <0.0302  | <0.0302                | <0.0302     | <0.0302      | <0.0302       |
| C-4(0-0.5)                                    | 1/21/2009 | 0-0.5               | <b>0.0164</b> | <0.0151        | <b>0.023</b> | <b>0.172</b>       | <b>0.232</b>   | <b>0.195</b>         | <b>0.175</b>         | <b>0.158</b>         | <b>0.187</b>  | <b>0.0566</b>         | <b>0.236</b>  | <0.0151  | <b>0.159</b>           | <0.0151     | <b>0.101</b> | <b>0.197</b>  |
| C-4(1-1.5)                                    | 1/23/2009 | 1-1.5               | <0.0147       | <0.0147        | <0.0147      | <0.0147            | <0.0147        | <0.0147              | <0.0147              | <0.0147              | <0.0147       | <0.0147               | <0.0147       | <0.0147  | <0.0147                | <0.0147     | <0.0147      | <0.0147       |
| C-6(0-0.5)                                    | 1/22/2009 | 0-0.5               | <0.0144       | <0.0144        | <0.0144      | <b>0.0245</b>      | <b>0.0359</b>  | <b>0.0288</b>        | <b>0.0308</b>        | <b>0.0208</b>        | <b>0.0285</b> | <0.0144               | <b>0.0327</b> | <0.0144  | <b>0.0255</b>          | <0.0144     | <0.0144      | <b>0.0279</b> |
| Duplicate-1                                   | 1/22/2009 | 0-0.5               | <0.0141       | <0.0141        | <0.0141      | <b>0.0201</b>      | <b>0.0287</b>  | <b>0.0237</b>        | <b>0.0245</b>        | <b>0.018</b>         | <b>0.0235</b> | <0.0141               | <b>0.0269</b> | <0.0141  | <b>0.0197</b>          | <0.0141     | <0.0141      | <b>0.0241</b> |
| C-6(1-1.5)                                    | 1/23/2009 | 1-1.5               | <0.0143       | <0.0143        | <0.0143      | <b>0.0217</b>      | <b>0.0344</b>  | <b>0.0355</b>        | <b>0.0354</b>        | <b>0.0206</b>        | <b>0.0353</b> | <0.0143               | <b>0.036</b>  | <0.0143  | <b>0.0252</b>          | <0.0143     | <0.0143      | <b>0.0291</b> |
| C-7(0-0.5)                                    | 1/22/2009 | 0-0.5               | <0.0147       | <0.0147        | <0.0147      | <b>0.034</b>       | <b>0.0493</b>  | <b>0.0447</b>        | <b>0.0402</b>        | <b>0.027</b>         | <b>0.0404</b> | <0.0147               | <b>0.0423</b> | <0.0147  | <b>0.0337</b>          | <0.0147     | <0.0147      | <b>0.0382</b> |
| C-7(1-1.5)                                    | 1/23/2009 | 1-1.5               | <0.0148       | <0.0148        | <0.0148      | <0.0148            | <b>0.0162</b>  | <b>0.016</b>         | <b>0.0159</b>        | <0.0148              | <0.0148       | <0.0148               | <b>0.0152</b> | <0.0148  | <0.0148                | <0.0148     | <0.0148      | <0.0148       |

Please refer to notes at end of table

Table 3  
Summary of Soil Data - Polycyclic Aromatic Hydrocarbons  
Deschutes County Shooting Range  
Redmond, OR

| Sample ID                                      | Date      | Depth<br>(feet bgs) | Acenaphthene | Acenaphthylene | Anthracene | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Naphthalene | Phenanthrene | Pyrene  |
|------------------------------------------------|-----------|---------------------|--------------|----------------|------------|--------------------|----------------|----------------------|----------------------|----------------------|----------|-----------------------|--------------|----------|------------------------|-------------|--------------|---------|
| <b>RRGC Rifle/Pistol Range - Floor Samples</b> |           |                     |              |                |            |                    |                |                      |                      |                      |          |                       |              |          |                        |             |              |         |
| E-1(0-0.5)                                     | 1/23/2009 | 0-0.5               | <0.015       | <0.015         | <0.015     | 0.0215             | 0.0353         | 0.0554               | 0.0348               | <0.015               | <0.015   | 0.0152                | <0.015       | <0.015   | <0.015                 | <0.015      | <0.015       | <0.015  |
| E-2(0-0.5)                                     | 1/23/2009 | 0-0.5               | <0.0152      | <0.0152        | <0.0152    | 0.0334             | 0.0352         | 0.0803               | 0.0445               | <0.0152              | <0.0152  | <0.0152               | <0.0152      | <0.0152  | <0.0152                | <0.0152     | <0.0152      | <0.0152 |
| E-12(0-0.5)                                    | 1/23/2009 | 0-0.5               | <0.0152      | <0.0152        | <0.0152    | 0.0174             | 0.0282         | 0.0438               | 0.0256               | <0.0152              | <0.0152  | <0.0152               | <0.0152      | <0.0152  | <0.0152                | <0.0152     | <0.0152      | <0.0152 |
| E-13(0-0.5)                                    | 1/23/2009 | 0-0.5               | <0.0169      | <0.0169        | <0.0169    | 0.0205             | 0.0327         | 0.0208               | 0.0272               | <0.0169              | 0.0292   | <0.0169               | <0.0169      | <0.0169  | <0.0169                | <0.0169     | <0.0169      | 0.0221  |
| <b>RRGC Rifle/Pistol Range - Berm Samples</b>  |           |                     |              |                |            |                    |                |                      |                      |                      |          |                       |              |          |                        |             |              |         |
| E-3(0-0.5)                                     | 1/23/2009 | 0-0.5               | <0.0149      | <0.0149        | <0.0149    | 0.0215             | 0.0353         | 0.0554               | 0.0348               | <0.0149              | 0.0295   | <0.0149               | 0.0339       | <0.0149  | 0.0261                 | <0.0149     | <0.0149      | 0.0295  |
| E-3(1-1.5)                                     | 1/23/2009 | 1-1.5               | <0.0139      | <0.0139        | <0.0139    | 0.0334             | 0.0352         | 0.0803               | 0.0445               | <0.0139              | 0.0425   | 0.0152                | 0.0475       | <0.0139  | 0.0372                 | <0.0139     | 0.0156       | 0.0411  |
| E-5(0-0.5)                                     | 1/23/2009 | 0-0.5               | <0.0152      | <0.0152        | <0.0152    | 0.0174             | 0.0282         | 0.0438               | 0.0256               | <0.0152              | 0.0244   | <0.0152               | 0.0263       | <0.0152  | 0.0196                 | <0.0152     | <0.0152      | 0.0247  |
| E-5(1-1.5)                                     | 1/23/2009 | 1-1.5               | <0.0144      | <0.0144        | <0.0144    | 0.0154             | 0.0266         | 0.0403               | 0.0243               | <0.0144              | 0.0213   | <0.0144               | 0.0231       | <0.0144  | 0.0191                 | <0.0144     | <0.0144      | 0.0205  |
| E-6(0-0.5)                                     | 1/23/2009 | 0-0.5               | 0.257        | <0.146         | 0.337      | 2.86               | 3.71           | 5.3                  | 2.81                 | <0.146               | 3.16     | 0.932                 | 3.87         | <0.146   | 2.41                   | <0.146      | 1.37         | 3.23    |
| E-6(1-1.5)                                     | 1/23/2009 | 1-1.5               | <0.0141      | <0.0141        | <0.0141    | 0.0308             | 0.0472         | 0.0606               | 0.0347               | <0.0141              | 0.0372   | <0.0141               | 0.0362       | <0.0141  | 0.0255                 | <0.0141     | <0.0141      | 0.038   |
| E-8(0-0.5)                                     | 1/23/2009 | 0-0.5               | <0.015       | <0.015         | <0.015     | <0.015             | <0.015         | <0.015               | <0.015               | <0.015               | <0.015   | <0.015                | <0.015       | <0.015   | <0.015                 | <0.015      | <0.015       | <0.015  |
| E-8(1-1.5)                                     | 1/23/2009 | 1-1.5               | <0.0143      | <0.0143        | <0.0143    | <0.0143            | <0.0143        | <0.0143              | <0.0143              | <0.0143              | <0.0143  | <0.0143               | <0.0143      | <0.0143  | <0.0143                | <0.0143     | <0.0143      | <0.0143 |
| E-9(0-0.5)                                     | 1/23/2009 | 0-0.5               | <0.0148      | <0.0148        | <0.0148    | 0.0332             | 0.0511         | 0.0417               | 0.0427               | 0.0275               | 0.0427   | <0.0148               | 0.0403       | <0.0148  | 0.0308                 | <0.0148     | <0.0148      | 0.0402  |
| E-9(1-1.5)                                     | 1/23/2009 | 1-1.5               | <0.0142      | <0.0142        | <0.0142    | <0.0142            | 0.0219         | 0.0158               | 0.0176               | <0.0142              | 0.0181   | <0.0142               | 0.0152       | <0.0142  | <0.0142                | <0.0142     | <0.0142      | 0.0176  |
| E-10(0-0.5)                                    | 1/23/2009 | 0-0.5               | 0.149        | <0.147         | 0.181      | 1.62               | 1.89           | 1.79                 | 1.3                  | 1.1                  | 1.78     | 0.444                 | 2.38         | <0.147   | 1.17                   | <0.147      | 0.748        | 1.89    |
| E-10(1-1.5)                                    | 1/23/2009 | 1-1.5               | <0.0141      | <0.0141        | <0.0141    | <0.0141            | 0.0166         | 0.0226               | 0.0146               | <0.0141              | <0.0141  | <0.0141               | <0.0141      | <0.0141  | <0.0141                | <0.0141     | <0.0141      | <0.0141 |
| <b>RRGC Sporting Clay Range</b>                |           |                     |              |                |            |                    |                |                      |                      |                      |          |                       |              |          |                        |             |              |         |
| D-2(0-0.5)                                     | 1/22/2009 | 0-0.5               | 0.364        | <0.0149        | 0.0599     | 0.802              | 1.19           | 0.813                | 0.834                | 0.403                | 1.17     | 0.245                 | 0.677        | 0.0153   | 0.518                  | <0.0149     | 0.35         | 1.02    |
| D-3(0-0.5)                                     | 1/22/2009 | 0-0.5               | <0.0148      | <0.0148        | <0.0148    | 0.0148             | 0.0301         | 0.0308               | 0.03                 | 0.0195               | 0.0279   | <0.0148               | 0.0279       | <0.0148  | 0.025                  | <0.0148     | <0.0148      | 0.251   |
| D-4(0-0.5)                                     | 1/22/2009 | 0-0.5               | <0.0151      | <0.0151        | <0.0151    | <0.0151            | 0.0228         | 0.0216               | 0.0198               | <0.0151              | 0.0174   | <0.0151               | 0.0188       | <0.0151  | 0.0173                 | <0.0151     | <0.0151      | 0.0176  |
| D-5(0-0.5)                                     | 1/22/2009 | 0-0.5               | 0.02         | <0.016         | 0.0235     | 0.255              | 0.378          | 0.377                | 0.305                | 0.22                 | 0.323    | 0.0969                | 0.371        | <0.016   | 0.269                  | <0.016      | 0.131        | 0.328   |
| D-6(0-0.5)                                     | 1/22/2009 | 0-0.5               | <0.0156      | <0.0156        | <0.0156    | <0.0156            | <0.0156        | <0.0156              | <0.0156              | <0.0156              | <0.0156  | <0.0156               | <0.0156      | <0.0156  | <0.0156                | <0.0156     | <0.0156      | <0.0156 |
| D-8(0-0.5)                                     | 1/22/2009 | 0-0.5               | 0.0382       | <0.0157        | 0.0445     | 0.477              | 0.546          | 0.562                | 0.0437               | 0.367                | 0.577    | 0.145                 | 0.722        | 0.0159   | 0.369                  | <0.0157     | 0.21         | 0.594   |
| D-9(0-0.5)                                     | 1/22/2009 | 0-0.5               | 0.16         | <0.0157        | 0.169      | 1.8                | 2.2            | 2.21                 | 1.49                 | 1.69                 | 1.92     | 0.462                 | 2.45         | 0.0597   | 1.4                    | <0.0157     | 0.81         | 1.92    |

Please refer to notes at end of table

**Table 3**  
**Summary of Soil Data - Polycyclic Aromatic Hydrocarbons**  
**Deschutes County Shooting Range**  
**Redmond, OR**

| Sample ID                                                                                           | Date      | Depth<br>(feet bgs) | Acenaphthene | Acenaphthylene | Anthracene | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Naphthalene | Phenanthrene | Pyrene  |
|-----------------------------------------------------------------------------------------------------|-----------|---------------------|--------------|----------------|------------|--------------------|----------------|----------------------|----------------------|----------------------|----------|-----------------------|--------------|----------|------------------------|-------------|--------------|---------|
| <b>RRGC Sleet Range</b>                                                                             |           |                     |              |                |            |                    |                |                      |                      |                      |          |                       |              |          |                        |             |              |         |
| D-10(0-0.5)                                                                                         | 1/22/2009 | 0-0.5               | 0.0614       | <0.0158        | 0.0793     | 1.21               | 1.53           | 1.39                 | 1.04                 | 0.924                | 1.34     | 0.293                 | 1.46         | 0.0288   | 0.76                   | <0.0158     | 0.448        | 1.23    |
| D-12(0-0.5)                                                                                         | 1/22/2009 | 0-0.5               | 0.134        | <0.0156        | 0.149      | 2.03               | 2.57           | 2.43                 | 1.68                 | 1.82                 | 2.16     | 0.507                 | 2.56         | 0.0445   | 1.5                    | <0.0156     | 0.768        | 2.04    |
| D-13(0-0.5)                                                                                         | 1/22/2009 | 0-0.5               | <0.016       | <0.016         | <0.016     | <0.016             | <0.016         | <0.016               | <0.016               | <0.016               | <0.016   | <0.016                | <0.016       | <0.016   | <0.016                 | <0.016      | <0.016       | <0.016  |
| D-14(0-0.5)                                                                                         | 1/22/2009 | 0-0.5               | <0.0155      | <0.0155        | <0.0155    | <0.0155            | <0.0155        | <0.0155              | <0.0155              | <0.0155              | <0.0155  | <0.0155               | <0.0155      | <0.0155  | <0.0155                | <0.0155     | <0.0155      | <0.0155 |
| D-15(0-0.5)                                                                                         | 1/23/2009 | 0-0.5               | 0.0948       | <0.0156        | 0.127      | 1.48               | 1.77           | 1.62                 | 1.2                  | 1.22                 | 1.48     | 0.376                 | 1.8          | 0.0287   | 1.1                    | <0.0156     | 0.521        | 1.47    |
| Duplicate-2                                                                                         | 1/22/2009 | 0-0.5               | 0.119        | <0.0785        | 0.159      | 1.51               | 1.91           | 1.54                 | 1.4                  | 1.14                 | 1.64     | 0.449                 | 1.94         | <0.0785  | 1.27                   | <0.0785     | 0.63         | 1.84    |
| D-16(0-0.5)                                                                                         | 1/23/2009 | 0-0.5               | 2.5          | <0.16          | 3.11       | 27.1               | 33.2           | 28.8                 | 23.6                 | 19.7                 | 28.9     | 8.11                  | 35.5         | 0.886    | 21.3                   | 0.232       | 13           | 32.5    |
| D-17(0-0.5)                                                                                         | 1/23/2009 | 0-0.5               | 0.0606       | <0.0155        | 0.0675     | 0.659              | 0.761          | 0.685                | 0.481                | 0.569                | 0.632    | 0.176                 | 0.864        | 0.0182   | 0.462                  | <0.0155     | 0.287        | 0.709   |
| AC-7 (0-6)                                                                                          | 6/16/2014 | 0-0.5               | 7.96         | <0.178         | 13         | 136                | 191            | --                   | 112                  | --                   | 170      | 26.2                  | 233          | 2.92     | 124                    | 0.333       | 54.3         | 223     |
| AC-7 (6-12)                                                                                         | 6/16/2014 | 0.5-1.0             | 2.68         | <0.049         | 3.51       | 23                 | 31.5           | --                   | 16.9                 | --                   | 29.6     | 4.89                  | 36.2         | 1.47     | 18.6                   | 0.539       | 16.1         | 33.3    |
| AC-8 (0-6)                                                                                          | 6/16/2014 | 0-0.5               | 9.77         | <0.0933        | 11.6       | 79                 | 117            | --                   | 65.8                 | --                   | 94.5     | 17.9                  | 110          | 3.48     | 72.6                   | 0.704       | 44.2         | 106     |
| AC-8 (6-12)                                                                                         | 6/16/2014 | 0.5-1.0             | 0.0247       | <0.00951       | 0.0267     | 0.192              | 0.342          | --                   | 0.221                | --                   | 0.226    | 0.0528                | 0.272        | <0.00951 | 0.244                  | <0.00951    | 0.106        | 0.259   |
| AC-9 (0-6)                                                                                          | 6/16/2014 | 0-0.5               | <0.00937     | <0.00937       | <0.00937   | 0.0652             | 0.101          | --                   | 0.0709               | --                   | 0.0971   | 0.0164                | 0.112        | <0.00937 | 0.0749                 | <0.00937    | 0.0338       | 0.102   |
| AC-9 (6-12)                                                                                         | 6/16/2014 | 0.5-1.0             | <0.00919     | <0.00919       | <0.00919   | 0.014              | 0.0207         | --                   | 0.0152               | --                   | 0.021    | <0.00919              | 0.0208       | <0.00919 | 0.0168                 | <0.00919    | <0.00919     | 0.0194  |
| <b>DEQ Risk-Based Concentrations for Soil Ingestion, Dermal Contact, and Inhalation<sup>1</sup></b> |           |                     |              |                |            |                    |                |                      |                      |                      |          |                       |              |          |                        |             |              |         |
| Occupational                                                                                        |           |                     | 70,000       | --             | 350,000    | 21                 | 2.1            | 21                   | --                   | 210                  | 2,100    | 2.1                   | 30,000       | 47,000   | 21                     | 23          | --           | 23,000  |
| Construction Worker                                                                                 |           |                     | 21,000       | --             | 110,000    | 170                | 17             | 170                  | --                   | 1,700                | 17,000   | 17                    | 10,000       | 14,000   | 170                    | 580         | --           | 7,500   |
| Excavation Worker                                                                                   |           |                     | 590,000      | --             | --         | 4,800              | 490            | 4,900                | --                   | 49,000               | 490,000  | 490                   | 280,000      | 390,000  | 4,900                  | 16,000      | --           | 210,000 |
| <b>DEQ Ecological Level II Screening Level Values in Soil<sup>2</sup></b>                           |           |                     |              |                |            |                    |                |                      |                      |                      |          |                       |              |          |                        |             |              |         |
| Plants                                                                                              |           | 20                  | --           | --             | --         | --                 | --             | --                   | --                   | --                   | --       | --                    | --           | --       | --                     | 10          | --           | --      |
| Invertebrates                                                                                       |           | --                  | --           | --             | --         | --                 | --             | --                   | --                   | --                   | --       | --                    | --           | 30       | --                     | --          | --           | --      |
| Birds                                                                                               |           | --                  | --           | --             | --         | --                 | --             | --                   | --                   | --                   | --       | --                    | --           | --       | --                     | --          | --           | --      |
| Mammals                                                                                             |           | --                  | --           | --             | --         | --                 | 625            | --                   | --                   | --                   | --       | --                    | --           | --       | --                     | 19,500      | --           | --      |

1. Risk-Based Concentrations for Individual Chemicals Spreadsheet, June 7, 2012
2. Guidance for Ecological Risk Assessment, April 1998. SLVs for birds and mammals are increased by a factor of 5 for the absence of T&E species.
3. mg/kg = milligrams per kilogram
4. Bold indicates analyte detected above method reporting limit
5. < = Analyte was not detected above method reporting limit
6. -- = Risk-based concentration or screening level value has not been established
7. Shading indicates concentration above Occupational risk-based concentration
8. Shading indicates concentration above Occupational and Construction Worker risk-based concentration
9. BGS = Feet below ground surface
10. Outlined cells indicate concentrations above one or more hot spot levels

Table 4

Summary of Soil Data - Metals  
Deschutes County Shooting Range  
Redmond, OR

| Sample ID                                | Date      | Depth BGS (ft) | Aluminum | Antimony | Arsenic | Barium | Beryllium | Cadmium | Calcium | Chromium | Cobalt | Copper | Iron   | Lead   | Magnesium | Manganese | Mercury | Nickel | Potassium | Selenium | Silver | Sodium | Thallium | Tin   | Vanadium | Zinc  |
|------------------------------------------|-----------|----------------|----------|----------|---------|--------|-----------|---------|---------|----------|--------|--------|--------|--------|-----------|-----------|---------|--------|-----------|----------|--------|--------|----------|-------|----------|-------|
| mg/kg                                    |           |                |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |       |
| Disposal Area                            |           |                |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |       |
| A-1(5.5-6)                               | 1/21/2009 | 5.5-6          | 17,900   | <0.575   | 2.06    | 132    | <0.575    | 0.887   | 10,400  | 21.6     | 12.6   | 32.1   | 25,100 | 4.88   | 8,820     | 470       | <0.115  | 35.2   | 1,400     | <0.575   | <0.575 | 1,220  | <0.575   | <23.0 | 68.9     | 40.8  |
| A-2(0.5-1)                               | 1/21/2009 | 0.5-1          | 14,300   | <0.572   | 2.52    | 142    | <0.572    | 0.887   | 4,640   | 23.7     | 14.8   | 55.7   | 24,700 | 75.4   | 6,710     | 489       | <0.116  | 36.6   | 1,630     | <0.572   | <0.572 | 595    | <0.572   | <22.9 | 74.4     | 44.9  |
| A-3(5.5-6)                               | 1/21/2009 | 5.5-6          | 16,800   | 5.67     | 13.9    | 552    | <0.564    | 13.7    | 33,700  | 39       | 19.4   | 33.4   | 78,300 | 1,500  | 5,390     | 702       | 0.249   | 65.1   | 3,010     | 1.03     | 0.716  | 1,460  | <0.564   | 117   | 35.9     | 3,560 |
| A-3(13.5-14)                             | 1/21/2009 | 13.5-14        | 6,660    | <0.577   | 1.3     | 120    | <0.577    | <0.577  | 2,200   | 12.5     | 8.42   | 16.3   | 10,400 | 9.85   | 2,750     | 213       | <0.107  | 19.9   | 1,990     | <0.577   | <0.577 | 1,310  | <0.577   | <23.1 | 42.3     | 60.4  |
| A-4(6.5-7)                               | 1/21/2009 | 6.5-7          | 9,430    | <0.582   | 1.18    | 81.7   | <0.582    | <0.582  | 3,300   | 10.9     | 7.97   | 17.6   | 12,500 | 1.72   | 3,700     | 247       | <0.11   | 18.8   | 840       | <0.582   | <0.582 | 1,250  | <0.582   | <23.3 | 44.6     | 26    |
| A-5(0.5-1)                               | 1/21/2009 | 0.5-1          | 11,200   | 1.12     | 1.51    | 182    | <0.584    | 1.63    | 4,300   | 18.9     | 10.9   | 32.3   | 15,600 | 17.4   | 3,400     | 342       | <0.109  | 26.4   | 1,740     | <0.584   | <0.584 | 472    | <0.584   | <23.4 | 48.4     | 21.1  |
| A-6(14.5)                                | 1/21/2009 | 14.5           | 23,900   | <0.604   | 2.12    | 190    | 0.61      | <0.604  | 10,200  | 25.9     | 15.2   | 47.4   | 36,300 | 12.6   | 8,710     | 481       | <0.0801 | 37.6   | 3,090     | <0.604   | <0.604 | 764    | <0.604   | <24.2 | 78.9     | 60.4  |
| Landfill Trinch Area                     |           |                |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |       |
| B-1(0)                                   | 1/22/2009 | 0              | 4,990    | 6.28     | 6.7     | 926    | <0.592    | 14.2    | 10,800  | 37.3     | 3.42   | 479    | 9,480  | 220    | 1,090     | 76        | 1.66    | 59.1   | 581       | 4.04     | 41.7   | <290   | <0.592   | 391   | 105      | 2,330 |
| B-2(0)                                   | 1/22/2009 | 0              | 4,570    | 4.94     | 5.82    | 431    | <0.598    | 12.4    | 11,200  | 34.3     | 3.47   | 419    | 13,600 | 139    | 1,070     | 86.5      | 3.36    | 57.3   | 528       | 3.3      | 18.3   | <300   | <0.588   | 318   | 93.6     | 1,910 |
| Sheriff Shooting Range - Floor Samples   |           |                |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |       |
| C-5(0.0-5)                               | 1/21/2009 | 0.0-5          | 16,300   | <0.576   | 2.26    | 139    | <1.15     | <0.576  | 4,920   | 18.1     | 12.5   | 36.5   | 21,400 | 20.1   | 5,020     | 309       | <0.119  | 31.4   | 3,940     | <0.576   | <0.576 | 654    | <0.576   | <23.1 | 57.7     | 43.8  |
| C-8(Surface)                             | 1/22/2009 | 0-0.5          | 14,500   | 1.05     | 1.69    | 119    | <0.515    | <0.515  | 4,560   | 13.4     | 10     | 31.5   | 19,700 | 63.8   | 5,160     | 334       | <0.103  | 23.7   | 1,640     | <0.515   | <0.515 | 696    | <0.515   | <20.6 | 46.7     | 37.6  |
| C-8(0.0-5)                               | 1/23/2009 | 0-0.5          | 15,200   | 1.04     | 1.83    | 139    | <0.628    | <0.628  | 4,460   | 15       | 11     | 25.2   | 19,600 | 194    | 4,860     | 331       | <0.114  | 25.8   | 1,620     | <0.628   | <0.628 | 675    | <0.628   | <25.1 | 52.2     | 41.1  |
| Duplicate-3                              | 1/23/2009 | 0-0.5          | 15,500   | 1.01     | 1.58    | 118    | <1.08     | <0.542  | 5,940   | 13.2     | 9.16   | 24.4   | 21,900 | 49.8   | 6,080     | 425       | <0.111  | 24.6   | 1,530     | <0.542   | <0.542 | 689    | <0.542   | <21.7 | 48.8     | 36.4  |
| C-9(0.0-5)                               | 1/22/2009 | 0-0.5          | 15,700   | 5.77     | 1.92    | 119    | <0.546    | <0.546  | 8,310   | 15.6     | 10.8   | 34.4   | 24,800 | 595    | 8,950     | 335       | <0.0938 | 28.8   | 1,250     | <0.546   | <0.546 | 1,070  | <0.546   | <21.8 | 51       | 35.7  |
| AC-15                                    | 6/16/2014 | 0-1            | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 8.85   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --    |
| AC-16 (0-6)                              | 6/16/2014 | 0-0.5          | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 7.96   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --    |
| AC-16 (6-12)                             | 6/16/2014 | 0.5-1.0        | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 4.84   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --    |
| Sheriff Shooting Range - Berm Samples    |           |                |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |       |
| C-1(0.0-5)                               | 1/21/2009 | 0.0-5          | 14,400   | 1.34     | 1.57    | 124    | <0.529    | <0.529  | 6,710   | 13.8     | 10.3   | 27.7   | 19,500 | 169    | 6,540     | 425       | <0.0868 | 25.4   | 2,630     | <0.529   | <0.529 | 679    | <0.529   | <21.2 | 50.3     | 43.6  |
| C-1(1-1.5)                               | 1/23/2009 | 1-1.5          | 15,100   | 2.31     | 1.91    | 119    | <0.535    | <0.535  | 7,310   | 15.1     | 11.3   | 24.5   | 18,300 | 167    | 4,950     | 313       | <0.104  | 27.8   | 1,360     | <0.535   | <0.535 | 717    | <0.535   | <21.4 | 56.4     | 50    |
| C-2(0.0-5)                               | 1/21/2009 | 0-0.5          | 14,300   | 2.18     | 4.02    | 128    | <5.3      | <0.553  | 5,260   | 19.1     | 12.8   | 41.4   | 19,000 | 21,600 | 5,460     | 328       | <0.107  | 32.9   | 3,140     | 0.851    | 0.624  | 584    | 1.57     | <22.1 | 63.8     | 90.3  |
| C-2(1-1.5)                               | 1/23/2009 | 1-1.5          | 14,900   | 15.9     | 2.76    | 139    | <5.55     | <0.555  | 4,860   | 18.5     | 13     | 31.2   | 19,300 | 1,590  | 4,880     | 309       | <0.113  | 33.7   | 2,410     | <0.555   | <0.555 | 646    | <0.555   | <22.2 | 60.6     | 62.8  |
| C-4(0.0-5)                               | 1/21/2009 | 0-0.5          | 14,200   | 0.632    | 1.92    | 130    | <1.09     | <0.544  | 4,340   | 16.7     | 11.6   | 23.4   | 18,000 | 27.2   | 4,780     | 312       | <0.0913 | 27.8   | 1,490     | <0.544   | <0.544 | 576    | <0.544   | <21.8 | 58.3     | 42.9  |
| C-4(1-1.5)                               | 1/23/2009 | 1-1.5          | 15,300   | <0.532   | 2.17    | 147    | <1.06     | <0.532  | 4,260   | 18.1     | 12.6   | 25     | 19,600 | 949    | 5,130     | 330       | <0.108  | 30.4   | 1,610     | <0.532   | <0.532 | 598    | <0.532   | <21.3 | 62.4     | 43.3  |
| C-6(0.0-5)                               | 1/22/2009 | 0-0.5          | 15,000   | 13.9     | 2.71    | 128    | <5.27     | <0.527  | 5,910   | 17.2     | 12.5   | 126    | 20,000 | 1,430  | 7,080     | 378       | <0.104  | 33.1   | 1,360     | <0.527   | <0.527 | 785    | <0.527   | <21.1 | 55.4     | 45.4  |
| Duplicate-1                              | 1/22/2009 | 0-0.5          | 14,800   | 10.5     | 2.07    | 109    | <5.21     | <0.521  | 5,490   | 13.9     | 9.6    | 112    | 22,400 | 926    | 6,720     | 402       | <0.0943 | 27.6   | 1,250     | <0.521   | <0.521 | 712    | <0.521   | <21.1 | 47.9     | 34.3  |
| C-6(1-1.5)                               | 1/23/2009 | 1-1.5          | 15,300   | 0.779    | 1.86    | 129    | <1.05     | <0.527  | 5,950   | 17       | 11.5   | 28.7   | 20,100 | 64.9   | 6,470     | 386       | <0.101  | 28.5   | 1,460     | <0.527   | <0.527 | 680    | <0.527   | <20.8 | 56.8     | 41.9  |
| C-7(0.0-5)                               | 1/22/2009 | 0-0.5          | 13,800   | 1.48     | 1.89    | 125    | <1.05     | <0.531  | 5,300   | 15       | 10.5   | 21.6   | 18,800 | 109    | 6,210     | 357       | <0.0949 | 25.5   | 1,430     | <0.531   | <0.531 | 688    | <0.531   | <21.2 | 52       | 36    |
| C-7(1-1.5)                               | 1/23/2009 | 1-1.5          | 14,100   | <0.542   | 1.63    | 116    | <0.542    | <0.542  | 5,160   | 13.8     | 9.86   | 19.5   | 19,100 | 34.7   | 6,320     | 345       | <0.097  | 24.4   | 1,390     | <0.542   | <0.542 | 723    | <0.542   | <21.7 | 45.7     | 33.2  |
| AC-14                                    | 6/16/2014 | 0-1            | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 411    | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --    |
| Sheriff Shooting Range - Outside Samples |           |                |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |       |
| AC-17                                    | 6/16/2014 | 0-1            | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 132    | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --    |
| AC-19                                    | 6/16/2014 | 0-1            | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 8.31   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --    |
| AC-20                                    | 6/16/2014 | 0-1            | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 8.05   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --    |
| Please refer to notes at end of table    |           |                |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |       |

Please refer to notes at end of table



Table 4

Summary of Soil Data - Metals  
Deschutes County Shooting Range  
Redmond, OR

| Sample ID                                           | Date      | Depth BGS (ft.) | Aluminum | Antimony | Arsenic | Barium | Beryllium | Cadmium | Calcium | Chromium | Cobalt | Copper | Iron   | Lead   | Magnesium | Manganese | Mercury | Nickel | Potassium | Selenium | Silver | Sodium | Thallium | Tin   | Vanadium | Zinc |
|-----------------------------------------------------|-----------|-----------------|----------|----------|---------|--------|-----------|---------|---------|----------|--------|--------|--------|--------|-----------|-----------|---------|--------|-----------|----------|--------|--------|----------|-------|----------|------|
| RRGC Rifle/Pistol Range - Floor Samples             |           |                 |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |      |
| E-10(0-5)                                           | 1/23/2009 | 0-0.5           | 11,400   | <0.557   | 1.28    | 105    | <0.557    | <0.557  | 3,010   | 11.2     | 8.57   | 18     | 15,000 | 11.6   | 3,630     | 364       | <0.112  | 18.7   | 1,040     | <0.557   | <0.557 | 349    | <0.557   | <22.3 | 38.2     | 28.1 |
| E-20(0-5)                                           | 1/23/2009 | 0-0.5           | 14,600   | <0.547   | 1.67    | 110    | <0.547    | <0.547  | 4,300   | 13       | 9.88   | 23.1   | 19,900 | 32.3   | 5,970     | 415       | <0.102  | 24.2   | 1,290     | <0.547   | <0.547 | 606    | <0.547   | <21.9 | 43.7     | 30.5 |
| E-120(0-5)                                          | 1/23/2009 | 0-0.5           | 13,000   | <0.556   | 1.48    | 107    | <1.11     | <0.556  | 3,960   | 12.2     | 8.36   | 17.8   | 19,600 | 11.1   | 4,800     | 379       | <0.111  | 21     | 1,390     | <0.556   | <0.556 | 457    | <0.556   | <22.2 | 43.1     | 29.8 |
| E-130(0-5)                                          | 1/23/2009 | 0-0.5           | 9,650    | <0.609   | 1.26    | 94.4   | <1.22     | <0.609  | 4,460   | 11.5     | 7.81   | 16.4   | 15,400 | 22.6   | 3,960     | 281       | <0.126  | 21     | 919       | <0.609   | <0.609 | 391    | <0.609   | <24.4 | 41.6     | 29.7 |
| AC-4                                                | 6/16/2014 | 0-1             | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 39.4   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --   |
| RRGC Rifle/Pistol Range - Berm or Stockpile Samples |           |                 |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |      |
| E-30(0-5)                                           | 1/23/2009 | 0-0.5           | 12,900   | 2.08     | 3.32    | 123    | <0.531    | <0.531  | 3,940   | 11.9     | 9.21   | 17.4   | 17,300 | 410    | 4,380     | 372       | <0.101  | 21.1   | 1,380     | <0.531   | <0.531 | 416    | <0.531   | <21.2 | 41.5     | 32.6 |
| E-31(1-5)                                           | 1/23/2009 | 1-1.5           | 11,800   | 2.21     | 3.28    | 117    | <0.506    | <0.506  | 3,740   | 12       | 9.24   | 17.1   | 17,600 | 355    | 4,240     | 361       | <0.0958 | 20.6   | 1,290     | <0.506   | <0.506 | 405    | <0.506   | <20.2 | 43.8     | 32.3 |
| E-50(0-5)                                           | 1/23/2009 | 0-0.5           | 12,200   | 2.49     | 3.15    | 125    | <0.554    | <0.554  | 3,700   | 12.9     | 9.65   | 19.9   | 18,200 | 308    | 3,980     | 344       | <0.104  | 23.5   | 1,310     | <0.554   | <0.554 | 416    | <0.554   | <22.2 | 46.3     | 34.2 |
| E-51(1-5)                                           | 1/23/2009 | 1-1.5           | 11,500   | 2.45     | 3.13    | 136    | <0.535    | <0.535  | 3,620   | 12.8     | 10.9   | 18.7   | 17,600 | 303    | 4,230     | 345       | <0.102  | 22.5   | 1,290     | <0.535   | <0.535 | 403    | <0.535   | <21.4 | 46.6     | 33.5 |
| E-60(0-5)                                           | 1/23/2009 | 0-0.5           | 12,600   | 61.3     | 7.96    | 116    | <0.546    | <0.546  | 4,180   | 12       | 9.27   | 17.1   | 19,000 | 3,030  | 4,350     | 412       | <0.101  | 21.6   | 1,290     | <0.546   | <0.546 | 437    | <0.546   | <21.9 | 44.8     | 37.4 |
| E-61(1-5)                                           | 1/23/2009 | 1-1.5           | 14,200   | 2.01     | 2.26    | 99     | <1.05     | <0.527  | 4,230   | 10.7     | 7.35   | 17.1   | 20,800 | 195    | 4,780     | 394       | <0.0978 | 18     | 1,440     | <0.527   | <0.527 | 437    | <0.527   | <21.1 | 38.3     | 27.1 |
| E-80(0-5)                                           | 1/23/2009 | 0-0.5           | 13,900   | <0.551   | 1.55    | 103    | <1.01     | <0.551  | 4,410   | 12.3     | 8.49   | 17.9   | 21,100 | 30.2   | 5,070     | 417       | <0.0817 | 21     | 1,390     | <0.551   | <0.551 | 487    | <0.551   | <22.1 | 44.1     | 29.9 |
| E-81(1-5)                                           | 1/23/2009 | 1-1.5           | 13,800   | <0.513   | 1.47    | 104    | <1.03     | <0.513  | 4,590   | 12.5     | 8.89   | 17.2   | 20,800 | 23     | 5,180     | 412       | <0.0992 | 21.9   | 1,350     | <0.513   | <0.513 | 483    | <0.513   | <20.5 | 44.2     | 30.5 |
| E-90(0-5)                                           | 1/23/2009 | 0-0.5           | 13,300   | 43.6     | 1.78    | 100    | <53.2     | <0.532  | 4,310   | 13.2     | 9      | 42.6   | 21,100 | 5,620  | 5,570     | 421       | <0.102  | 23.2   | 1,290     | <0.532   | <0.532 | 528    | <0.532   | <21.3 | 47       | 32.4 |
| E-91(1-5)                                           | 1/23/2009 | 1-1.5           | 12,900   | 2.26     | 1.55    | 104    | <1.04     | <0.518  | 4,140   | 13       | 8.96   | 34.7   | 19,900 | 219    | 4,920     | 375       | <0.0903 | 23.2   | 1,270     | <0.518   | <0.518 | 494    | <0.518   | <20.7 | 45.4     | 31   |
| E-100(0-5)                                          | 1/23/2009 | 0-0.5           | 12,900   | 18.9     | 1.82    | 96.7   | <5.39     | <0.539  | 4,060   | 11.8     | 8.19   | 40.5   | 19,700 | 1,110  | 4,990     | 416       | <0.0834 | 20.1   | 1,240     | <0.539   | <0.539 | 479    | <0.539   | <21.6 | 43.1     | 31.4 |
| E-101(1-5)                                          | 1/23/2009 | 1-1.5           | 12,900   | 0.987    | 1.53    | 107    | <1.04     | <0.519  | 4,180   | 12.6     | 8.78   | 19.3   | 19,800 | 66.1   | 4,950     | 382       | <0.0963 | 22.7   | 1,260     | <0.519   | <0.519 | 484    | <0.519   | <20.8 | 44.6     | 31.3 |
| AC-1                                                | 6/16/2014 | 0-1             | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 59.9   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --   |
| AC-2                                                | 6/16/2014 | 0-1             | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 12,800 | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --   |
| AC-3                                                | 6/16/2014 | 0-1             | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 17.9   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --   |
| Stockpile                                           | 6/16/2014 | 0-1             | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 189    | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --   |
| RRGC Rifle/Pistol Range - Outside Samples           |           |                 |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |      |
| AC-5                                                | 6/16/2014 | 0-1             | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 50.8   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --   |
| RRGC Sporting Clay Range                            |           |                 |          |          |         |        |           |         |         |          |        |        |        |        |           |           |         |        |           |          |        |        |          |       |          |      |
| D-2(0-0.5)                                          | 1/22/2009 | 0-0.5           | 11,000   | 1.95     | 2.63    | 123    | <0.552    | <0.552  | 3,880   | 13.2     | 10.1   | 16.5   | 15,500 | 69.9   | 3,760     | 416       | <0.101  | 20.1   | 1,360     | <0.552   | <0.552 | 336    | <0.552   | <22.1 | 43.9     | 36.4 |
| D-3(0-0.5)                                          | 1/22/2009 | 0-0.5           | 9,610    | <0.532   | 1.59    | 129    | <0.532    | <0.532  | 3,140   | 14.3     | 9.7    | 19     | 13,300 | 8.18   | 3,290     | 305       | <0.106  | 20.3   | 1,240     | <0.532   | <0.532 | 305    | <0.532   | <21.3 | 44.9     | 37.6 |
| D-4(0-0.5)                                          | 1/22/2009 | 0-0.5           | 11,300   | <0.566   | 1.52    | 127    | <0.566    | <0.566  | 3,350   | 14.7     | 10.7   | 19     | 16,300 | 9.41   | 4,420     | 381       | <0.103  | 22.1   | 1,340     | <0.566   | <0.566 | 366    | <0.566   | <22.7 | 46       | 38.3 |
| D-5(0-0.5)                                          | 1/22/2009 | 0-0.5           | 15,900   | <0.583   | 1.62    | 148    | <0.583    | <0.583  | 4,430   | 14.3     | 10.9   | 20.7   | 19,500 | 7.31   | 4,970     | 491       | <0.115  | 22.4   | 1,470     | <0.583   | <0.583 | 429    | <0.583   | <23.3 | 48.5     | 41.1 |
| D-6(0-0.5)                                          | 1/22/2009 | 0-0.5           | 12,700   | <0.558   | 1.37    | 122    | <0.558    | <0.558  | 4,100   | 12.6     | 9.07   | 18.3   | 17,200 | 6.19   | 4,410     | 365       | <0.103  | 19.7   | 1,280     | <0.558   | <0.558 | 416    | <0.558   | <22.3 | 42.1     | 34.5 |
| D-8(0-0.5)                                          | 1/22/2009 | 0-0.5           | 13,300   | <0.564   | 1.28    | 116    | <0.564    | <0.564  | 3,700   | 10.8     | 7.89   | 16.2   | 16,900 | 12.3   | 4,080     | 358       | <0.105  | 17.4   | 1,380     | <0.564   | <0.564 | 423    | <0.564   | <22.6 | 37.7     | 32.1 |
| D-9(0-0.5)                                          | 1/22/2009 | 0-0.5           | 11,700   | <0.573   | 1.34    | 94.4   | <0.573    | <0.573  | 4,990   | 9.64     | 7.62   | 15.5   | 16,100 | 15.6   | 4,100     | 339       | <0.104  | 18.6   | 1,190     | <0.573   | <0.573 | 409    | <0.573   | <22.9 | 36.4     | 28.5 |
| AC-11                                               | 6/16/2014 | 0-1             | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 3.94   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --   |
| AC-12                                               | 6/16/2014 | 0-1             | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 5.04   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --   |
| AC-13                                               | 6/16/2014 | 0-1             | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 7.61   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --   |
| AC-18                                               | 6/17/2014 | 0-2             | --       | --       | --      | --     | --        | --      | --      | --       | --     | --     | --     | 4.91   | --        | --        | --      | --     | --        | --       | --     | --     | --       | --    | --       | --   |

Please refer to notes at end of table

Table 4

## Summary of Soil Data - Metals

## Deschutes County Shooting Range

## Redmond, OR

| Sample ID                                                                               | Date      | Depth BGS (ft.) | Aluminum | Antimony | Arsenic | Barium  | Beryllium | Cadmium | Calcium   | Chromium | Cobalt | Copper  | Iron   | Lead   | Magnesium | Manganese | Mercury | Nickel  | Potassium | Selenium | Silver | Sodium | Thallium | Tin   | Vanadium | Zinc    |
|-----------------------------------------------------------------------------------------|-----------|-----------------|----------|----------|---------|---------|-----------|---------|-----------|----------|--------|---------|--------|--------|-----------|-----------|---------|---------|-----------|----------|--------|--------|----------|-------|----------|---------|
| <b>RRGC Steel Range</b>                                                                 |           |                 |          |          |         |         |           |         |           |          |        |         |        |        |           |           |         |         |           |          |        |        |          |       |          |         |
| D-10(0-0.5)                                                                             | 1/22/2009 | 0-0.5           | 12,100   | 1.48     | 1.55    | 91.5    | <0.584    | <0.584  | 3,680     | 9.4      | 7.19   | 16      | 16,100 | 40.1   | 3,910     | 306       | <0.104  | 17.3    | 1,080     | <0.584   | <0.584 | 485    | <0.584   | <23.4 | 35.1     | 25.1    |
| D-12(0-0.5)                                                                             | 1/22/2009 | 0-0.5           | 14,200   | 4.97     | 4.09    | 118     | <1.15     | <0.577  | 21,400    | 12.8     | 9.54   | 23.6    | 20,700 | 59.1   | 5,270     | 413       | <0.113  | 21.4    | 2,240     | <0.577   | <0.577 | 467    | <0.577   | <23.1 | 43.8     | 48.3    |
| D-13(0-0.5)                                                                             | 1/22/2009 | 0-0.5           | 12,500   | 0.717    | 2.51    | 153     | <1.15     | <0.574  | 3,060     | 14.9     | 10.9   | 22.2    | 15,900 | 59.1   | 4,120     | 360       | <0.114  | 23.8    | 1,220     | <0.574   | <0.574 | 370    | <0.574   | <22.9 | 53.6     | 35.4    |
| D-14(0-0.5)                                                                             | 1/22/2009 | 0-0.5           | 13,000   | <0.562   | 1.83    | 118     | <1.12     | <0.562  | 3,790     | 13.1     | 9.76   | 20.1    | 18,900 | 40.4   | 4,530     | 431       | <0.103  | 22.4    | 1,330     | <0.562   | <0.562 | 402    | <0.562   | <22.5 | 45.9     | 30      |
| D-15(0-0.5)                                                                             | 1/23/2009 | 0-0.5           | 7,600    | <0.575   | 1.55    | 133     | <0.575    | <0.575  | 2,490     | 11.6     | 8.6    | 19.6    | 9,760  | 8.07   | 2,480     | 203       | <0.114  | 19.6    | 922       | <0.575   | <0.575 | 300    | <0.575   | <23.0 | 37.7     | 28.7    |
| Duplicate 2                                                                             | 1/23/2009 | 0-0.5           | 16,100   | <0.575   | 1.47    | 112     | <1.14     | <0.575  | 4,520     | 10.8     | 7.33   | 20.600  | 20,600 | 7.78   | 4,580     | 379       | <0.114  | 17.8    | 1,480     | <0.575   | <0.575 | 487    | <0.575   | <22.8 | 38.5     | 27.3    |
| D-16(0-0.5)                                                                             | 1/23/2009 | 0-0.5           | 11,000   | 0.817    | 1.99    | 143     | <1.16     | <0.579  | 8,630     | 14.8     | 11     | 23.6    | 14,800 | 19.3   | 4,010     | 331       | <0.107  | 26.3    | 1,320     | <0.579   | <0.579 | 374    | <0.579   | <23.2 | 48.4     | 40.4    |
| D-17(0-0.5)                                                                             | 1/23/2009 | 0-0.5           | 15,200   | <0.568   | 1.51    | 124     | <0.568    | <0.568  | 4,270     | 12.4     | 9.24   | 19.9    | 20,200 | 5.97   | 5,280     | 429       | <0.103  | 21.5    | 1,440     | <0.568   | <0.568 | 423    | <0.568   | <22.7 | 39.6     | 32.2    |
| AC-6                                                                                    | 6/16/2014 | 0-1             | —        | —        | —       | —       | —         | —       | —         | —        | —      | —       | —      | 35.6   | —         | —         | —       | —       | —         | —        | —      | —      | —        | —     | —        | —       |
| AC-7 (0-6)                                                                              | 6/16/2014 | 0-0.5           | —        | —        | —       | —       | —         | —       | —         | —        | —      | —       | —      | 37.0   | —         | —         | —       | —       | —         | —        | —      | —      | —        | —     | —        | —       |
| AC-7 (6-12)                                                                             | 6/16/2014 | 0.5-1.0         | —        | —        | —       | —       | —         | —       | —         | —        | —      | —       | —      | 11.4   | —         | —         | —       | —       | —         | —        | —      | —      | —        | —     | —        | —       |
| AC-8 (0-6)                                                                              | 6/16/2014 | 0-0.5           | —        | —        | —       | —       | —         | —       | —         | —        | —      | —       | —      | 36.7   | —         | —         | —       | —       | —         | —        | —      | —      | —        | —     | —        | —       |
| AC-8 (6-12)                                                                             | 6/16/2014 | 0.5-1.0         | —        | —        | —       | —       | —         | —       | —         | —        | —      | —       | —      | 57.5   | —         | —         | —       | —       | —         | —        | —      | —      | —        | —     | —        | —       |
| AC-9 (0-6)                                                                              | 6/16/2014 | 0-0.5           | —        | —        | —       | —       | —         | —       | —         | —        | —      | —       | —      | 31.1   | —         | —         | —       | —       | —         | —        | —      | —      | —        | —     | —        | —       |
| AC-9 (6-12)                                                                             | 6/16/2014 | 0.5-1.0         | —        | —        | —       | —       | —         | —       | —         | —        | —      | —       | —      | 13.8   | —         | —         | —       | —       | —         | —        | —      | —      | —        | —     | —        | —       |
| AC-10                                                                                   | 6/16/2014 | 0-1             | —        | —        | —       | —       | —         | —       | —         | —        | —      | —       | —      | 11.2   | —         | —         | —       | —       | —         | —        | —      | —      | —        | —     | —        | —       |
| <b>DEQ Default Background Concentrations for Deschutes-Columbia Region</b>              |           |                 |          |          |         |         |           |         |           |          |        |         |        |        |           |           |         |         |           |          |        |        |          |       |          |         |
|                                                                                         |           |                 | 100,000  | 1.3      | 6.8     | 700     | 2.6       | 0.40    | —         | 170      | —      | 29      | 40,000 | 18     | —         | 1,300     | 0.040   | 78      | —         | 0.46     | 0.82   | —      | 4.6      | —     | 300      | 130     |
| <b>DEQ Risk-Based Concentrations for Soil Ingestion, Dermal Contact, and Inhalation</b> |           |                 |          |          |         |         |           |         |           |          |        |         |        |        |           |           |         |         |           |          |        |        |          |       |          |         |
|                                                                                         |           |                 | —        | —        | 1.9     | 220,000 | 2,300     | 1100    | —         | —        | —      | 47,000  | —      | 800    | —         | 25,000    | 350     | 22,000  | —         | —        | 5,800  | —      | —        | —     | —        | —       |
| Occupational                                                                            |           |                 | —        | —        | 15      | 69,000  | 700       | 350     | —         | 530,000  | —      | 14,000  | —      | 800    | —         | 8,200     | 110     | 7,000   | —         | —        | 1,800  | —      | —        | —     | —        | —       |
| Construction Worker                                                                     |           |                 | —        | —        | —       | —       | 19,000    | 9700    | —         | —        | —      | 390,000 | —      | 800    | —         | 230,000   | 2,900   | 190,000 | —         | —        | 49,000 | —      | —        | —     | —        | —       |
| <b>DEQ Ecological Level II Screening Level Values in Soil</b>                           |           |                 |          |          |         |         |           |         |           |          |        |         |        |        |           |           |         |         |           |          |        |        |          |       |          |         |
| Penis                                                                                   | —         | 50              | 5        | 10       | 500     | 10      | 4         | —       | —         | 1        | 20     | 100     | 10     | 50     | —         | 500       | 0.3     | 30      | —         | 1        | 2      | —      | 1        | —     | 2        | 50      |
| Invertebrates                                                                           | —         | 600             | —        | 60       | 3,000   | —       | 20        | —       | —         | 0.4      | 1,000  | 50      | 200    | 500    | —         | 100       | 0.1     | 200     | —         | 70       | 50     | —      | —        | —     | —        | 200     |
| Birds                                                                                   | —         | 2,250           | —        | 50       | 425     | —       | 30        | —       | —         | 20       | —      | 950     | —      | 80     | —         | 20,625    | 7.5     | 1,600   | —         | 10       | —      | —      | —        | —     | 235      | 300     |
| Mammals                                                                                 | —         | 535             | 75       | 145      | 3,190   | 415     | 625       | —       | 1,700,000 | 750      | 1,950  | —       | —      | 20,000 | —         | 55,000    | 365     | 3,125   | —         | 125      | —      | —      | 5        | —     | 125      | 100,000 |

1. Background concentration is from Deschutes-Columbia Plateau Regional Background Concentrations, DEQ, March 2013. Background value for aluminum and iron from Geochemical Landscapes of the Conterminous United States, USGS, November 2001.

2. Risk-Based Concentrations for Individual Chemicals Spreadsheet, May 2018 update.

3. Guidance for Ecological Risk Assessment, April 1998. SLVs for birds and mammals are increased by a factor of 5 for the absence of T&amp;E species.

4. mg/kg = milligrams per kilogram.

5. Bold indicates analyte detected above method reporting limit.

6. &lt; = Analyte was not detected above method reporting limit.

7. — = Risk-based concentration or screening level value not established.

8. Shading indicates concentration above one or more human health screening level (unless below DEQ regional background levels).

9. Shading indicates concentration above one or more ecological screening level (unless below DEQ regional background levels).

10. BGS = Feet Below Ground Surface.

11. Outlined cells indicate concentrations above one or more hot spot levels.

**Table 5**  
**Summary of Lead Leachability Data**  
**Deschutes County Shooting Range**  
**Redmond, OR**

| Sample ID                                      | Date      | Depth BGS (ft.) | Lead (mg/Kg)  | Lead Leachability (mg/L) |
|------------------------------------------------|-----------|-----------------|---------------|--------------------------|
| <b>Sherriff Shooting Range - Floor Samples</b> |           |                 |               |                          |
| <b>AC-15</b>                                   | 6/16/2014 | 0-1             | <b>8.85</b>   | <0.0500                  |
| <b>Sherriff Shooting Range - Berm Samples</b>  |           |                 |               |                          |
| <b>AC-14</b>                                   | 6/16/2014 | 0-1             | <b>411</b>    | <b>0.148</b>             |
| <b>RRGC Rifle/Pistol Range - Floor Samples</b> |           |                 |               |                          |
| <b>AC-4</b>                                    | 6/16/2014 | 0-1             | <b>39.4</b>   | <0.00500                 |
| <b>RRGC Rifle/Pistol Range - Berm Samples</b>  |           |                 |               |                          |
| <b>AC-1</b>                                    | 6/16/2014 | 0-1             | <b>59.9</b>   | <0.0500                  |
| <b>AC-2</b>                                    | 6/16/2014 | 0-1             | <b>12,800</b> | <b>1.70</b>              |
| <b>AC-3</b>                                    | 6/16/2014 | 0-1             | <b>17.9</b>   | <0.0500                  |
| <b>Stockpile</b>                               |           |                 |               |                          |
| <b>Stockpile</b>                               | 6/16/2014 | 0-1             | <b>189</b>    | <b>0.196</b>             |

1. mg/Kg = milligrams per kilogram
2. mg/L = milligrams per liter
3. Bold indicates analyte detected above method reporting limit
4. < = Analyte was not detected above method reporting limit
5. BGS = Feet below ground surface
6. Shading indicates concentration above the DEQ screening level of 1.5 mg/L
7. Shading indicates concentration above one or more ecological screening level (unless below DEQ regional background levels)
8. Analysis by U.S. EPA Method 1312/6020A

**Table 6**  
**Summary of Groundwater Data - Polycyclic Aromatic Hydrocarbons**  
**Deschutes County Shooting Range**  
**Redmond, OR**

| Sample ID                                                                                     | Date       | Acenaphthene     | Acenaphthylene | Anthracene | Benzo(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(g,h,i)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Naphthalene | Phenanthrene | Pyrene |
|-----------------------------------------------------------------------------------------------|------------|------------------|----------------|------------|--------------------|----------------|----------------------|----------------------|----------------------|----------|-----------------------|--------------|----------|------------------------|-------------|--------------|--------|
| <b>Onsite Production Well</b>                                                                 |            | Measured in ug/L |                |            |                    |                |                      |                      |                      |          |                       |              |          |                        |             |              |        |
| <b>S-1</b>                                                                                    | 10/31/2019 | <0.100           | <0.100         | <0.100     | <0.100             | <b>0.130</b>   | <0.100               | <0.100               | <0.100               | <0.100   | <0.100                | <0.100       | <0.100   | <0.100                 | <0.100      | <0.100       | <0.100 |
| <b>S-2</b>                                                                                    | 10/31/2019 | <0.100           | <0.100         | <0.100     | <0.100             | <0.100         | <0.100               | <0.100               | <0.100               | <0.100   | <0.100                | <0.100       | <0.100   | <0.100                 | <0.100      | <0.100       | <0.100 |
| <b>DEQ Risk-Based Concentrations for Ingestion, and Inhalation from Tap Water<sup>1</sup></b> |            |                  |                |            |                    |                |                      |                      |                      |          |                       |              |          |                        |             |              |        |
| Occupational                                                                                  |            | 2,500            | --             | >S         | 0.38               | 0.47           | >S                   | --                   | >S                   | >S       | 0.47                  | >S           | 1,300    | >S                     | 0.72        | --           | >S     |

1. Risk-Based Concentrations for Individual Chemicals Spreadsheet, May 2018
2. ug/L = micrograms per liter
3. Bold indicates analyte detected above method reporting limit
4. < = Analyte was not detected above method reporting limit
5. -- = Risk-based concentration or screening level value has not been established
6. >S = The RBC exceeds the solubility limit

Table 7

## Summary of Groundwater Data - Total and Dissolved Lead

Deschutes County Shooting Range

Redmond, OR

| Sample ID                                                                                     | Date       | Total Lead     | Dissolved Lead |
|-----------------------------------------------------------------------------------------------|------------|----------------|----------------|
| <i>Onsite Production Well</i>                                                                 |            |                |                |
| S-1                                                                                           | 10/31/2019 | 0.0117         | <0.0001        |
| S-2                                                                                           | 10/31/2019 | <b>0.00948</b> | <0.0001        |
| <i>DEQ Risk-Based Concentrations for Ingestion, and Inhalation from Tap Water<sup>1</sup></i> |            |                |                |
| Occupational                                                                                  |            | 0.015          | 0.015          |

1. Risk-Based Concentrations for Individual Chemicals Spreadsheet, May 2018

2. mg/L = milligrams per liter

3. Bold indicates analyte detected above method reporting limit

4. &lt; = Analyte was not detected above method reporting limit

**Table 8 - Human Health Risk Based Concentrations for Surface Soil**  
**Deschutes County Shooting Range Property**  
**Redmond, OR**

|                                          |         | Background Values | Direct Contact RBCs |              |            |
|------------------------------------------|---------|-------------------|---------------------|--------------|------------|
|                                          |         |                   | Occupational        | Construction | Excavation |
| Metals (mg/kg)                           |         |                   |                     |              |            |
| Aluminum                                 | 100,000 | --                | --                  | --           |            |
| Antimony                                 | 1.3     | --                | --                  | --           |            |
| Arsenic                                  | 6.8     | 1.9               | 15                  | 420          |            |
| Barium                                   | 700     | 220,000           | 69,000              | -            |            |
| Beryllium                                | 2.6     | 2,300             | 700                 | 19,000       |            |
| Cadmium                                  | 0.40    | 1,100             | 350                 | 9,700        |            |
| Calcium                                  | --      | --                | --                  | --           |            |
| Chromium                                 | 170     | -                 | 530,000             | -            |            |
| Cobalt                                   | --      | --                | --                  | --           |            |
| Copper                                   | 29      | 47,000            | 14,000              | 390,000      |            |
| Iron                                     | 40,000  | --                | --                  | --           |            |
| Lead                                     | 18      | 800               | 800                 | 800          |            |
| Magnesium                                | --      | --                | --                  | --           |            |
| Manganese                                | 1300    | 25,000            | 8,200               | 230,000      |            |
| Mercury                                  | 0.04    | 350               | 110                 | 2,900        |            |
| Nickel                                   | 78      | 22,000            | 7,000               | 190,000      |            |
| Potassium                                | --      | --                | --                  | --           |            |
| Selenium                                 | 0.46    | --                | --                  | --           |            |
| Silver                                   | 0.82    | 5,800             | 1,800               | 49,000       |            |
| Sodium                                   | --      | --                | --                  | --           |            |
| Thallium                                 | 4.6     | --                | --                  | --           |            |
| Tin                                      | --      | --                | --                  | --           |            |
| Vanadium                                 | 300     | --                | --                  | --           |            |
| Zinc                                     | 130     | --                | --                  | --           |            |
| Polycyclic Aromatic Hydrocarbons (mg/kg) |         |                   |                     |              |            |
| Acenaphthene                             | --      | 70,000            | 21,000              | 590,000      |            |
| Acenaphthylene                           | --      | --                | --                  | --           |            |
| Anthracene                               | --      | 350,000           | 110,000             | --           |            |
| Benzo(a)anthracene                       | --      | 21                | 170                 | 4,800        |            |
| Benzo(a)pyrene                           | --      | 2.10              | 17.0                | 490          |            |
| Benzo(b)fluoranthene                     | --      | 21.0              | 170                 | 4,900        |            |
| Benzo(g,h,i)perylene                     | --      | --                | --                  | --           |            |
| Benzo(k)fluoranthene                     | --      | 210               | 1,700               | 49,000       |            |
| Chrysene                                 | --      | 2,100             | 17,000              | 490,000      |            |
| Dibenzo(a,h)anthracene                   | --      | 2.10              | 17.0                | 490          |            |
| Fluoranthene                             | --      | 30,000            | 10,000              | 280,000      |            |
| Fluorene                                 | --      | 47,000            | 14,000              | 390,000      |            |
| Indeno(1,2,3-cd)pyrene                   | --      | 21.0              | 170                 | 4,900        |            |
| Naphthalene                              | --      | 23                | 580                 | 16,000       |            |
| Phenanthrene                             | --      | --                | --                  | --           |            |
| Pyrene                                   | --      | 23,000            | 7,500               | 210,000      |            |
| Polychlorinated Biphenyls (mg/kg)        |         |                   |                     |              |            |
| Total PCBs                               | --      | 0.59              | 4.9                 | 140          |            |
| Total Petroleum Hydrocarbons (mg/kg)     |         |                   |                     |              |            |
| Gasoline Range                           | --      | 20,000            | 9,700               | --           |            |
| Diesel Range                             | --      | 14,000            | 4,600               | --           |            |
| Oil Range                                | --      | 36,000            | 11,000              | --           |            |

*Please refer to notes at end of table*



**Table 8 - Human Health Risk Based Concentrations for Surface Soil**  
**Deschutes County Shooting Range Property**  
**Redmond, OR**

|                                    | Background Values | Direct Contact RBCs |              |            |
|------------------------------------|-------------------|---------------------|--------------|------------|
|                                    |                   | Occupational        | Construction | Excavation |
| Volatile Organic Compounds (mg/kg) |                   |                     |              |            |
| 1,1,1,2-Tetrachloroethane          | --                | --                  | --           | --         |
| 1,1,1-Trichloroethane              | --                | 870,000             | 470,000      | -          |
| 1,1,2,2-Tetrachloroethane          | --                | --                  | --           | --         |
| 1,1,2-Trichloroethane              | --                | 26                  | 54           | 1,500      |
| 1,1-Dichloroethane                 | --                | 260                 | 3,200        | 89,000     |
| 1,1-Dichloroethene                 | --                | 29,000              | 13,000       | 370,000    |
| 1,1-Dichloropropene                | --                | --                  | --           | --         |
| 1,2,3-Trimethylbenzene             | --                | --                  | --           | --         |
| 1,2,3-Trichloropropane             | --                | --                  | --           | --         |
| 1,2,4-Trichlorobenzene             | --                | --                  | --           | --         |
| 1,2,4-Trimethylbenzene             | --                | 6,900               | 2,900        | 81,000     |
| 1,2-Dibromo-3-Chloropropane        | --                | --                  | --           | --         |
| 1,2-Dibromoethane                  | --                | 0.73                | 9.0          | 250        |
| 1,2-Dichlorobenzene                | --                | 36,000              | 20,000       | 560,000    |
| 1,2-Dichloroethane                 | --                | 16                  | 200          | 5,600      |
| 1,2-Dichloropropane                | --                | --                  | --           | --         |
| 1,3,5-Trimethylbenzene             | --                | 6,900               | 2,900        | 81,000     |
| 1,3-Dichlorobenzene                | --                | --                  | --           | --         |
| 1,3-Dichloropropane                | --                | --                  | --           | --         |
| 1,4-Dichlorobenzene                | --                | 64                  | 1,300        | 36,000     |
| 2,2-Dichloropropane                | --                | --                  | --           | --         |
| 2-Butanone (MEK)                   | --                | --                  | --           | --         |
| 2-Chlorotoluene                    | --                | --                  | --           | --         |
| 2-Hexanone                         | --                | --                  | --           | --         |
| 4-Chlorotoluene                    | --                | --                  | --           | --         |
| 4-Methyl-2-pentanone (MIBK)        | --                | --                  | --           | --         |
| Acetone                            | --                | --                  | --           | --         |
| Benzene                            | --                | 37                  | 380          | 11,000     |
| Bromobenzene                       | --                | --                  | --           | --         |
| Bromochloromethane                 | --                | --                  | --           | --         |
| Bromoform                          | --                | 260                 | 2,700        | 74,000     |
| Bromomethane                       | --                | 750                 | 370          | 10,000     |
| Carbon Disulfide                   | --                | --                  | --           | --         |
| Carbon Tetrachloride               | --                | 34                  | 320          | 8,900      |
| Chlorobenzene                      | --                | 8,700               | 4,700        | 130,000    |
| Chlorodibromomethane               | --                | 17                  | 210          | 5,800      |
| Chloroethane                       | --                | --                  | --           | --         |
| Chloroform                         | --                | 26                  | 410          | 11,000     |
| Chloromethane                      | --                | 25,000              | 25,000       | 700,000    |
| cis-1,2-Dichloroethene             | --                | 2,300               | 710          | 20,000     |
| cis-1,3-Dichloropropene            | --                | --                  | --           | --         |
| Dibromomethane                     | --                | --                  | --           | --         |
| Dichlorodifluoromethane            | --                | --                  | --           | --         |
| Ethylbenzene                       | --                | 150                 | 1,700        | 49,000     |
| Hexachlorobutadiene                | --                | --                  | --           | --         |
| Isopropylbenzene                   | --                | 57,000              | 27,000       | 750,000    |

*Please refer to notes at end of table*

**Table 8 - Human Health Risk Based Concentrations for Surface Soil**  
**Deschutes County Shooting Range Property**  
**Redmond, OR**

|                               | Background Values | Direct Contact RBCs |              |            |
|-------------------------------|-------------------|---------------------|--------------|------------|
|                               |                   | Occupational        | Construction | Excavation |
| m,p-Xylene                    | --                | --                  | --           | --         |
| Methyl tertbutyl ether (MTBE) | --                | 1,100               | 12,000       | 320,000    |
| Methylene Chloride            | --                | 1,600               | 2,100        | 58,000     |
| Naphthalene                   | --                | 23                  | 580          | 16,000     |
| n-Butylbenzene                | --                | --                  | --           | --         |
| n-Propylbenzene               | --                | --                  | --           | --         |
| o-Xylene                      | --                | --                  | --           | --         |
| p-Isopropyltoluene            | --                | --                  | --           | --         |
| sec-Butylbenzene              | --                | --                  | --           | --         |
| Styrene                       | --                | 130,000             | 56,000       | -          |
| tert-Butylbenzene             | --                | --                  | --           | --         |
| Tetrachloroethene             | --                | 1,000               | 1,800        | 50,000     |
| Toluene                       | --                | 88,000              | 28,000       | 770,000    |
| trans-1,2-Dichloroethene      | --                | 23,000              | 7,100        | 200,000    |
| trans-1,3-Dichloropropene     | --                | --                  | --           | --         |
| Trichloroethene               | --                | 51                  | 130          | 3,700      |
| Trichlorofluoromethane        | --                | 130,000             | 69,000       | --         |
| Vinyl Chloride                | --                | 4.4                 | 34           | 950        |
| Xylenes, Total                | --                | 25,000              | 20,000       | 560,000    |

**Notes:**

1. mg/kg (ppm) = milligrams per kilogram (parts per million)
2. DEQ Background Levels of Metals in Soils for Cleanups, March 2013. Values shown are for Deschutes Columbia Plateau. Background value for aluminum and iron from Geochemical Landscapes of the Conterminous United States, USGS, November 2001.
3. RBCs = Oregon Department of Environmental Quality Risk-Based Concentrations from Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites. September 22, 2003 (May 2018 update).
4. = Not Established

**Table 9 - Ecological Screening Level Values for Surface Soil**  
**Deschutes County Shooting Range Property**  
**Redmond, OR**

|                                          |         | Background Values | DEQ Ecological SLVs |               |           |         |
|------------------------------------------|---------|-------------------|---------------------|---------------|-----------|---------|
|                                          |         |                   | Plants              | Invertebrates | Birds     | Mammals |
| Metals (mg/kg)                           |         |                   |                     |               |           |         |
| Aluminum                                 | 100,000 | 50                | 600                 | 2,250         | 535       |         |
| Antimony                                 | 1.3     | 5                 | --                  | --            | 75        |         |
| Arsenic                                  | 6.8     | 10                | 60                  | 50            | 145       |         |
| Barium                                   | 700     | 500               | 3,000               | 425           | 3,190     |         |
| Beryllium                                | 2.6     | 10                | --                  | --            | 415       |         |
| Cadmium                                  | 0.40    | 4                 | 20                  | 30            | 625       |         |
| Calcium                                  | --      | --                | --                  | --            | --        |         |
| Chromium                                 | 170     | 1                 | 0.4                 | 20            | 1,700,000 |         |
| Cobalt                                   | --      | 20                | 1,000               | --            | 750       |         |
| Copper                                   | 29      | 100               | 50                  | 950           | 1,950     |         |
| Iron                                     | 40,000  | 10                | 200                 | --            | --        |         |
| Lead                                     | 18      | 50                | 500                 | 80            | 20,000    |         |
| Magnesium                                | --      | --                | --                  | --            | --        |         |
| Manganese                                | 1300    | 500               | 100                 | 20,625        | 55,000    |         |
| Mercury                                  | 0.04    | 0.3               | 0.1                 | 7.5           | 365       |         |
| Nickel                                   | 78      | 30                | 200                 | 1,600         | 3,125     |         |
| Potassium                                | --      | --                | --                  | --            | --        |         |
| Selenium                                 | 0.46    | 1                 | 70                  | 10            | 125       |         |
| Silver                                   | 0.82    | 2                 | 50                  | --            | --        |         |
| Sodium                                   | --      | --                | --                  | --            | --        |         |
| Thallium                                 | 4.6     | 1                 | --                  | --            | 5         |         |
| Tin                                      | --      | --                | --                  | --            | --        |         |
| Vanadium                                 | 300     | 2                 | --                  | 235           | 125       |         |
| Zinc                                     | 130     | 50                | 200                 | 300           | 100,000   |         |
| Polycyclic Aromatic Hydrocarbons (mg/kg) |         |                   |                     |               |           |         |
| Acenaphthene                             | --      | 20                | --                  | --            | --        |         |
| Acenaphthylene                           | --      | --                | --                  | --            | --        |         |
| Anthracene                               | --      | --                | --                  | --            | --        |         |
| Benzo(a)anthracene                       | --      | --                | --                  | --            | --        |         |
| Benzo(a)pyrene                           | --      | --                | --                  | --            | 625       |         |
| Benzo(b)fluoranthene                     | --      | --                | --                  | --            | --        |         |
| Benzo(b+k)fluoranthene                   | --      | --                | --                  | --            | --        |         |
| Benzo(g,h,i)perylene                     | --      | --                | --                  | --            | --        |         |
| Benzo(k)fluoranthene                     | --      | --                | --                  | --            | --        |         |
| Chrysene                                 | --      | --                | --                  | --            | --        |         |
| Dibenzo(a,h)anthracene                   | --      | --                | --                  | --            | --        |         |
| Fluoranthene                             | --      | --                | --                  | --            | --        |         |
| Fluorene                                 | --      | --                | 30                  | --            | --        |         |
| Indeno(1,2,3-cd)pyrene                   | --      | --                | --                  | --            | --        |         |
| Naphthalene                              | --      | 10                | --                  | --            | 19,500    |         |
| Phenanthrene                             | --      | --                | --                  | --            | --        |         |
| Pyrene                                   | --      | --                | --                  | --            | --        |         |
| Polychlorinated Biphenyls (mg/kg)        |         |                   |                     |               |           |         |
| Total PCBs                               | --      | 40                | --                  | --            | 20        |         |
| Total Petroleum Hydrocarbons (mg/kg)     |         |                   |                     |               |           |         |
| Gasoline Range                           | --      | --                | --                  | --            | --        |         |
| Diesel Range                             | --      | --                | --                  | --            | --        |         |
| Oil Range                                | --      | --                | --                  | --            | --        |         |

Please refer to notes at end of table

**Table 9 - Ecological Screening Level Values for Surface Soil**  
**Deschutes County Shooting Range Property**  
**Redmond, OR**

|                                    | Background Values | DEQ Ecological SLVs |               |       |           |
|------------------------------------|-------------------|---------------------|---------------|-------|-----------|
|                                    |                   | Plants              | Invertebrates | Birds | Mammals   |
| Volatile Organic Compounds (mg/kg) |                   |                     |               |       |           |
| 1,1,1,2-Tetrachloroethane          | --                | --                  | --            | --    | --        |
| 1,1,1-Trichloroethane              | --                | --                  | --            | --    | 277,750   |
| 1,1,2,2-Tetrachloroethane          | --                | --                  | --            | --    | --        |
| 1,1,2-Trichloroethane              | --                | --                  | --            | --    | --        |
| 1,1-Dichloroethane                 | --                | --                  | --            | --    | --        |
| 1,1-Dichloroethene                 | --                | --                  | --            | --    | 18,750    |
| 1,1-Dichloropropene                | --                | --                  | --            | --    | --        |
| 1,2,3-Trimethylbenzene             | --                | --                  | --            | --    | --        |
| 1,2,3-Trichloropropane             | --                | --                  | --            | --    | --        |
| 1,2,4-Trichlorobenzene             | --                | --                  | 20            | --    | --        |
| 1,2,4-Trimethylbenzene             | --                | --                  | --            | --    | --        |
| 1,2-Dibromo-3-Chloropropane        | --                | --                  | --            | --    | --        |
| 1,2-Dibromoethane                  | --                | --                  | --            | --    | --        |
| 1,2-Dichlorobenzene                | --                | --                  | --            | --    | --        |
| 1,2-Dichloroethane                 | --                | --                  | --            | 350   | 13,900    |
| 1,2-Dichloropropane                | --                | --                  | 700           | --    | --        |
| 1,3,5-Trimethylbenzene             | --                | --                  | --            | --    | --        |
| 1,3-Dichlorobenzene                | --                | --                  | --            | --    | --        |
| 1,3-Dichloropropane                | --                | --                  | --            | --    | --        |
| 1,4-Dichlorobenzene                | --                | --                  | 20            | --    | --        |
| 2,2-Dichloropropane                | --                | --                  | --            | --    | --        |
| 2-Butanone (MEK)                   | --                | --                  | --            | --    | 1,000,000 |
| 2-Chlorotoluene                    | --                | --                  | --            | --    | --        |
| 2-Hexanone                         | --                | --                  | --            | --    | --        |
| 4-Chlorotoluene                    | --                | --                  | --            | --    | --        |
| 4-Methyl-2-pentanone (MIBK)        | --                | --                  | --            | --    | --        |
| Acetone                            | --                | --                  | --            | --    | 6,250     |
| Benzene                            | --                | --                  | --            | --    | 16,500    |
| Bromobenzene                       | --                | --                  | --            | --    | --        |
| Bromochloromethane                 | --                | --                  | --            | --    | --        |
| Bromoform                          | --                | --                  | --            | --    | --        |
| Bromomethane                       | --                | --                  | --            | --    | --        |
| Carbon Disulfide                   | --                | --                  | --            | --    | --        |
| Carbon Tetrachloride               | --                | --                  | 1000          | --    | 10,000    |
| Chlorobenzene                      | --                | --                  | 40            | --    | --        |
| Chlorodibromomethane               | --                | --                  | --            | --    | --        |
| Chloroethane                       | --                | --                  | --            | --    | --        |
| Chloroform                         | --                | --                  | --            | --    | 9,375     |
| Chloromethane                      | --                | --                  | --            | --    | --        |
| cis-1,2-Dichloroethene             | --                | --                  | --            | --    | 12,500    |
| cis-1,3-Dichloropropene            | --                | --                  | --            | --    | --        |
| Dibromomethane                     | --                | --                  | --            | --    | --        |
| Dichlorodifluoromethane            | --                | --                  | --            | --    | --        |
| Ethylbenzene                       | --                | --                  | --            | --    | --        |

*Please refer to notes at end of table*

**Table 9 - Ecological Screening Level Values for Surface Soil**  
**Deschutes County Shooting Range Property**  
**Redmond, OR**

|                               | Background Values | DEQ Ecological SLVs |               |       |         |
|-------------------------------|-------------------|---------------------|---------------|-------|---------|
|                               |                   | Plants              | Invertebrates | Birds | Mammals |
| Hexachlorobutadiene           | --                | --                  | --            | --    | --      |
| Isopropylbenzene              | --                | --                  | --            | --    | --      |
| m,p-Xylene                    | --                | --                  | --            | --    | --      |
| Methyl tertbutyl ether (MTBE) | --                | --                  | --            | --    | --      |
| Methylene Chloride            | --                | --                  | --            | --    | 3,650   |
| Naphthalene                   | --                | 10                  | --            | --    | 19,500  |
| n-Butylbenzene                | --                | --                  | --            | --    | --      |
| n-Propylbenzene               | --                | --                  | --            | --    | --      |
| o-Xylene                      | --                | 1                   | --            | --    | --      |
| p-Isopropyltoluene            | --                | --                  | --            | --    | --      |
| sec-Butylbenzene              | --                | --                  | --            | --    | --      |
| Styrene                       | --                | 300                 | --            | --    | --      |
| tert-Butylbenzene             | --                | --                  | --            | --    | --      |
| Tetrachloroethene             | --                | 10                  | --            | --    | 400     |
| Toluene                       | --                | 200                 | --            | --    | 7,200   |
| trans-1,2-Dichloroethene      | --                | --                  | --            | --    | 12,500  |
| trans-1,3-Dichloropropene     | --                | --                  | --            | --    | --      |
| Trichloroethene               | --                | --                  | --            | --    | 200     |
| Trichlorofluoromethane        | --                | --                  | --            | --    | --      |
| Vinyl Chloride                | --                | --                  | --            | --    | 100     |
| Xylenes, Total                | --                | 100                 | --            | --    | 600     |

**Notes:**

1. mg/kg (ppm) = milligrams per kilogram (parts per million)
2. DEQ Background Levels of Metals in Soils for Cleanups, March 2013. Values shown are for the Deschutes Columbia Plateau.
3. Background value for aluminum and iron from Geochemical Landscapes of the Conterminous United States, USGS, November 2001.
4. Guidance for Ecological Risk Assessment, April 1998. SLVs for birds and mammals are multiplied by 5.

**Table 10 -Summary of CPECs**  
**Deschutes County Shooting Range Property**  
**Redmond, OR**

|                | Exceeds<br>background<br>values? | Number of<br>samples | Number of<br>detections | CPEC? | Notes                      |
|----------------|----------------------------------|----------------------|-------------------------|-------|----------------------------|
| <b>Plants</b>  |                                  |                      |                         |       |                            |
| Antimony       | Yes                              | 43                   | 17                      | Yes   |                            |
| Arsenic        | Yes                              | 43                   | 43                      | Yes   |                            |
| Barium         | Yes                              | 43                   | 43                      | Yes   |                            |
| Cadmium        | Yes                              | 43                   | 5                       | Yes   |                            |
| Copper         | Yes                              | 43                   | 43                      | Yes   |                            |
| Lead           | Yes                              | 54                   | 54                      | Yes   |                            |
| Manganese      | NA                               | 43                   | 43                      | Yes   |                            |
| Silver         | Yes                              | 43                   | 4                       | Yes   |                            |
| Zinc           | Yes                              | 43                   | 43                      | Yes   |                            |
| <b>Inverts</b> |                                  |                      |                         |       |                            |
| Total PCBs     | NA                               | 9                    | 3                       | Yes   | For landfill exposure area |
| Antimony       | Yes                              | 43                   | 17                      | Yes   |                            |
| Copper         | Yes                              | 43                   | 43                      | Yes   |                            |
| Lead           | Yes                              | 54                   | 54                      | Yes   |                            |
| Zinc           | Yes                              | 43                   | 43                      | Yes   |                            |
| <b>Birds</b>   |                                  |                      |                         |       |                            |
| Barium         | Yes                              | 43                   | 43                      | Yes   |                            |
| Lead           | Yes                              | 54                   | 54                      | Yes   |                            |
| Zinc           | Yes                              | 43                   | 43                      | Yes   |                            |
| <b>Mammals</b> |                                  |                      |                         |       |                            |
| Antimony       | Yes                              | 43                   | 17                      | Yes   |                            |
| Lead           | Yes                              | 54                   | 54                      | Yes   |                            |

**Notes:**

1. DEQ Background Levels of Metals in Soils for Cleanups, March 2013. Values shown are for Deschutes Columbia Plateau. Background value for aluminum and iron from Geochemical Landscapes of the Conterminous United States, USGS, November 2001.



Table 11

## Soil Technology Screening

Deschutes County Shooting Range

Redmond, OR

| General Response Action             | Technology                                     | Description                                                                                                                                                                                         | Screening Criteria                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                      |                                  | Screening Comments                                                                                                  |
|-------------------------------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------|
|                                     |                                                |                                                                                                                                                                                                     | Effectiveness                                                                                                                                                                                                                                                                                       | Implementability                                                                                                                                                                                                                                     | Cost                             |                                                                                                                     |
| NO ACTION                           | No Action                                      | No Action                                                                                                                                                                                           | Not effective in achieving RAOs                                                                                                                                                                                                                                                                     | Easy to implement                                                                                                                                                                                                                                    | No capital or O&M costs incurred | Does not meet threshold criteria, but required to be retained for comparison purposes.                              |
| INSTITUTIONAL CONTROLS              | Legal Restrictions, Regulations, and Covenants | May include restrictions such as: deed restrictions, easements, and covenants, attached to property-related documents; legal bans or controls of activities.                                        | Can be effective at controlling human exposures, but less effective (or not effective) at controlling ecological exposures. Is not effective at controlling or reducing migration. Most suitable for use in conjunction with other active technologies.                                             | Easy to implement.                                                                                                                                                                                                                                   | Low                              | Potentially applicable in conjunction with other technologies and/or to address residual contamination.             |
|                                     | Soil Management Plan                           | Development and publication of protocols for handling and managing contaminated sediments/soil during future work to protect workers, public health, ecological exposures, and the environment.     | Effective for management of contaminated sediments/soils. Not effective at preventing human or ecological exposures without other active technologies.                                                                                                                                              | Easy to implement.                                                                                                                                                                                                                                   | Low                              | Potentially applicable in conjunction with other technologies and/or to address residual contamination.             |
|                                     | Signage/Notifications/Advisories               | Posting of signs and/or distribution of notifications regarding health concerns in area of contamination.                                                                                           | Can be effective at reducing human exposures via public education, but not effective at controlling ecological exposures. Is not effective at controlling or reducing migration. Most suitable for use in conjunction with other active technologies.                                               | Easy to implement.                                                                                                                                                                                                                                   | Low                              | Retained for signage around contaminant area (if needed).                                                           |
|                                     | Monitoring                                     | Laboratory analysis of samples collected from sediment/soil.                                                                                                                                        | Effective for documenting site conditions and exposure risks; evaluating migration and naturally occurring processes, and effectiveness of remediation actions. Does not address contaminant reduction or receptor exposures.                                                                       | Easy to implement                                                                                                                                                                                                                                    | Low                              | Potentially applicable to confirm effectiveness of technologies.                                                    |
| ENGINEERING CONTROLS                | Fencing                                        | Fencing placed around the contaminated areas to prevent access.                                                                                                                                     | Is not effective at controlling or reducing migration. Does not address ecological exposure.                                                                                                                                                                                                        | Likely to require acceptance and cooperation of multiple parties to implement. Relatively simple technology to implement. Not compatible with future development.                                                                                    | Moderate                         | Not retained because technology does not address ecological exposures and human health exposures areas are limited. |
| CONTAINMENT                         | Soil Cap or Cover                              | Installation of an engineered cap or soil cover over impacted soil.                                                                                                                                 | Should be effective for site contaminants that have low-solubility (i.e., chemicals likely to remain bound to soil).                                                                                                                                                                                | Generally uses proven technologies.                                                                                                                                                                                                                  | Moderate                         | Retained as applicable technology.                                                                                  |
| REMOVAL AND DISPOSAL                | Excavation                                     | Mechanical removal of contaminated soil.                                                                                                                                                            | Effective in removing impacted soil.                                                                                                                                                                                                                                                                | Excavation equipment is readily available.                                                                                                                                                                                                           | High                             | Applicable for removal of impacted soil.                                                                            |
|                                     | Off-Site Disposal                              | Off-site disposal of excavated soil at a permitted solid waste landfill.                                                                                                                            | Landfills are controlled, managed facilities that are effective in preventing future exposures. Addresses direct exposure pathways and migration by removing contaminant mass from site.                                                                                                            | Implementation involves transportation of contaminated soil on public roads for potentially long distances.                                                                                                                                          | High                             | Not a stand alone technology. Applicable for handling of excavated soil.                                            |
| IN-SITU PHYSICAL/CHEMICAL TREATMENT | Solidification/Stabilization                   | Contaminants are physically bound or encased in a stabilized mass (solidification) or chemical reactions are induced between the reagent and contaminants to reduce their mobility (stabilization). | Most suitable to inorganic contaminants. Resilient sediments may not provide suitable ecological habitat. Difficult to demonstrate that soil stabilization is effective for human and ecological exposures at site. Would require more intensive long term monitoring to demonstrate effectiveness. | Soil stabilization for shallow soils is not common, and it would be difficult to integrate a stabilization area with a commercial or industrial redevelopment. It is difficult to estimate the useful life of a stabilization area.                  | Moderate to High                 | Retained as a common element for remedial alternative to stabilize potentially hazardous waste.                     |
| IN-SITU BIOLOGICAL TREATMENT        | Enhanced Bioremediation                        | Addition of nutrients, electron acceptors, or other amendments to sediment to enhance bioremediation.                                                                                               | Not likely to be effective for many of the contaminants of concern.                                                                                                                                                                                                                                 | Blending of amendments into sediment would require disturbance of sediment and would potentially cause significant resuspension.                                                                                                                     | Moderate                         | Not retained because not effective on many of contaminants of concern.                                              |
|                                     | Phytoremediation                               | The process of using plants to remove, transfer, stabilize and/or destroy contaminants in soil or sediment.                                                                                         | Can be effective at removing a variety of organic and inorganic compounds from soil/sediment through plant uptake in the plant rhizosphere.                                                                                                                                                         | Would require planting of suitable plants for site conditions, or changing of site conditions to accommodate plants (such as the construction of an engineered wetlands). Would not likely be compatible with future industrial and commercial uses. | Moderate                         | Not retained because incompatible with site conditions.                                                             |
| IN-SITU NATURAL PROCESSES           | Natural Attenuation                            | Naturally occurring physical and biological processes (biodegradation) reduce contaminant concentrations. Process is monitored to verify exposures.                                                 | Not effective for soils with high molecular weight PAHs and metals.                                                                                                                                                                                                                                 | Easy to implement. Monitoring of COI concentrations in soil would require long-term monitoring. May require significant timeframe to reach cleanup goals.                                                                                            | Low                              | Not applicable to site contaminants.                                                                                |

Table 11

## Soil Technology Screening

Deschutes County Shooting Range

Redmond, OR

| General Response Action             | Technology                                     | Description                                                                                                                                                                                                                                                                                                                                             | Screening Criteria                                                                                                                                                                                                  |                                                                                                                                                                                                                                             | Cost            | Screening Comments                                                                                                                                                  |
|-------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     |                                                |                                                                                                                                                                                                                                                                                                                                                         | Effectiveness                                                                                                                                                                                                       | Implementability                                                                                                                                                                                                                            |                 |                                                                                                                                                                     |
| EX/SITU PHYSICAL/CHEMICAL TREATMENT | Separation                                     | Use of physical means to separate coarser fractions for beneficial reuse of debris or to reduce toxicity prior to further treatment or disposal.                                                                                                                                                                                                        | Effective for contaminant reduction, but will not attain RAOs.                                                                                                                                                      | Commercial equipment is available for separation (i.e., sieves).                                                                                                                                                                            | Low to Moderate | Retained as a common element for remedial alternative for possible mass/toxicity reduction prior to disposal.                                                       |
|                                     | Soil Washing                                   | Contaminants are separated from the excavated soil with wash water augmented with additives to help remove contamination.                                                                                                                                                                                                                               | Most suitable for semi-volatile organics or inorganic contamination. More effective for coarser sediments/soils.                                                                                                    | Elutriate would require treatment and disposal, which could significantly increase the overall cost of treatment. Bench-scale testing would be required during design. Air quality standards may be affected by open-air treatment methods. | High            | Not retained because more cost-effective and implementable options available.                                                                                       |
|                                     | Solidification/Stabilization                   | Contaminants are physically bound or encased in a stabilized mass (solidification) or chemical reactions are induced between the stabilizing agent and contaminants to reduce their mobility (stabilization). Methods may include the addition of Portland cement, lime, kiln dust, pozzolan, sorbent clay (i.e., bentonite), and proprietary reagents. | Can be effective at reducing mobility of contaminants (most suitable to inorganics) or solidifying for disposal.                                                                                                    | Generally uses proven technologies.                                                                                                                                                                                                         | Moderate        | Retained as a common element for remedial alternative to stabilize potentially hazardous waste.                                                                     |
| EX/SITU BIOLOGICAL TREATMENT        | Land Treatment/Landfarming                     | Land treatment reduces contaminant concentrations through biological processes. Excavated soils are placed in controlled cells and manipulated as necessary to improve biological conditions (such as by tilling to aerate soil).                                                                                                                       | Effective at removing some organic contamination from soil, but not likely to address more persistent organics. Does not address metals.                                                                            | Requires area for soil treatment or transport to an off-site facility. Bench-scale testing would be required to define operating parameters. Air quality standards may be affected by open-air treatment methods.                           | Moderate        | Not retained because does not adequately address all contaminants of concern.                                                                                       |
|                                     | Composting                                     | Excavated soil is mixed with bulking agents and organic amendments to promote microbial activity.                                                                                                                                                                                                                                                       | Effective at removing organic contamination from sediment. Most effective with control of moisture, heat, nutrients, oxygen, and pH to enhance biodegradation. Does not address metals or more persistent organics. | Requires area for soil treatment or transport to an off-site facility. Bench-scale testing would be required to define operating parameters.                                                                                                | Moderate        | Not retained because does not adequately address all contaminants of concern.                                                                                       |
| EX/SITU THERMAL TREATMENT           | Incineration                                   | High temperatures are used to combust (in the presence of oxygen) organic constituents in hazardous wastes.                                                                                                                                                                                                                                             | High temperatures result in generally complete decomposition of organic chemicals. Effective across wide range of sediment characteristics. Not effective for metals.                                               | Requires air pollution control device and transport to permitted facility located at distance from site. Involves high energy consumption.                                                                                                  | Very High       | Significant cost for transportation and treatment. Other less expensive technologies available. Most suitable to high concentrations or highly toxic contamination. |
|                                     | Thermal Desorption/Pyrolysis/Hot Gas Oxidation | Waste soils are heated to either volatilize (desorption and hot gas) or to anaerobically decompose (pyrolysis) organic contaminants. Off-gas is collected and treated.                                                                                                                                                                                  | Effective at removing organic materials from excavated sediment (soil particularly volatile organics). Pyrolysis generally used for semi-volatiles or pesticide wastes. Does not address metals.                    | Requires transport to off-site treatment facility. Treatment of chlorinated hydrocarbons difficult (may generate acid in off-gas). Off-gas treatment required.                                                                              | High            | Significant cost for transportation and treatment. Other less expensive technologies available.                                                                     |

**Table 12**  
**Cost Estimate – On-Site Disposal: Firing Ranges**  
**Deschutes County Shooting Range**  
**Redmond, OR**

| Alternative Component                                  | Units     | Unit Cost       | Extension                | Notes                                                                   |
|--------------------------------------------------------|-----------|-----------------|--------------------------|-------------------------------------------------------------------------|
| <b>Capital</b>                                         |           |                 |                          |                                                                         |
| <b>Design, Permitting, and Procurement: Range Soil</b> |           |                 |                          |                                                                         |
| Work Plan Preparation                                  | 1 LS      | \$20,000 /each  | \$20,000                 | For DEQ review and approval                                             |
| Survey                                                 | 1 LS      | \$0 /each       | \$0                      | Assumes new owner completes                                             |
| Design                                                 | 1 LS      | \$0 /each       | \$0                      | Assumes new owner completes                                             |
| Procurement                                            | 1 LS      | \$0 /each       | \$0                      | Assumes new owner completes                                             |
|                                                        |           |                 |                          | Assumes new owner obtains construction grading permit and 1200-C        |
| Permitting: Soil Removal                               | 1 LS      | \$0 /each       | \$0                      | NPDES Permit                                                            |
| Soil Management Plan/Institutional Controls            | 1 LS      | \$20,000 /each  | \$20,000                 | Professional judgment                                                   |
| <b>Design and Procurement Subtotal</b>                 |           |                 | <b>\$40,000</b>          |                                                                         |
| <b>Construction: Range Soil</b>                        |           |                 |                          |                                                                         |
|                                                        |           |                 |                          | Assume 10% construction total (excluding tip fees); includes contractor |
| Mobilization                                           | 1 LS      | \$129,650 /each | \$129,700                | work plans                                                              |
| Utility Locating                                       | 8 hr      | \$70 /hr        | \$600                    | Unit rate from recent subcontract                                       |
| Erosion Control                                        | 8,718 lf  | \$1.06 /foot    | \$9,300                  | From Means, for berm area only                                          |
| Construction Entrance                                  | 1 LS      | \$1,500 /each   | \$1,500                  | 25 x 60 rock construction entrance                                      |
| Survey Control                                         | 1 LS      | \$7,500 /each   | \$7,500                  | Means                                                                   |
| Dust Control                                           | 30 day    | \$400 /day      | \$12,000                 | Water truck/driver (Means); pump water from onsite well                 |
| Site Clearing (unforested)                             | 1.0 LS    | \$5,000 /each   | \$5,000                  | Minor clearing at edges of range areas                                  |
| Soil Excavation and Transport to Berm                  | 43,023 cy | \$4 /cy         | \$172,100                | Means for excavation and hauling                                        |
| Place and Compact: Berm                                | 43,023 cy | \$6 /cy         | \$258,200                | Means                                                                   |
| Berm Cover - Crushed Rock                              | 16,134 cy | \$42 /cy        | \$680,100                | Means                                                                   |
| Purchase/Deliver Topsoil: Berm                         | 5,378 cy  | \$20 /cy        | \$109,000                | Means                                                                   |
| Jute Mat: Berm Slope                                   | 5,378 sy  | \$1.64 /sy      | \$8,900                  | Means: For berm slopes, assume 25% area of berm                         |
| Restoration: Grade Removal Areas                       | 11 acre   | \$500 /ac       | \$5,600                  | Grade removal areas flat.                                               |
| Re-Vegetation: Range Removal Areas                     | 11.0 ac   | \$1,000 /ac     | \$11,100                 | Professional judgment                                                   |
| Temporary Irrigation System Installation               | 11.0 ac   | \$1,000 /ac     | \$11,100                 | Temporary system for vegetation                                         |
| First Year of Irrigation                               | 9 months  | \$500 /month    | \$4,500                  | Irrigate 1"/week, assumes pumped from onsite well                       |
| Overhead, bonding, insurance                           | 1 LS      | \$129,650 /each | \$129,700                | Assume 10% of construction - professional judgment                      |
| <b>Construction Subtotal</b>                           |           |                 | <b>\$1,427,000</b>       |                                                                         |
| <b>Oversight and Reporting: Range Soil</b>             |           |                 |                          |                                                                         |
| Construction Management                                | 15 day    | \$500 /day      | \$7,500                  | Professional judgment                                                   |
| Construction Oversight                                 | 30 day    | \$1,500 /day    | \$45,000                 | Assume 15 cy trucks, 10 minutes per truck, 8 hour days, plus prep       |
| Report                                                 | 1 LS      | \$20,000 /each  | \$20,000                 | Professional judgment                                                   |
| Agency Oversight (DEQ)                                 | 20 %      | \$112,500 /each | \$22,500                 | Assumed 20% of engineering costs                                        |
| <b>Oversight and Reporting Subtotal</b>                |           |                 | <b>\$95,000</b>          |                                                                         |
| <b>Long-Term (Net Present Value)</b>                   |           |                 |                          |                                                                         |
|                                                        |           |                 |                          | Assume net discount rate of 2.5% for present-worth calculations.        |
| Plant Inspection and Replacement/Control (Yr 1-5)      | 5 yr      | \$1,000 /yr     | \$4,700                  | Professional judgment                                                   |
| Agency Oversight (DEQ)                                 | 10 %      | \$4,700 /each   | \$500                    | Assumed 10% of engineering costs                                        |
| <b>Long-Term Subtotal (Net Present Value)</b>          |           |                 | <b>\$5,000</b>           |                                                                         |
| <b>Contingency</b>                                     |           |                 |                          |                                                                         |
| Contingency                                            | 15 %      | \$1,567,000     | <b>\$236,000</b>         | Professional judgment                                                   |
| <b>Total</b>                                           |           |                 | <b>Total \$1,810,000</b> |                                                                         |

Notes:

- 1) Means - 2014 RS Means Online Cost Estimating

**Table 13**  
**Cost Estimate – On-Site Disposal: Disposal Area**  
**Deschutes County Shooting Range**  
**Redmond, OR**

| Alternative Component                                                       | Units     | Unit Cost       | Extension                | Notes                                                                              |
|-----------------------------------------------------------------------------|-----------|-----------------|--------------------------|------------------------------------------------------------------------------------|
| <b>Capital</b>                                                              |           |                 |                          |                                                                                    |
| <b>Design, Permitting, and Procurement: Landfill Soil and Trench Sludge</b> |           |                 |                          |                                                                                    |
| Work Plan Preparation                                                       | 1 LS      | \$20,000 /each  | \$20,000                 | For DEQ review and approval                                                        |
| Cultural Resources Survey                                                   | 1 LS      | \$10,000 /each  | \$10,000                 |                                                                                    |
| Survey                                                                      | 1 LS      | \$10,000 /each  | \$10,000                 |                                                                                    |
| Design                                                                      | 1 LS      | \$10,000 /each  | \$10,000                 |                                                                                    |
| Procurement                                                                 | 1 LS      | \$5,000 /each   | \$5,000                  |                                                                                    |
| Permitting                                                                  | 1 LS      | \$10,000 /each  | \$10,000                 | Obtain DEQ solid waste letter, construction grading permit, NPDES 1200-C           |
| <b>Design and Procurement Subtotal</b>                                      |           |                 | <b>\$65,000</b>          |                                                                                    |
| <b>Construction: Landfill Rubbish and Debris, Trench soil</b>               |           |                 |                          |                                                                                    |
| Mobilization                                                                | 1 LS      | \$229,840 /each | \$229,900                | Assume 10% construction total (excluding tip fees); includes contractor work plans |
| Utility Locating                                                            | 8 hr      | \$70 /hr        | \$600                    | Unit rate from recent subcontract                                                  |
| Erosion Control                                                             | 2,494 lf  | \$1.06 /foot    | \$2,700                  | Silt fence around landfill perimeters, with 10% additional for working space       |
| Construction Entrance                                                       | 1 LS      | \$1,500 /each   | \$1,500                  | 25 x 60 rock construction entrance                                                 |
| Survey Control                                                              | 1 LS      | \$10,000 /each  | \$10,000                 | Professional judgment                                                              |
| Dust Control                                                                | 30 day    | \$400 /day      | \$12,000                 | Water truck/driver (Means); pump water from onsite well                            |
| Site Clearing (unforested)                                                  | 1.0 LS    | \$5,000 /each   | \$5,000                  | Minor clearing within landfill                                                     |
| Disposal Area Excavation and Transport to Berm                              | 77,326 cy | \$8 /cy         | \$618,700                | Means for excavation and hauling                                                   |
| Place and Compact: Berm                                                     | 77,326 cy | \$6 /cy         | \$464,000                | Means                                                                              |
| Berm Cover - Crushed Rock                                                   | 21,748 cy | \$42 /cy        | \$916,700                | Means                                                                              |
| Purchase/Deliver Topsoil: Berm                                              | 7,249 cy  | \$20 /cy        | \$146,900                | Means                                                                              |
| Jute Mat                                                                    | 28,997 sy | \$1.64 /sy      | \$47,600                 | Means: For berm slopes, assume 25% area of berm                                    |
| Excavation: Trench Sludge Soil                                              | 10 cy     | \$3 /cy         | \$100                    | Excavation from Means                                                              |
| Transport: Trench Sludge Soil                                               | 10 cy     | \$25 /cy        | \$300                    | Transport to Knott Landfill, 25 miles each way                                     |
| Landfill Tip Fee: Trench Sludge Soil                                        | 15 ton    | \$30 /ton       | \$500                    |                                                                                    |
| Restoration: Grade Removal Areas                                            | 7.4 acre  | \$500 /ac       | \$52,500                 | Grade removal areas flat.                                                          |
| Re-Vegetation: Landfill Removal Area                                        | 7.4 ac    | \$1,000 /ac     | \$7,400                  | Professional judgment                                                              |
| Temporary Irrigation System Installation                                    | 7.4 ac    | \$1,000 /ac     | \$7,400                  | Temporary system for vegetation                                                    |
| First Year of Irrigation                                                    | 9 months  | \$500 /month    | \$4,500                  | Irrigate 1"/week, assumes pumped from onsite well                                  |
| Overhead, Bonding, Insurance                                                | 1 LS      | \$229,840 /each | \$229,900                | Assume 10% of construction - professional judgment                                 |
| <b>Construction Subtotal</b>                                                |           |                 | <b>\$2,759,000</b>       |                                                                                    |
| <b>Oversight and Reporting: Landfill Soil and Trench Sludge</b>             |           |                 |                          |                                                                                    |
| Construction Management                                                     | 15 day    | \$500 /day      | \$7,500                  | Professional judgment                                                              |
| Engineering Oversight                                                       | 30 day    | \$1,500 /day    | \$45,000                 | Assume 15 cy trucks, 10 minutes per truck, 8 hour days, plus prep                  |
| Report                                                                      | 1 LS      | \$20,000 /each  | \$20,000                 | Professional judgment                                                              |
| Agency Oversight (DEQ)                                                      | 20 %      | \$102,500 /each | \$20,500                 | Assumed 20% of engineering costs                                                   |
| <b>Oversight and Reporting Subtotal</b>                                     |           |                 | <b>\$93,000</b>          |                                                                                    |
| <b>Long-Term (Net Present Value)</b>                                        |           |                 |                          |                                                                                    |
| Plant Inspection and Replacement/Control (Yr 1-5)                           | 5 yr      | \$1,000 /yr     | \$4,700                  | Completed as part of selected alternative                                          |
| Agency Oversight (DEQ)                                                      | 10 %      | \$4,700 /each   | \$500                    | Assumed 10% of engineering costs                                                   |
| <b>Long-Term Subtotal (Net Present Value)</b>                               |           |                 | <b>\$5,200</b>           |                                                                                    |
| <b>Contingency</b>                                                          |           |                 |                          |                                                                                    |
| Contingency                                                                 | 15 %      | \$2,922,200     | \$439,000                | Professional judgment                                                              |
| <b>Total</b>                                                                |           |                 | <b>Total \$3,370,000</b> |                                                                                    |

Notes:

- 1) Means - 2014 RS Means Online Cost Estimating

Table 14

**Cost Estimate – Off-Site Disposal: Firing Ranges**  
**Deschutes County Shooting Range**  
**Redmond, OR**

| Alternative Component                                  | Units      | Unit Cost       | Extension                | Notes                                                                                   |
|--------------------------------------------------------|------------|-----------------|--------------------------|-----------------------------------------------------------------------------------------|
| <b>Capital</b>                                         |            |                 |                          |                                                                                         |
| <b>Design, Permitting, and Procurement: Range Soil</b> |            |                 |                          |                                                                                         |
| Work Plan Preparation                                  | 1 LS       | \$20,000 /each  | \$20,000                 | For DEQ review and approval                                                             |
| Survey                                                 | 1 LS       | \$0 /each       | \$0                      | Assumes new owner completes                                                             |
| Design                                                 | 1 LS       | \$0 /each       | \$0                      | Assumes new owner completes                                                             |
| Procurement                                            | 1 LS       | \$0 /each       | \$0                      | Assumes new owner completes                                                             |
| Permitting                                             | 1 LS       | \$2,500 /each   | \$2,500                  | Obtain soil disposal permit, construction compelled under project grading permit        |
| <b>Design and Procurement Subtotal</b>                 |            |                 | <b>\$23,000</b>          |                                                                                         |
| <b>Construction: Range Soil</b>                        |            |                 |                          |                                                                                         |
| Mobilization                                           | 1 LS       | \$122,750 /each | \$122,800                | Assume 10% construction total (excluding tip fees); includes contractor work plans      |
| Utility Locating                                       | 8 hr       | \$70 /hr        | \$600                    | Unit rate from recent subcontract                                                       |
| Erosion Control                                        | 6,706 lf   | \$1.06 /foot    | \$7,200                  | Silt fence around range floor removal perimeters, with 10% additional for working space |
| Construction Entrance                                  | 1 LS       | \$1,500 /each   | \$1,500                  | 25 x 60 rock construction entrance                                                      |
| Survey Control                                         | 1 LS       | \$7,500 /each   | \$7,500                  | Means                                                                                   |
| Dust Control                                           | 30 day     | \$400 /day      | \$12,000                 | Water truck/driver (Means); pump water from onsite well                                 |
| Site Clearing (unforested)                             | 1.0 LS     | \$5,000 /each   | \$5,000                  | Minor clearing at edges of range areas                                                  |
| Soil Excavation                                        | 43,023 cy  | \$2 /cy         | \$86,100                 | Excavation and Load from Means                                                          |
| Soil Transport                                         | 43,023 cy  | \$25 /cy        | \$1,075,600              | Transport to Knott Landfill, 25 miles each way                                          |
| Soil Landfill Tip Fee                                  | 64,535 ton | \$35 /ton       | \$2,258,800              | Assume 1.5 ton/cy for non-hazardous soil disposal at Knott Landfill                     |
| Restoration: Grade Removal Areas                       | 11 ac      | \$500 /ac       | \$5,500                  | Grade removal areas flat.                                                               |
| Re-Vegetation: Range Removal Areas                     | 11 ac      | \$1,000 /ac     | \$11,000                 | Professional judgment                                                                   |
| Temporary Irrigation System Installation               | 11 ac      | \$1,000 /ac     | \$11,000                 | Temporary system for vegetation                                                         |
| First Year of Irrigation                               | 9 months   | \$500 /month    | \$4,500                  | Irrigate 1"/week, assumes pumped from onsite well                                       |
| Overhead, bonding, insurance                           | 1 LS       | \$122,750 /each | \$122,800                | Assume 10% of construction - professional judgment                                      |
| <b>Construction Subtotal</b>                           |            |                 | <b>\$3,732,000</b>       |                                                                                         |
| <b>Oversight and Reporting: Range Soil</b>             |            |                 |                          |                                                                                         |
| Construction Management                                | 15 day     | \$500 /day      | \$7,500                  | Professional judgment                                                                   |
| Engineering Oversight                                  | 45 day     | \$1,500 /day    | \$67,500                 | Assume 15 cy trucks, 10 minutes per truck, 8 hour days, plus prep                       |
| Report                                                 | 1 LS       | \$20,000 /each  | \$20,000                 | Professional judgment                                                                   |
| Agency Oversight (DEQ)                                 | 20 %       | \$117,500 /each | \$23,500                 | Assumed 20% of engineering costs                                                        |
| <b>Oversight and Reporting Subtotal</b>                |            |                 | <b>\$119,000</b>         |                                                                                         |
| <b>Long-Term (Net Present Value)</b>                   |            |                 |                          | Assume net discount rate of 2.5% for present-worth calculations.                        |
| <b>Long-Term Subtotal (Net Present Value)</b>          |            |                 | <b>\$0</b>               |                                                                                         |
| <b>Contingency</b>                                     |            |                 |                          |                                                                                         |
| Contingency                                            | 15 %       | \$3,874,000     | \$582,000                | Professional judgment                                                                   |
| <b>Total</b>                                           |            |                 | <b>Total \$4,460,000</b> |                                                                                         |

Notes:

- 1) Means - 2014 RS Means Online Cost Estimating

Table 15

**Cost Estimate – Off-Site Disposal: Disposal Area**  
**Deschutes County Shooting Range**  
**Redmond, OR**

| Alternative Component                                                | Units      | Unit Cost       | Extension   | Notes                                                                                                |
|----------------------------------------------------------------------|------------|-----------------|-------------|------------------------------------------------------------------------------------------------------|
| Capital                                                              |            |                 |             |                                                                                                      |
| Design, Permitting, and Procurement: Landfill Soil and Trench Sludge |            |                 |             |                                                                                                      |
| Work Plan Preparation                                                | 1 LS       | \$20,000 /each  | \$20,000    | For DEQ review and approval                                                                          |
| Cultural Resources Survey                                            | 1 LS       | \$10,000 /each  | \$10,000    |                                                                                                      |
| Survey                                                               | 1 LS       | \$10,000 /each  | \$10,000    |                                                                                                      |
| Design                                                               | 1 LS       | \$10,000 /each  | \$10,000    |                                                                                                      |
| Procurement                                                          | 1 LS       | \$5,000 /each   | \$5,000     |                                                                                                      |
| Permitting                                                           | 1 LS       | \$10,000 /each  | \$10,000    | Obtain soil disposal permit, construction grading permit, NPDES 1200-C                               |
| Design and Procurement Subtotal                                      |            |                 | \$65,000    |                                                                                                      |
| Construction: Landfill Rubbish and Debris, Trench soil               |            |                 |             |                                                                                                      |
| Mobilization                                                         | 1 LS       | \$218,980 /each | \$219,000   | Assume 10% construction total (excluding tip fees); includes contractor work plans                   |
| Utility Locating                                                     | 8 hr       | \$70 /hr        | \$600       | Unit rate from recent subcontract                                                                    |
| Erosion Control                                                      | 2,267 lf   | \$1.06 /foot    | \$2,500     | Silt fence around landfill perimeters, with 10% additional for working space                         |
| Construction Entrance                                                | 1 LS       | \$1,500 /each   | \$1,500     | 25 x 60 rock construction entrance                                                                   |
| Survey Control                                                       | 1 LS       | \$7,500 /each   | \$7,500     | Professional judgment                                                                                |
| Dust Control                                                         | 30 day     | \$400 /day      | \$12,000    | Water truck/driver (Means); pump water from onsite well                                              |
| Site Clearing (unforested)                                           | 1.0 LS     | \$5,000 /each   | \$5,000     | Minor clearing within landfill                                                                       |
| Excavation and Load                                                  | 77,326 cy  | \$2 /cy         | \$154,700   | Excavation and Load from Means                                                                       |
| Transport                                                            | 77,326 cy  | \$25 /cy        | \$1,933,200 | Transport to Knott Landfill, 25 miles each way                                                       |
| Landfill Tip Fee: Rubbish and Debris                                 | 38,663 ton | \$35 /ton       | \$1,353,300 | Assume 0.5 ton/cy for rubbish, based on internet search, with disposal at Knott Landfill             |
| Excavation: Trench Sludge Soil                                       | 10 cy      | \$3 /cy         | \$100       | Excavation from Means                                                                                |
| Transport: Trench Sludge Soil                                        | 10 cy      | \$25 /cy        | \$300       | Transport to Knott Landfill, 25 miles each way                                                       |
|                                                                      | ton        | /ton            | \$600       | Assume 0.5 ton/cy for garbage and rubbish, based on internet search, with disposal at Knott Landfill |
| Landfill Tip Fee: Trench Sludge Soil                                 | 15         | \$35            |             |                                                                                                      |
| Restoration: Grade Removal Areas                                     | 7.4 acre   | \$500 /ac       | \$52,500    | Grade removal areas flat.                                                                            |
| Re-Vegetation: Landfill Removal Area                                 | 7.4 ac     | \$1,000 /ac     | \$7,400     | Professional judgment                                                                                |
| Temporary Irrigation System Installation                             | 7.4 ac     | \$1,000 /ac     | \$7,400     | Temporary system for vegetation                                                                      |
| First Year of Irrigation                                             | 9 months   | \$500 /month    | \$4,500     | Irrigate 1"/week, assumes pumped from onsite well                                                    |
| Overhead, Bonding, Insurance                                         | 1 LS       | \$218,980 /each | \$219,000   | Assume 10% of construction - professional judgment                                                   |
| Construction Subtotal                                                |            |                 | \$3,982,000 |                                                                                                      |
| Oversight and Reporting: Landfill Soil and Trench Sludge             |            |                 |             |                                                                                                      |
| Construction Management                                              | 30 day     | \$500 /day      | \$15,000    | Professional judgment                                                                                |
| Engineering Oversight                                                | 90 day     | \$1,500 /day    | \$135,000   |                                                                                                      |
| Report                                                               | 1 LS       | \$20,000 /each  | \$20,000    | Professional judgment                                                                                |
| Agency Oversight (DEQ)                                               | 20 %       | \$200,000 /each | \$40,000    | Assumed 20% of engineering costs                                                                     |
| Oversight and Reporting Subtotal                                     |            |                 | \$210,000   |                                                                                                      |
| Long-Term (Net Present Value)                                        |            |                 |             | Completed as part of selected alternative                                                            |
| Long-Term Subtotal (Net Present Value)                               |            |                 | \$0         |                                                                                                      |
| Contingency                                                          |            |                 |             |                                                                                                      |
| Contingency                                                          | 15 %       | \$4,257,000     | \$639,000   | Professional judgment                                                                                |
| Total                                                                |            |                 | Total       | \$4,900,000                                                                                          |

Notes:

- 1) Means - 2014 RS Means Online Cost Estimating



Table 16

Comparative Evaluation of Alternatives  
Deschutes County Shooting Range  
Redmond, OR

| Release Area Alternative            | Protective | Balancing Factors |   |   |                       |   |   |                  |   |   |                     |   |   |                        |   |   | Score | Rank |
|-------------------------------------|------------|-------------------|---|---|-----------------------|---|---|------------------|---|---|---------------------|---|---|------------------------|---|---|-------|------|
|                                     |            | Effectiveness     |   |   | Long-Term Reliability |   |   | Implementability |   |   | Implementation Risk |   |   | Reasonableness of Cost |   |   |       |      |
|                                     |            | A                 | B | C | A                     | B | C | A                | B | C | A                   | B | C | A                      | B | C |       |      |
| A) No Action                        | No         |                   | - | - |                       | - | - |                  | + | + |                     |   |   |                        | + | + | -2    | na   |
| B) Excavation and On-site Disposal  | Yes        | +                 |   | 0 |                       |   | 0 | -                |   | 0 |                     |   | + | -                      |   | + | 1     | 1    |
| C) Excavation and Off-site Disposal | Yes        | +                 | 0 |   | +                     | 0 |   | -                | 0 |   | -                   | - |   | -                      | - |   | -3    | 2    |

**Notes:**

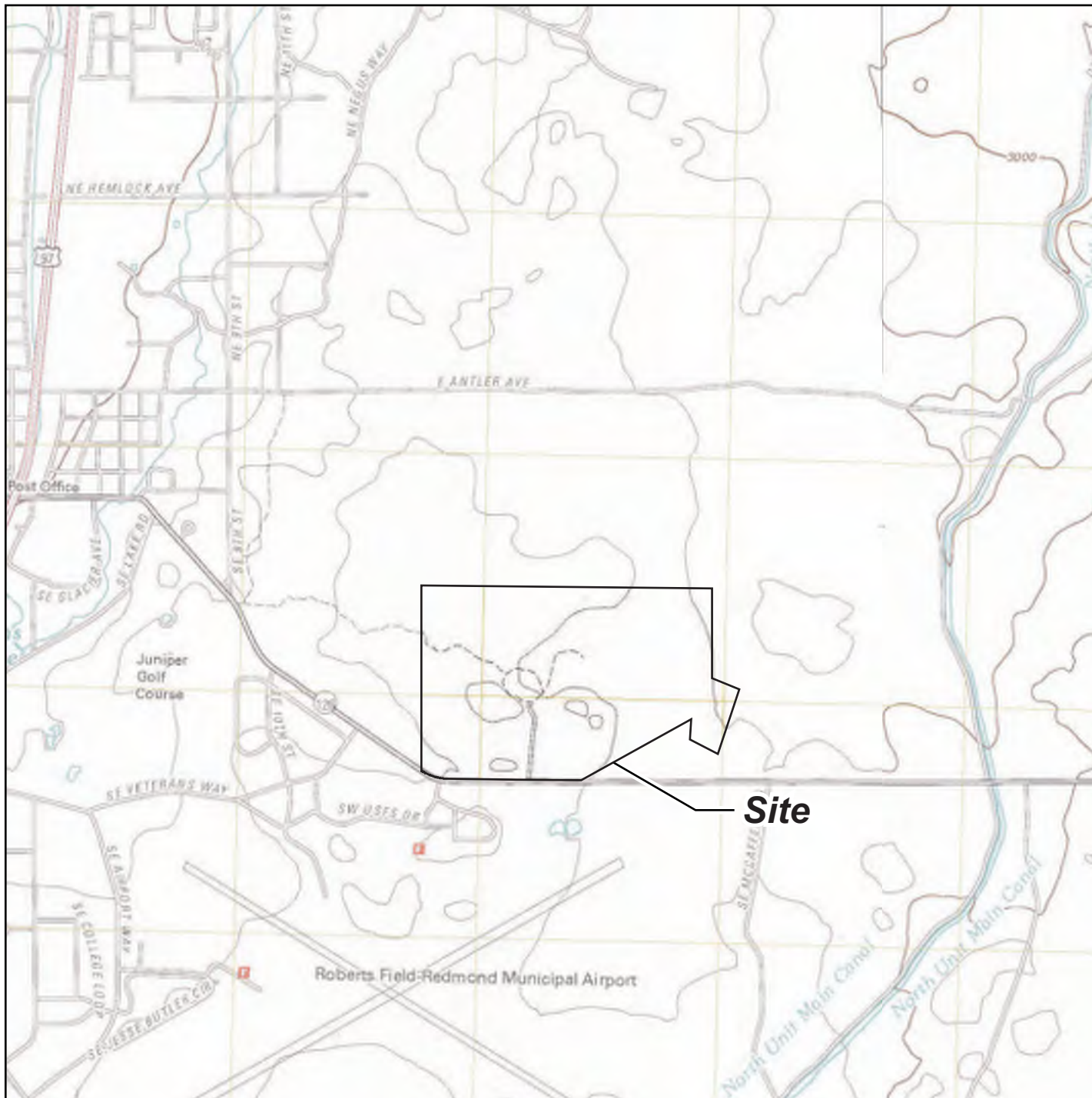
+ = The alternative is favored over the compared alternative (score=1)

0 = The alternative is equal with the compared alternative (score=0)

- = The alternative is less favorable than the compared alternative (score=-1)

na = Not protective, therefore not ranked

| Technology A |   | B | C |
|--------------|---|---|---|
| Technology B | A |   | C |
| Technology C | A | B |   |



**Note:** Base map prepared from USGS 7.5-minute quadrangles of Redmond and O'Neil, OR, dated 2011 as provided by USGS.gov.

0 2,000 4,000  
Approximate Scale in Feet



## Site Location Map

Feasibility Study  
Deschutes County Shooting Range Property  
Deschutes County, Oregon

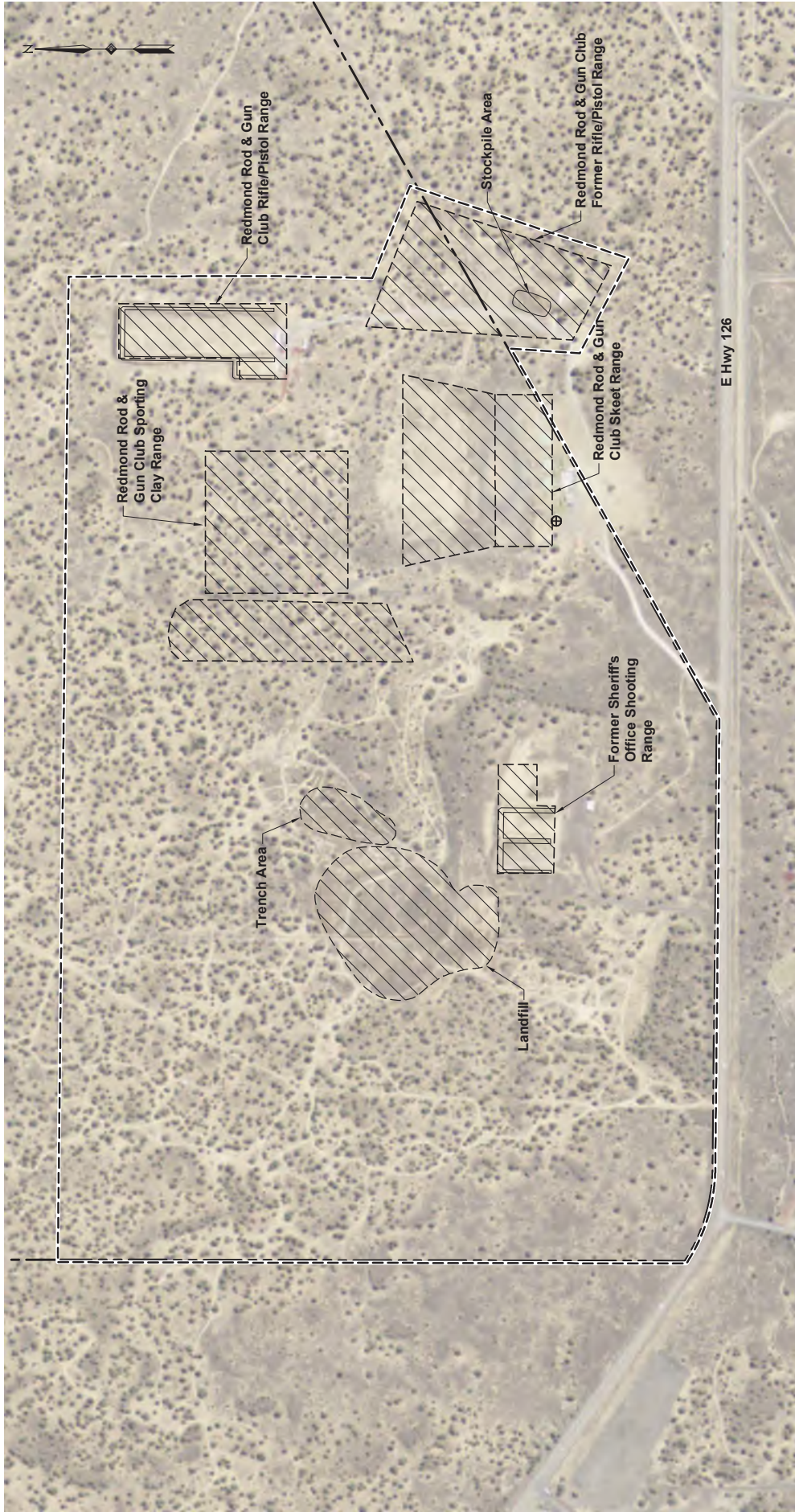


Apex Companies, LLC  
3015 SW First Avenue  
Portland, Oregon 97201

|                |         |
|----------------|---------|
| Project Number | 2112-05 |
| November 2018  |         |

Figure  
**1**





**Legend:**

- Site Feature
- Taxlot Boundary
- Site Boundary
- Production Well (Not in Use)

**Sources:**  
 1) Tax Lots from Deschutes County.  
 2) Aerial from Nationalmap.gov. Aerial dated 6-10-2012.

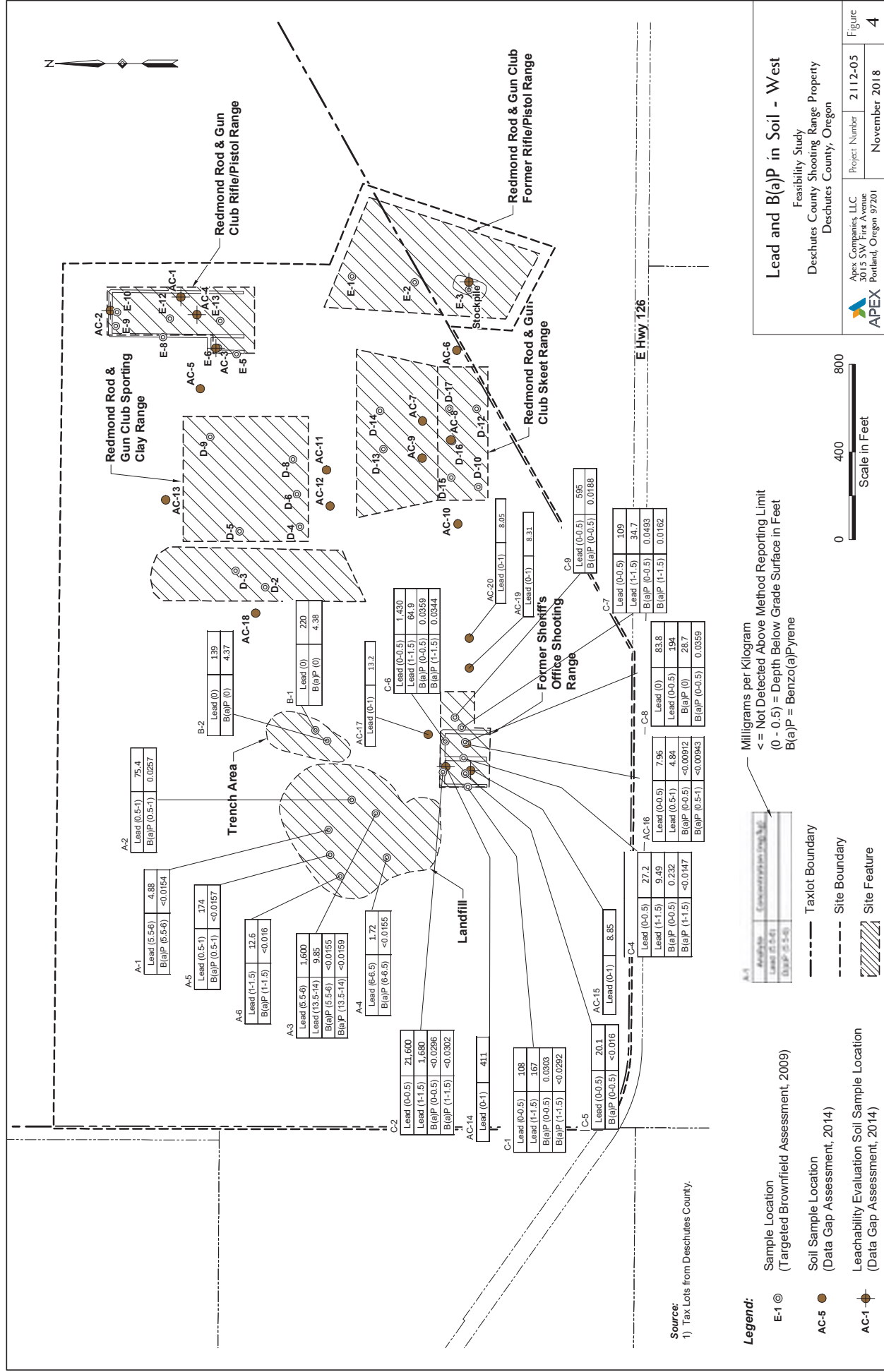
**Site Vicinity Plan**

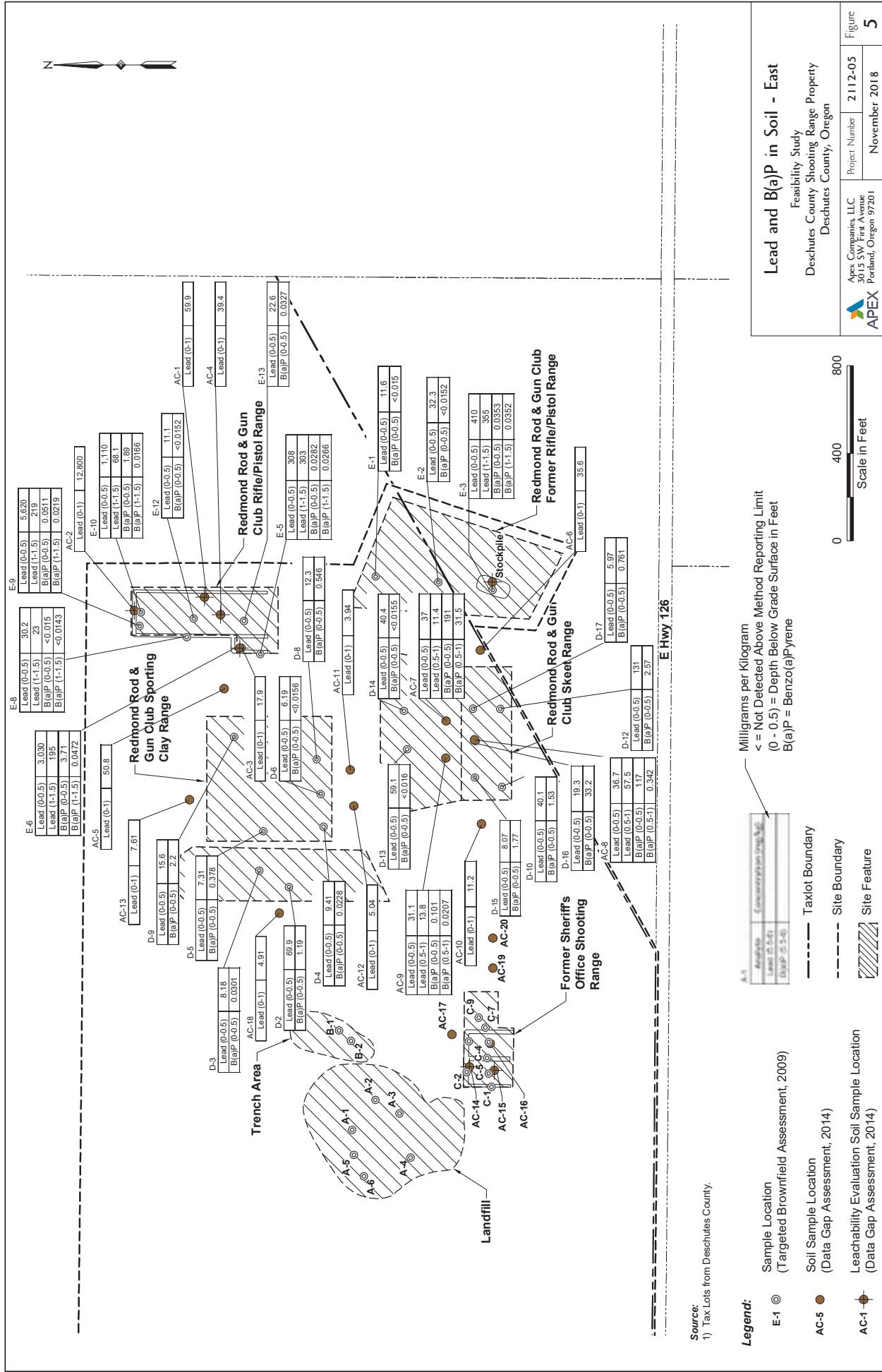
Feasibility Study  
 Deschutes County Shooting Range Property  
 Deschutes County, Oregon

|                                                                                                                                                              |                |         |        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|--------|
| <br>Apex Companies, LLC<br>3015 SW First Avenue<br>Portland, Oregon 97201 | Project Number | 2112-05 | Figure |
|                                                                                                                                                              | May 2020       |         | 2      |

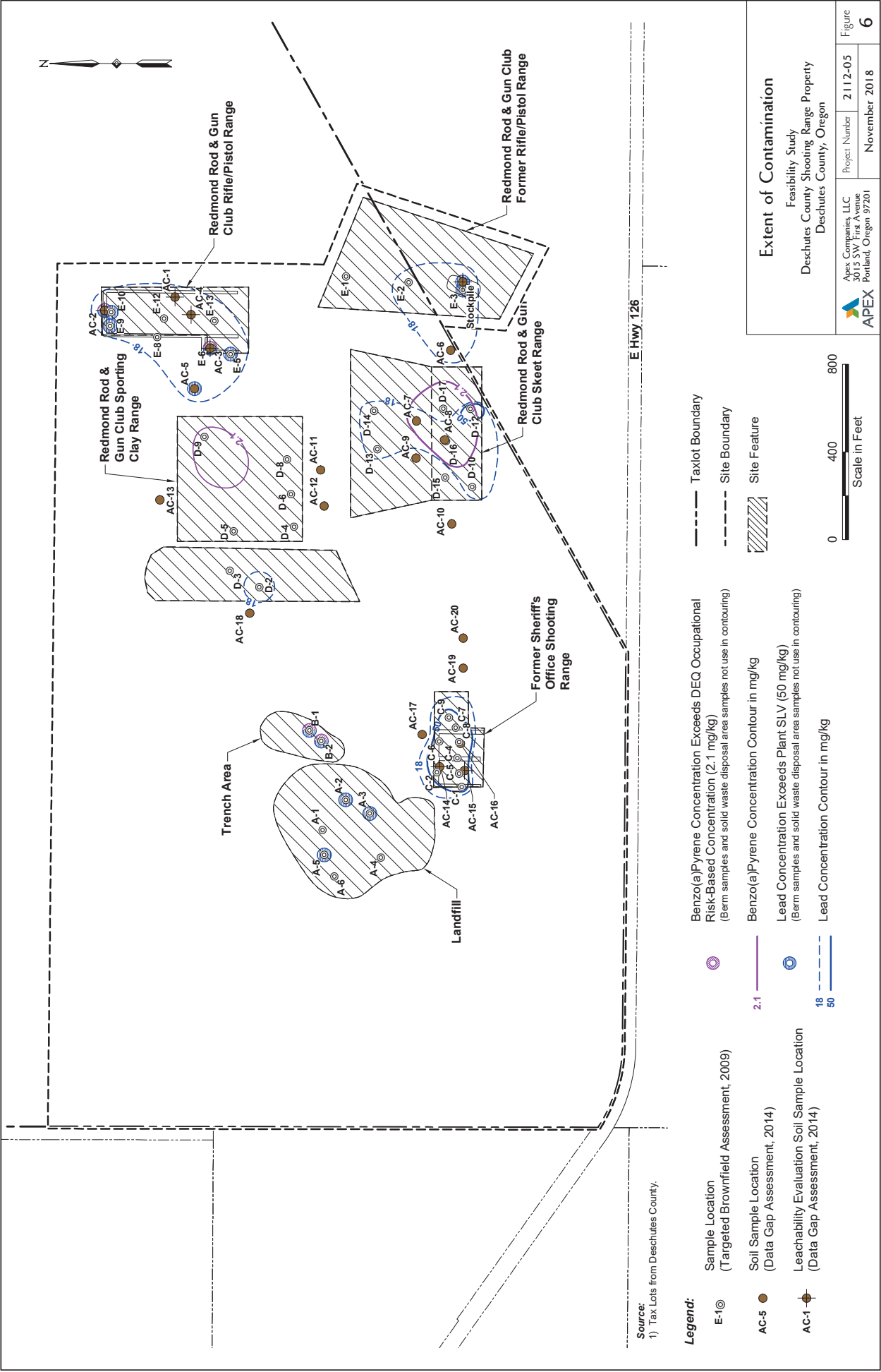




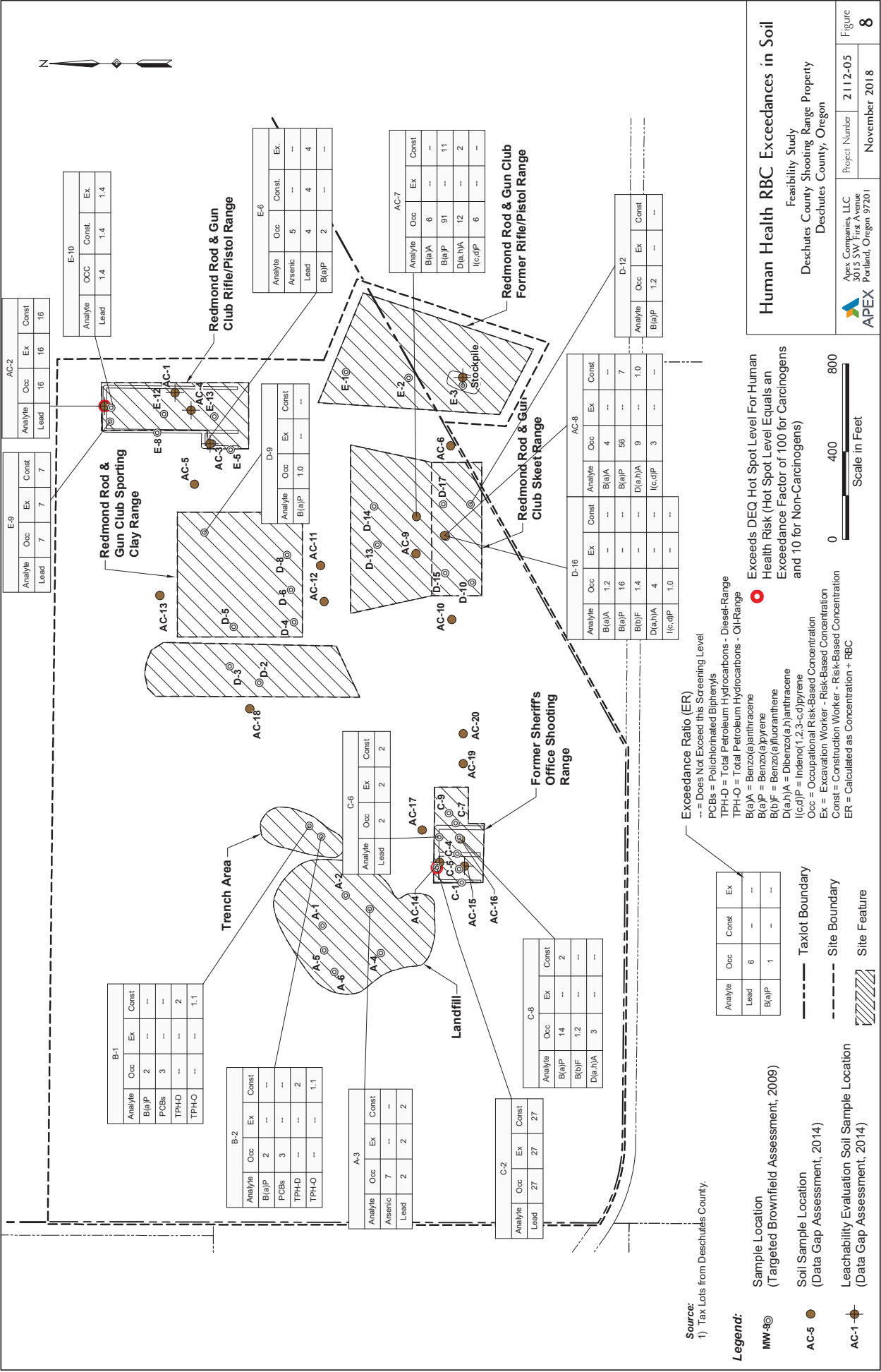


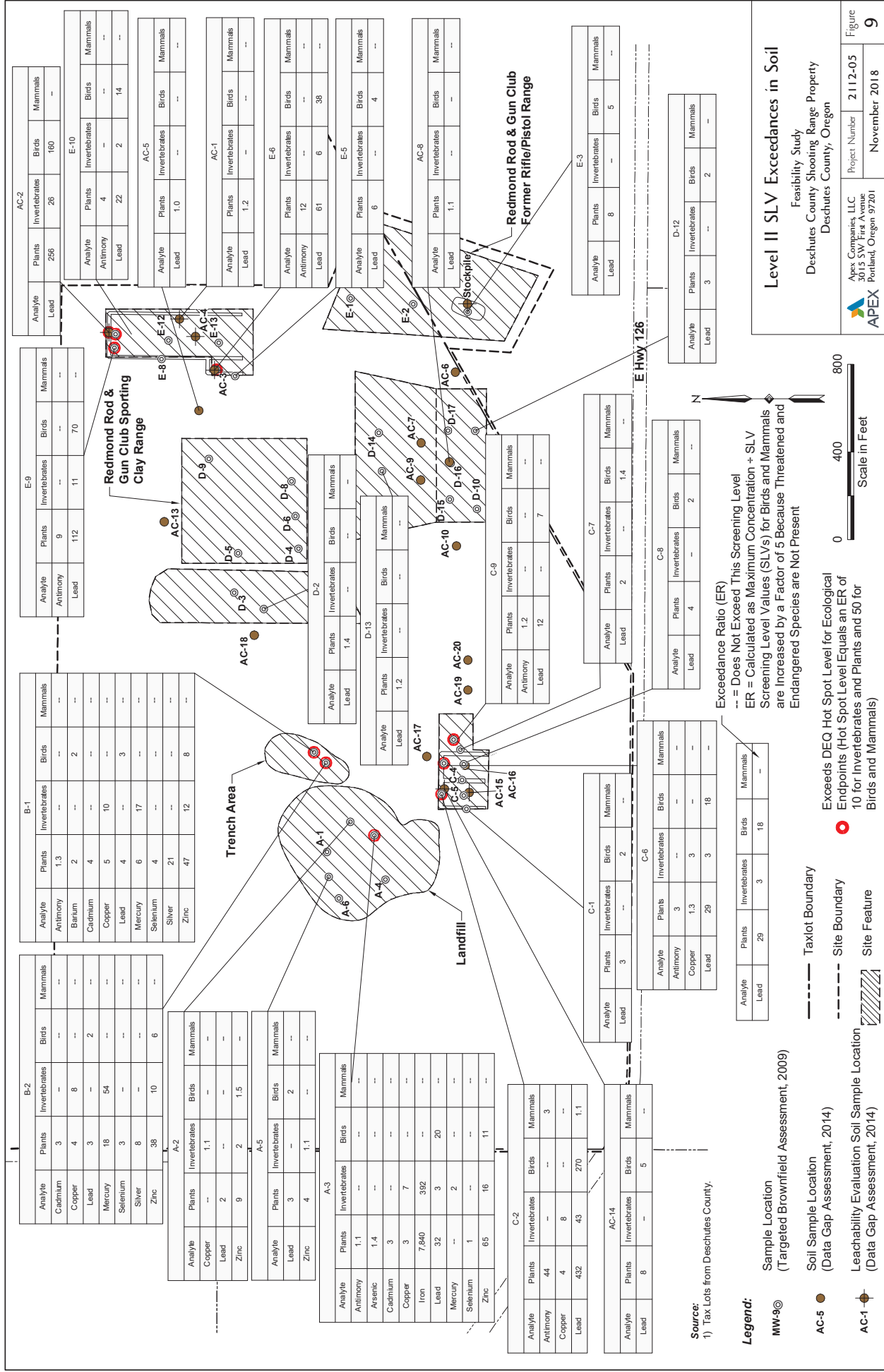




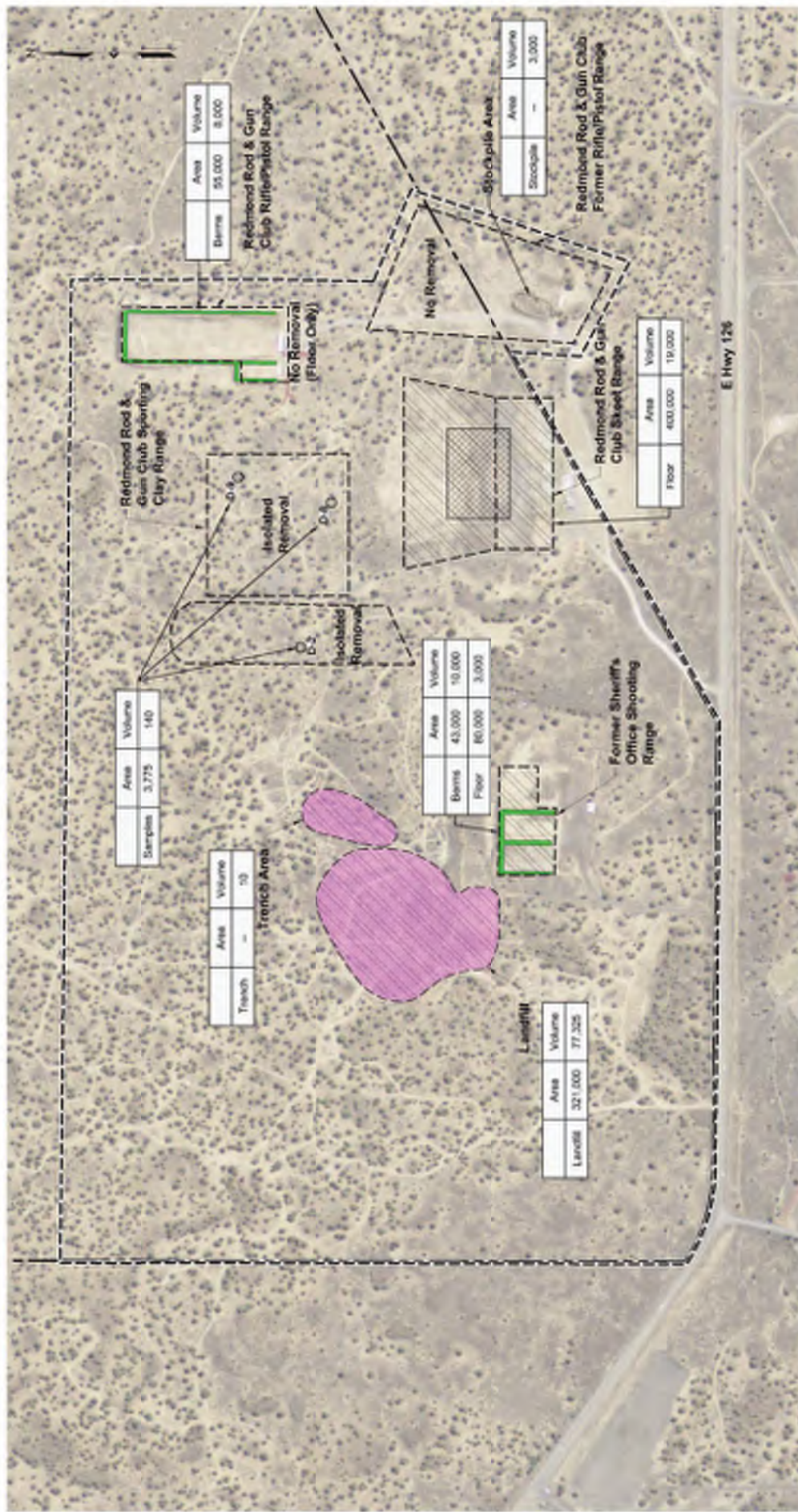












**Legend:**

- Site Feature
- Taxot Boundary
- Site Boundary
- Solid Waste Disposal and Trench Removal Area
- Berm Removal Areas
- Range Floor Removal Area (1 ft Depth)
- Range Floor Removal Area (2 ft Depth)

**Area in Square Feet**  
**Volume in Cubic Yards**

**Scale in Feet**  
0 400 800

## Removal Areas and Volumes

Feasibility Study  
Deschutes County Shooting Range Property  
Deschutes County, Oregon

APX  
APX Company LLC  
3013 SW 1st Ave.  
Portland, Oregon 97201  
Project Number: 2112-05  
November 2018  
Figure: 10

**Sources:**  
1) Tax Lots from Deschutes County  
2) Aerial from Nationalmap.gov. Aerial dated 6-10-2012

## ***Appendix A***

---

### **Area and Volume Calculations**



**Table A-1**  
**Area and Volume Calculations**  
**Deschutes County Shooting Range**  
**Redmond, OR**

**Sheriff's Range**

***Berms***

|        | West wall   | Central wall | East wall  | North wall  |                                                      |
|--------|-------------|--------------|------------|-------------|------------------------------------------------------|
| L      | 205         | 200          | 215        | 245         |                                                      |
| W      | 12          | 19           | 18         | 22          | Total Area                                           |
| Area   | 7875.842812 | 9935.793879  | 10646.2998 | 14568.74737 | 43026.68 <b>square feet</b>                          |
| H      | 15          | 16           | 17         | 20          | Total Volume                                         |
| Volume | 36900       | 60800        | 65790      | 107800      | <b>271290 cubic feet</b><br><b>10048 cubic yards</b> |

***Floor***

|        | Floor | C-9 Area |                                                    |
|--------|-------|----------|----------------------------------------------------|
| L      | 245   | 178      |                                                    |
| W      | 215   | 157      | Total area                                         |
| Area   | 52675 | 27946    | 80621 <b>square feet</b>                           |
| Depth  | 1     | 1        | Total                                              |
| Volume | 52675 | 27946    | <b>80621 cubic feet</b><br><b>2986 cubic yards</b> |

**Rifle/Pistol Range**

***Berms***

|        | West wall   | Central wall | East wall  | Northwall 1 | Northwall 2 |                                                     |
|--------|-------------|--------------|------------|-------------|-------------|-----------------------------------------------------|
| L      | 160         | 610          | 605        | 70          | 200         |                                                     |
| W      | 14          | 15           | 12         | 17          | 17          |                                                     |
| Area   | 5159.844959 | 20740        | 17450.8682 | 2761.231609 | 9068.627    | 55180.57                                            |
| H      | 8           | 8            | 8          | 10          | 15          | Total Volume                                        |
| Volume | 17920       | 73200        | 58080      | 11900       | 51000       | <b>212100 cubic feet</b><br><b>7856 cubic yards</b> |

***Stockpile***

|            |       |       |                                                    |
|------------|-------|-------|----------------------------------------------------|
| L          | 150   |       |                                                    |
| W          | 75    |       |                                                    |
| Area       | 11250 |       |                                                    |
| % of Total | 0.7   | 0.3   |                                                    |
| Depth      | 5     | 15    | Total Volume                                       |
| Volume     | 39375 | 50625 | 90000 <b>cubic feet</b><br><b>3333 cubic yards</b> |

***Floor Rifle/Pistol range***

|       | west range | east range |                                                     |
|-------|------------|------------|-----------------------------------------------------|
| L     | 70         | 200        |                                                     |
| W     | 160        | 605        | Total Area                                          |
| Area  | 11200      | 121000     | 132200                                              |
| Depth | 1          | 1          | Total volume                                        |
|       | 11200      | 121000     | <b>132200 cubic feet</b><br><b>4896 cubic yards</b> |

**Table A-1**  
**Area and Volume Calculations**  
**Deschutes County Shooting Range**  
**Redmond, OR**

**Skeet range**

| <u>1 ft depth</u> |                          |        |        | <u>2 ft depth</u>         |
|-------------------|--------------------------|--------|--------|---------------------------|
|                   | south                    | middle | north  |                           |
| L                 | 607                      | 663    | 725    | 363                       |
| W                 | 220                      | 210    | 170    | 301                       |
| Area              | 133540                   | 139230 | 123250 | 109263                    |
| H                 | 1                        |        |        |                           |
| Removal Area      | 286757                   |        |        | Total Area                |
| Volume            | 286757 cubic feet        |        |        | <b>396020 square feet</b> |
|                   | <b>10621 cubic yards</b> |        |        |                           |
| H                 | 2                        |        |        | Total Volume              |
| Removal Area      | 109263                   |        |        | <b>18714 cubic yards</b>  |
| Volume            | 218526 cubic feet        |        |        |                           |
|                   | <b>8094 cubic yards</b>  |        |        |                           |

**Sporting Clay Range**

|       | east |                       |
|-------|------|-----------------------|
| r     | 20   | 1256                  |
| Depth | 1    | Total volume area     |
|       | 1256 | 3768                  |
|       |      | <b>140 cubic feet</b> |
|       |      | <b>cubic yards</b>    |

**Landfill**

|                     |       |        |        |        |        |        |        |       |
|---------------------|-------|--------|--------|--------|--------|--------|--------|-------|
| Total area          |       |        |        |        |        |        |        |       |
| 321200              |       |        |        |        |        |        |        |       |
| Percentage of total | 0.13  | 0.13   | 0.13   | 0.13   | 0.13   | 0.13   | 0.13   | 0.13  |
| Bedrock/waste depth | 2     | 7.5    | 6      | 5      | 14     | 13     | 3      | 1.5   |
|                     | 80300 | 301125 | 240900 | 200750 | 562100 | 521950 | 120450 | 60225 |

Total Volume  
**2087800 cubic feet**  
**77326 cubic yards**

**Sludge**

|                |       |
|----------------|-------|
| Area           | 10000 |
| % Sludge       | 0.05  |
| area of sludge | 500   |
| Depth          | 0.5   |

Total Volume  
**250 cubic feet**  
**9 cubic yards**

## ***Appendix B***

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**Field Procedures, QA Review, Laboratory Data**

## ***Appendix B – QA/QC Review***

---

This appendix documents the results of a quality assurance/quality control (QA/QC) review of the analytical data for samples collected in July 2014 at the Deschutes County Shooting Range Property. Soil samples were analyzed by Apex Labs of Tigard, Oregon. This QA/QC review applies to the laboratory report listed below. A copy of the analytical laboratory report is included in this appendix.

| Report  | Report Date     | Sampling Event |
|---------|-----------------|----------------|
| A4F0482 | August 18, 2014 | Soil Samples   |

The QA/QC review included examination and validation of the laboratory summary reports, including:

- Analytical methods;
- Detection limits;
- Sample holding times;
- Surrogates, spikes, and blanks; and
- Sample replicates and other field quality assurance samples.

The QA review did not include a review of raw data.

### **1.0 Analytical Methods**

Chemical analyses on soil samples consisted of the following:

- Lead using EPA 6020 (both total lead and leachable lead); and
- Polycyclic aromatic hydrocarbons (PAHs) using EPA 8270 SIM.

### **2.0 Quality Assurance Review**

The following criteria were evaluated in the standard data quality review process:

- Holding times;
- Method blanks;
- Surrogate recoveries;
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries;
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries; and
- Laboratory duplicate and relative percent difference (RPD).

Based on this review, data are considered to be of acceptable quality and are suitable for their intended purposes.

## **Appendix B – QA/QC Review**

---

**Holding Times.** Samples were analyzed within the holding times specified for each analysis method.

**Method Blanks.** A method – or laboratory – blank is a sample prepared in the laboratory along with the actual samples and analyzed for the same parameters at the same time. It is used to assess if detected contaminants may be the result of contamination of the samples in the laboratory. Lead was detected in a method blank at a concentration that was below the method reporting limit (MRL). The QA sample was flagged as B-02 in the laboratory report. Since the detection was below the MRL and other QA criteria were met, the data were not qualified.

**Detection Limits.** The reporting limits were consistent with method standards, unless raised as needed for dilution for samples with high analyte concentrations.

**Surrogate Recovery.** Surrogates are organic compounds that are similar in chemical composition to the analytes of interest and spiked into environmental and batch QC samples prior to sample preparation and analysis. Surrogate recoveries for environmental samples are used to evaluate matrix interference on a sample-specific basis. Surrogate recoveries were within quality control limits.

**Laboratory Control Sample.** LCS are analyzed by the laboratory to assess the accuracy of the analytical equipment. An LCS sample is prepared from an analyte-free matrix that is then spiked with known levels of the constituents of interest (i.e., a standard). The concentrations are measured and the results are compared to the known spiked levels. This comparison is expressed as percent recovery. Percent recoveries of the LCS were within control limits.

**Laboratory Control Sample Duplicate.** In addition, a second laboratory control sample (i.e., the LCSD) is prepared as above and analyzed. This is compared to the initial laboratory control sample to assess the precision of the analytical method (i.e., RPD).

**Matrix Spike and Matrix Spike Duplicate Analyses.** MS/MSD analysis involves two aliquots of an environmental sample that are spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. These analyses are used to assess the potential for matrix interference with recovery or detection of the constituents of interest and the accuracy of the determination. The RPD between the MS and MSD is calculated. Percent recoveries of the MS/MSD analyses were generally within control limits, with the exception of:

- The MS RPDs were outside control limits (71% compared to 75 – 125% limit) because of a non-homogeneous sample matrix. Since other QA criteria were met, the data were not qualified.

**Laboratory Duplicate.** A laboratory duplicate is a second analysis of the QA/QC sample, which serves as an internal check on laboratory quality as well as potential variability of the sample matrix. The laboratory duplicate is analyzed and compared to the primary sample analysis to assess the precision of the analytical method. This comparison can be expressed by the RPD between the original and duplicate samples. The

## ***Appendix B – QA/QC Review***

---

laboratory duplicate RPDs were outside control limits (56% compared to 40% limit) because of a non-homogeneous sample matrix. Since other QA criteria were met, the data were not qualified.

**Calibration.** Analyte concentrations were within the established calibration range for the analytes.

**Conclusion.** In conclusion, the QA objectives have been met, and the data are of sufficient quality for use in this project.



# Apex Labs

12232 S.W. Garden Place  
Tigard, OR 97223  
503-718-2323 Phone  
503-718-0333 Fax

Monday, August 18, 2014

John Foxwell  
Apex Companies, LLC  
3015 SW First Avenue  
Portland, OR 97201

RE: Deschutes County - Gun Club / 2112-01.002

Enclosed are the results of analyses for work order A4F0482, which was received by the laboratory on 6/19/2014 at 11:25:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: [DAuvil@apex-labs.com](mailto:DAuvil@apex-labs.com), or by phone at 503-718-2323.

---

Apex Laboratories



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

---

Darrell Auvil For Darwin Thomas, Business Development Director

Apex Companies, LLC  
3015 SW First Avenue  
Portland, OR 97201

Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

Reported:  
08/18/14 17:05

## ANALYTICAL REPORT FOR SAMPLES

### SAMPLE INFORMATION

| Sample ID    | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|--------------|---------------|--------|----------------|----------------|
| AC-1         | A4F0482-01    | Soil   | 06/16/14 09:45 | 06/19/14 11:25 |
| AC-2         | A4F0482-02    | Soil   | 06/16/14 09:25 | 06/19/14 11:25 |
| AC-3         | A4F0482-03    | Soil   | 06/16/14 09:40 | 06/19/14 11:25 |
| AC-4         | A4F0482-04    | Soil   | 06/16/14 09:50 | 06/19/14 11:25 |
| AC-5         | A4F0482-05    | Soil   | 06/16/14 10:05 | 06/19/14 11:25 |
| AC-6         | A4F0482-06    | Soil   | 06/16/14 10:40 | 06/19/14 11:25 |
| AC-7 (0-6)   | A4F0482-07    | Soil   | 06/16/14 11:00 | 06/19/14 11:25 |
| AC-7 (6-12)  | A4F0482-08    | Soil   | 06/16/14 11:05 | 06/19/14 11:25 |
| AC-8 (0-6)   | A4F0482-09    | Soil   | 06/16/14 11:15 | 06/19/14 11:25 |
| AC-8 (6-12)  | A4F0482-10    | Soil   | 06/16/14 11:20 | 06/19/14 11:25 |
| AC-9 (0-6)   | A4F0482-11    | Soil   | 06/16/14 11:25 | 06/19/14 11:25 |
| AC-9 (6-12)  | A4F0482-12    | Soil   | 06/16/14 11:30 | 06/19/14 11:25 |
| AC-10        | A4F0482-13    | Soil   | 06/16/14 11:40 | 06/19/14 11:25 |
| AC-11        | A4F0482-14    | Soil   | 06/16/14 12:05 | 06/19/14 11:25 |
| AC-12        | A4F0482-15    | Soil   | 06/16/14 11:20 | 06/19/14 11:25 |
| AC-13        | A4F0482-16    | Soil   | 06/16/14 12:30 | 06/19/14 11:25 |
| AC-14        | A4F0482-17    | Soil   | 06/16/14 13:20 | 06/19/14 11:25 |
| AC-15        | A4F0482-18    | Soil   | 06/16/14 13:35 | 06/19/14 11:25 |
| AC-16 (0-6)  | A4F0482-19    | Soil   | 06/16/14 13:50 | 06/19/14 11:25 |
| AC-16 (6-12) | A4F0482-20    | Soil   | 06/16/14 13:55 | 06/19/14 11:25 |
| AC-17        | A4F0482-21    | Soil   | 06/16/14 14:00 | 06/19/14 11:25 |
| AC-18        | A4F0482-22    | Soil   | 06/16/14 14:15 | 06/19/14 11:25 |
| AC-19        | A4F0482-23    | Soil   | 06/16/14 14:25 | 06/19/14 11:25 |
| AC-20        | A4F0482-24    | Soil   | 06/16/14 14:35 | 06/19/14 11:25 |
| Stockpile    | A4F0482-25    | Soil   | 06/16/14 09:15 | 06/19/14 11:25 |

Apex Laboratories



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Companies, LLC  
3015 SW First Avenue  
Portland, OR 97201

Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

Reported:  
08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

### Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

| Analyte                                   | Result | MDL | Reporting Limit       | Units                   | Dilution              | Date Analyzed  | Method          | Notes |
|-------------------------------------------|--------|-----|-----------------------|-------------------------|-----------------------|----------------|-----------------|-------|
| <b>AC-7 (0-6) (A4F0482-07)</b>            |        |     | <b>Matrix: Soil</b>   |                         | <b>Batch: 4060704</b> |                |                 |       |
| Acenaphthene                              | 7960   | --- | 178                   | ug/kg dry               | 20                    | 06/26/14 12:01 | EPA 8270D (SIM) |       |
| Acenaphthylene                            | ND     | --- | 178                   | "                       | "                     | "              | "               |       |
| Anthracene                                | 13000  | --- | 178                   | "                       | "                     | "              | "               |       |
| Dibenz(a,h)anthracene                     | 21000  | --- | 178                   | "                       | "                     | "              | "               |       |
| Fluorene                                  | 2920   | --- | 178                   | "                       | "                     | "              | "               |       |
| Naphthalene                               | 333    | --- | 178                   | "                       | "                     | "              | "               |       |
| Phenanthrene                              | 54300  | --- | 178                   | "                       | "                     | "              | "               |       |
| <i>Surrogate: 2-Fluorobiphenyl (Surr)</i> |        |     | <i>Recovery: 86 %</i> | <i>Limits: 44-115 %</i> | "                     | "              | "               |       |
| <i>p-Terphenyl-d14 (Surr)</i>             |        |     | <i>113 %</i>          | <i>Limits: 54-127 %</i> | "                     | "              | "               |       |
| <b>AC-7 (0-6) (A4F0482-07RE1)</b>         |        |     | <b>Matrix: Soil</b>   |                         | <b>Batch: 4060704</b> |                |                 |       |
| Benzo(a)anthracene                        | 136000 | --- | 4450                  | ug/kg dry               | 500                   | 06/26/14 19:02 | EPA 8270D (SIM) |       |
| Benzo(a)pyrene                            | 191000 | --- | 4450                  | "                       | "                     | "              | "               |       |
| Benzo(b+k)fluoranthene(s)                 | 351000 | --- | 8900                  | "                       | "                     | "              | "               | Q-26  |
| Benzo(g,h,i)perylene                      | 112000 | --- | 4450                  | "                       | "                     | "              | "               |       |
| Chrysene                                  | 170000 | --- | 4450                  | "                       | "                     | "              | "               |       |
| Dibenz(a,h)anthracene                     | 26200  | --- | 4450                  | "                       | "                     | "              | "               |       |
| Fluoranthene                              | 233000 | --- | 4450                  | "                       | "                     | "              | "               |       |
| Indeno(1,2,3-cd)pyrene                    | 124000 | --- | 4450                  | "                       | "                     | "              | "               |       |
| Pyrene                                    | 223000 | --- | 4450                  | "                       | "                     | "              | "               |       |
| <b>AC-7 (6-12) (A4F0482-08)</b>           |        |     | <b>Matrix: Soil</b>   |                         | <b>Batch: 4060704</b> |                |                 |       |
| Acenaphthene                              | 2680   | --- | 49.0                  | ug/kg dry               | 5                     | 06/26/14 12:27 | EPA 8270D (SIM) |       |
| Acenaphthylene                            | ND     | --- | 49.0                  | "                       | "                     | "              | "               |       |
| Anthracene                                | 3510   | --- | 49.0                  | "                       | "                     | "              | "               |       |
| Benzo(g,h,i)perylene                      | 16900  | --- | 49.0                  | "                       | "                     | "              | "               |       |
| Dibenz(a,h)anthracene                     | 4890   | --- | 49.0                  | "                       | "                     | "              | "               |       |
| Fluorene                                  | 1470   | --- | 49.0                  | "                       | "                     | "              | "               |       |
| Indeno(1,2,3-cd)pyrene                    | 18600  | --- | 49.0                  | "                       | "                     | "              | "               |       |
| Naphthalene                               | 539    | --- | 49.0                  | "                       | "                     | "              | "               |       |
| Phenanthrene                              | 16100  | --- | 49.0                  | "                       | "                     | "              | "               |       |
| <i>Surrogate: 2-Fluorobiphenyl (Surr)</i> |        |     | <i>Recovery: 91 %</i> | <i>Limits: 44-115 %</i> | "                     | "              | "               |       |
| <i>p-Terphenyl-d14 (Surr)</i>             |        |     | <i>101 %</i>          | <i>Limits: 54-127 %</i> | "                     | "              | "               |       |
| <b>AC-7 (6-12) (A4F0482-08RE1)</b>        |        |     | <b>Matrix: Soil</b>   |                         | <b>Batch: 4060704</b> |                |                 |       |
| Benzo(a)anthracene                        | 23000  | --- | 979                   | ug/kg dry               | 100                   | 06/26/14 19:28 | EPA 8270D (SIM) |       |
| Benzo(a)pyrene                            | 31500  | --- | 979                   | "                       | "                     | "              | "               |       |
| Benzo(b+k)fluoranthene(s)                 | 59900  | --- | 1960                  | "                       | "                     | "              | "               | Q-26  |

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Apex Companies, LLC  
3015 SW First Avenue  
Portland, OR 97201

Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

Reported:  
08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

### Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

| Analyte                                   | Result | MDL | Reporting Limit       | Units                   | Dilution | Date Analyzed  | Method          | Notes |
|-------------------------------------------|--------|-----|-----------------------|-------------------------|----------|----------------|-----------------|-------|
| <b>AC-7 (6-12) (A4F0482-08RE1)</b>        |        |     | <b>Matrix: Soil</b>   | <b>Batch: 4060704</b>   |          |                |                 |       |
| Chrysene                                  | 29600  | --- | 979                   | ug/kg dry               | 100      | "              | EPA 8270D (SIM) |       |
| Fluoranthene                              | 36200  | --- | 979                   | "                       | "        | "              | "               |       |
| Pyrene                                    | 33300  | --- | 979                   | "                       | "        | "              | "               |       |
| <b>AC-8 (0-6) (A4F0482-09)</b>            |        |     | <b>Matrix: Soil</b>   | <b>Batch: 4060704</b>   |          |                |                 |       |
| Acenaphthene                              | 9770   | --- | 93.3                  | ug/kg dry               | 10       | 06/26/14 12:54 | EPA 8270D (SIM) |       |
| Acenaphthylene                            | ND     | --- | 93.3                  | "                       | "        | "              | "               |       |
| Anthracene                                | 11600  | --- | 93.3                  | "                       | "        | "              | "               |       |
| Dibenz(a,h)anthracene                     | 17900  | --- | 93.3                  | "                       | "        | "              | "               |       |
| Fluorene                                  | 3480   | --- | 93.3                  | "                       | "        | "              | "               |       |
| Naphthalene                               | 704    | --- | 93.3                  | "                       | "        | "              | "               |       |
| <i>Surrogate: 2-Fluorobiphenyl (Surr)</i> |        |     | <i>Recovery: 96 %</i> | <i>Limits: 44-115 %</i> | "        | "              | "               |       |
| <i>p-Terphenyl-d14 (Surr)</i>             |        |     | <i>115 %</i>          | <i>Limits: 54-127 %</i> | "        | "              | "               |       |
| <b>AC-8 (0-6) (A4F0482-09RE1)</b>         |        |     | <b>Matrix: Soil</b>   | <b>Batch: 4060704</b>   |          |                |                 |       |
| Benzo(a)anthracene                        | 79000  | --- | 933                   | ug/kg dry               | 100      | 06/26/14 19:54 | EPA 8270D (SIM) |       |
| Benzo(a)pyrene                            | 117000 | --- | 933                   | "                       | "        | "              | "               |       |
| Benzo(b+k)fluoranthene(s)                 | 209000 | --- | 1870                  | "                       | "        | "              | "               | Q-26  |
| Benzo(g,h,i)perylene                      | 65800  | --- | 933                   | "                       | "        | "              | "               |       |
| Chrysene                                  | 94500  | --- | 933                   | "                       | "        | "              | "               |       |
| Fluoranthene                              | 110000 | --- | 933                   | "                       | "        | "              | "               |       |
| Indeno(1,2,3-cd)pyrene                    | 72600  | --- | 933                   | "                       | "        | "              | "               |       |
| Phenanthrene                              | 44200  | --- | 933                   | "                       | "        | "              | "               |       |
| Pyrene                                    | 106000 | --- | 933                   | "                       | "        | "              | "               |       |
| <b>AC-8 (6-12) (A4F0482-10)</b>           |        |     | <b>Matrix: Soil</b>   | <b>Batch: 4060704</b>   |          |                |                 |       |
| Acenaphthene                              | 24.7   | --- | 9.51                  | ug/kg dry               | 1        | 06/26/14 13:20 | EPA 8270D (SIM) |       |
| Acenaphthylene                            | ND     | --- | 9.51                  | "                       | "        | "              | "               |       |
| Anthracene                                | 26.7   | --- | 9.51                  | "                       | "        | "              | "               |       |
| Benzo(a)anthracene                        | 192    | --- | 9.51                  | "                       | "        | "              | "               |       |
| Benzo(a)pyrene                            | 342    | --- | 9.51                  | "                       | "        | "              | "               |       |
| Benzo(b+k)fluoranthene(s)                 | 588    | --- | 19.0                  | "                       | "        | "              | "               | Q-26  |
| Benzo(g,h,i)perylene                      | 221    | --- | 9.51                  | "                       | "        | "              | "               |       |
| Chrysene                                  | 226    | --- | 9.51                  | "                       | "        | "              | "               |       |
| Dibenz(a,h)anthracene                     | 52.8   | --- | 9.51                  | "                       | "        | "              | "               |       |
| Fluoranthene                              | 272    | --- | 9.51                  | "                       | "        | "              | "               |       |
| Fluorene                                  | ND     | --- | 9.51                  | "                       | "        | "              | "               |       |
| Indeno(1,2,3-cd)pyrene                    | 244    | --- | 9.51                  | "                       | "        | "              | "               |       |

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Apex Companies, LLC  
3015 SW First Avenue  
Portland, OR 97201Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John FoxwellReported:  
08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

## Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

| Analyte                                   | Result | MDL | Reporting Limit       | Units     | Dilution                | Date Analyzed  | Method          | Notes |
|-------------------------------------------|--------|-----|-----------------------|-----------|-------------------------|----------------|-----------------|-------|
| <b>AC-8 (6-12) (A4F0482-10)</b>           |        |     | <b>Matrix: Soil</b>   |           | <b>Batch: 4060704</b>   |                |                 |       |
| Naphthalene                               | ND     | --- | 9.51                  | ug/kg dry | 1                       | "              | EPA 8270D (SIM) |       |
| Phenanthrene                              | 106    | --- | 9.51                  | "         | "                       | "              | "               |       |
| Pyrene                                    | 259    | --- | 9.51                  | "         | "                       | "              | "               |       |
| <i>Surrogate: 2-Fluorobiphenyl (Surr)</i> |        |     | <i>Recovery: 88 %</i> |           | <i>Limits: 44-115 %</i> | "              | "               | "     |
| <i>p-Terphenyl-d14 (Surr)</i>             |        |     | <i>90 %</i>           |           | <i>Limits: 54-127 %</i> | "              | "               | "     |
| <b>AC-9 (0-6) (A4F0482-11)</b>            |        |     | <b>Matrix: Soil</b>   |           | <b>Batch: 4060704</b>   |                |                 |       |
| Acenaphthene                              | ND     | --- | 9.37                  | ug/kg dry | 1                       | 06/26/14 13:46 | EPA 8270D (SIM) |       |
| Acenaphthylene                            | ND     | --- | 9.37                  | "         | "                       | "              | "               |       |
| Anthracene                                | ND     | --- | 9.37                  | "         | "                       | "              | "               |       |
| Benz(a)anthracene                         | 65.2   | --- | 9.37                  | "         | "                       | "              | "               |       |
| Benzo(a)pyrene                            | 101    | --- | 9.37                  | "         | "                       | "              | "               |       |
| Benzo(b+k)fluoranthene(s)                 | 200    | --- | 18.7                  | "         | "                       | "              | "               | Q-26  |
| Benzo(g,h,i)perylene                      | 70.9   | --- | 9.37                  | "         | "                       | "              | "               |       |
| Chrysene                                  | 97.1   | --- | 9.37                  | "         | "                       | "              | "               |       |
| Dibenz(a,h)anthracene                     | 16.4   | --- | 9.37                  | "         | "                       | "              | "               |       |
| Fluoranthene                              | 112    | --- | 9.37                  | "         | "                       | "              | "               |       |
| Fluorene                                  | ND     | --- | 9.37                  | "         | "                       | "              | "               |       |
| Indeno(1,2,3-cd)pyrene                    | 74.9   | --- | 9.37                  | "         | "                       | "              | "               |       |
| Naphthalene                               | ND     | --- | 9.37                  | "         | "                       | "              | "               |       |
| Phenanthrene                              | 33.8   | --- | 9.37                  | "         | "                       | "              | "               |       |
| Pyrene                                    | 102    | --- | 9.37                  | "         | "                       | "              | "               |       |
| <i>Surrogate: 2-Fluorobiphenyl (Surr)</i> |        |     | <i>Recovery: 84 %</i> |           | <i>Limits: 44-115 %</i> | "              | "               | "     |
| <i>p-Terphenyl-d14 (Surr)</i>             |        |     | <i>91 %</i>           |           | <i>Limits: 54-127 %</i> | "              | "               | "     |
| <b>AC-9 (6-12) (A4F0482-12)</b>           |        |     | <b>Matrix: Soil</b>   |           | <b>Batch: 4060704</b>   |                |                 |       |
| Acenaphthene                              | ND     | --- | 9.19                  | ug/kg dry | 1                       | 06/26/14 14:13 | EPA 8270D (SIM) |       |
| Acenaphthylene                            | ND     | --- | 9.19                  | "         | "                       | "              | "               |       |
| Anthracene                                | ND     | --- | 9.19                  | "         | "                       | "              | "               |       |
| Benz(a)anthracene                         | 14.0   | --- | 9.19                  | "         | "                       | "              | "               |       |
| Benzo(a)pyrene                            | 20.7   | --- | 9.19                  | "         | "                       | "              | "               |       |
| Benzo(b+k)fluoranthene(s)                 | 42.5   | --- | 18.4                  | "         | "                       | "              | "               | Q-26  |
| Benzo(g,h,i)perylene                      | 15.2   | --- | 9.19                  | "         | "                       | "              | "               |       |
| Chrysene                                  | 21.0   | --- | 9.19                  | "         | "                       | "              | "               |       |
| Dibenz(a,h)anthracene                     | ND     | --- | 9.19                  | "         | "                       | "              | "               |       |
| Fluoranthene                              | 20.8   | --- | 9.19                  | "         | "                       | "              | "               |       |
| Fluorene                                  | ND     | --- | 9.19                  | "         | "                       | "              | "               |       |

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## Apex Companies, LLC

3015 SW First Avenue  
Portland, OR 97201

Project: Deschutes County - Gun Club

Project Number: 2112-01.002  
Project Manager: John FoxwellReported:  
08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

## Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

| Analyte                                   | Result | MDL | Reporting Limit       | Units                   | Dilution              | Date Analyzed  | Method          | Notes |
|-------------------------------------------|--------|-----|-----------------------|-------------------------|-----------------------|----------------|-----------------|-------|
| <b>AC-9 (6-12) (A4F0482-12)</b>           |        |     | <b>Matrix: Soil</b>   |                         | <b>Batch: 4060704</b> |                |                 |       |
| Indeno(1,2,3-cd)pyrene                    | 16.8   | --- | 9.19                  | ug/kg dry               | 1                     | "              | EPA 8270D (SIM) |       |
| Naphthalene                               | ND     | --- | 9.19                  | "                       | "                     | "              | "               |       |
| Phenanthrene                              | ND     | --- | 9.19                  | "                       | "                     | "              | "               |       |
| Pyrene                                    | 19.4   | --- | 9.19                  | "                       | "                     | "              | "               |       |
| <i>Surrogate: 2-Fluorobiphenyl (Surr)</i> |        |     | <i>Recovery: 83 %</i> | <i>Limits: 44-115 %</i> | "                     | "              | "               |       |
| <i>p-Terphenyl-d14 (Surr)</i>             |        |     | <i>90 %</i>           | <i>Limits: 54-127 %</i> | "                     | "              | "               |       |
| <b>AC-16 (0-6) (A4F0482-19)</b>           |        |     | <b>Matrix: Soil</b>   |                         | <b>Batch: 4060704</b> |                |                 |       |
| Acenaphthene                              | ND     | --- | 9.12                  | ug/kg dry               | 1                     | 06/26/14 14:39 | EPA 8270D (SIM) |       |
| Acenaphthylene                            | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Anthracene                                | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Benz(a)anthracene                         | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Benzo(a)pyrene                            | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Benzo(b)fluoranthene                      | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Benzo(k)fluoranthene                      | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Benzo(g,h,i)perylene                      | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Chrysene                                  | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Dibenz(a,h)anthracene                     | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Fluoranthene                              | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Fluorene                                  | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Indeno(1,2,3-cd)pyrene                    | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Naphthalene                               | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Phenanthrene                              | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| Pyrene                                    | ND     | --- | 9.12                  | "                       | "                     | "              | "               |       |
| <i>Surrogate: 2-Fluorobiphenyl (Surr)</i> |        |     | <i>Recovery: 84 %</i> | <i>Limits: 44-115 %</i> | "                     | "              | "               |       |
| <i>p-Terphenyl-d14 (Surr)</i>             |        |     | <i>95 %</i>           | <i>Limits: 54-127 %</i> | "                     | "              | "               |       |

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Portland, OR 97201

Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

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08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

### Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

| Analyte                                   | Result | MDL | Reporting Limit       | Units                   | Dilution              | Date Analyzed  | Method          | Notes |
|-------------------------------------------|--------|-----|-----------------------|-------------------------|-----------------------|----------------|-----------------|-------|
| <b>AC-16 (6-12) (A4F0482-20)</b>          |        |     | <b>Matrix: Soil</b>   |                         | <b>Batch: 4060704</b> |                |                 |       |
| Acenaphthene                              | ND     | --- | 9.43                  | ug/kg dry               | 1                     | 06/26/14 15:05 | EPA 8270D (SIM) |       |
| Acenaphthylene                            | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Anthracene                                | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Benz(a)anthracene                         | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Benzo(a)pyrene                            | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Benzo(b)fluoranthene                      | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Benzo(k)fluoranthene                      | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Benzo(g,h,i)perylene                      | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Chrysene                                  | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Dibenz(a,h)anthracene                     | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Fluoranthene                              | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Fluorene                                  | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Indeno(1,2,3-cd)pyrene                    | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Naphthalene                               | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Phenanthrene                              | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| Pyrene                                    | ND     | --- | 9.43                  | "                       | "                     | "              | "               |       |
| <i>Surrogate: 2-Fluorobiphenyl (Surr)</i> |        |     | <i>Recovery: 84 %</i> | <i>Limits: 44-115 %</i> | "                     | "              | "               |       |
| <i>p-Terphenyl-d14 (Surr)</i>             |        |     | <i>92 %</i>           | <i>Limits: 54-127 %</i> | "                     | "              | "               |       |

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Apex Companies, LLC  
3015 SW First Avenue  
Portland, OR 97201Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John FoxwellReported:  
08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

## Total Metals by EPA 6020 (ICPMS)

| Analyte                  | Result | MDL | Reporting<br>Limit | Units     | Dilution | Date Analyzed  | Method    | Notes |
|--------------------------|--------|-----|--------------------|-----------|----------|----------------|-----------|-------|
| AC-1 (A4F0482-01)        |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 59.9   | --- | 0.215              | mg/kg dry | 10       | 06/30/14 13:48 | EPA 6020A |       |
| AC-2 (A4F0482-02)        |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 12800  | --- | 2.23               | mg/kg dry | 100      | 06/30/14 15:14 | EPA 6020A |       |
| AC-3 (A4F0482-03)        |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 17.9   | --- | 0.211              | mg/kg dry | 10       | 06/30/14 14:01 | EPA 6020A |       |
| AC-4 (A4F0482-04)        |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 39.4   | --- | 0.206              | mg/kg dry | 10       | 06/30/14 14:04 | EPA 6020A |       |
| AC-5 (A4F0482-05)        |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 50.8   | --- | 0.226              | mg/kg dry | 10       | 06/30/14 14:13 | EPA 6020A |       |
| AC-6 (A4F0482-06)        |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 35.6   | --- | 0.211              | mg/kg dry | 10       | 06/30/14 14:16 | EPA 6020A |       |
| AC-7 (0-6) (A4F0482-07)  |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 37.0   | --- | 0.201              | mg/kg dry | 10       | 06/30/14 14:19 | EPA 6020A |       |
| AC-7 (6-12) (A4F0482-08) |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 11.4   | --- | 0.212              | mg/kg dry | 10       | 06/30/14 14:22 | EPA 6020A |       |
| AC-8 (0-6) (A4F0482-09)  |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 36.7   | --- | 0.238              | mg/kg dry | 10       | 06/30/14 14:25 | EPA 6020A |       |
| AC-8 (6-12) (A4F0482-10) |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 57.5   | --- | 0.213              | mg/kg dry | 10       | 06/30/14 14:28 | EPA 6020A |       |
| AC-9 (0-6) (A4F0482-11)  |        |     | Matrix: Soil       |           |          |                |           |       |
| Batch: 4060849           |        |     |                    |           |          |                |           |       |
| Lead                     | 31.1   | --- | 0.208              | mg/kg dry | 10       | 06/30/14 14:37 | EPA 6020A |       |
| AC-9 (6-12) (A4F0482-12) |        |     | Matrix: Soil       |           |          |                |           |       |

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Portland, OR 97201

Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

Reported:  
08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

### Total Metals by EPA 6020 (ICPMS)

| Analyte                   | Result | MDL | Reporting Limit | Units     | Dilution | Date Analyzed  | Method    | Notes |
|---------------------------|--------|-----|-----------------|-----------|----------|----------------|-----------|-------|
| AC-9 (6-12) (A4F0482-12)  |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060849            |        |     |                 |           |          |                |           |       |
| Lead                      | 13.8   | --- | 0.217           | mg/kg dry | 10       | 06/30/14 14:40 | EPA 6020A |       |
| AC-10 (A4F0482-13)        |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060849            |        |     |                 |           |          |                |           |       |
| Lead                      | 11.2   | --- | 0.216           | mg/kg dry | 10       | 06/30/14 14:43 | EPA 6020A |       |
| AC-11 (A4F0482-14)        |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060849            |        |     |                 |           |          |                |           |       |
| Lead                      | 3.94   | --- | 0.214           | mg/kg dry | 10       | 06/30/14 14:47 | EPA 6020A |       |
| AC-12 (A4F0482-15)        |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060849            |        |     |                 |           |          |                |           |       |
| Lead                      | 5.04   | --- | 0.225           | mg/kg dry | 10       | 06/30/14 14:50 | EPA 6020A |       |
| AC-13 (A4F0482-16)        |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060849            |        |     |                 |           |          |                |           |       |
| Lead                      | 7.61   | --- | 0.233           | mg/kg dry | 10       | 06/30/14 14:53 | EPA 6020A |       |
| AC-14 (A4F0482-17)        |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060849            |        |     |                 |           |          |                |           |       |
| Lead                      | 411    | --- | 0.241           | mg/kg dry | 10       | 06/30/14 14:56 | EPA 6020A |       |
| AC-15 (A4F0482-18)        |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060849            |        |     |                 |           |          |                |           |       |
| Lead                      | 8.85   | --- | 0.246           | mg/kg dry | 10       | 06/30/14 14:59 | EPA 6020A |       |
| AC-16 (0-6) (A4F0482-19)  |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060849            |        |     |                 |           |          |                |           |       |
| Lead                      | 7.96   | --- | 0.211           | mg/kg dry | 10       | 06/30/14 15:02 | EPA 6020A |       |
| AC-16 (6-12) (A4F0482-20) |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060850            |        |     |                 |           |          |                |           |       |
| Lead                      | 4.84   | --- | 0.212           | mg/kg dry | 10       | 06/30/14 14:01 | EPA 6020A |       |
| AC-17 (A4F0482-21)        |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060850            |        |     |                 |           |          |                |           |       |
| Lead                      | 13.2   | --- | 0.205           | mg/kg dry | 10       | 06/30/14 14:10 | EPA 6020A |       |
| AC-18 (A4F0482-22)        |        |     | Matrix: Soil    |           |          |                |           |       |
| Batch: 4060850            |        |     |                 |           |          |                |           |       |
| Lead                      | 4.91   | --- | 0.220           | mg/kg dry | 10       | 06/30/14 14:13 | EPA 6020A |       |
| AC-19 (A4F0482-23)        |        |     | Matrix: Soil    |           |          |                |           |       |

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3015 SW First Avenue  
Portland, OR 97201

Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

Reported:  
08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

### Total Metals by EPA 6020 (ICPMS)

| Analyte                       | Result | MDL | Reporting Limit     | Units     | Dilution | Date Analyzed  | Method    | Notes |
|-------------------------------|--------|-----|---------------------|-----------|----------|----------------|-----------|-------|
| <b>AC-19 (A4F0482-23)</b>     |        |     | <b>Matrix: Soil</b> |           |          |                |           |       |
| Batch: 4060850                |        |     |                     |           |          |                |           |       |
| Lead                          | 8.31   | --- | 0.232               | mg/kg dry | 10       | 06/30/14 14:16 | EPA 6020A |       |
| <b>AC-20 (A4F0482-24)</b>     |        |     | <b>Matrix: Soil</b> |           |          |                |           |       |
| Batch: 4060850                |        |     |                     |           |          |                |           |       |
| Lead                          | 8.05   | --- | 0.223               | mg/kg dry | 10       | 06/30/14 14:25 | EPA 6020A |       |
| <b>Stockpile (A4F0482-25)</b> |        |     | <b>Matrix: Soil</b> |           |          |                |           |       |
| Batch: 4070309                |        |     |                     |           |          |                |           |       |
| Lead                          | 189    | --- | 1.08                | mg/kg dry | 10       | 07/15/14 14:18 | EPA 6020A |       |

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Project Number: 2112-01.002  
Project Manager: John FoxwellReported:  
08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

## SPLP Metals by EPA 6020 (ICPMS)

| Analyte                       | Result | MDL | Reporting Limit     | Units | Dilution | Date Analyzed  | Method     | Notes |
|-------------------------------|--------|-----|---------------------|-------|----------|----------------|------------|-------|
| <b>AC-1 (A4F0482-01)</b>      |        |     | <b>Matrix: Soil</b> |       |          |                |            |       |
| Batch: 4060812                |        |     |                     |       |          |                |            |       |
| Lead                          | ND     | --- | 0.0500              | mg/L  | 5        | 06/30/14 13:00 | 1312/6020A |       |
| <b>AC-2 (A4F0482-02)</b>      |        |     | <b>Matrix: Soil</b> |       |          |                |            |       |
| Batch: 4060812                |        |     |                     |       |          |                |            |       |
| Lead                          | 1.70   | --- | 0.0500              | mg/L  | 5        | 06/30/14 13:03 | 1312/6020A |       |
| <b>AC-3 (A4F0482-03)</b>      |        |     | <b>Matrix: Soil</b> |       |          |                |            |       |
| Batch: 4060812                |        |     |                     |       |          |                |            |       |
| Lead                          | ND     | --- | 0.0500              | mg/L  | 5        | 06/30/14 13:06 | 1312/6020A |       |
| <b>AC-4 (A4F0482-04)</b>      |        |     | <b>Matrix: Soil</b> |       |          |                |            |       |
| Batch: 4060812                |        |     |                     |       |          |                |            |       |
| Lead                          | ND     | --- | 0.0500              | mg/L  | 5        | 06/30/14 13:09 | 1312/6020A |       |
| <b>AC-14 (A4F0482-17)</b>     |        |     | <b>Matrix: Soil</b> |       |          |                |            |       |
| Batch: 4060812                |        |     |                     |       |          |                |            |       |
| Lead                          | 0.148  | --- | 0.0500              | mg/L  | 5        | 06/30/14 13:12 | 1312/6020A |       |
| <b>AC-15 (A4F0482-18)</b>     |        |     | <b>Matrix: Soil</b> |       |          |                |            |       |
| Batch: 4060812                |        |     |                     |       |          |                |            |       |
| Lead                          | ND     | --- | 0.0500              | mg/L  | 5        | 06/30/14 13:15 | 1312/6020A |       |
| <b>Stockpile (A4F0482-25)</b> |        |     | <b>Matrix: Soil</b> |       |          |                |            |       |
| Batch: 4060812                |        |     |                     |       |          |                |            |       |
| Lead                          | 0.196  | --- | 0.0500              | mg/L  | 5        | 06/30/14 13:24 | 1312/6020A |       |

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Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

Reported:  
08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

| Percent Dry Weight              |        |     |                     |             |                       |                |           |       |
|---------------------------------|--------|-----|---------------------|-------------|-----------------------|----------------|-----------|-------|
| Analyte                         | Result | MDL | Reporting Limit     | Units       | Dilution              | Date Analyzed  | Method    | Notes |
| <b>AC-1 (A4F0482-01)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 97.8   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-2 (A4F0482-02)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 97.7   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-3 (A4F0482-03)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 98.6   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-4 (A4F0482-04)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 95.2   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-5 (A4F0482-05)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 97.6   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-6 (A4F0482-06)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 96.9   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-7 (0-6) (A4F0482-07)</b>  |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 96.5   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-7 (6-12) (A4F0482-08)</b> |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 94.3   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-8 (0-6) (A4F0482-09)</b>  |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 92.6   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-8 (6-12) (A4F0482-10)</b> |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 97.0   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-9 (0-6) (A4F0482-11)</b>  |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 97.7   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-9 (6-12) (A4F0482-12)</b> |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 95.9   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-10 (A4F0482-13)</b>       |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 96.8   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-11 (A4F0482-14)</b>       |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 96.0   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-12 (A4F0482-15)</b>       |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 94.6   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-13 (A4F0482-16)</b>       |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                        | 94.0   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |

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Portland, OR 97201Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John FoxwellReported:  
08/18/14 17:05

## ANALYTICAL SAMPLE RESULTS

| Percent Dry Weight               |        |     |                     |             |                       |                |           |       |
|----------------------------------|--------|-----|---------------------|-------------|-----------------------|----------------|-----------|-------|
| Analyte                          | Result | MDL | Reporting Limit     | Units       | Dilution              | Date Analyzed  | Method    | Notes |
| <b>AC-14 (A4F0482-17)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                         | 87.3   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-15 (A4F0482-18)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                         | 84.6   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-16 (0-6) (A4F0482-19)</b>  |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                         | 98.6   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-16 (6-12) (A4F0482-20)</b> |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                         | 97.2   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-17 (A4F0482-21)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                         | 96.5   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-18 (A4F0482-22)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                         | 94.7   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-19 (A4F0482-23)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                         | 95.7   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>AC-20 (A4F0482-24)</b>        |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4060646</b> |                |           |       |
| % Solids                         | 94.8   | --- | 1.00                | % by Weight | 1                     | 06/24/14 10:31 | EPA 8000C |       |
| <b>Stockpile (A4F0482-25)</b>    |        |     | <b>Matrix: Soil</b> |             | <b>Batch: 4070358</b> |                |           |       |
| % Solids                         | 96.0   | --- | 1.00                | % by Weight | 1                     | 07/16/14 06:29 | EPA 8000C |       |

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Portland, OR 97201

Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

Reported:  
08/18/14 17:05

## QUALITY CONTROL (QC) SAMPLE RESULTS

### Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

| Analyte                   | Result | MDL | Reporting Limit | Units                                                | Dil. | Spike Amount | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------------------------|--------|-----|-----------------|------------------------------------------------------|------|--------------|---------------|------|-------------|-----|-----------|-------|
| Batch 4060704 - EPA 3546  |        |     |                 |                                                      |      | Soil         |               |      |             |     |           |       |
| Blank (4060704-BLK1)      |        |     |                 | Prepared: 06/25/14 07:05    Analyzed: 06/25/14 18:24 |      |              |               |      |             |     |           |       |
| EPA 8270D (SIM)           |        |     |                 |                                                      |      |              |               |      |             |     |           |       |
| Acenaphthene              | ND     | --- | 8.33            | ug/kg wet                                            | 1    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Acenaphthylene            | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Anthracene                | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Benz(a)anthracene         | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Benzo(a)pyrene            | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Benzo(b)fluoranthene      | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Benzo(k)fluoranthene      | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Benzo(b+k)fluoranthene(s) | ND     | --- | 16.7            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Benzo(g,h,i)perylene      | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Chrysene                  | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Dibenz(a,h)anthracene     | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Fluoranthene              | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Fluorene                  | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Indeno(1,2,3-cd)pyrene    | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| 1-Methylnaphthalene       | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| 2-Methylnaphthalene       | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Naphthalene               | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Phenanthrene              | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |
| Pyrene                    | ND     | --- | 8.33            | "                                                    | "    | ---          | ---           | ---  | ---         | --- | ---       |       |

Surr: 2-Fluorobiphenyl (Surr) Recovery: 94 % Limits: 44-115 % Dilution: 1x  
p-Terphenyl-d14 (Surr) 101 % 54-127 % "

### LCS (4060704-BS1)

Prepared: 06/25/14 07:05 Analyzed: 06/25/14 18:50

|                        |     |     |      |           |   |     |     |     |         |     |     |  |
|------------------------|-----|-----|------|-----------|---|-----|-----|-----|---------|-----|-----|--|
| <b>EPA 8270D (SIM)</b> |     |     |      |           |   |     |     |     |         |     |     |  |
| Acenaphthene           | 759 | --- | 10.0 | ug/kg wet | 1 | 800 | --- | 95  | 40-122% | --- | --- |  |
| Acenaphthylene         | 732 | --- | 10.0 | "         | " | "   | --- | 92  | 32-132% | --- | --- |  |
| Anthracene             | 752 | --- | 10.0 | "         | " | "   | --- | 94  | 47-123% | --- | --- |  |
| Benz(a)anthracene      | 693 | --- | 10.0 | "         | " | "   | --- | 87  | 49-126% | --- | --- |  |
| Benzo(a)pyrene         | 776 | --- | 10.0 | "         | " | "   | --- | 97  | 45-129% | --- | --- |  |
| Benzo(b)fluoranthene   | 776 | --- | 10.0 | "         | " | "   | --- | 97  | 45-132% | --- | --- |  |
| Benzo(k)fluoranthene   | 812 | --- | 10.0 | "         | " | "   | --- | 101 | 47-132% | --- | --- |  |

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Portland, OR 97201Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John FoxwellReported:  
08/18/14 17:05

## QUALITY CONTROL (QC) SAMPLE RESULTS

## Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

| Analyte                         | Result | MDL            | Reporting Limit | Units            | Dil. | Spike Amount                                      | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------------------------------|--------|----------------|-----------------|------------------|------|---------------------------------------------------|---------------|------|-------------|-----|-----------|-------|
| <b>Batch 4060704 - EPA 3546</b> |        |                |                 |                  |      | <b>Soil</b>                                       |               |      |             |     |           |       |
| <b>LCS (4060704-BS1)</b>        |        |                |                 |                  |      | Prepared: 06/25/14 07:05 Analyzed: 06/25/14 18:50 |               |      |             |     |           |       |
| Benzo(b+k)fluoranthene(s)       | 1590   | ---            | 20.0            | "                | "    | 1600                                              | ---           | 99   | 45-132%     | --- | ---       |       |
| Benzo(g,h,i)perylene            | 609    | ---            | 10.0            | "                | "    | 800                                               | ---           | 76   | 43-134%     | --- | ---       |       |
| Chrysene                        | 749    | ---            | 10.0            | "                | "    | "                                                 | ---           | 94   | 50-124%     | --- | ---       |       |
| Dibenz(a,h)anthracene           | 775    | ---            | 10.0            | "                | "    | "                                                 | ---           | 97   | 45-134%     | --- | ---       |       |
| Fluoranthene                    | 746    | ---            | 10.0            | "                | "    | "                                                 | ---           | 93   | 50-127%     | --- | ---       |       |
| Fluorene                        | 737    | ---            | 10.0            | "                | "    | "                                                 | ---           | 92   | 43-125%     | --- | ---       |       |
| Indeno(1,2,3-cd)pyrene          | 827    | ---            | 10.0            | "                | "    | "                                                 | ---           | 103  | 45-133%     | --- | ---       |       |
| 1-Methylnaphthalene             | 741    | ---            | 10.0            | "                | "    | "                                                 | ---           | 93   | 40-120%     | --- | ---       |       |
| 2-Methylnaphthalene             | 732    | ---            | 10.0            | "                | "    | "                                                 | ---           | 91   | 38-122%     | --- | ---       |       |
| Naphthalene                     | 723    | ---            | 10.0            | "                | "    | "                                                 | ---           | 90   | 35-123%     | --- | ---       |       |
| Phenanthrene                    | 723    | ---            | 10.0            | "                | "    | "                                                 | ---           | 90   | 50-121%     | --- | ---       |       |
| Pyrene                          | 754    | ---            | 10.0            | "                | "    | "                                                 | ---           | 94   | 47-127%     | --- | ---       |       |
| Surr: 2-Fluorobiphenyl (Surr)   |        | Recovery: 97 % |                 | Limits: 44-115 % |      | Dilution: 1x                                      |               |      |             |     |           |       |
| p-Terphenyl-d14 (Surr)          |        | 99 %           |                 | 54-127 %         |      | "                                                 |               |      |             |     |           |       |

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3015 SW First Avenue  
Portland, OR 97201Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John FoxwellReported:  
08/18/14 17:05

## QUALITY CONTROL (QC) SAMPLE RESULTS

## Total Metals by EPA 6020 (ICPMS)

| Analyte                                    | Result | MDL | Reporting Limit | Units     | Dil.                     | Spike Amount | Source Result            | %REC | %REC Limits | RPD | RPD Limit | Notes      |
|--------------------------------------------|--------|-----|-----------------|-----------|--------------------------|--------------|--------------------------|------|-------------|-----|-----------|------------|
| Batch 4060849 - EPA 3051A                  |        |     |                 |           |                          | Soil         |                          |      |             |     |           |            |
| Blank (4060849-BLK1)                       |        |     |                 |           | Prepared: 06/30/14 09:47 |              | Analyzed: 06/30/14 13:42 |      |             |     |           |            |
| EPA 6020A                                  |        |     |                 |           |                          |              |                          |      |             |     |           |            |
| Lead                                       | ND     | --- | 0.200           | mg/kg wet | 10                       | ---          | ---                      | ---  | ---         | --- | ---       |            |
| LCS (4060849-BS1)                          |        |     |                 |           | Prepared: 06/30/14 09:47 |              | Analyzed: 06/30/14 13:45 |      |             |     |           |            |
| EPA 6020A                                  |        |     |                 |           |                          |              |                          |      |             |     |           |            |
| Lead                                       | 50.2   | --- | 0.200           | mg/kg wet | 10                       | 50.0         | ---                      | 100  | 80-120%     | --- | ---       |            |
| Duplicate (4060849-DUP1)                   |        |     |                 |           | Prepared: 06/30/14 09:47 |              | Analyzed: 06/30/14 14:07 |      |             |     |           |            |
| QC Source Sample: AC-4 (A4F0482-04)        |        |     |                 |           |                          |              |                          |      |             |     |           |            |
| EPA 6020A                                  |        |     |                 |           |                          |              |                          |      |             |     |           |            |
| Lead                                       | 22.3   | --- | 0.229           | mg/kg dry | 10                       | ---          | 39.4                     | ---  | ---         | 56  | 40%       | Q-04       |
| Matrix Spike (4060849-MS1)                 |        |     |                 |           | Prepared: 06/30/14 09:47 |              | Analyzed: 06/30/14 14:10 |      |             |     |           |            |
| QC Source Sample: AC-4 (A4F0482-04)        |        |     |                 |           |                          |              |                          |      |             |     |           |            |
| EPA 6020A                                  |        |     |                 |           |                          |              |                          |      |             |     |           |            |
| Lead                                       | 80.0   | --- | 0.227           | mg/kg dry | 10                       | 56.7         | 39.4                     | 71   | 75-125%     | --- | ---       | A-01, Q-04 |
| Matrix Spike (4060849-MS2)                 |        |     |                 |           | Prepared: 06/30/14 09:47 |              | Analyzed: 06/30/14 15:05 |      |             |     |           |            |
| QC Source Sample: AC-16 (0-6) (A4F0482-19) |        |     |                 |           |                          |              |                          |      |             |     |           |            |
| EPA 6020A                                  |        |     |                 |           |                          |              |                          |      |             |     |           |            |
| Lead                                       | 61.8   | --- | 0.223           | mg/kg dry | 10                       | 55.8         | 7.96                     | 97   | 75-125%     | --- | ---       |            |

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Project Manager: John FoxwellReported:  
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## QUALITY CONTROL (QC) SAMPLE RESULTS

## Total Metals by EPA 6020 (ICPMS)

| Analyte                              | Result | MDL | Reporting Limit | Units     | Dil. | Spike Amount             | Source Result | %REC                     | %REC Limits | RPD | RPD Limit | Notes |
|--------------------------------------|--------|-----|-----------------|-----------|------|--------------------------|---------------|--------------------------|-------------|-----|-----------|-------|
| Batch 4060850 - EPA 3051A            |        |     |                 |           |      | Soil                     |               |                          |             |     |           |       |
| Blank (4060850-BLK1)                 |        |     |                 |           |      | Prepared: 06/30/14 09:53 |               | Analyzed: 06/30/14 13:55 |             |     |           |       |
| EPA 6020A                            |        |     |                 |           |      |                          |               |                          |             |     |           |       |
| Lead                                 | ND     | --- | 0.200           | mg/kg wet | 10   | ---                      | ---           | ---                      | ---         | --- | ---       |       |
| LCS (4060850-BS1)                    |        |     |                 |           |      | Prepared: 06/30/14 09:53 |               | Analyzed: 06/30/14 13:58 |             |     |           |       |
| EPA 6020A                            |        |     |                 |           |      |                          |               |                          |             |     |           |       |
| Lead                                 | 57.0   | --- | 0.200           | mg/kg wet | 10   | 50.0                     | ---           | 114                      | 80-120%     | --- | ---       |       |
| Duplicate (4060850-DUP1)             |        |     |                 |           |      | Prepared: 06/30/14 09:53 |               | Analyzed: 06/30/14 14:19 |             |     |           |       |
| QC Source Sample: AC-19 (A4F0482-23) |        |     |                 |           |      |                          |               |                          |             |     |           |       |
| EPA 6020A                            |        |     |                 |           |      |                          |               |                          |             |     |           |       |
| Lead                                 | 9.23   | --- | 0.214           | mg/kg dry | 10   | ---                      | 8.31          | ---                      | ---         | 11  | 40%       |       |
| Matrix Spike (4060850-MS1)           |        |     |                 |           |      | Prepared: 06/30/14 09:53 |               | Analyzed: 06/30/14 14:22 |             |     |           |       |
| QC Source Sample: AC-19 (A4F0482-23) |        |     |                 |           |      |                          |               |                          |             |     |           |       |
| EPA 6020A                            |        |     |                 |           |      |                          |               |                          |             |     |           |       |
| Lead                                 | 68.2   | --- | 0.223           | mg/kg dry | 10   | 55.8                     | 8.31          | 107                      | 75-125%     | --- | ---       |       |

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Project Number: 2112-01.002  
Project Manager: John FoxwellReported:  
08/18/14 17:05

## QUALITY CONTROL (QC) SAMPLE RESULTS

## Total Metals by EPA 6020 (ICPMS)

| Analyte                   | Result | MDL | Reporting Limit | Units     | Dil.                     | Spike Amount | Source Result            | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------------------------|--------|-----|-----------------|-----------|--------------------------|--------------|--------------------------|------|-------------|-----|-----------|-------|
| Batch 4070309 - EPA 3051A |        |     |                 |           |                          | Soil         |                          |      |             |     |           |       |
| Blank (4070309-BLK1)      |        |     |                 |           | Prepared: 07/14/14 12:25 |              | Analyzed: 07/15/14 14:12 |      |             |     |           |       |
| EPA 6020A                 |        |     |                 |           |                          |              |                          |      |             |     |           |       |
| Lead                      | ND     | --- | 1.00            | mg/kg wet | 10                       | ---          | ---                      | ---  | ---         | --- | ---       | B-02  |
| LCS (4070309-BS1)         |        |     |                 |           | Prepared: 07/14/14 12:25 |              | Analyzed: 07/15/14 14:15 |      |             |     |           |       |
| EPA 6020A                 |        |     |                 |           |                          |              |                          |      |             |     |           |       |
| Lead                      | 52.4   | --- | 1.00            | mg/kg wet | 10                       | 50.0         | ---                      | 105  | 80-120%     | --- | ---       |       |

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08/18/14 17:05

## QUALITY CONTROL (QC) SAMPLE RESULTS

## SPLP Metals by EPA 6020 (ICPMS)

| Analyte                                  | Result | MDL | Reporting Limit | Units | Dil. | Spike Amount             | Source Result | %REC                     | %REC Limits | RPD | RPD Limit | Notes |
|------------------------------------------|--------|-----|-----------------|-------|------|--------------------------|---------------|--------------------------|-------------|-----|-----------|-------|
| Batch 4060812 - EPA 1312/3015            |        |     |                 |       |      | Soil                     |               |                          |             |     |           |       |
| Blank (4060812-BLK1)                     |        |     |                 |       |      | Prepared: 06/27/14 11:39 |               | Analyzed: 06/30/14 12:54 |             |     |           |       |
| 1312/6020A                               |        |     |                 |       |      |                          |               |                          |             |     |           |       |
| Lead                                     | ND     | --- | 0.0500          | mg/L  | 5    | ---                      | ---           | ---                      | ---         | --- | ---       | TCLP  |
| LCS (4060812-BS1)                        |        |     |                 |       |      | Prepared: 06/27/14 11:39 |               | Analyzed: 06/30/14 12:57 |             |     |           |       |
| 1312/6020A                               |        |     |                 |       |      |                          |               |                          |             |     |           |       |
| Lead                                     | 2.57   | --- | 0.0500          | mg/L  | 5    | 2.50                     | ---           | 103                      | 80-120%     | --- | ---       | TCLP  |
| Matrix Spike (4060812-MS1)               |        |     |                 |       |      | Prepared: 06/27/14 11:39 |               | Analyzed: 06/30/14 13:27 |             |     |           |       |
| QC Source Sample: Stockpile (A4F0482-25) |        |     |                 |       |      |                          |               |                          |             |     |           |       |
| 1312/6020A                               |        |     |                 |       |      |                          |               |                          |             |     |           |       |
| Lead                                     | 2.63   | --- | 0.0500          | mg/L  | 5    | 2.50                     | 0.196         | 97                       | 50-150%     | --- | ---       |       |

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## QUALITY CONTROL (QC) SAMPLE RESULTS

## Percent Dry Weight

| Analyte                                     | Result | MDL | Reporting Limit | Units       | Dil.                     | Spike Amount | Source Result            | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------------------------------------------|--------|-----|-----------------|-------------|--------------------------|--------------|--------------------------|------|-------------|-----|-----------|-------|
| Batch 4060646 - Total Solids (Dry Weight)   |        |     |                 |             |                          |              | Soil                     |      |             |     |           |       |
| Duplicate (4060646-DUP2)                    |        |     |                 |             | Prepared: 06/23/14 12:02 |              | Analyzed: 06/24/14 10:31 |      |             |     |           |       |
| QC Source Sample: AC-8 (6-12) (A4F0482-10)  |        |     |                 |             |                          |              |                          |      |             |     |           |       |
| EPA 8000C                                   |        |     |                 |             |                          |              |                          |      |             |     |           |       |
| % Solids                                    | 97.0   | --- | 1.00            | % by Weight | 1                        | ---          | 97.0                     | ---  | ---         | 0   | 20%       |       |
| Duplicate (4060646-DUP3)                    |        |     |                 |             | Prepared: 06/23/14 12:02 |              | Analyzed: 06/24/14 10:31 |      |             |     |           |       |
| QC Source Sample: AC-16 (6-12) (A4F0482-20) |        |     |                 |             |                          |              |                          |      |             |     |           |       |
| EPA 8000C                                   |        |     |                 |             |                          |              |                          |      |             |     |           |       |
| % Solids                                    | 97.2   | --- | 1.00            | % by Weight | 1                        | ---          | 97.2                     | ---  | ---         | 0   | 20%       |       |

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

**Batch 4070358 - Total Solids (Dry Weight)****Soil**

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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Portland, OR 97201

Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

Reported:  
08/18/14 17:05

## SAMPLE PREPARATION INFORMATION

### Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

#### Prep: EPA 3546

| Lab Number     | Matrix | Method          | Sampled        | Prepared       | Sample<br>Initial/Final | Default<br>Initial/Final | RL Prep<br>Factor |
|----------------|--------|-----------------|----------------|----------------|-------------------------|--------------------------|-------------------|
| Batch: 4060704 |        |                 |                |                |                         |                          |                   |
| A4F0482-07     | Soil   | EPA 8270D (SIM) | 06/16/14 11:00 | 06/25/14 12:25 | 11.64g/5mL              | 10g/5mL                  | 0.86              |
| A4F0482-07RE1  | Soil   | EPA 8270D (SIM) | 06/16/14 11:00 | 06/25/14 12:25 | 11.64g/5mL              | 10g/5mL                  | 0.86              |
| A4F0482-08     | Soil   | EPA 8270D (SIM) | 06/16/14 11:05 | 06/25/14 12:25 | 10.83g/5mL              | 10g/5mL                  | 0.92              |
| A4F0482-08RE1  | Soil   | EPA 8270D (SIM) | 06/16/14 11:05 | 06/25/14 12:25 | 10.83g/5mL              | 10g/5mL                  | 0.92              |
| A4F0482-09     | Soil   | EPA 8270D (SIM) | 06/16/14 11:15 | 06/25/14 12:25 | 11.58g/5mL              | 10g/5mL                  | 0.86              |
| A4F0482-09RE1  | Soil   | EPA 8270D (SIM) | 06/16/14 11:15 | 06/25/14 12:25 | 11.58g/5mL              | 10g/5mL                  | 0.86              |
| A4F0482-10     | Soil   | EPA 8270D (SIM) | 06/16/14 11:20 | 06/25/14 12:25 | 10.84g/5mL              | 10g/5mL                  | 0.92              |
| A4F0482-11     | Soil   | EPA 8270D (SIM) | 06/16/14 11:25 | 06/25/14 12:25 | 10.92g/5mL              | 10g/5mL                  | 0.92              |
| A4F0482-12     | Soil   | EPA 8270D (SIM) | 06/16/14 11:30 | 06/25/14 12:25 | 11.35g/5mL              | 10g/5mL                  | 0.88              |
| A4F0482-19     | Soil   | EPA 8270D (SIM) | 06/16/14 13:50 | 06/25/14 12:25 | 11.12g/5mL              | 10g/5mL                  | 0.90              |
| A4F0482-20     | Soil   | EPA 8270D (SIM) | 06/16/14 13:55 | 06/25/14 12:25 | 10.91g/5mL              | 10g/5mL                  | 0.92              |

### Total Metals by EPA 6020 (ICPMS)

#### Prep: EPA 3051A

| Lab Number     | Matrix | Method    | Sampled        | Prepared       | Sample<br>Initial/Final | Default<br>Initial/Final | RL Prep<br>Factor |
|----------------|--------|-----------|----------------|----------------|-------------------------|--------------------------|-------------------|
| Batch: 4060849 |        |           |                |                |                         |                          |                   |
| A4F0482-01     | Soil   | EPA 6020A | 06/16/14 09:45 | 06/30/14 09:47 | 0.475g/50mL             | 0.5g/50mL                | 1.05              |
| A4F0482-02     | Soil   | EPA 6020A | 06/16/14 09:25 | 06/30/14 09:47 | 0.46g/50mL              | 0.5g/50mL                | 1.09              |
| A4F0482-03     | Soil   | EPA 6020A | 06/16/14 09:40 | 06/30/14 09:47 | 0.48g/50mL              | 0.5g/50mL                | 1.04              |
| A4F0482-04     | Soil   | EPA 6020A | 06/16/14 09:50 | 06/30/14 09:47 | 0.509g/50mL             | 0.5g/50mL                | 0.98              |
| A4F0482-05     | Soil   | EPA 6020A | 06/16/14 10:05 | 06/30/14 09:47 | 0.454g/50mL             | 0.5g/50mL                | 1.10              |
| A4F0482-06     | Soil   | EPA 6020A | 06/16/14 10:40 | 06/30/14 09:47 | 0.49g/50mL              | 0.5g/50mL                | 1.02              |
| A4F0482-07     | Soil   | EPA 6020A | 06/16/14 11:00 | 06/30/14 09:47 | 0.516g/50mL             | 0.5g/50mL                | 0.97              |
| A4F0482-08     | Soil   | EPA 6020A | 06/16/14 11:05 | 06/30/14 09:47 | 0.501g/50mL             | 0.5g/50mL                | 1.00              |
| A4F0482-09     | Soil   | EPA 6020A | 06/16/14 11:15 | 06/30/14 09:47 | 0.454g/50mL             | 0.5g/50mL                | 1.10              |
| A4F0482-10     | Soil   | EPA 6020A | 06/16/14 11:20 | 06/30/14 09:47 | 0.484g/50mL             | 0.5g/50mL                | 1.03              |
| A4F0482-11     | Soil   | EPA 6020A | 06/16/14 11:25 | 06/30/14 09:47 | 0.491g/50mL             | 0.5g/50mL                | 1.02              |
| A4F0482-12     | Soil   | EPA 6020A | 06/16/14 11:30 | 06/30/14 09:47 | 0.48g/50mL              | 0.5g/50mL                | 1.04              |
| A4F0482-13     | Soil   | EPA 6020A | 06/16/14 11:40 | 06/30/14 09:47 | 0.479g/50mL             | 0.5g/50mL                | 1.04              |
| A4F0482-14     | Soil   | EPA 6020A | 06/16/14 12:05 | 06/30/14 09:47 | 0.487g/50mL             | 0.5g/50mL                | 1.03              |
| A4F0482-15     | Soil   | EPA 6020A | 06/16/14 11:20 | 06/30/14 09:47 | 0.469g/50mL             | 0.5g/50mL                | 1.07              |
| A4F0482-16     | Soil   | EPA 6020A | 06/16/14 12:30 | 06/30/14 09:47 | 0.457g/50mL             | 0.5g/50mL                | 1.09              |
| A4F0482-17     | Soil   | EPA 6020A | 06/16/14 13:20 | 06/30/14 09:47 | 0.475g/50mL             | 0.5g/50mL                | 1.05              |

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Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

Reported:  
08/18/14 17:05

## SAMPLE PREPARATION INFORMATION

### Total Metals by EPA 6020 (ICPMS)

#### Prep: EPA 3051A

| Lab Number            | Matrix | Method    | Sampled        | Prepared       | Sample<br>Initial/Final | Default<br>Initial/Final | RL Prep<br>Factor |
|-----------------------|--------|-----------|----------------|----------------|-------------------------|--------------------------|-------------------|
| A4F0482-18            | Soil   | EPA 6020A | 06/16/14 13:35 | 06/30/14 09:47 | 0.48g/50mL              | 0.5g/50mL                | 1.04              |
| A4F0482-19            | Soil   | EPA 6020A | 06/16/14 13:50 | 06/30/14 09:47 | 0.481g/50mL             | 0.5g/50mL                | 1.04              |
| <b>Batch: 4060850</b> |        |           |                |                |                         |                          |                   |
| A4F0482-20            | Soil   | EPA 6020A | 06/16/14 13:55 | 06/30/14 09:53 | 0.485g/50mL             | 0.5g/50mL                | 1.03              |
| A4F0482-21            | Soil   | EPA 6020A | 06/16/14 14:00 | 06/30/14 09:53 | 0.505g/50mL             | 0.5g/50mL                | 0.99              |
| A4F0482-22            | Soil   | EPA 6020A | 06/16/14 14:15 | 06/30/14 09:53 | 0.481g/50mL             | 0.5g/50mL                | 1.04              |
| A4F0482-23            | Soil   | EPA 6020A | 06/16/14 14:25 | 06/30/14 09:53 | 0.451g/50mL             | 0.5g/50mL                | 1.11              |
| A4F0482-24            | Soil   | EPA 6020A | 06/16/14 14:35 | 06/30/14 09:53 | 0.473g/50mL             | 0.5g/50mL                | 1.06              |
| <b>Batch: 4070309</b> |        |           |                |                |                         |                          |                   |
| A4F0482-25            | Soil   | EPA 6020A | 06/16/14 09:15 | 07/14/14 12:33 | 0.482g/50mL             | 0.5g/50mL                | 1.04              |

### SPLP Metals by EPA 6020 (ICPMS)

#### Prep: EPA 1312/3015

| Lab Number            | Matrix | Method     | Sampled        | Prepared       | Sample<br>Initial/Final | Default<br>Initial/Final | RL Prep<br>Factor |
|-----------------------|--------|------------|----------------|----------------|-------------------------|--------------------------|-------------------|
| <b>Batch: 4060812</b> |        |            |                |                |                         |                          |                   |
| A4F0482-01            | Soil   | 1312/6020A | 06/16/14 09:45 | 06/27/14 11:39 | 5mL/50mL                | 5mL/50mL                 | 1.00              |
| A4F0482-02            | Soil   | 1312/6020A | 06/16/14 09:25 | 06/27/14 11:39 | 5mL/50mL                | 5mL/50mL                 | 1.00              |
| A4F0482-03            | Soil   | 1312/6020A | 06/16/14 09:40 | 06/27/14 11:39 | 5mL/50mL                | 5mL/50mL                 | 1.00              |
| A4F0482-04            | Soil   | 1312/6020A | 06/16/14 09:50 | 06/27/14 11:39 | 5mL/50mL                | 5mL/50mL                 | 1.00              |
| A4F0482-17            | Soil   | 1312/6020A | 06/16/14 13:20 | 06/27/14 11:39 | 5mL/50mL                | 5mL/50mL                 | 1.00              |
| A4F0482-18            | Soil   | 1312/6020A | 06/16/14 13:35 | 06/27/14 11:39 | 5mL/50mL                | 5mL/50mL                 | 1.00              |
| A4F0482-25            | Soil   | 1312/6020A | 06/16/14 09:15 | 06/27/14 11:39 | 5mL/50mL                | 5mL/50mL                 | 1.00              |

### Percent Dry Weight

#### Prep: Total Solids (Dry Weight)

| Lab Number            | Matrix | Method    | Sampled        | Prepared       | Sample<br>Initial/Final | Default<br>Initial/Final | RL Prep<br>Factor |
|-----------------------|--------|-----------|----------------|----------------|-------------------------|--------------------------|-------------------|
| <b>Batch: 4060646</b> |        |           |                |                |                         |                          |                   |
| A4F0482-01            | Soil   | EPA 8000C | 06/16/14 09:45 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-02            | Soil   | EPA 8000C | 06/16/14 09:25 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-03            | Soil   | EPA 8000C | 06/16/14 09:40 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-04            | Soil   | EPA 8000C | 06/16/14 09:50 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-05            | Soil   | EPA 8000C | 06/16/14 10:05 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-06            | Soil   | EPA 8000C | 06/16/14 10:40 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-07            | Soil   | EPA 8000C | 06/16/14 11:00 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |

Apex Laboratories

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Darrell Auvin For Darwin Thomas, Business Development Director

Apex Companies, LLC  
3015 SW First Avenue  
Portland, OR 97201

Project: Deschutes County - Gun Club  
Project Number: 2112-01.002  
Project Manager: John Foxwell

Reported:  
08/18/14 17:05

## SAMPLE PREPARATION INFORMATION

### Percent Dry Weight

#### Prep: Total Solids (Dry Weight)

| Lab Number     | Matrix | Method    | Sampled        | Prepared       | Sample<br>Initial/Final | Default<br>Initial/Final | RL Prep<br>Factor |
|----------------|--------|-----------|----------------|----------------|-------------------------|--------------------------|-------------------|
| A4F0482-08     | Soil   | EPA 8000C | 06/16/14 11:05 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-09     | Soil   | EPA 8000C | 06/16/14 11:15 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-10     | Soil   | EPA 8000C | 06/16/14 11:20 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-11     | Soil   | EPA 8000C | 06/16/14 11:25 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-12     | Soil   | EPA 8000C | 06/16/14 11:30 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-13     | Soil   | EPA 8000C | 06/16/14 11:40 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-14     | Soil   | EPA 8000C | 06/16/14 12:05 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-15     | Soil   | EPA 8000C | 06/16/14 11:20 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-16     | Soil   | EPA 8000C | 06/16/14 12:30 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-17     | Soil   | EPA 8000C | 06/16/14 13:20 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-18     | Soil   | EPA 8000C | 06/16/14 13:35 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-19     | Soil   | EPA 8000C | 06/16/14 13:50 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-20     | Soil   | EPA 8000C | 06/16/14 13:55 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-21     | Soil   | EPA 8000C | 06/16/14 14:00 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-22     | Soil   | EPA 8000C | 06/16/14 14:15 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-23     | Soil   | EPA 8000C | 06/16/14 14:25 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| A4F0482-24     | Soil   | EPA 8000C | 06/16/14 14:35 | 06/23/14 12:02 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |
| Batch: 4070358 |        |           |                |                |                         |                          |                   |
| A4F0482-25     | Soil   | EPA 8000C | 06/16/14 09:15 | 07/15/14 19:54 | 1N/A/1N/A               | 1N/A/1N/A                | NA                |

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Darrell Auvil For Darwin Thomas, Business Development Director

Page 23 of 27

**Apex Companies, LLC**

3015 SW First Avenue  
Portland, OR 97201

Project: **Deschutes County - Gun Club**

Project Number: 2112-01.002  
Project Manager: John Foxwell

**Reported:**

08/18/14 17:05

## Notes and Definitions

### Qualifiers:

- A-01 Serial dilution test performed was acceptable. Data quality not affected.
- B-02 Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
- Q-04 Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
- Q-26 Peak separation for Benzo(b) and Benzo(k)fluoranthenes does not meet method specified criteria. Reported result includes the combined area of the two isomers and should be considered the total of Benzo(b+k)Fluoranthenes.
- TCLP This batch QC sample was prepared with TCLP or SPLP fluid from preparation batch 4060786.

### Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.  
  
For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.  
  
Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- \*\*\* Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

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Darrell Auvil For Darwin Thomas, Business Development Director



**Apex Companies, LLC**  
3015 SW First Avenue  
Portland, OR 97201

Project: **Deschutes County - Gun Club**

Project Number: 2112-01.002  
Project Manager: John Foxwell

**Reported:**  
08/18/14 17:05

| CHARTER OF CUSTODY RECORD            |              | Client Name: <u>Apex Companies</u>                |      | Address: <u>10000 1st Ave</u>      |   | City/State/Zip: <u>Portland, OR 97201</u> |   |
|--------------------------------------|--------------|---------------------------------------------------|------|------------------------------------|---|-------------------------------------------|---|
| Project Manager: <u>John Farnell</u> |              | Project Name: <u>Steelcase Country - Dun Club</u> |      | Project Number: <u>2112-01-000</u> |   | Sample Name: <u>Garnold Ovens</u>         |   |
| Sample ID / Description              | AC-1         | 5/16/14                                           | 845  | 2                                  | X | X                                         | X |
|                                      | AC-2         | 5/16/14                                           | 823  | 2                                  | X | X                                         | X |
|                                      | AC-3         | 5/16/14                                           | 845  | 2                                  | X | X                                         | X |
|                                      | AC-4         | 5/16/14                                           | 890  | 2                                  | X | X                                         | X |
|                                      | AC-5         | 5/16/14                                           | 1009 | 2                                  | X | X                                         | X |
|                                      | AC-6         | 5/16/14                                           | 1040 | 2                                  | X | X                                         | X |
|                                      | AC-7 (P-6)   | 5/16/14                                           | 1000 | 1                                  | X | X                                         | X |
|                                      | AC-8 (P-12)  | 5/16/14                                           | 1000 | 2                                  | X | X                                         | X |
|                                      | AC-9 (P-6)   | 5/16/14                                           | 1119 | 1                                  | X | X                                         | X |
|                                      | AC-10 (P-12) | 5/16/14                                           | 1120 | 2                                  | X | X                                         | X |

| Time | Date    | Signature    | Time  | Date    | Signature    |
|------|---------|--------------|-------|---------|--------------|
| 1:05 | 5/16/14 | John Farnell | 11:25 | 5/16/14 | John Farnell |
| Time | Date    | Signature    | Time  | Date    | Signature    |

| Time | Date    | Signature    | Time  | Date    | Signature    |
|------|---------|--------------|-------|---------|--------------|
| 1:05 | 5/16/14 | John Farnell | 11:25 | 5/16/14 | John Farnell |
| Time | Date    | Signature    | Time  | Date    | Signature    |

**Apex Companies, LLC**  
3015 SW First Avenue  
Portland, OR 97201

Project: **Deschutes County - Gun Club**

Project Number: 2112-01.002  
Project Manager: John Foxwell

**Reported:**  
08/18/14 17:05

| CHAIN OF CUSTODY RECEIPT                  |              |                                                      |                            |                                       |              |                                           |          |                                      |         |              |       |
|-------------------------------------------|--------------|------------------------------------------------------|----------------------------|---------------------------------------|--------------|-------------------------------------------|----------|--------------------------------------|---------|--------------|-------|
| Client Name: <u>Apex Companies</u>        |              | Project Name: <u>Geotechnical Survey - East Club</u> |                            | Project Manager: <u>John Forewell</u> |              | Telephone Number: <u>301.524.4754</u>     |          | Fax No.: <u>301.544.4347</u>         |         |              |       |
| Address: <u>3011 SW 72nd Ave</u>          |              | Project Number: <u>241245.002</u>                    |                            | Sampler Name: <u>Charles Owens</u>    |              | Analytical Agency Laboratory: <u>Apex</u> |          | Report: <u>ForcedBiosciences.com</u> |         |              |       |
| City/State/Zip: <u>Portland, OR 97201</u> |              | Sample Number: <u>241245.002</u>                     |                            | Page 2 of 2                           |              |                                           |          |                                      |         |              |       |
| Sample ID / Description                   | Date Sampled | Time Sampled                                         | No. of Containers Required | Container                             | Field Record | QA                                        | Recovery | Preservation                         | Storage | Analysis for | Notes |
| AC-8 (240)                                | 6/27/14      | 1125                                                 | 2                          | X                                     |              | X                                         |          |                                      |         | Grain        |       |
| AC-9 (30-3)                               | 6/27/14      | 1130                                                 | 2                          | X                                     |              | X                                         |          |                                      |         | Grain        |       |
| AC-10                                     | 6/27/14      | 1140                                                 | 2                          | X                                     |              | X                                         |          |                                      |         | Grain        |       |
| AC-11                                     | 6/27/14      | 1150                                                 | 2                          | X                                     |              | X                                         |          |                                      |         | Grain        |       |
| AC-12                                     | 6/27/14      | 1200                                                 | 2                          | X                                     |              | X                                         |          |                                      |         | Grain        |       |
| AC-13                                     | 6/27/14      | 1210                                                 | 2                          | X                                     |              | X                                         |          |                                      |         | Grain        |       |
| AC-14                                     | 6/27/14      | 1220                                                 | 2                          | X                                     |              | X                                         |          |                                      |         | Grain        |       |
| AC-15                                     | 6/27/14      | 1230                                                 | 2                          | X                                     |              | X                                         |          |                                      |         | Grain        |       |
| AC-16 (30-8)                              | 6/27/14      | 1240                                                 | 2                          | X                                     |              | X                                         |          |                                      |         | Grain        |       |
| AC-16 (30-13)                             | 6/27/14      | 1250                                                 | 2                          | X                                     |              | X                                         |          |                                      |         | Grain        |       |

| Received by: <u>Charles Owens</u> |                |             |                                    |
|-----------------------------------|----------------|-------------|------------------------------------|
| Signature                         | Date           | Time        | Notes                              |
| <u>Charles Owens</u>              | <u>6/27/14</u> | <u>1125</u> | <u>Received for Grain Analysis</u> |
| <u>John Forewell</u>              | <u>6/27/14</u> | <u>1125</u> | <u>Received for Grain Analysis</u> |

| Received by: <u>Charles Owens</u> |                |             |                                    |
|-----------------------------------|----------------|-------------|------------------------------------|
| Signature                         | Date           | Time        | Notes                              |
| <u>Charles Owens</u>              | <u>6/27/14</u> | <u>1125</u> | <u>Received for Grain Analysis</u> |
| <u>John Forewell</u>              | <u>6/27/14</u> | <u>1125</u> | <u>Received for Grain Analysis</u> |

Quinn to mail

**Reported:**  
08/18/14 17:05

[illegible]



Neilson Research Corporation  
245 S Grape St  
Medford, OR 97501  
TEL: (541) 770-5678 FAX: (541) 770-2901  
Website: [www.nrclabs.com](http://www.nrclabs.com)

November 18, 2019

John Foxwell  
Apex Companies LLC  
3015 SW 1st Ave  
Portland, OR 97201  
TEL: (503) 924-4704  
FAX: (503) 718-0333

RE: 2112-05 Former Gun Club

Order No.: 19110224

Dear John Foxwell:

Neilson Research Corporation received 2 sample(s) on 11/6/2019 for the analyses presented in the following report.

The results relate only to the parameters tested or to the sample as received by the laboratory. This report shall not be reproduced except in full, without the written approval of Neilson Research Corporation. If you have any questions regarding these test results, please feel free to call.

Sincerely,  
Neilson Research Corporation

Tamra Schmedemann  
Senior Project Manager  
245 S Grape St  
Medford, OR 97501

Original



Neilson Research Corporation  
245 S Grape St  
Medford, OR 97501  
TEL: (541) 770-5678 FAX: (541) 770-2901  
Website: [www.nrclabs.com](http://www.nrclabs.com)

## Case Narrative

WO#: 19110224  
Date: 11/18/2019

---

**CLIENT:** Apex Companies LLC  
**Project:** 2112-05 Former Gun Club

---

The analyses were performed according to the guidelines in the Neilson Research Corporation Quality Assurance Program. This report contains analytical results for the sample(s) as received by the laboratory.

Neilson Research Corporation certifies that this report is in compliance with the requirements of NELAP. No unusual difficulties were experienced during analysis of this batch except as noted below or qualified with data flags on the reports.

---

Original





Neilson Research Corporation  
245 S Grape St  
Medford, OR 97501  
TEL: (541) 770-5678 FAX: (541) 770-2901  
Website: www.nrclabs.com

## Analytical Report

WO#: 19110224  
Date Reported: 11/18/2019

CLIENT: Apex Companies LLC  
Lab ID: 19110224-01  
Client Sample ID: S-1  
Project: 2112-05 Former Gun Club  
Sample Address:

Collection Date: 10/31/2019 2:30:00 PM  
Received Date: 11/6/2019 11:50:00 AM  
Matrix: AQUEOUS

Sample Location: Grab

| Analyses               | Method     | NELAP Status | Result | Qual | DF | RL       | Units | MCL | Date Analyzed/Analyst |
|------------------------|------------|--------------|--------|------|----|----------|-------|-----|-----------------------|
| <b>PAH BY SIM</b>      |            |              |        |      |    |          |       |     |                       |
| Acenaphthene           | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Acenaphthylene         | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Anthracene             | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Benzo(a)anthracene     | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Benzo(a)pyrene         | EPA 8270 C | A            | 0.130  |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Benzo(b)fluoranthene   | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Benzo(g,h,i)perylene   | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Benzo(k)fluoranthene   | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Chrysene               | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Dibenz(a,h)anthracene  | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Fluoranthene           | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Fluorene               | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Indeno(1,2,3-cd)pyrene | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Naphthalene            | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Phenanthrene           | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Pyrene                 | EPA 8270 C | A            | ND     |      | 1  | 0.100    | µg/L  |     | 11/08/19 5:15 TJW     |
| Surr: 2-Fluorobiphenyl | EPA 8270 C |              | 75.8   |      | 1  | 63 - 110 | %Rec  |     | 11/08/19 5:15 TJW     |
| Surr: 4-Terphenyl-d14  | EPA 8270 C |              | 85.0   |      | 1  | 68 - 110 | %Rec  |     | 11/08/19 5:15 TJW     |

### DISSOLVED TRACE METALS BY EPA 200.8 ICP-MS

|      |           |   |    |   |          |      |               |     |
|------|-----------|---|----|---|----------|------|---------------|-----|
| Lead | EPA 200.8 | A | ND | 1 | 0.000100 | mg/L | 11/13/19 0:04 | SJS |
|------|-----------|---|----|---|----------|------|---------------|-----|

### TRACE METALS BY EPA 200.8 ICP-MS

|      |           |   |        |   |          |      |               |     |
|------|-----------|---|--------|---|----------|------|---------------|-----|
| Lead | EPA 200.8 | A | 0.0117 | 1 | 0.000100 | mg/L | 11/13/19 0:39 | SJS |
|------|-----------|---|--------|---|----------|------|---------------|-----|

### QUALIFIERS

CI Sample container temperature is out of limit as specified at testcode  
MI Recovery outside control limits due to Matrix Interference  
PL Permit Limit

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit

Original

### NELAP

NELAP A Accredited. ORELAP 100016, OR-028





Neilson Research Corporation  
245 S Grape St  
Medford, OR 97501  
TEL: (541) 770-5678 FAX: (541) 770-2901  
Website: www.nrclabs.com

## Analytical Report

WO#: 19110224  
Date Reported: 11/18/2019

CLIENT: Apex Companies LLC  
Lab ID: 19110224-02  
Client Sample ID: S-2  
Project: 2112-05 Former Gun Club  
Sample Address:

Collection Date: 10/31/2019 3:30:00 PM  
Received Date: 11/6/2019 11:50:00 AM  
Matrix: AQUEOUS

Sample Location: Grab

| Analyses | Method | NELAP Status | Result | Qual | DF | RL | Units | MCL | Date Analyzed/Analyst |
|----------|--------|--------------|--------|------|----|----|-------|-----|-----------------------|
|----------|--------|--------------|--------|------|----|----|-------|-----|-----------------------|

### PAH BY SIM

|                        |            |   |      |  |   |          |      |  |                   |
|------------------------|------------|---|------|--|---|----------|------|--|-------------------|
| Acenaphthene           | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Acenaphthylene         | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Anthracene             | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Benzo(a)anthracene     | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Benzo(a)pyrene         | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Benzo(b)fluoranthene   | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Benzo(g,h,i)perylene   | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Benzo(k)fluoranthene   | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Chrysene               | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Dibenz(a,h)anthracene  | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Fluoranthene           | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Fluorene               | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Indeno(1,2,3-cd)pyrene | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Naphthalene            | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Phenanthrene           | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Pyrene                 | EPA 8270 C | A | ND   |  | 1 | 0.100    | µg/L |  | 11/08/19 5:44 TJW |
| Surr: 2-Fluorobiphenyl | EPA 8270 C |   | 75.6 |  | 1 | 63 - 110 | %Rec |  | 11/08/19 5:44 TJW |
| Surr: 4-Terphenyl-d14  | EPA 8270 C |   | 85.4 |  | 1 | 68 - 110 | %Rec |  | 11/08/19 5:44 TJW |

### DISSOLVED TRACE METALS BY EPA 200.8 ICP-MS

|      |           |   |    |  |   |          |      |  |                   |
|------|-----------|---|----|--|---|----------|------|--|-------------------|
| Lead | EPA 200.8 | A | ND |  | 1 | 0.000100 | mg/L |  | 11/13/19 0:08 SJS |
|------|-----------|---|----|--|---|----------|------|--|-------------------|

### TRACE METALS BY EPA 200.8 ICP-MS

|      |           |   |         |  |   |          |      |  |                   |
|------|-----------|---|---------|--|---|----------|------|--|-------------------|
| Lead | EPA 200.8 | A | 0.00948 |  | 1 | 0.000100 | mg/L |  | 11/13/19 0:43 SJS |
|------|-----------|---|---------|--|---|----------|------|--|-------------------|

### QUALIFIERS

CI Sample container temperature is out of limit as specified at testcode  
MI Recovery outside control limits due to Matrix Interference  
PL Permit Limit

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit

Original

### NELAP

NELAP A Accredited. ORELAP 100016, OR-028



Neilson Research Corporation  
245 S Grape St  
Medford, OR 97501  
TEL: (541) 770-5678 FAX: (541) 770-2901  
Website: www.nrclabs.com

# QC SUMMARY REPORT

WO#: 19110224  
18-Nov-19

**Client:** Apex Companies LLC  
**Project:** 2112-05 Former Gun Club

**TestCode:** ICPMS\_200.8\_DISS

|                    |                |                       |             |                           |               |          |           |             |      |          |      |
|--------------------|----------------|-----------------------|-------------|---------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: MB-2344 | SampType: MBLK | TestCode: ICPMS_200.8 | Units: mg/L | Prep Date: 11/9/2019      | RunNo: 5543   |          |           |             |      |          |      |
| Client ID: PBW     | Batch ID: 2344 | TestNo: E200.8        | E3005       | Analysis Date: 11/12/2019 | SeqNo: 105225 |          |           |             |      |          |      |
| Analyte            | Result         | PQL                   | SPK value   | SPK Ref Val               | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Lead               | ND             | 0.000100              |             |                           |               |          |           |             |      |          |      |

|                     |                |                       |             |                           |               |          |           |             |      |          |      |
|---------------------|----------------|-----------------------|-------------|---------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: LCS-2344 | SampType: LCS  | TestCode: ICPMS_200.8 | Units: mg/L | Prep Date: 11/9/2019      | RunNo: 5543   |          |           |             |      |          |      |
| Client ID: LCSW     | Batch ID: 2344 | TestNo: E200.8        | E3005       | Analysis Date: 11/12/2019 | SeqNo: 105226 |          |           |             |      |          |      |
| Analyte             | Result         | PQL                   | SPK value   | SPK Ref Val               | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Lead                | 0.0875         | 0.000100              | 0.1000      | 0                         | 87.5          | 85       | 115       |             |      |          |      |

|                           |                |                       |             |                           |               |          |           |             |      |          |      |
|---------------------------|----------------|-----------------------|-------------|---------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: 19110273-01BMS | SampType: MS   | TestCode: ICPMS_200.8 | Units: mg/L | Prep Date: 11/9/2019      | RunNo: 5576   |          |           |             |      |          |      |
| Client ID: BatchQC        | Batch ID: 2344 | TestNo: E200.8        | E3005       | Analysis Date: 11/13/2019 | SeqNo: 105844 |          |           |             |      |          |      |
| Analyte                   | Result         | PQL                   | SPK value   | SPK Ref Val               | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Lead                      | 0.0890         | 0.000100              | 0.1000      | 0.0001590                 | 88.8          | 70       | 130       |             |      |          |      |

|                            |                |                       |             |                           |               |          |           |             |      |          |      |
|----------------------------|----------------|-----------------------|-------------|---------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: 19110273-01BMSD | SampType: MSD  | TestCode: ICPMS_200.8 | Units: mg/L | Prep Date: 11/9/2019      | RunNo: 5576   |          |           |             |      |          |      |
| Client ID: BatchQC         | Batch ID: 2344 | TestNo: E200.8        | E3005       | Analysis Date: 11/13/2019 | SeqNo: 105845 |          |           |             |      |          |      |
| Analyte                    | Result         | PQL                   | SPK value   | SPK Ref Val               | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Lead                       | 0.0942         | 0.000100              | 0.1000      | 0.0001590                 | 94.0          | 70       | 130       | 0.08898     | 5.65 | 20       |      |

**Qualifiers:** C1 Sample container temperature is out of limit as specified at testcode  
ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded  
PL Permit Limit

MI Recovery outside control limits due to Matrix In  
RL Reporting Detection Limit

Original



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# QC SUMMARY REPORT

WO#: 19110224  
18-Nov-19

**Client:** Apex Companies LLC  
**Project:** 2112-05 Former Gun Club

**TestCode:** ICPMS\_200.8\_W

|                    |                |                       |             |                           |               |          |           |             |      |          |      |
|--------------------|----------------|-----------------------|-------------|---------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: MB-2343 | SampType: MBLK | TestCode: ICPMS_200.8 | Units: mg/L | Prep Date: 11/9/2019      | RunNo: 5543   |          |           |             |      |          |      |
| Client ID: PBW     | Batch ID: 2343 | TestNo: E200.8        | E200.8      | Analysis Date: 11/12/2019 | SeqNo: 105223 |          |           |             |      |          |      |
| Analyte            | Result         | PQL                   | SPK value   | SPK Ref Val               | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Lead               | ND             | 0.000100              |             |                           |               |          |           |             |      |          |      |

|                     |                |                       |             |                           |               |          |           |             |      |          |      |
|---------------------|----------------|-----------------------|-------------|---------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: LCS-2343 | SampType: LCS  | TestCode: ICPMS_200.8 | Units: mg/L | Prep Date: 11/9/2019      | RunNo: 5543   |          |           |             |      |          |      |
| Client ID: LCSW     | Batch ID: 2343 | TestNo: E200.8        | E200.8      | Analysis Date: 11/12/2019 | SeqNo: 105224 |          |           |             |      |          |      |
| Analyte             | Result         | PQL                   | SPK value   | SPK Ref Val               | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Lead                | 0.0875         | 0.000100              | 0.1000      | 0                         | 87.5          | 85       | 115       |             |      |          |      |

|                           |                |                       |             |                           |               |          |           |             |      |          |      |
|---------------------------|----------------|-----------------------|-------------|---------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: 19110286-03AMS | SampType: MS   | TestCode: ICPMS_200.8 | Units: mg/L | Prep Date: 11/9/2019      | RunNo: 5543   |          |           |             |      |          |      |
| Client ID: BatchQC        | Batch ID: 2343 | TestNo: E200.8        | E200.8      | Analysis Date: 11/12/2019 | SeqNo: 105229 |          |           |             |      |          |      |
| Analyte                   | Result         | PQL                   | SPK value   | SPK Ref Val               | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Lead                      | 0.0879         | 0.000100              | 0.1000      | 0.0002250                 | 87.7          | 70       | 130       |             |      |          |      |

|                            |                |                       |             |                           |               |          |           |             |      |          |      |
|----------------------------|----------------|-----------------------|-------------|---------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: 19110286-03AMSD | SampType: MSD  | TestCode: ICPMS_200.8 | Units: mg/L | Prep Date: 11/9/2019      | RunNo: 5543   |          |           |             |      |          |      |
| Client ID: BatchQC         | Batch ID: 2343 | TestNo: E200.8        | E200.8      | Analysis Date: 11/12/2019 | SeqNo: 105230 |          |           |             |      |          |      |
| Analyte                    | Result         | PQL                   | SPK value   | SPK Ref Val               | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Lead                       | 0.0860         | 0.000100              | 0.1000      | 0.0002250                 | 85.8          | 70       | 130       | 0.08793     | 2.22 | 20       |      |

**Qualifiers:** C1 Sample container temperature is out of limit as specified at testcode  
ND Not Detected at the Reporting Limit

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PL Permit Limit

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# QC SUMMARY REPORT

WO#: 19110224  
18-Nov-19

**Client:** Apex Companies LLC  
**Project:** 2112-05 Former Gun Club

**TestCode:** PAH\_W

|                        |        |                |           |                 |      |             |           |                          |      |               |      |
|------------------------|--------|----------------|-----------|-----------------|------|-------------|-----------|--------------------------|------|---------------|------|
| Sample ID: MB-2319     |        | SampType: MBLK |           | TestCode: PAH_W |      | Units: µg/L |           | Prep Date: 11/7/2019     |      | RunNo: 5491   |      |
| Client ID: PBW         |        | Batch ID: 2319 |           | TestNo: SW8270C |      | SW8270      |           | Analysis Date: 11/8/2019 |      | SeqNo: 104367 |      |
| Analyte                | Result | PQL            | SPK value | SPK Ref Val     | %REC | LowLimit    | HighLimit | RPD Ref Val              | %RPD | RPDLimit      | Qual |
| Acenaphthene           | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Acenaphthylene         | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Anthracene             | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Benzo(a)anthracene     | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Benzo(a)pyrene         | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Benzo(b)fluoranthene   | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Benzo(g,h,i)perylene   | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Benzo(k)fluoranthene   | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Chrysene               | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Dibenz(a,h)anthracene  | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Fluoranthene           | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Fluorene               | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Indeno(1,2,3-cd)pyrene | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Naphthalene            | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Phenanthrene           | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Pyrene                 | ND     | 0.100          |           |                 |      |             |           |                          |      |               |      |
| Surr: 2-Fluorobiphenyl | 7.75   |                | 10.00     |                 | 77.5 | 63          | 110       |                          |      |               |      |
| Surr: 4-Terphenyl-d14  | 7.78   |                | 10.00     |                 | 77.8 | 68          | 110       |                          |      |               |      |

|                     |                |                 |             |                          |               |          |           |             |      |          |      |
|---------------------|----------------|-----------------|-------------|--------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: LCS-2319 | SampType: LCS  | TestCode: PAH_W | Units: µg/L | Prep Date: 11/7/2019     | RunNo: 5491   |          |           |             |      |          |      |
| Client ID: LCSW     | Batch ID: 2319 | TestNo: SW8270C | SW8270      | Analysis Date: 11/8/2019 | SeqNo: 104369 |          |           |             |      |          |      |
| Analyte             | Result         | PQL             | SPK value   | SPK Ref Val              | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Acenaphthene        | 8.10           | 0.100           | 10.00       | 0                        | 81.0          | 55       | 115       |             |      |          |      |

**Qualifiers:** C1 Sample container temperature is out of limit as specified at testcode  
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# QC SUMMARY REPORT

WO#: 19110224  
18-Nov-19

**Client:** Apex Companies LLC  
**Project:** 2112-05 Former Gun Club

**TestCode:** PAH\_W

| Sample ID: LCS-2319    |        | SampType: LCS  |           | TestCode: PAH_W |      | Units: µg/L |           | Prep Date: 11/7/2019     |      | RunNo: 5491   |      |
|------------------------|--------|----------------|-----------|-----------------|------|-------------|-----------|--------------------------|------|---------------|------|
| Client ID: LCSW        |        | Batch ID: 2319 |           | TestNo: SW8270C |      | SW8270      |           | Analysis Date: 11/8/2019 |      | SeqNo: 104369 |      |
| Analyte                | Result | PQL            | SPK value | SPK Ref Val     | %REC | LowLimit    | HighLimit | RPD Ref Val              | %RPD | RPDLimit      | Qual |
| Acenaphthylene         | 8.11   | 0.100          | 10.00     | 0               | 81.1 | 50          | 120       |                          |      |               |      |
| Anthracene             | 8.37   | 0.100          | 10.00     | 0               | 83.7 | 70          | 120       |                          |      |               |      |
| Benzo(a)anthracene     | 8.13   | 0.100          | 10.00     | 0               | 81.3 | 70          | 125       |                          |      |               |      |
| Benzo(a)pyrene         | 7.82   | 0.100          | 10.00     | 0               | 78.2 | 70          | 130       |                          |      |               |      |
| Benzo(b)fluoranthene   | 7.87   | 0.100          | 10.00     | 0               | 78.7 | 70          | 125       |                          |      |               |      |
| Benzo(g,h,i)perylene   | 8.38   | 0.100          | 10.00     | 0               | 83.8 | 70          | 130       |                          |      |               |      |
| Benzo(k)fluoranthene   | 8.11   | 0.100          | 10.00     | 0               | 81.1 | 70          | 130       |                          |      |               |      |
| Chrysene               | 8.13   | 0.100          | 10.00     | 0               | 81.3 | 70          | 120       |                          |      |               |      |
| Dibenz(a,h)anthracene  | 8.13   | 0.100          | 10.00     | 0               | 81.3 | 70          | 130       |                          |      |               |      |
| Fluoranthene           | 8.21   | 0.100          | 10.00     | 0               | 82.1 | 70          | 125       |                          |      |               |      |
| Fluorene               | 7.95   | 0.100          | 10.00     | 0               | 79.5 | 65          | 125       |                          |      |               |      |
| Indeno(1,2,3-cd)pyrene | 8.35   | 0.100          | 10.00     | 0               | 83.5 | 70          | 130       |                          |      |               |      |
| Naphthalene            | 7.50   | 0.100          | 10.00     | 0               | 75.0 | 60          | 130       |                          |      |               |      |
| Phenanthrene           | 8.19   | 0.100          | 10.00     | 0               | 81.9 | 70          | 125       |                          |      |               |      |
| Pyrene                 | 7.86   | 0.100          | 10.00     | 0               | 78.6 | 70          | 130       |                          |      |               |      |
| Surr: 2-Fluorobiphenyl | 7.66   |                | 10.00     |                 | 76.6 | 63          | 110       |                          |      |               |      |
| Surr: 4-Terphenyl-d14  | 8.22   |                | 10.00     |                 | 82.2 | 68          | 110       |                          |      |               |      |

|                      |                |                 |             |                          |               |          |           |             |      |          |      |
|----------------------|----------------|-----------------|-------------|--------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: LCSD-2319 | SampType: LCSD | TestCode: PAH_W | Units: µg/L | Prep Date: 11/7/2019     | RunNo: 5491   |          |           |             |      |          |      |
| Client ID: LCSS02    | Batch ID: 2319 | TestNo: SW8270C | SW8270      | Analysis Date: 11/8/2019 | SeqNo: 104370 |          |           |             |      |          |      |
| Analyte              | Result         | PQL             | SPK value   | SPK Ref Val              | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Acenaphthene         | 8.60           | 0.100           | 10.00       | 0                        | 86.0          | 55       | 115       | 8.100       | 5.99 | 25       |      |
| Acenaphthylene       | 8.68           | 0.100           | 10.00       | 0                        | 86.8          | 50       | 120       | 8.110       | 6.79 | 25       |      |

**Qualifiers:** C1 Sample container temperature is out of limit as specified at testcode  
ND Not Detected at the Reporting Limit

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# QC SUMMARY REPORT

WO#: 19110224  
18-Nov-19

**Client:** Apex Companies LLC  
**Project:** 2112-05 Former Gun Club

**TestCode:** PAH\_W

| Sample ID: LCSD-2319   | SampType: LCSD | TestCode: PAH_W | Units: µg/L | Prep Date: 11/7/2019     | RunNo: 5491   |          |           |             |      |          |      |
|------------------------|----------------|-----------------|-------------|--------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Client ID: LCSS02      | Batch ID: 2319 | TestNo: SW8270C | SW8270      | Analysis Date: 11/8/2019 | SeqNo: 104370 |          |           |             |      |          |      |
| Analyte                | Result         | PQL             | SPK value   | SPK Ref Val              | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Anthracene             | 9.06           | 0.100           | 10.00       | 0                        | 90.6          | 70       | 120       | 8.370       | 7.92 | 25       |      |
| Benzo(a)anthracene     | 8.90           | 0.100           | 10.00       | 0                        | 89.0          | 70       | 125       | 8.130       | 9.04 | 25       |      |
| Benzo(a)pyrene         | 8.52           | 0.100           | 10.00       | 0                        | 85.2          | 70       | 130       | 7.820       | 8.57 | 25       |      |
| Benzo(b)fluoranthene   | 8.61           | 0.100           | 10.00       | 0                        | 86.1          | 70       | 125       | 7.870       | 8.98 | 25       |      |
| Benzo(g,h,i)perylene   | 9.20           | 0.100           | 10.00       | 0                        | 92.0          | 70       | 130       | 8.380       | 9.33 | 25       |      |
| Benzo(k)fluoranthene   | 8.82           | 0.100           | 10.00       | 0                        | 88.2          | 70       | 130       | 8.110       | 8.39 | 25       |      |
| Chrysene               | 8.94           | 0.100           | 10.00       | 0                        | 89.4          | 70       | 120       | 8.130       | 9.49 | 25       |      |
| Dibenz(a,h)anthracene  | 8.91           | 0.100           | 10.00       | 0                        | 89.1          | 70       | 130       | 8.130       | 9.15 | 25       |      |
| Fluoranthene           | 8.78           | 0.100           | 10.00       | 0                        | 87.8          | 70       | 125       | 8.210       | 6.71 | 25       |      |
| Fluorene               | 8.51           | 0.100           | 10.00       | 0                        | 85.1          | 65       | 125       | 7.950       | 6.80 | 25       |      |
| Indeno(1,2,3-cd)pyrene | 9.18           | 0.100           | 10.00       | 0                        | 91.8          | 70       | 130       | 8.350       | 9.47 | 25       |      |
| Naphthalene            | 8.17           | 0.100           | 10.00       | 0                        | 81.7          | 60       | 130       | 7.500       | 8.55 | 25       |      |
| Phenanthrene           | 8.83           | 0.100           | 10.00       | 0                        | 88.3          | 70       | 125       | 8.190       | 7.52 | 25       |      |
| Pyrene                 | 8.67           | 0.100           | 10.00       | 0                        | 86.7          | 70       | 130       | 7.860       | 9.80 | 25       |      |
| Surr: 2-Fluorobiphenyl | 8.09           |                 | 10.00       |                          | 80.9          | 63       | 110       |             | 0    | 0        |      |
| Surr: 4-Terphenyl-d14  | 8.92           |                 | 10.00       |                          | 89.2          | 68       | 110       |             | 0    | 0        |      |

|                           |                |                 |             |                          |               |          |           |             |      |          |      |
|---------------------------|----------------|-----------------|-------------|--------------------------|---------------|----------|-----------|-------------|------|----------|------|
| Sample ID: 19110224-01AMS | SampType: MS   | TestCode: PAH_W | Units: µg/L | Prep Date: 11/7/2019     | RunNo: 5491   |          |           |             |      |          |      |
| Client ID: S-1            | Batch ID: 2319 | TestNo: SW8270C | SW8270      | Analysis Date: 11/8/2019 | SeqNo: 104375 |          |           |             |      |          |      |
| Analyte                   | Result         | PQL             | SPK value   | SPK Ref Val              | %REC          | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| Acenaphthene              | 7.90           | 0.100           | 10.00       | 0                        | 79.0          | 55       | 115       |             |      |          |      |
| Acenaphthylene            | 7.94           | 0.100           | 10.00       | 0                        | 79.4          | 50       | 120       |             |      |          |      |
| Anthracene                | 8.56           | 0.100           | 10.00       | 0                        | 85.6          | 70       | 120       |             |      |          |      |

**Qualifiers:** C1 Sample container temperature is out of limit as specified at testcode  
ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded  
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MI Recovery outside control limits due to Matrix In  
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# QC SUMMARY REPORT

WO#: 19110224  
18-Nov-19

**Client:** Apex Companies LLC  
**Project:** 2112-05 Former Gun Club

**TestCode:** PAH\_W

| Sample ID: 19110224-01AMS |        | SampType: MS   |           | TestCode: PAH_W |      | Units: µg/L |           | Prep Date: 11/7/2019     |      | RunNo: 5491   |      |
|---------------------------|--------|----------------|-----------|-----------------|------|-------------|-----------|--------------------------|------|---------------|------|
| Client ID: S-1            |        | Batch ID: 2319 |           | TestNo: SW8270C |      | SW8270      |           | Analysis Date: 11/8/2019 |      | SeqNo: 104375 |      |
| Analyte                   | Result | PQL            | SPK value | SPK Ref Val     | %REC | LowLimit    | HighLimit | RPD Ref Val              | %RPD | RPDLimit      | Qual |
| Benzo(a)anthracene        | 8.57   | 0.100          | 10.00     | 0               | 85.7 | 70          | 125       |                          |      |               |      |
| Benzo(a)pyrene            | 8.37   | 0.100          | 10.00     | 0.1300          | 82.4 | 70          | 130       |                          |      |               |      |
| Benzo(b)fluoranthene      | 8.11   | 0.100          | 10.00     | 0               | 81.1 | 70          | 125       |                          |      |               |      |
| Benzo(g,h,i)perylene      | 8.96   | 0.100          | 10.00     | 0               | 89.6 | 70          | 130       |                          |      |               |      |
| Benzo(k)fluoranthene      | 8.71   | 0.100          | 10.00     | 0               | 87.1 | 70          | 130       |                          |      |               |      |
| Chrysene                  | 8.49   | 0.100          | 10.00     | 0               | 84.9 | 70          | 120       |                          |      |               |      |
| Dibenz(a,h)anthracene     | 8.65   | 0.100          | 10.00     | 0               | 86.5 | 70          | 130       |                          |      |               |      |
| Fluoranthene              | 8.51   | 0.100          | 10.00     | 0               | 85.1 | 70          | 125       |                          |      |               |      |
| Fluorene                  | 7.95   | 0.100          | 10.00     | 0               | 79.5 | 65          | 125       |                          |      |               |      |
| Indeno(1,2,3-cd)pyrene    | 8.88   | 0.100          | 10.00     | 0               | 88.8 | 70          | 130       |                          |      |               |      |
| Naphthalene               | 7.18   | 0.100          | 10.00     | 0               | 71.8 | 60          | 130       |                          |      |               |      |
| Phenanthrene              | 8.33   | 0.100          | 10.00     | 0               | 83.3 | 70          | 125       |                          |      |               |      |
| Pyrene                    | 8.13   | 0.100          | 10.00     | 0               | 81.3 | 70          | 130       |                          |      |               |      |
| Surr: 2-Fluorobiphenyl    | 7.34   |                | 10.00     |                 | 73.4 | 63          | 110       |                          |      |               |      |
| Surr: 4-Terphenyl-d14     | 9.11   |                | 10.00     |                 | 91.1 | 68          | 110       |                          |      |               |      |

| Qualifiers: | C1 |                                     | Sample container temperature is out of limit as specified at testcode |              | H  |              | Holding times for preparation or analysis exceeded |                           | MI |                           | Recovery outside control limits due to Matrix In |                           |
|-------------|----|-------------------------------------|-----------------------------------------------------------------------|--------------|----|--------------|----------------------------------------------------|---------------------------|----|---------------------------|--------------------------------------------------|---------------------------|
|             | ND | Not Detected at the Reporting Limit | PL                                                                    | Permit Limit | PL | Permit Limit | RL                                                 | Reporting Detection Limit | RL | Reporting Detection Limit | RL                                               | Reporting Detection Limit |
| Original    |    |                                     |                                                                       |              |    |              |                                                    |                           |    |                           |                                                  |                           |

## Chain of Custody Record

This Chain of Custody is a LEGAL DOCUMENT and must be filled out accurately.

| Section A<br>Required Client Information |                                                                     | Section B<br>Required Project Information |                                                          | Section C<br>Invoice Information |                                       | Section D<br>Rush Status (Subject to Scheduling) |                                                                     |
|------------------------------------------|---------------------------------------------------------------------|-------------------------------------------|----------------------------------------------------------|----------------------------------|---------------------------------------|--------------------------------------------------|---------------------------------------------------------------------|
| Company:                                 | Apex Companies, LLC                                                 | Project Name:                             | Former gun club                                          | Attention:                       | Cindi Joy Staller                     |                                                  | <input checked="" type="checkbox"/> Standard 10-14 Days             |
| Address:                                 | 3015 SW 1st Ave<br>Portland, Oregon 97201                           | Project Number:                           | 2112-05                                                  | Company Name:                    | Apex companies                        |                                                  | <input checked="" type="checkbox"/> 5 Business Days (50% surcharge) |
| Email:                                   | jfoxwell@apexcos.com                                                | Report To:                                | John Foxwell                                             | Address:                         | 3015 SW 1st Ave<br>Portland, OR 97201 |                                                  | <input type="checkbox"/> 3 Business Days (75% surcharge)            |
| Phone:                                   | (503) 924-4704                                                      | Copy To:                                  | Kelsi Evans                                              |                                  |                                       |                                                  | <input type="checkbox"/> 24 - 48 hours (100% surcharge)             |
| Fax:                                     |                                                                     |                                           | Kelsi.Evans@apexcos.com                                  | O. #                             |                                       |                                                  | <input type="checkbox"/> Other _____                                |
| Collected By (Print):                    | Jake Munsey                                                         |                                           |                                                          |                                  |                                       |                                                  | Authorized Yes No                                                   |
| Collected By (Sign):                     | [Signature]                                                         |                                           |                                                          |                                  |                                       |                                                  |                                                                     |
| Email Report                             | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Mail Report                               | <input type="checkbox"/> Yes <input type="checkbox"/> No |                                  |                                       |                                                  |                                                                     |
| Fax Report                               | <input type="checkbox"/> Yes <input type="checkbox"/> No            |                                           |                                                          |                                  |                                       |                                                  |                                                                     |

[illegible]

| Section F                             | Section G                                                                                                                    |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Relinquish/Receive                    | Lab Use Only                                                                                                                 |
| Sign                                  | Temp <u>1.90C</u>                                                                                                            |
| Relinquished By: <u>Jake Munsey</u>   | 4°C +/- 2°C: Yes <u>    </u> No <u>    </u>                                                                                  |
| Received By:                          | Received on Ice: <u>X</u> Yes <u>    </u> No <u>    </u>                                                                     |
| Relinquished By:                      | Number of Bottles Received: <u>10</u>                                                                                        |
| Received By:                          | pH Checked: <u>    </u>                                                                                                      |
| Relinquished By:                      | COC Seals Intact: Yes <u>    </u> No <u>    </u> NA <u>    </u>                                                              |
| Received By Laboratory: <u>Dr. On</u> | Field Blank Included: Yes <u>    </u> No <u>    </u>                                                                         |
|                                       | Received Via <u>    </u> UPS <u>X</u> FedEx <u>    </u> Other <u>    </u> Hand <u>    </u>                                   |
|                                       | Payment: <u>X</u> Invoice <u>    </u> Cash <u>    </u> VISA <u>    </u> M/C <u>    </u> Check <u>    </u> Amount <u>    </u> |



# NEILSON RESEARCH CORPORATION (NRC) STANDARD TERMS AND CONDITIONS

Unless otherwise agreed in a formal contract, services provided by NRC are expressly limited to the terms and conditions stated herein.

**Confidentiality:** Strict confidentiality is maintained in all of our dealing with clients. Confidentiality agreements, therefore, are signed willingly. In any instance where information is subpoenaed and must be released to a regulatory or legal body, the client is promptly notified. Likewise, the client agrees to respect all such relationships of trust. Client agrees not to use NRC's name and/or data in any manner which might cause harm to the company's reputation and/or business.

**Payment Terms:** Payment in advance is required for all clients except those whose credit has been established with our company. For clients with NRC-approved credit, payment terms are net balance due 30 days from the date of invoice. After which time a 1% per month late charge is added to all unpaid balances. NRC has the right to ask for payment in advance if the established payment terms are not adhered to. In the event of default in payment for services rendered, the client is responsible for reasonable collection charges including any court costs and attorney's fees incurred by NRC.

**Billing:** All fees are charged or billed directly to the client. The billing of a third party is not accepted without a signed statement in which the third party acknowledges and accepts payment responsibility. (Note: NRC is not responsible for re-collecting samples whose holding times have been exceeded due to late or unauthorized requests for third-party billing). It is necessary for us to assume that the paperwork submitted with a sample describes the testing protocol desired. Any changes to this protocol must be submitted to NRC in writing. However, if changes are made after the originally requested testing is initiated or has been completed, the client must accept payment responsibility. We cannot be responsible for holding times that are exceeded due to such changes. Please send all requests for charges marked: "Client Service—URGENT!" Our fax number is (541) 770-2901.

**Fee Discounts:** Economy-of-scale discounts are available and are determined by the number of samples and the nature and spectrum of the requested analyses. For established clients, discount rates are reevaluated annually, and a new rate is applied to future invoices based upon the previous year's volume of work, type of analyses, ease of scheduling, and work continuity. For clients with intermittent analytical needs, discounts may be extended based upon the quantity of work submitted at one time (\$1000-\$4900 = 510 net 30, \$5000+ = 1010 net 30). All discounts are contingent upon meeting payment terms. NRC reserves the right to drop discounts on late payments. No discounts apply to services provided by hourly rate, supplies, equipment used, subcontractors, etc.

**Rush Analyses:** A surcharge is added to the list fee if rapid turnaround time (TAT) is requested. The surcharge for rush TAT will be List x 1.5 for 5-day TAT, List x 1.75 for 3-day TAT, List x 2 for 1-2 business days, and List x 3 for weekends and holidays. Standard TAT is 10 working days. Rush analysis service is contingent upon laboratory workload and must be prearranged with NRC. However, any sample delivered after 3:00 p.m. will not be entered in to our rush analysis handling system until the next business day.

**Hazardous Materials/Substances/Wastes:** Unused portions of samples found or suspected to be hazardous according to state or federal guidelines shall be picked up by the client upon completion of the analytical work. The cost of returning the sample or for disposal shall be invoiced to the client. The sample and portions thereof remain the property of the client at all times. (Note: For the protection of laboratory personnel, samples which might present health hazards, such as those containing high levels of toxic materials, must be clearly marked and identified.)

**Reports:** NRC prohibits use of its name in connection with any unauthorized conclusions based on its reports without its prior written consent.

**Special Reports:** Additional charges may be necessary for customized reports which differ significantly from the NRC format. No reports or copies thereof will be sent to anyone other than the client unless the client formally requests us to do so in writing.

**Litigation:** All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by NRC, in connection with work performed for that client shall be paid by the client. Such costs shall include, but are not limited to, hourly charge for persons involved in responding to subpoenas, travel and accommodations, mileage, attorney's preparation of testimony and advice of counsel in connection with response to subpoenas, and all other expenses deemed reasonable and associated with said litigation.

**Warranty and Limits of Liability:** In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. We disclaim any other warranties, expressed or implied, including a Warranty of Fitness for Particular Purpose and Warranty of Merchantability. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by the company which includes any condition that varies from this Standard Terms and Conditions, and NRC hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

**Retention of Samples:** After the analytical results have been reported to the address indicated on the reverse of this form, samples are routinely retained in our storage facilities according to the following schedule. Hazardous samples will be picked up by the client or returned to the client immediately after analysis. Prior arrangements must be made if samples are to be held for periods longer than those indicated. NRC may charge a monthly fee for long-term storage. Unrefrigerated long-term storage is available at \$10.00 per sample per month.

| Sample type                                                                          | Retention Time               |
|--------------------------------------------------------------------------------------|------------------------------|
| Hazardous Nono                                                                       | (Client deliver and pick up) |
| All other samples                                                                    | 1 month                      |
| (Note: Water tested for Total Coliforms is discarded immediately after the analysis) |                              |

**Retention of Reports:** After analytical results have been reported to the client, NRC shall retain copies of such analytical reports for a minimum of five years. If a client requests additional copies of such analytical reports during the retention period, an additional charge will apply for the preparation and printing of such reports.

**Sample Containers/Sample Collection:** We will provide and ship the appropriate sample containers to our clients to return to NRC for analysis, at no charge, via non-priority shipping status. Clients requesting overnight or rush delivery of sample containers will be invoiced for the associated charges. NRC personnel are available for the on-site collection of samples and can explain sample collection procedures and techniques to clients. It is the responsibility of the client to ensure proper sampling and to bear the cost of delivering samples to the laboratory under the proper storage/preservation conditions. We cannot be held responsible for sample integrity unless the sampling has been performed by a member of our staff.

**Analytical Service Orders:** Requests for analytical services may be made by telephone, fax, or in writing. The client must confirm all requests for services in writing. We cannot be responsible for holding times that are exceeded for samples delivered on weekends or after 5:00 p.m. on weekdays if delivery is made without prior notification and approval. NRC reserves the right to refuse to proceed with an analytical request if the client fails to provide acceptable written analytical request or to establish a customer credit agreement.

Prior to submission of environmental samples, the client should develop an appropriate QA/QC plan. This plan should identify, among other items the intent of the project, sample collection and preservation requirements, types of QC samples that are required (e.g. matrix spikes, matrix spike duplicates, field blanks, transfer blanks), laboratory analyses/methods to be performed, minimum data reporting requirements and required sample TAT. This plan should be submitted to NRC prior to sample submission. Unless such a plan is submitted, NRC shall not be responsible for project-specific QA/QC requirements. NRC personnel can assist in the preparation of project QA/QC plans.

Additional QC samples which might be requested, and which we consider "project-specific," are billed at the applicable unit price for the test(s). Such additional charges will apply to project-specific QA/QC samples for batches with fewer than ten samples, and to field/transport QA/QC samples. Samples with multiple phases (e.g. water/soil) will have each phase processed, analyzed, and billed as a distinct entity unless instructions accompanying the sample specify otherwise.

When requested, NRC may release verbal or fax results in advance of the written report of results. Such results are only tentative and are subject to subsequent confirmation or modification during standard NRC QA/QC review procedures.

**Severability:** If in any judicial proceeding, a court shall refuse to enforce all the provisions stated above, the scope of any unenforceable provision shall be deemed modified and diminished to the extent necessary to render such provision valid and enforceable. In any event, the validity or enforceability of any such provision shall not affect other provisions stated above, and the terms and conditions shall be construed and enforced as if such provision had not been included.

Submission of samples is deemed acceptance of the terms and conditions stated above.

## ***Appendix C***

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### **Well Logs**







WATER RESOURCES DEPARTMENT,  
SALEM, OREGON 97310  
within 30 days from the date  
of well completion.

# WATER WELL REPORT

STATE OF OREGON  
(Please type or print)

Pg. 1 ( of 2 )

State Well No.

OCT - 8 1979

State Permit No.

WATER RESOURCES DEPT

## (1) OWNER:

Name City of Redmond

Address City Hall

Redmond, Oregon 97756

## (2) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 12.

## (3) TYPE OF WELL:

Driven ☐  
Jettied ☐  
Bored ☐

## (4) PROPOSED USE (check):

Domestic ☐ Industrial ☐ Municipal ☒  
Irrigation ☐ Test Well ☐ Other ☐

## (5) CASING INSTALLED:

16" Diam. from +3 ft. to 32 ft. Gage #250  
4" Diam. from +8" ft. to 452 ft. Gage #375  
" Diam. from " ft. to " ft. Gage "

## (6) PERFORATIONS:

Perforated? ☒ Yes ☐ No.

Type of perforator used Factory

Size of perforations 3/16 in. by 4 in.  
2,000 perforations from 347 ft. to 452 ft.  
perforations from " ft. to " ft.  
perforations from " ft. to " ft.

## (7) SCREENS:

Well screen installed? ☐ Yes ☒ No

Manufacturer's Name

Type Model No.  
Diam. Slot size Set from " ft. to " ft.  
Diam. Slot size Set from " ft. to " ft.

## (8) WELL TESTS:

Drawdown is amount water level is  
lowered below static level Valley

a pump test made? ☒ Yes ☐ No If yes, by whom? Pump  
Yield: 1100 gal./min. with 345 ft. drawdown after 24 hrs.

per test gal./min. with " ft. drawdown after " hrs.

Artesian flow g.p.m.

Temperature of water 61\* Depth artesian flow encountered " ft.

## (9) CONSTRUCTION:

Well seal—Material used Cement  
Well sealed from land surface to 32 ft.  
Diameter of well bore to bottom of seal 20 in.  
Diameter of well bore below seal 20 in.  
Number of sacks of cement used in well seal 38 sacks  
How was cement grout placed? pressure grouted

Was a drive shoe used? ☐ Yes ☒ No Plugs " Size: location " ft.

Did any strata contain unusable water? ☐ Yes ☒ No

Type of water? " depth of strata

Method of sealing strata off

Was well gravel packed? ☒ Yes ☐ No Size of gravel: 1/2" minus

Gravel placed from 340 ft. to 452 ft.

## (10) LOCATION OF WELL:

County Deschutes

Driller's well number

1/4 1/4 Section 22 T. 15S R. 13E W.M.

Bearing and distance from section or subdivision corner

## (11) WATER LEVEL: Completed well.

Depth at which water was first found 318 ft.

Static level 315 ft. below land surface. Date 9-21

Artesian pressure lbs. per square inch. Date

## (12) WELL LOG:

Diameter of well below casing ---

Depth drilled 452 ft. Depth of completed well 452 ft.

Formation: Describe color, texture, grain size and structure of materials;  
and show thickness and nature of each stratum and aquifer penetrated,  
with at least one entry for each change of formation. Report each change in  
position of Static Water Level and indicate principal water-bearing strata.

| MATERIAL                       | From | To  | SWL |
|--------------------------------|------|-----|-----|
| Top Soil                       | 0    | 4   |     |
| Lava & Lava Cinder             | 4    | 27  |     |
| Brown Conglomerate             | 27   | 46  |     |
| Diced Lava                     | 46   | 49  |     |
| Lava, Fissured                 | 49   | 63  |     |
| Brown Conglomerate             | 63   | 65  |     |
| Diced Lava/ with some red      | 65   | 80  |     |
| Brown Conglomerate             | 80   | 85  |     |
| Broken Lava                    | 85   | 97  |     |
| Brown Conglomerate             | 97   | 107 |     |
| Grey-Brown Lava Conglomerate   | 107  | 121 |     |
| Cindered Conglomerate/Red-Brn  | 121  | 127 |     |
| Grey Lava Conglomerate         | 127  | 155 |     |
| Lava Conglomerate/ with Red    |      |     |     |
| Rock & Some Cinders            | 155  | 160 |     |
| Dark Grey Broken Lava          | 160  | 170 |     |
| Brown Conglomerate/mild gravel | 170  | 175 |     |
| Brown Sandstone                | 175  | 205 |     |
| Dark, Mild Sandstone           | 205  | 215 |     |

Work started 7-13 1979 Completed 9-23 1979

Date well drilling machine moved off of well 9-23 1979

## Drilling Machine Operator's Certification:

This well was constructed under my direct supervision.  
Materials used and information reported above are true to my  
best knowledge and belief.

[Signed] David Miller Date 9-27, 1979  
(Drilling Machine Operator)

Drilling Machine Operator's License No. 967

## Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is  
true to the best of my knowledge and belief.

Name Orvail Buckner Well Drilling, Inc.

(Person, firm or corporation) (Type or print)

Address 1686 N.E. Negus Way, Redmond, Ore. 97756

[Signed] Orvail Buckner (Water Well Contractor)

Contractor's License No. 608 Date 9-27, 1979



NOTICE TO WATER WELL CONTRACTOR  
The original and first copy of this report  
are to be filed with the

WATER RESOURCES DEPARTMENT  
SALEM, OREGON 97310  
within 30 days from the date  
of well completion.

# WATER WELL REPORT - 31979

STATE OF OREGON  
(Please type or print)  
WATER RESOURCES DEPT  
SALEM, OREGON  
(Do not write above this line)

Pg. 2 ( of 2 )

## (1) OWNER:

Name City of Redmond

Address City Hall

Redmond, Oregon 97756

## (2) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐

If abandonment, describe material and procedure in Item 12.

## (3) TYPE OF WELL:

Driven ☐  
Jettied ☐  
Bored ☐

## (4) PROPOSED USE (check):

Domestic ☐ Industrial ☐ Municipal ☒  
Irrigation ☐ Test Well ☐ Other ☐

## (5) CASING INSTALLED:

16" Diam. from + ft. to 250 ft. Gage

" Diam. from + ft. to + ft. Gage

" Diam. from + ft. to + ft. Gage

## (6) PERFORATIONS:

Perforated? ☐ Yes ☐ No.

Type of perforator used

Size of perforations in. by in.

perforations from + ft. to + ft.

perforations from + ft. to + ft.

perforations from + ft. to + ft.

## (7) SCREENS:

Well screen installed? ☐ Yes ☒ No

Manufacturer's Name

Type Model No.

Diam. Slot size Set from + ft. to + ft.

Diam. Slot size Set from + ft. to + ft.

## (8) WELL TESTS:

Drawdown is amount water level is  
lowered below static level Valley

Is a pump test made? ☒ Yes ☐ No If yes, by whom? Pump

Yield: 1100 gal./min. with + ft. drawdown after + hrs.

" " " " " " " "

" " " " " " " "

Artesian flow g.p.m.

Temperature of water Depth artesian flow encountered + ft.

## (9) CONSTRUCTION:

Well seal—Material used Cement

Well sealed from land surface to 32 ft.

Diameter of well bore to bottom of seal 20 in.

Diameter of well bore below seal 20 in.

Number of sacks of cement used in well seal 38 sacks

How was cement grout placed? Pressure grouted

" " " " " " " "

" " " " " " " "

Was a drive shoe used? ☐ Yes ☒ No Plugs + Size: location + ft.

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? + depth of strata +

Method of sealing strata off

Was well gravel packed? ☒ Yes ☐ No Size of gravel: +

Gravel placed from + ft. to + ft.

## (10) LOCATION OF WELL:

County Deschutes Driller's well number

1/4 1/4 Section 22 T. 15S R. 13E W.M.

Bearing and distance from section or subdivision corner

## (11) WATER LEVEL: Completed well.

Depth at which water was first found 318 ft.

Static level + ft. below land surface. Date

Artesian pressure + lbs. per square inch. Date

## (12) WELL LOG:

Diameter of well below casing +

Depth drilled 452 ft. Depth of completed well 452 ft.

Formation: Describe color, texture, grain size and structure of materials;  
and show thickness and nature of each stratum and aquifer penetrated,  
with at least one entry for each change of formation. Report each change in  
position of Static Water Level and indicate principal water-bearing strata.

| MATERIAL                      | From | To  | SWL       |
|-------------------------------|------|-----|-----------|
| Dk. Mild Sandstone/traces of  |      |     |           |
| Tufted Ash                    | 215  | 232 |           |
| Broken Rock                   | 232  | 237 |           |
| Sandstone Conglomerate        | 237  | 248 |           |
| Coarse, Colored Sandstone     | 248  | 265 |           |
| Dk. Grey, Mild Lava           | 265  | 288 |           |
| Lt. Grey, Mild Lava           | 288  | 304 |           |
| Dk. Broken Basalt/with Brown  |      |     |           |
| Clay Strips                   | 304  | 318 | water     |
| " " / with Dk. Brwn Clay-     |      |     |           |
| stone & Orange/Brown Clayston | 318  | 327 |           |
| Sandstone/with Tufted Ash     | 327  | 360 |           |
| Black Cinders/with Polished   |      |     |           |
| Sand & Gravel-some color      | 360  | 375 | water     |
| Dark Brown Sandstone          | 375  | 403 |           |
| Sand & Gravel-Colored         | 403  | 410 | 311-water |
| Dark Brown Sandstone, possib- | 410  | 452 |           |
| ly some Water-Bearing         |      |     |           |

Work started 7-13 1979 Completed 9-23 1979

Date well drilling machine moved off of well 9-23 1979

## Drilling Machine Operator's Certification:

This well was constructed under my direct supervision.  
Materials used and information reported above are true to my  
best knowledge and belief.

[Signed] Paul Mills Date 9-27, 1979

(Drilling Machine Operator)

Drilling Machine Operator's License No. 967

## Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is  
true to the best of my knowledge and belief.

Name Orvail Buckner Well Drilling, Inc.  
(Person, firm or corporation) (Type or print)

Address 1686 N. E. Negus Way, Redmond, Oregon 97756

[Signed] Orvail Buckner  
(Water Well Contractor)

Contractor's License No. 608 Date 9-27, 1979



WATER RESOURCES DEPARTMENT  
SALEM, OREGON 97310  
within 30 days from the date  
of well completion.

**RECEIVED**  
STATE OF OREGON  
MAY 8 1979  
WATER RESOURCES DEPT.  
SALEM, OREGON

State Well No. 153/13E-23  
State Permit No. \_\_\_\_\_

(1) OWNER:

Name Military Dept., State of Oregon  
Address 2150 Fairgrounds Rd., N.E.  
Salem, Oregon 97303

(2) TYPE OF WORK (check):

New Well ☒ Deepening ☐ Reconditioning ☐ Abandon ☐  
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary ☒ Driven ☐  
Cable ☒ Jetted ☐  
Lug ☐ Bored ☐

(4) PROPOSED USE (check):

Domestic ☐ Industrial ☐ Municipal ☐  
Irrigation ☐ Test Well ☐ Other ☒

CASING INSTALLED:

Threaded ☐ Welded ☒  
6" Diam. from +2 ft. to 362 ft. Gage 250  
" Diam. from ft. to ft. Gage  
" Diam. from ft. to ft. Gage

PERFORATIONS:

Perforated? ☐ Yes ☒ No.

Type of perforator used \_\_\_\_\_

Size of perforations in. by in.  
perforations from ft. to ft.  
perforations from ft. to ft.  
perforations from ft. to ft.

(7) SCREENS:

Well screen installed? ☒ Yes ☐ No

Manufacturer's Name Johnson  
Type Telescopic Model No. 10 slot  
Diam. 6" Slot size 10 Set from 378 ft. to 420 ft.  
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:

Drawdown is amount water level is  
lowered below static level

Is a pump test made? ☒ Yes ☐ No If yes, by whom? Contractor  
Well: 30 gal./min. with 0 ft. drawdown after 1 hrs.

Flow test gal./min. with ft. drawdown after hrs.  
Artesian flow g.p.m.

Temperature of water 53 Depth artesian flow encountered ft.

(9) CONSTRUCTION:

Well seal—Material used cement  
Well sealed from land surface to 25 ft.  
Diameter of well bore to bottom of seal 10 in.  
Diameter of well bore below seal 8 in.  
Number of sacks of cement used in well seal 16 sacks  
How was cement grout placed? pressure grout

Was a drive shoe used? ☐ Yes ☒ No Plugs Size: location ft.  
Did any strata contain unusable water? ☐ Yes ☒ No  
Type of water? depth of strata  
Method of sealing strata off  
Was well gravel packed? ☐ Yes ☒ No Size of gravel:  
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:

County Deschutes Driller's well number \_\_\_\_\_  
Section 23 T. 15S R. 13E. W.M.  
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.

Depth at which water was first found 390 ft.  
Static level 375 ft. below land surface. Date 2-20-79  
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 8"

Depth drilled 425 ft. Depth of completed well 420 ft.

Formation: Describe color, texture, grain size and structure of materials;  
and show thickness and nature of each stratum and aquifer penetrated,  
with at least one entry for each change of formation. Report each change in  
position of Static Water Level and indicate principal water-bearing strata.

| MATERIAL                  | From | To  | SWL |
|---------------------------|------|-----|-----|
| Top-Soil                  | 0    | 4   |     |
| Lava                      | 4    | 107 |     |
| Brown Conglom.            | 107  | 113 |     |
| Lava                      | 113  | 143 |     |
| Brown Sandstone Conglom.  | 143  | 154 |     |
| Lava                      | 154  | 200 |     |
| Broken Lava & Crevices    | 200  | 210 |     |
| Lava                      | 210  | 215 |     |
| Brown Conglom.            | 215  | 224 |     |
| Lava                      | 224  | 283 |     |
| Brown Sandstone           | 283  | 320 |     |
| Black Sand                | 320  | 350 |     |
| Brown Sandstone Conglom.  | 350  | 390 |     |
| Black Sand, Water-Bearing | 390  | 425 |     |

Work started 10-30 19 78 Completed 2-16 19 79  
Date well drilling machine moved off of well 2-28 19 79

Drilling Machine Operator's Certification:

This well was constructed under my direct supervision.  
Materials used and information reported above are true to my  
best knowledge and belief.

[Signed] William D. Allen Date 5-3, 19 79  
(Drilling Machine Operator)

Drilling Machine Operator's License No. 4003

Water Well Contractor's Certification:

This well was drilled under my jurisdiction and this report is  
true to the best of my knowledge and belief.

Name Orvail Buckner Well Drilling, Inc.  
(Person, firm or corporation) (Type or print)

Address 1686 N.E. Negus Way, Redmond, Oregon 97756

[Signed] Orvail Buckner  
(Water Well Contractor)

Contractor's License No. 608 Date 5-3-79, 19 79

## ***Appendix D***

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### **CPEC Screening Tables and Pro UCL Backup**

Table D4-1 – CPEC Calculations  
Deschutes County Shooting Range Property  
Redmond, OR

| COCs                                    | Number of samples | Number of ND | Detection Frequency | Method Reporting Limit Range |        | Detected Concentrations Range |         | DEQ Background Values | Does max concentration exceed background? | Cfj     | Plants     |        |     |     | Inverts  |         |     |     |         |         |     |     |
|-----------------------------------------|-------------------|--------------|---------------------|------------------------------|--------|-------------------------------|---------|-----------------------|-------------------------------------------|---------|------------|--------|-----|-----|----------|---------|-----|-----|---------|---------|-----|-----|
|                                         |                   |              |                     | min                          |        | max                           |         |                       |                                           |         | min        |        | max |     | is TTP-Q |         | Tij | Q=1 | Q=5     | Tij/Tj  | Q=1 | Q=5 |
|                                         |                   |              |                     | min                          | max    | min                           | max     |                       |                                           |         | Plants SLV | Tij    | Q=1 | Q=5 |          |         |     |     |         |         |     |     |
| Metals (mg/kg)                          |                   |              |                     |                              |        |                               |         |                       |                                           |         |            |        |     |     |          |         |     |     |         |         |     |     |
| Aluminum                                | 43                | 0            | 100%                | --                           | --     | 4570                          | 23900   | 100,000               | N                                         | 23900   | 50         | 478    | Y   | Y   | 5.3E-02  | Y       | Q=5 | Y   | 6.0E-02 | Y       | Y   |     |
| Antimony                                | 43                | 26           | 100%                | 0.513                        | 0.609  | 0.163                         | 218     | 1.3                   | Y                                         | 218     | 5          | 43.6   | Y   | Y   | 4.8E-03  | N       | N   | N   | --      | Y       | Y   |     |
| Arsenic                                 | 43                | 0            | 100%                | --                           | --     | 0.18                          | 1390    | 6.8                   | Y                                         | 1390    | 10         | 1.39   | Y   | Y   | 1.5E-04  | N       | N   | N   | 0.232   | 3.9E-04 | Y   |     |
| Barium                                  | 43                | 0            | 100%                | --                           | --     | 8170                          | 826     | 700                   | Y                                         | 826     | 500        | 1.692  | Y   | Y   | 1.8E-04  | N       | N   | N   | 0.275   | 4.2E-04 | N   |     |
| Beryllium                               | 43                | 42           | 2%                  | 0.960                        | 55.3   | 0.61                          | 0.61    | 2.6                   | N                                         | 0.61    | 10         | 0.061  | Y   | N   | 6.8E-06  | N       | N   | N   | --      | N       | N   |     |
| Calcium                                 | 43                | 38           | 12%                 | 0.613                        | 0.628  | 0.68                          | 1420    | 0.40                  | Y                                         | 1420    | 4          | 3.55   | Y   | Y   | 3.9E-04  | N       | N   | N   | 0.170   | 1.1E-03 | N   |     |
| Cadmium                                 | 43                | 0            | 100%                | --                           | --     | 3370                          | 3370    | 100                   | N                                         | 3370    | --         | --     | N   | N   | 4.3E-03  | N       | N   | N   | 0.4     | 1.5E-01 | Y   |     |
| Chromium                                | 43                | 0            | 100%                | --                           | --     | 9.40                          | 39      | 170                   | N                                         | 39      | 1          | 39     | Y   | Y   | 4.3E-03  | N       | N   | N   | 97.5    | 1.5E-01 | Y   |     |
| Cobalt                                  | 43                | 0            | 100%                | --                           | --     | 3.42                          | 19.40   | --                    | N                                         | 19.4    | 20         | 0.97   | N   | N   | 1.5E-04  | N       | N   | N   | 0.019   | 2.9E-05 | Y   |     |
| Copper                                  | 43                | 0            | 100%                | --                           | --     | 15.50                         | 479     | 29                    | Y                                         | 479     | 100        | 479    | Y   | Y   | 5.3E-04  | N       | Y   | Y   | 3.6     | 1.4E-02 | Y   |     |
| Iron                                    | 43                | 0            | 100%                | --                           | --     | 78400                         | 78400   | 40,000                | Y                                         | 78400   | 10         | 7840   | Y   | Y   | 8.7E-01  | Y       | Y   | Y   | 332.0   | 5.9E-01 | Y   |     |
| Lead                                    | 54                | 0            | 100%                | --                           | --     | 1.72                          | 21600   | 18                    | Y                                         | 21600   | 50         | 432    | Y   | Y   | 4.8E-02  | N       | N   | N   | 43.2    | 6.5E-02 | Y   |     |
| Magnesium                               | 43                | 0            | 100%                | --                           | --     | 1070                          | 8650    | --                    | N                                         | 8650    | --         | --     | N   | N   | --       | N       | N   | N   | --      | N       | N   |     |
| Manganese                               | 43                | 0            | 100%                | --                           | --     | 76                            | 702     | 1300                  | N                                         | 702     | 500        | 1.404  | Y   | Y   | 1.8E-04  | N       | N   | Y   | 7.0     | 1.1E-02 | Y   |     |
| Mercury                                 | 43                | 41           | 5%                  | 0.0801                       | 0.249  | 0.25                          | 5.36    | 0.04                  | Y                                         | 5.36    | 0.3        | 17.87  | Y   | Y   | 2.0E-03  | N       | N   | 0.1 | 53.6    | 8.1E-02 | Y   |     |
| Nickel                                  | 43                | 0            | 100%                | --                           | --     | 17.30                         | 65.10   | 78                    | N                                         | 65.1    | 30         | 2.17   | Y   | Y   | 2.4E-04  | N       | N   | 200 | 0.326   | 4.9E-04 | Y   |     |
| Potassium                               | 43                | 0            | 100%                | --                           | --     | 528                           | 3940    | --                    | N                                         | 3940    | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Selenium                                | 43                | 39           | 9%                  | 0.506                        | 0.609  | 0.85                          | 4.04    | 0.46                  | Y                                         | 4.04    | 1          | 4.04   | Y   | N   | 4.5E-04  | N       | N   | 70  | 0.058   | 8.7E-05 | N   |     |
| Silver                                  | 43                | 39           | 9%                  | 0.506                        | 0.609  | 0.62                          | 41.70   | 0.82                  | Y                                         | 41.7    | 2          | 20.85  | Y   | Y   | 2.3E-03  | N       | N   | 50  | 0.834   | 1.3E-03 | N   |     |
| Sodium                                  | 43                | 2            | 95%                 | --                           | --     | 300                           | 1460    | --                    | N                                         | 1460    | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Thallium                                | 43                | 42           | 2%                  | 0.515                        | 0.628  | 1.57                          | 11700   | 4.6                   | N                                         | 11700   | 391.00     | 1      | 157 | Y   | N        | 1.7E-04 | N   | N   | --      | N       | N   |     |
| Tin                                     | 43                | 40           | 7%                  | 20.2                         | 26.1   | 35.10                         | 105.00  | 300                   | N                                         | 105     | 2          | 65.2   | Y   | Y   | 5.8E-03  | N       | N   | --  | --      | N       | N   |     |
| Vanadium                                | 43                | 0            | 100%                | --                           | --     | 25.10                         | 3260.00 | 130                   | Y                                         | 3260.00 | 50         | 380    | Y   | Y   | 7.7E-03  | N       | N   | N   | 16.3    | 2.5E-02 | Y   |     |
| Zinc                                    | 43                | 0            | 100%                | --                           | --     | --                            | --      | --                    | N                                         | --      | --         | --     | N   | N   | --       | N       | N   | N   | --      | N       | N   |     |
| Polyyclic Aromatic Hydrocarbons (mg/kg) |                   |              |                     |                              |        |                               |         |                       |                                           |         |            |        |     |     |          |         |     |     |         |         |     |     |
| Acenaphthene                            | 64                | 47           | 27%                 | 0.00912                      | 5.39   | 0.0164                        | 9.77    | --                    | NA                                        | 9.77    | 20         | 0.4885 | N   | N   | 5.4E-05  | N       | N   | --  | --      | N       | N   |     |
| Acenaphthylene                          | 64                | 64           | 0%                  | --                           | --     | --                            | --      | --                    | NA                                        | --      | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Anthracene                              | 64                | 47           | 27%                 | 0.00912                      | 5.39   | 0.0164                        | 9.77    | --                    | NA                                        | 9.77    | 20         | 0.4885 | N   | N   | 5.4E-05  | N       | N   | --  | --      | N       | N   |     |
| Benzo(a)anthracene                      | 64                | 30           | 53%                 | 0.00912                      | 2.02   | 0.1140                        | 136     | --                    | NA                                        | 136     | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Benzo(a)pyrene                          | 64                | 21           | 67%                 | 0.00912                      | 0.0302 | 0.0162                        | 191     | --                    | NA                                        | 191     | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Benzo(b)fluoranthene                    | 58                | 22           | 61%                 | 0.00912                      | 2.02   | 0.0425                        | 351     | --                    | NA                                        | 351     | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Benzo(b)kluoranthene                    | 6                 | 0            | 100%                | --                           | --     | 0.0158                        | 28.8    | --                    | NA                                        | 28.8    | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Benzo(g,h,i)perylene                    | 64                | 21           | 67%                 | 0.00912                      | 0.0302 | 0.0146                        | 112     | --                    | NA                                        | 112     | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Benzo(k)fluoranthene                    | 58                | 38           | 34%                 | 0.00912                      | 2.02   | 0.0180                        | 19.7    | --                    | NA                                        | 19.7    | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Chrysene                                | 64                | 24           | 63%                 | 0.00912                      | 0.0302 | 0.0302                        | 170     | --                    | NA                                        | 170     | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Dibenz(a,h)anthracene                   | 64                | 43           | 33%                 | 0.00912                      | 2.02   | 0.0152                        | 26.2    | --                    | NA                                        | 26.2    | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Fluoranthene                            | 64                | 27           | 58%                 | 0.00912                      | 2.02   | 0.0152                        | 233     | --                    | NA                                        | 233     | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Fluorene                                | 64                | 53           | 17%                 | 0.00912                      | 5.39   | 0.0153                        | 348     | --                    | NA                                        | 348     | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Indeno(1,2,3-cd)pyrene                  | 64                | 31           | 52%                 | 0.00912                      | 2.02   | 0.0154                        | 124     | --                    | NA                                        | 124     | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Phenanthrene                            | 64                | 40           | 33%                 | 0.00912                      | 2.02   | 0.0150                        | 54.3    | --                    | NA                                        | 54.3    | 10         | 0.0704 | N   | N   | 7.0E-06  | N       | N   | --  | --      | N       | N   |     |
| Pyrene                                  | 64                | 27           | 58%                 | 0.00912                      | 2.02   | 0.0156                        | 54.3    | --                    | NA                                        | 54.3    | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Pyrene                                  | 64                | 27           | 58%                 | 0.00912                      | 2.02   | 0.0176                        | 223     | --                    | NA                                        | 223     | --         | --     | N   | N   | --       | N       | N   | --  | --      | N       | N   |     |
| Polychlorinated Biphenyls (mg/kg)       |                   |              |                     |                              |        |                               |         |                       |                                           |         |            |        |     |     |          |         |     |     |         |         |     |     |
| Total PCBs                              | 9                 | 6            | 33%                 | --                           | --     | 0.12                          | 1.98    | --                    | NA                                        | 1.98    | 40         | 0.0495 | N   | N   | 5.5E-06  | N       | N   | N   | --      | --      | Y   |     |
| Total Petroleum Hydrocarbons (mg/kg)    |                   |              |                     |                              |        |                               |         |                       |                                           |         |            |        |     |     |          |         |     |     |         |         |     |     |
| Gasoline Range                          | 9                 | 9            | 0%                  | 4.29                         | 365.00 | --                            | --      | --                    | NA                                        | 365.00  | --         | --     | N   | N   | --       | N       | N   | N   | --      | --      | N   |     |
| Diesel Range                            | 9                 | 6            | 33%                 | 14.30                        | 14.30  | 14.80                         | 10300   | --                    | NA                                        | 10300   | 14.20      | --     | N   | N   | --       | N       | N   | N   | --      | --      | N   |     |
| Oil Range                               | 9                 | 5            | 44%                 | 28.40                        | 29.50  | 34.70                         | 12100   | --                    | NA                                        | 12100   | --         | --     | N   | N   | --       | N       | N   | N   | --      | --      | N   |     |

Notes:

1. mg/kg (ppm) = milligrams per kilogram (parts per million)
2. DEQ Background Levels of Metals in Soils for Cleanup, March 2013. Values shown are for Deschutes Columbia Plateau.
3. SLVs from Oregon DEQ Ecological Risk Assessment, Level II SLVs for Freshwater Sediment and Terrestrial Receptors in Soils (December 2001).
4. Background value for aluminum from Geochemical Landscapes of the Conterminous United States, USGS, November 2001.
5. Cfj = Maximum detected concentration.
6. Tij = Toxicity ratio (maximum concentration/SLV).
7. Q=1 for T&E species and 5 for non-T&E species.

Table D4-1 – CPEC Calculations  
Deschutes County Shooting Range Property  
Redmond, OR

| COCs                               | Number of samples | Number of ND | Detection Frequency | Method Reporting Limit Range |         |         | Detected Concentrations Range |            |         | DEQ Background Values | DOCS max concentration exceeded background? | Cij | Plants     |     |     |     | Inverts |     |     |         | is (Tij/Tj) >= (1/Nij)/Q | Tij/Tj | is (Tij/Tj) >= (1/Nij)/Q | Q=1 | Q=5 |     |
|------------------------------------|-------------------|--------------|---------------------|------------------------------|---------|---------|-------------------------------|------------|---------|-----------------------|---------------------------------------------|-----|------------|-----|-----|-----|---------|-----|-----|---------|--------------------------|--------|--------------------------|-----|-----|-----|
|                                    |                   |              |                     | min                          |         | max     | min                           | max        | min     |                       |                                             |     | max        | Tij | Q=1 | Q=5 | Q=1     | Q=5 |     |         |                          |        |                          |     |     |     |
|                                    |                   |              |                     | min                          | max     | min     | max                           | Plants SLV | Tij     |                       |                                             |     | is Tj>Q    |     |     |     |         |     | Q=1 | Q=5     |                          |        |                          |     |     | Q=1 |
| Volatile Organic Compounds (mg/kg) |                   |              |                     |                              |         |         |                               |            |         |                       |                                             |     |            |     |     |     |         |     |     |         |                          |        |                          |     |     |     |
| 1,1,1,2-tetrachloroethane          | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,1,1,2-trichloroethane            | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,1,2,2-tetrachloroethane          | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,1,2-trichloroethane              | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,1-Dichloroethane                 | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,1-Dichloroethene                 | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,2,3-Trimethylbenzene             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,2,3-Trichloropropane             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,2,4-Trichlorobenzene             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | 1.8E-07 | --                       | N      | N                        | N   | N   | N   |
| 1,2,4-Trimethylbenzene             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,2-Dibromo-3-Chloropropane        | 9                 | 9            | 0%                  | 0.01110                      | 0.0119  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,2-Dibromochloroethane            | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,2-Dichlorobenzene                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,2-Dichloropropane                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | 5.1E-09 | --                       | N      | N                        | N   | N   | N   |
| 1,3,5-Trimethylbenzene             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,3-Dichlorobenzene                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,3-Dichloropropane                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 1,4-Dichlorobenzene                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | 1.8E-07 | --                       | N      | N                        | N   | N   | N   |
| 2,2-Dichloropropane                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 2-Chlorotoluene (MEK)              | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 2-Hexanone                         | 9                 | 9            | 0%                  | 0.01110                      | 0.0119  | --      | --                            | --         | --      | NA                    | 0.0190                                      | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 4-Chlorotoluene                    | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| 4-Methyl-2-pentanone (MIBK)        | 9                 | 9            | 0%                  | 0.01110                      | 0.0119  | --      | --                            | --         | --      | NA                    | 0.0190                                      | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Acetone                            | 9                 | 9            | 0%                  | 0.02940                      | 0.0279  | --      | --                            | --         | --      | NA                    | 0.0260                                      | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Benzene                            | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Bromobenzene                       | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Bromochloromethane                 | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Bromofom                           | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Bromomethane                       | 9                 | 9            | 0%                  | 0.01110                      | 0.0119  | --      | --                            | --         | --      | NA                    | 0.0190                                      | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Carbon Disulfide                   | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Carbon Tetrachloride               | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Chlorobenzene                      | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | 1000    | 0.00000                  | N      | N                        | N   | N   | N   |
| Chlorodibromomethane               | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | 40      | 0.0001                   | N      | N                        | N   | N   | N   |
| Chloroethane                       | 9                 | 9            | 0%                  | 0.01110                      | 0.0119  | --      | --                            | --         | --      | NA                    | 0.0190                                      | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Chloroform                         | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Chloromethane                      | 9                 | 9            | 0%                  | 0.01110                      | 0.0119  | --      | --                            | --         | --      | NA                    | 0.0190                                      | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| cis-1,2-Dichloroethene             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| cis-1,3-Dichloropropene            | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Dibromomethane                     | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Dichlorodifluoromethane            | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Ethylbenzene                       | 9                 | 9            | 0%                  | 0.00554                      | 0.0059  | --      | --                            | --         | --      | NA                    | 0.00594                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Heaactocubadiene                   | 9                 | 9            | 0%                  | 0.00554                      | 0.0059  | --      | --                            | --         | --      | NA                    | 0.00594                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Isononylbenzene                    | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| m,p-Xylene                         | 9                 | 9            | 0%                  | 0.00443                      | 0.0047  | --      | --                            | --         | --      | NA                    | 0.00471                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Methyl tertbutyl ether (MTBE)      | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Methylene Chloride                 | 9                 | 9            | 0%                  | 0.01110                      | 0.0119  | --      | --                            | --         | --      | NA                    | 0.00471                                     | 10  | 0.00471    | N   | N   | N   | N       | N   | N   | 5.2E-08 | --                       | N      | N                        | N   | N   | N   |
| Naphthalene                        | 9                 | 9            | 0%                  | 0.00443                      | 0.0047  | --      | --                            | --         | --      | NA                    | 0.00471                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| n-Butylbenzene                     | 9                 | 9            | 0%                  | 0.00554                      | 0.0059  | --      | --                            | --         | --      | NA                    | 0.00594                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| n-Propylbenzene                    | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| o-Xylene                           | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | 1   | 0.00238    | N   | N   | N   | N       | N   | N   | 2.6E-07 | --                       | N      | N                        | N   | N   | N   |
| p-Isooctyltoluene                  | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| sec-Butylbenzene                   | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Styrene                            | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | 300 | 7.9333E-06 | N   | N   | N   | N       | N   | N   | 8.8E-10 | --                       | N      | N                        | N   | N   | N   |
| tert-Butylbenzene                  | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Tetrachloroethane                  | 9                 | 7            | 22%                 | 0.00222                      | 0.0024  | 0.01240 | 0.0194                        | 0.00229    | 0.00321 | --                    | NA                                          | 10  | 0.00194    | N   | N   | N   | N       | N   | N   | 2.2E-07 | --                       | N      | N                        | N   | N   | N   |
| Toluene                            | 9                 | 7            | 22%                 | 0.00222                      | 0.0024  | 0.00229 | 0.00321                       | 0.00229    | 0.00321 | --                    | NA                                          | 200 | 0.0001605  | N   | N   | N   | N       | N   | N   | 1.8E-09 | --                       | N      | N                        | N   | N   | N   |
| trans-1,2-Dichloroethene           | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| trans-1,3-Dichloropropene          | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Trichloroethene                    | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Trichlorofluoromethane             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Vinyl Chloride                     | 9                 | 9            | 0%                  | 0.00222                      | 0.0024  | --      | --                            | --         | --      | NA                    | 0.00238                                     | --  | --         | N   | N   | N   | N       | N   | N   | --      | --                       | N      | N                        | N   | N   | N   |
| Total Xylenes                      | 9                 | 9            | 0%                  | 0.00655                      | 0.00713 | --      | --                            | --         | --      | NA                    | 0.00713                                     | 100 | 0.0000713  | N   | N   | N   | N       | N   | N   | 7.9E-09 | --                       | N      | N                        | N   | N   | N   |

- Notes:**
- mg/kg (ppm) = milligrams per kilogram (parts per million)
  - DEQ Background Levels of Metals in Soils for Cleanups, March 2013. Values shown are for Deschutes Columbia Plateau.
  - SLVs from Oregon DEQ Ecological Risk Assessment, Level II SLVs for Freshwater Sediment and Terrestrial Receptors in Soils (December 2001).
  - Background value for aluminum from Geochemical Landscapes of the Conterminous United States, USGS, November 2001.
  - Cij = Maximum detected concentration.
  - Tij = Toxicity ratio (maximum concentration/SLV).
  - Q= 1 for T&E species and 5 for non-T&E species.







| COs                                | Number of samples | Number of ND | Detection Frequency | Method Reporting Limit Range |        | Detected Concentrations Range |        | DEQ Background Values | DOCS max concentration exceeded background? | Cij     | Birds |         |                     | Mammals |        |           | CEPC7 (assuming no T&E) |                    |     |        |             |
|------------------------------------|-------------------|--------------|---------------------|------------------------------|--------|-------------------------------|--------|-----------------------|---------------------------------------------|---------|-------|---------|---------------------|---------|--------|-----------|-------------------------|--------------------|-----|--------|-------------|
|                                    |                   |              |                     | min                          |        | max                           |        |                       |                                             |         | Tij   | Q=1     | is T1/T2>=(1/N)ijPQ | Q=5     | Tij/Tj | Q=1       |                         | is T1/P>=(1/N)ijPQ | Q=5 | Tij/Tj | Mammals SLV |
|                                    |                   |              |                     | min                          | max    | min                           | max    |                       |                                             |         |       |         |                     |         |        |           |                         |                    |     |        |             |
| Volatile Organic Compounds (mg/kg) |                   |              |                     |                              |        |                               |        |                       |                                             |         |       |         |                     |         |        |           |                         |                    |     |        |             |
| 1,1,1,2-tetrachloroethane          | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | N                       | N                  | N   | N      | N           |
| 1,1,1-trichloroethane              | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 1.7E-10   | --                      | N                  | N   | N      | N           |
| 1,1,2,2-tetrachloroethane          | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,1,2-trichloroethane              | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,1-Dichloroethane                 | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 2.9E-09   | --                      | N                  | N   | N      | N           |
| 1,1-Dichloroethane                 | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 0.000001  | --                      | N                  | N   | N      | N           |
| 1,2,3-Trichloropropane             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,2,3-Trichloropropane             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,2,4-trichlorobenzene             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,2,4-trimethylbenzene             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,2-Dibromo-3-Chloropropane        | 9                 | 9            | 0%                  | 0.01110                      | 0.0119 | --                            | --     | --                    | NA                                          | 0.01190 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,2-Dibromochloropropane           | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,2-Dibromobenzene                 | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | 3.4E-05 | N                   | N       | N      | 2.9E-08   | --                      | N                  | N   | N      | N           |
| 1,2-Dichloroethane                 | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 3.4E-09   | --                      | N                  | N   | N      | N           |
| 1,2-Dichloropropane                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,3,5-Trimethylbenzene             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,3-Dichlorobenzene                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,3-Dichlorobenzene                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 1,4-Dichlorobenzene                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 2,2-Dichloropropane                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 2,2-Dichloropropane                | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 9.9E-12   | --                      | N                  | N   | N      | N           |
| 2-Bromobenzene (MEK)               | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 1,000,000 | --                      | N                  | N   | N      | N           |
| 2-Chlorobenzene                    | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 2-Chlorobenzene                    | 9                 | 9            | 0%                  | 0.01110                      | 0.0119 | --                            | --     | --                    | NA                                          | 0.01190 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 4-Chlorobenzene                    | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| 4-Methyl-2-pentanone (MIBK)        | 9                 | 9            | 0%                  | 0.01110                      | 0.0119 | --                            | --     | --                    | NA                                          | 0.01190 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Acetone                            | 9                 | 9            | 0%                  | 0.0340                       | 0.0279 | --                            | --     | --                    | NA                                          | 0.02790 | --    | --      | N                   | N       | N      | 1,250     | 8.9E-08                 | N                  | N   | N      | N           |
| Benzene                            | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 3,300     | 2.9E-09                 | N                  | N   | N      | N           |
| Bromobenzene                       | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Bromochloromethane                 | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Bromomethane                       | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Bromomethane                       | 9                 | 9            | 0%                  | 0.01110                      | 0.0119 | --                            | --     | --                    | NA                                          | 0.01190 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Carbon Disulfide                   | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Carbon Tetrachloride               | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Chlorobenzene                      | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 2,000     | 4.7E-09                 | N                  | N   | N      | N           |
| Chlorodibromomethane               | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Chloroethane                       | 9                 | 9            | 0%                  | 0.01110                      | 0.0119 | --                            | --     | --                    | NA                                          | 0.01190 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Chloroform                         | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 1,875     | 5.0E-09                 | N                  | N   | N      | N           |
| Chloromethane                      | 9                 | 9            | 0%                  | 0.01110                      | 0.0119 | --                            | --     | --                    | NA                                          | 0.01190 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| cis-1,2-Dichloroethane             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 2,500     | 0.000001                | N                  | N   | N      | N           |
| cis-1,3-Dichloropropene            | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Dibromomethane                     | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Dichlorodifluoromethane            | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Ethylbenzene                       | 9                 | 9            | 0%                  | 0.00554                      | 0.0059 | --                            | --     | --                    | NA                                          | 0.00594 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Heptachlorobadiene                 | 9                 | 9            | 0%                  | 0.00554                      | 0.0059 | --                            | --     | --                    | NA                                          | 0.00594 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Isopropylbenzene                   | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| m,p-Xylene                         | 9                 | 9            | 0%                  | 0.00443                      | 0.0047 | --                            | --     | --                    | NA                                          | 0.00471 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Methyl tertbutyl ether (MTBE)      | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Methylene Chloride                 | 9                 | 9            | 0%                  | 0.01110                      | 0.0119 | --                            | --     | --                    | NA                                          | 0.01190 | --    | --      | N                   | N       | N      | 730       | 0.000016                | N                  | N   | N      | N           |
| Naphthalene                        | 9                 | 9            | 0%                  | 0.00443                      | 0.0047 | --                            | --     | --                    | NA                                          | 0.00471 | --    | --      | N                   | N       | N      | 3,900     | 0.000001                | N                  | N   | N      | N           |
| n-Butylbenzene                     | 9                 | 9            | 0%                  | 0.00554                      | 0.0059 | --                            | --     | --                    | NA                                          | 0.00594 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| n-Propylbenzene                    | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| o-Xylene                           | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| p-Isopropyltoluene                 | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| sec-Butylbenzene                   | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Styrene                            | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| tert-Butylbenzene                  | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Trinitrochloroethane               | 9                 | 7            | 22%                 | 0.00222                      | 0.0024 | 0.01240                       | 0.0184 | --                    | NA                                          | 0.01940 | --    | --      | N                   | N       | N      | 80        | 0.000243                | N                  | N   | N      | N           |
| Toluene                            | 9                 | 7            | 22%                 | 0.00222                      | 0.0024 | 0.00229                       | 0.0021 | --                    | NA                                          | 0.00321 | --    | --      | N                   | N       | N      | 140       | 0.000002                | N                  | N   | N      | N           |
| trans-1,2-Dichloroethene           | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 2,900     | 0.000001                | N                  | N   | N      | N           |
| trans-1,3-Dichloropropene          | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Trichloroethene                    | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 40        | 0.000060                | N                  | N   | N      | N           |
| Trichlorofluoromethane             | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | --        | --                      | N                  | N   | N      | N           |
| Vinyl Chloride                     | 9                 | 9            | 0%                  | 0.00222                      | 0.0024 | --                            | --     | --                    | NA                                          | 0.00238 | --    | --      | N                   | N       | N      | 20        | 0.000197                | N                  | N   | N      | N           |
| Total Xylenes                      | 9                 | 9            | 0%                  | 0.00665                      | 0.0071 | --                            | --     | --                    | NA                                          | 0.00713 | --    | --      | N                   | N       | N      | 120       | 0.000059                | N                  | N   | N      | N           |

Notes:

- mg/kg (ppm) = milligrams per kilogram (parts per million)
- DEQ Background Levels of Metals in Soils for Cleanups, March 2013. Values shown are for Deschutes Columbia Plateau.
- SLVs from Oregon DEQ Ecological Risk Assessment, Level II SLVs for Freshwater Sediment and Terrestrial Receptors in Soils (December 2001).
- Background value for aluminum from Geochemical Landscapes of the Conterminous United States, USGS, November 2001.
- Cij = Maximum detected concentration.
- Tij = Toxicity ratio (maximum concentration/SLV).
- Q= 1 for T&E species and 5 for non-T&E species.

|    | A                                                           | B | C | D                                               | E | F       | G | H | I | J | K | L |
|----|-------------------------------------------------------------|---|---|-------------------------------------------------|---|---------|---|---|---|---|---|---|
| 1  |                                                             |   |   | Nonparametric UCL Statistics for Full Data Sets |   |         |   |   |   |   |   |   |
| 2  | User Selected Options                                       |   |   |                                                 |   |         |   |   |   |   |   |   |
| 3  | From File                                                   |   |   | BAP All Data EPC.xls                            |   |         |   |   |   |   |   |   |
| 4  | Full Precision                                              |   |   | OFF                                             |   |         |   |   |   |   |   |   |
| 5  | Confidence Coefficient                                      |   |   | 90%                                             |   |         |   |   |   |   |   |   |
| 6  | Number of Bootstrap Operations                              |   |   | 2000                                            |   |         |   |   |   |   |   |   |
| 7  |                                                             |   |   |                                                 |   |         |   |   |   |   |   |   |
| 8  |                                                             |   |   |                                                 |   |         |   |   |   |   |   |   |
| 9  | Bap                                                         |   |   |                                                 |   |         |   |   |   |   |   |   |
| 10 |                                                             |   |   |                                                 |   |         |   |   |   |   |   |   |
| 11 | Number of Valid Observations                                |   |   |                                                 |   | 64      |   |   |   |   |   |   |
| 12 | Number of Distinct Observations                             |   |   |                                                 |   | 57      |   |   |   |   |   |   |
| 13 | Minimum                                                     |   |   |                                                 |   | 0.00912 |   |   |   |   |   |   |
| 14 | Maximum                                                     |   |   |                                                 |   | 191     |   |   |   |   |   |   |
| 15 | Mean                                                        |   |   |                                                 |   | 6.724   |   |   |   |   |   |   |
| 16 | Median                                                      |   |   |                                                 |   | 0.0302  |   |   |   |   |   |   |
| 17 | SD                                                          |   |   |                                                 |   | 28.25   |   |   |   |   |   |   |
| 18 | Variance                                                    |   |   |                                                 |   | 798     |   |   |   |   |   |   |
| 19 | Std. Error of Mean                                          |   |   |                                                 |   | 3.531   |   |   |   |   |   |   |
| 20 | Coefficient of Variation                                    |   |   |                                                 |   | 4.202   |   |   |   |   |   |   |
| 21 | Skewness                                                    |   |   |                                                 |   | 5.544   |   |   |   |   |   |   |
| 22 | Mean of log data                                            |   |   |                                                 |   | -2.226  |   |   |   |   |   |   |
| 23 | SD of log data                                              |   |   |                                                 |   | 2.597   |   |   |   |   |   |   |
| 24 |                                                             |   |   |                                                 |   |         |   |   |   |   |   |   |
| 25 | Data do not follow a Discernable Distribution               |   |   |                                                 |   |         |   |   |   |   |   |   |
| 26 |                                                             |   |   |                                                 |   |         |   |   |   |   |   |   |
| 27 | 90% Useful UCLs                                             |   |   |                                                 |   |         |   |   |   |   |   |   |
| 28 | Student's-t UCL                                             |   |   |                                                 |   | 11.3    |   |   |   |   |   |   |
| 29 |                                                             |   |   |                                                 |   |         |   |   |   |   |   |   |
| 30 | 90% UCLs (Adjusted for Skewness)                            |   |   |                                                 |   |         |   |   |   |   |   |   |
| 31 | 90% Adjusted-CLT UCL (Chen-1995)                            |   |   |                                                 |   | 13      |   |   |   |   |   |   |
| 32 | 90% Modified-t UCL (Johnson-1978)                           |   |   |                                                 |   | 11.7    |   |   |   |   |   |   |
| 33 |                                                             |   |   |                                                 |   |         |   |   |   |   |   |   |
| 34 | Non-Parametric UCLs                                         |   |   |                                                 |   |         |   |   |   |   |   |   |
| 35 | 90% CLT UCL                                                 |   |   |                                                 |   | 11.25   |   |   |   |   |   |   |
| 36 | 90% Jackknife UCL                                           |   |   |                                                 |   | 11.3    |   |   |   |   |   |   |
| 37 | 90% Standard Bootstrap UCL                                  |   |   |                                                 |   | 11.14   |   |   |   |   |   |   |
| 38 | 90% Bootstrap-t UCL                                         |   |   |                                                 |   | 21.41   |   |   |   |   |   |   |
| 39 | 90% Hall's Bootstrap UCL                                    |   |   |                                                 |   | 32.63   |   |   |   |   |   |   |
| 40 | 90% Percentile Bootstrap UCL                                |   |   |                                                 |   | 11.58   |   |   |   |   |   |   |
| 41 | 90% BCA Bootstrap UCL                                       |   |   |                                                 |   | 13.55   |   |   |   |   |   |   |
| 42 | 90% Chebyshev(Mean, Sd) UCL                                 |   |   |                                                 |   | 17.32   |   |   |   |   |   |   |
| 43 | 95% Chebyshev(Mean, Sd) UCL                                 |   |   |                                                 |   | 22.12   |   |   |   |   |   |   |
| 44 | 97.5% Chebyshev(Mean, Sd) UCL                               |   |   |                                                 |   | 28.78   |   |   |   |   |   |   |
| 45 | 99% Chebyshev(Mean, Sd) UCL                                 |   |   |                                                 |   | 41.86   |   |   |   |   |   |   |
| 46 |                                                             |   |   |                                                 |   |         |   |   |   |   |   |   |
| 47 | Potential UCL to Use                                        |   |   |                                                 |   |         |   |   |   |   |   |   |
| 48 |                                                             |   |   |                                                 |   |         |   |   |   |   |   |   |
| 49 | Recommendation Provided only for 95% Confidence Coefficient |   |   |                                                 |   |         |   |   |   |   |   |   |
| 50 |                                                             |   |   |                                                 |   |         |   |   |   |   |   |   |

| Sample I.D.   | Bap     | Det |
|---------------|---------|-----|
| A-1(5.5-6)    | 0.0154  | 0   |
| A-2(0.5-1)    | 0.0257  | 1   |
| A-3(5.5-6)    | 0.0155  | 0   |
| A-3(13.5-14)  | 0.0159  | 0   |
| A-4(6-6.5)    | 0.0155  | 0   |
| A-5(0.5-1)    | 0.0157  | 0   |
| A-6(1-1.5)    | 0.016   | 0   |
| B-1(0)        | 4.38    | 1   |
| B-2(0)        | 4.37    | 1   |
| C-5(0-0.5)    | 0.016   | 0   |
| C-8(Surface)' | 28.7    | 1   |
| C-8(0-0.5)    | 0.0359  | 1   |
| Duplicate-3   | 0.0272  | 1   |
| C-9(0-0.5)    | 0.0188  | 1   |
| AC-16 (0-6)   | 0.00912 | 0   |
| AC-16 (6-12)  | 0.00943 | 0   |
| C-1(0-0.5)    | 0.0303  | 1   |
| C-1(1-1.5)    | 0.0292  | 0   |
| C-2(0-0.5)    | 0.0296  | 0   |
| C-2(1-1.5)    | 0.0302  | 0   |
| C-4(0-0.5)    | 0.232   | 1   |
| C-4(1-1.5)    | 0.0147  | 0   |
| C-6(0-0.5)    | 0.0359  | 1   |
| Duplicate-1   | 0.0287  | 1   |
| C-6(1-1.5)    | 0.0344  | 1   |
| C-7(0-0.5)    | 0.0493  | 1   |
| C-7(1-1.5)    | 0.0162  | 1   |
| E-1(0-0.5)    | 0.015   | 0   |
| E-2(0-0.5)    | 0.0152  | 0   |
| E-12(0-0.5)   | 0.0152  | 0   |
| E-13(0-0.5)   | 0.0327  | 1   |
| E-3(0-0.5)    | 0.0353  | 1   |
| E-3(1-1.5)    | 0.0352  | 1   |
| E-5(0-0.5)    | 0.0282  | 1   |
| E-5(1-1.5)    | 0.0266  | 1   |
| E-6(0-0.5)    | 3.71    | 1   |
| E-6(1-1.5)    | 0.0472  | 1   |
| E-8(0-0.5)    | 0.015   | 0   |
| E-8(1-1.5)    | 0.0143  | 0   |
| E-9(0-0.5)    | 0.0511  | 1   |
| E-9(1-1.5)    | 0.0219  | 1   |
| E-10(0-0.5)   | 1.89    | 1   |
| E-10(1-1.5)   | 0.0166  | 1   |
| D-2(0-0.5)    | 1.19    | 1   |
| D-3(0-0.5)    | 0.0301  | 1   |
| D-4(0-0.5)    | 0.0228  | 1   |

|             |        |   |
|-------------|--------|---|
| D-5(0-0.5)  | 0.378  | 1 |
| D-6(0-0.5)  | 0.0156 | 0 |
| D-8(0-0.5)  | 0.546  | 1 |
| D-9(0-0.5)  | 2.2    | 1 |
| D-10(0-0.5) | 1.53   | 1 |
| D-12(0-0.5) | 2.57   | 1 |
| D-13(0-0.5) | 0.016  | 0 |
| D-14(0-0.5) | 0.0155 | 0 |
| D-15(0-0.5) | 1.77   | 1 |
| Duplicate-2 | 1.91   | 1 |
| D-16(0-0.5) | 33.2   | 1 |
| D-17(0-0.5) | 0.761  | 1 |
| AC-7 (0-6)  | 191    | 1 |
| AC-7 (6-12) | 31.5   | 1 |
| AC-8 (0-6)  | 117    | 1 |
| AC-8 (6-12) | 0.342  | 1 |
| AC-9 (0-6)  | 0.101  | 1 |
| AC-9 (6-12) | 0.0207 | 1 |

|    |                                                             |   |   |                       |       |                                   |                                 |   |   |   |       |   |
|----|-------------------------------------------------------------|---|---|-----------------------|-------|-----------------------------------|---------------------------------|---|---|---|-------|---|
|    | A                                                           | B | C | D                     | E     | F                                 | G                               | H | I | J | K     | L |
| 1  | Nonparametric UCL Statistics for Uncensored Full Data Sets  |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 2  |                                                             |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 3  | User Selected Options                                       |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 4  | Date/Time of Computation                                    |   |   | 8/10/2014 12:23:03 PM |       |                                   |                                 |   |   |   |       |   |
| 5  | From File                                                   |   |   | Lead All Data EPC.xls |       |                                   |                                 |   |   |   |       |   |
| 6  | Full Precision                                              |   |   | OFF                   |       |                                   |                                 |   |   |   |       |   |
| 7  | Confidence Coefficient                                      |   |   | 90%                   |       |                                   |                                 |   |   |   |       |   |
| 8  | Number of Bootstrap Operations                              |   |   | 2000                  |       |                                   |                                 |   |   |   |       |   |
| 9  |                                                             |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 10 |                                                             |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 11 | Lead                                                        |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 12 |                                                             |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 13 | General Statistics                                          |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 14 | Total Number of Observations                                |   |   |                       | 83    |                                   | Number of Distinct Observations |   |   |   | 81    |   |
| 15 |                                                             |   |   |                       |       |                                   | Number of Missing Observations  |   |   |   | 0     |   |
| 16 | Minimum                                                     |   |   |                       | 1.72  |                                   | Mean                            |   |   |   | 668   |   |
| 17 | Maximum                                                     |   |   |                       | 21600 |                                   | Median                          |   |   |   | 35.6  |   |
| 18 | SD                                                          |   |   |                       | 2805  |                                   | Std. Error of Mean              |   |   |   | 307.9 |   |
| 19 | Coefficient of Variation                                    |   |   |                       | 4.199 |                                   | Skewness                        |   |   |   | 6.274 |   |
| 20 | Mean of logged Data                                         |   |   |                       | 3.915 |                                   | SD of logged Data               |   |   |   | 1.961 |   |
| 21 |                                                             |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 22 | Nonparametric Distribution Free UCL Statistics              |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 23 | Data do not follow a Discernible Distribution (0.05)        |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 24 |                                                             |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 25 | Assuming Normal Distribution                                |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 26 | 90% Normal UCL                                              |   |   |                       |       | 90% UCLs (Adjusted for Skewness)  |                                 |   |   |   |       |   |
| 27 | 90% Student's-t UCL                                         |   |   | 1066                  |       | 90% Adjusted-CLT UCL (Chen-1995)  |                                 |   |   |   | 1214  |   |
| 28 |                                                             |   |   |                       |       | 90% Modified-t UCL (Johnson-1978) |                                 |   |   |   | 1101  |   |
| 29 |                                                             |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 30 | Nonparametric Distribution Free UCLs                        |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 31 | 90% CLT UCL                                                 |   |   | 1063                  |       | 90% Jackknife UCL                 |                                 |   |   |   | 1066  |   |
| 32 | 90% Standard Bootstrap UCL                                  |   |   | 1061                  |       | 90% Bootstrap-t UCL               |                                 |   |   |   | 1839  |   |
| 33 | 90% Hall's Bootstrap UCL                                    |   |   | 2796                  |       | 90% Percentile Bootstrap UCL      |                                 |   |   |   | 1105  |   |
| 34 | 90% BCA Bootstrap UCL                                       |   |   | 1312                  |       |                                   |                                 |   |   |   |       |   |
| 35 | 90% Chebyshev(Mean, Sd) UCL                                 |   |   | 1592                  |       | 95% Chebyshev(Mean, Sd) UCL       |                                 |   |   |   | 2010  |   |
| 36 | 97.5% Chebyshev(Mean, Sd) UCL                               |   |   | 2591                  |       | 99% Chebyshev(Mean, Sd) UCL       |                                 |   |   |   | 3731  |   |
| 37 |                                                             |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 38 | Suggested UCL to Use                                        |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 39 | Recommendation Provided only for 95% Confidence Coefficient |   |   |                       |       |                                   |                                 |   |   |   |       |   |
| 40 |                                                             |   |   |                       |       |                                   |                                 |   |   |   |       |   |

|    | A           | B     |
|----|-------------|-------|
| 1  | Sample ID   | Lead  |
| 2  | A-1(5.5-6)  | 4.88  |
| 3  | A-2(0.5-1)  | 75.4  |
| 4  | A-3(5.5-6)  | 1600  |
| 5  | A-3(13.5-14 | 9.85  |
| 6  | A-4(6-6.5)  | 1.72  |
| 7  | A-5(0.5-1)  | 174   |
| 8  | A-6(1-1.5)  | 12.6  |
| 9  | B-1(0)      | 220   |
| 10 | B-2(0)      | 139   |
| 11 | C-5(0-0.5)  | 20.1  |
| 12 | C-8(Surface | 83.8  |
| 13 | C-8(0-0.5)  | 194   |
| 14 | Duplicate-3 | 49.8  |
| 15 | C-9(0-0.5)  | 595   |
| 16 | AC-15       | 8.85  |
| 17 | AC-16 (0-6) | 7.96  |
| 18 | AC-16 (6-12 | 4.84  |
| 19 | C-1(0-0.5)  | 108   |
| 20 | C-1(1-1.5)  | 167   |
| 21 | C-2(0-0.5)  | 21600 |
| 22 | C-2(1-1.5)  | 1690  |
| 23 | C-4(0-0.5)  | 27.2  |
| 24 | C-4(1-1.5)  | 9.49  |
| 25 | C-6(0-0.5)  | 1430  |
| 26 | Duplicate-1 | 926   |
| 27 | C-6(1-1.5)  | 64.9  |
| 28 | C-7(0-0.5)  | 109   |
| 29 | C-7(1-1.5)  | 34.7  |
| 30 | AC-14       | 411   |
| 31 | AC-17       | 13.2  |
| 32 | AC-19       | 8.31  |
| 33 | AC-20       | 8.05  |
| 34 | E-1(0-0.5)  | 11.6  |
| 35 | E-2(0-0.5)  | 32.3  |
| 36 | E-12(0-0.5) | 11.1  |
| 37 | E-13(0-0.5) | 22.6  |
| 38 | AC-4        | 39.4  |
| 39 | E-3(0-0.5)  | 410   |
| 40 | E-3(1-1.5)  | 355   |
| 41 | E-5(0-0.5)  | 308   |
| 42 | E-5(1-1.5)  | 303   |
| 43 | E-6(0-0.5)  | 3030  |
| 44 | E-6(1-1.5)  | 195   |
| 45 | E-8(0-0.5)  | 30.2  |
| 46 | E-8(1-1.5)  | 23    |
| 47 | E-9(0-0.5)  | 5620  |
| 48 | E-9(1-1.5)  | 219   |
| 49 | E-10(0-0.5) | 1110  |
| 50 | E-10(1-1.5) | 68.1  |
| 51 | E-12(0-0.5) | 11.1  |
| 52 | E-13(0-0.5) | 22.6  |



|    | A           | B     |
|----|-------------|-------|
| 53 | AC-1        | 59.9  |
| 54 | AC-2        | 12800 |
| 55 | AC-3        | 17.9  |
| 56 | Stockpile   | 189   |
| 57 | AC-5        | 50.8  |
| 58 | D-2(0-0.5)  | 69.9  |
| 59 | D-3(0-0.5)  | 8.18  |
| 60 | D-4(0-0.5)  | 9.41  |
| 61 | D-5(0-0.5)  | 7.31  |
| 62 | D-6(0-0.5)  | 6.19  |
| 63 | D-8(0-0.5)  | 12.3  |
| 64 | D-9(0-0.5)  | 15.6  |
| 65 | AC-11       | 3.94  |
| 66 | AC-12       | 5.04  |
| 67 | AC-13       | 7.61  |
| 68 | AC-18       | 4.91  |
| 69 | D-10(0-0.5) | 40.1  |
| 70 | D-12(0-0.5) | 131   |
| 71 | D-13(0-0.5) | 59.1  |
| 72 | D-14(0-0.5) | 40.4  |
| 73 | D-15(0-0.5) | 8.07  |
| 74 | Duplicate-2 | 7.78  |
| 75 | D-16(0-0.5) | 19.3  |
| 76 | D-17(0-0.5) | 5.97  |
| 77 | AC-6        | 35.6  |
| 78 | AC-7 (0-6)  | 37    |
| 79 | AC-7 (6-12) | 11.4  |
| 80 | AC-8 (0-6)  | 36.7  |
| 81 | AC-8 (6-12) | 57.5  |
| 82 | AC-9 (0-6)  | 31.1  |
| 83 | AC-9 (6-12) | 13.8  |
| 84 | AC-10       | 11.2  |

|    | A           | B      | C |
|----|-------------|--------|---|
| 1  | Sample ID   | BaP    |   |
| 2  | C-5(0-0.5)  | 0.016  | 0 |
| 3  | E-1(0-0.5)  | 0.015  | 0 |
| 4  | E-2(0-0.5)  | 0.0152 | 0 |
| 5  | E-12(0-0.5) | 0.0152 | 0 |
| 6  | D-3(0-0.5)  | 0.0301 | 1 |
| 7  | D-4(0-0.5)  | 0.0228 | 1 |
| 8  | D-5(0-0.5)  | 0.378  | 1 |
| 9  | D-6(0-0.5)  | 0.0156 | 0 |
| 10 | D-13(0-0.5) | 0.016  | 0 |
| 11 | D-14(0-0.5) | 0.0155 | 0 |

|    |                                                             |   |   |                           |        |                                  |                                   |   |   |   |        |   |
|----|-------------------------------------------------------------|---|---|---------------------------|--------|----------------------------------|-----------------------------------|---|---|---|--------|---|
|    | A                                                           | B | C | D                         | E      | F                                | G                                 | H | I | J | K      | L |
| 1  | Nonparametric UCL Statistics for Uncensored Full Data Sets  |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 2  |                                                             |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 3  | User Selected Options                                       |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 4  | Date/Time of Computation                                    |   |   | 8/10/2014 12:12:43 PM     |        |                                  |                                   |   |   |   |        |   |
| 5  | From File                                                   |   |   | BaP Cleanup Level EPC.xls |        |                                  |                                   |   |   |   |        |   |
| 6  | Full Precision                                              |   |   | OFF                       |        |                                  |                                   |   |   |   |        |   |
| 7  | Confidence Coefficient                                      |   |   | 90%                       |        |                                  |                                   |   |   |   |        |   |
| 8  | Number of Bootstrap Operations                              |   |   | 2000                      |        |                                  |                                   |   |   |   |        |   |
| 9  |                                                             |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 10 |                                                             |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 11 | BaP                                                         |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 12 |                                                             |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 13 | General Statistics                                          |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 14 | Total Number of Observations                                |   |   |                           | 10     |                                  | Number of Distinct Observations   |   |   |   | 8      |   |
| 15 |                                                             |   |   |                           |        |                                  | Number of Missing Observations    |   |   |   | 0      |   |
| 16 | Minimum                                                     |   |   |                           | 0.015  |                                  | Mean                              |   |   |   | 0.0539 |   |
| 17 | Maximum                                                     |   |   |                           | 0.378  |                                  | Median                            |   |   |   | 0.0158 |   |
| 18 | SD                                                          |   |   |                           | 0.114  |                                  | Std. Error of Mean                |   |   |   | 0.036  |   |
| 19 | Coefficient of Variation                                    |   |   |                           | 2.113  |                                  | Skewness                          |   |   |   | 3.152  |   |
| 20 | Mean of logged Data                                         |   |   |                           | -3.743 |                                  | SD of logged Data                 |   |   |   | 1      |   |
| 21 |                                                             |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 22 | Nonparametric Distribution Free UCL Statistics              |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 23 | Data do not follow a Discernible Distribution (0.05)        |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 24 |                                                             |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 25 | Assuming Normal Distribution                                |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 26 | 90% Normal UCL                                              |   |   |                           |        | 90% UCLs (Adjusted for Skewness) |                                   |   |   |   |        |   |
| 27 | 90% Student's-t UCL                                         |   |   |                           | 0.104  |                                  | 90% Adjusted-CLT UCL (Chen-1995)  |   |   |   | 0.126  |   |
| 28 |                                                             |   |   |                           |        |                                  | 90% Modified-t UCL (Johnson-1978) |   |   |   | 0.11   |   |
| 29 |                                                             |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 30 | Nonparametric Distribution Free UCLs                        |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 31 | 90% CLT UCL                                                 |   |   |                           | 0.1    |                                  | 90% Jackknife UCL                 |   |   |   | 0.104  |   |
| 32 | 90% Standard Bootstrap UCL                                  |   |   |                           | 0.0982 |                                  | 90% Bootstrap-t UCL               |   |   |   | 1.191  |   |
| 33 | 90% Hall's Bootstrap UCL                                    |   |   |                           | 0.957  |                                  | 90% Percentile Bootstrap UCL      |   |   |   | 0.0911 |   |
| 34 | 90% BCA Bootstrap UCL                                       |   |   |                           | 0.127  |                                  |                                   |   |   |   |        |   |
| 35 | 90% Chebyshev(Mean, Sd) UCL                                 |   |   |                           | 0.162  |                                  | 95% Chebyshev(Mean, Sd) UCL       |   |   |   | 0.211  |   |
| 36 | 97.5% Chebyshev(Mean, Sd) UCL                               |   |   |                           | 0.279  |                                  | 99% Chebyshev(Mean, Sd) UCL       |   |   |   | 0.413  |   |
| 37 |                                                             |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 38 | Suggested UCL to Use                                        |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 39 | Recommendation Provided only for 95% Confidence Coefficient |   |   |                           |        |                                  |                                   |   |   |   |        |   |
| 40 |                                                             |   |   |                           |        |                                  |                                   |   |   |   |        |   |

|    |                                                             |   |   |                        |       |                                   |   |   |   |       |   |   |
|----|-------------------------------------------------------------|---|---|------------------------|-------|-----------------------------------|---|---|---|-------|---|---|
|    | A                                                           | B | C | D                      | E     | F                                 | G | H | I | J     | K | L |
| 1  | Nonparametric UCL Statistics for Uncensored Full Data Sets  |   |   |                        |       |                                   |   |   |   |       |   |   |
| 2  |                                                             |   |   |                        |       |                                   |   |   |   |       |   |   |
| 3  | User Selected Options                                       |   |   |                        |       |                                   |   |   |   |       |   |   |
| 4  | Date/Time of Computation                                    |   |   | 8/10/2014 12:49:48 PM  |       |                                   |   |   |   |       |   |   |
| 5  | From File                                                   |   |   | Lead Cleanup Level.xls |       |                                   |   |   |   |       |   |   |
| 6  | Full Precision                                              |   |   | OFF                    |       |                                   |   |   |   |       |   |   |
| 7  | Confidence Coefficient                                      |   |   | 90%                    |       |                                   |   |   |   |       |   |   |
| 8  | Number of Bootstrap Operations                              |   |   | 2000                   |       |                                   |   |   |   |       |   |   |
| 9  |                                                             |   |   |                        |       |                                   |   |   |   |       |   |   |
| 10 |                                                             |   |   |                        |       |                                   |   |   |   |       |   |   |
| 11 | Lead                                                        |   |   |                        |       |                                   |   |   |   |       |   |   |
| 12 |                                                             |   |   |                        |       |                                   |   |   |   |       |   |   |
| 13 | General Statistics                                          |   |   |                        |       |                                   |   |   |   |       |   |   |
| 14 | Total Number of Observations                                |   |   |                        | 41    | Number of Distinct Observations   |   |   |   | 22    |   |   |
| 15 |                                                             |   |   |                        |       | Number of Missing Observations    |   |   |   | 0     |   |   |
| 16 | Minimum                                                     |   |   |                        | 3.94  | Mean                              |   |   |   | 16.72 |   |   |
| 17 | Maximum                                                     |   |   |                        | 50.8  | Median                            |   |   |   | 18    |   |   |
| 18 | SD                                                          |   |   |                        | 9.368 | Std. Error of Mean                |   |   |   | 1.463 |   |   |
| 19 | Coefficient of Variation                                    |   |   |                        | 0.56  | Skewness                          |   |   |   | 1.619 |   |   |
| 20 | Mean of logged Data                                         |   |   |                        | 2.673 | SD of logged Data                 |   |   |   | 0.558 |   |   |
| 21 |                                                             |   |   |                        |       |                                   |   |   |   |       |   |   |
| 22 | Nonparametric Distribution Free UCL Statistics              |   |   |                        |       |                                   |   |   |   |       |   |   |
| 23 | Data do not follow a Discernible Distribution (0.05)        |   |   |                        |       |                                   |   |   |   |       |   |   |
| 24 |                                                             |   |   |                        |       |                                   |   |   |   |       |   |   |
| 25 | Assuming Normal Distribution                                |   |   |                        |       |                                   |   |   |   |       |   |   |
| 26 | 90% Normal UCL                                              |   |   |                        |       | 90% UCLs (Adjusted for Skewness)  |   |   |   |       |   |   |
| 27 | 90% Student's-t UCL                                         |   |   |                        | 18.63 | 90% Adjusted-CLT UCL (Chen-1995)  |   |   |   | 18.86 |   |   |
| 28 |                                                             |   |   |                        |       | 90% Modified-t UCL (Johnson-1978) |   |   |   | 18.69 |   |   |
| 29 |                                                             |   |   |                        |       |                                   |   |   |   |       |   |   |
| 30 | Nonparametric Distribution Free UCLs                        |   |   |                        |       |                                   |   |   |   |       |   |   |
| 31 | 90% CLT UCL                                                 |   |   |                        | 18.6  | 90% Jackknife UCL                 |   |   |   | 18.63 |   |   |
| 32 | 90% Standard Bootstrap UCL                                  |   |   |                        | 18.56 | 90% Bootstrap-t UCL               |   |   |   | 19.14 |   |   |
| 33 | 90% Hall's Bootstrap UCL                                    |   |   |                        | 19.25 | 90% Percentile Bootstrap UCL      |   |   |   | 18.59 |   |   |
| 34 | 90% BCA Bootstrap UCL                                       |   |   |                        | 18.77 |                                   |   |   |   |       |   |   |
| 35 | 90% Chebyshev(Mean, Sd) UCL                                 |   |   |                        | 21.11 | 95% Chebyshev(Mean, Sd) UCL       |   |   |   | 23.1  |   |   |
| 36 | 97.5% Chebyshev(Mean, Sd) UCL                               |   |   |                        | 25.86 | 99% Chebyshev(Mean, Sd) UCL       |   |   |   | 31.28 |   |   |
| 37 |                                                             |   |   |                        |       |                                   |   |   |   |       |   |   |
| 38 | Suggested UCL to Use                                        |   |   |                        |       |                                   |   |   |   |       |   |   |
| 39 | Recommendation Provided only for 95% Confidence Coefficient |   |   |                        |       |                                   |   |   |   |       |   |   |
| 40 |                                                             |   |   |                        |       |                                   |   |   |   |       |   |   |

|    | A           | B    |
|----|-------------|------|
| 1  | Sample ID   | Lead |
| 2  | C-5(0-0.5)  | 20.1 |
| 3  | AC-15       | 8.85 |
| 4  | AC-17       | 13.2 |
| 5  | AC-19       | 8.31 |
| 6  | AC-20       | 8.05 |
| 7  | E-1(0-0.5)  | 11.6 |
| 8  | E-2(0-0.5)  | 32.3 |
| 9  | E-12(0-0.5) | 11.1 |
| 10 | E-13(0-0.5) | 22.6 |
| 11 | AC-4        | 39.4 |
| 12 | AC-5        | 50.8 |
| 13 | D-3(0-0.5)  | 8.18 |
| 14 | D-4(0-0.5)  | 9.41 |
| 15 | D-5(0-0.5)  | 7.31 |
| 16 | D-6(0-0.5)  | 6.19 |
| 17 | AC-11       | 3.94 |
| 18 | AC-12       | 5.04 |
| 19 | AC-13       | 7.61 |
| 20 | AC-18       | 4.91 |
| 21 | AC-6        | 35.6 |
| 22 | AC-10       | 11.2 |
| 23 |             |      |