



CITY OF REDMOND

Community Development Department

411 SW 9th Street
Redmond, OR 97756
541-923-7724

www.redmondoregon.gov

REDMOND URBAN AREA PLANNING COMMISSION

411 SW 9th Street-COUNCIL CHAMBERS Redmond, OR 97756

Wednesday, April 3rd, 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 (must pre-register before 3:00 p.m. on April 3rd)

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. APPROVAL OF MINUTES

- a. February 21, 2024

IV. PUBLIC HEARING

- a. RAPRD Redmond Regional Recreation Center: Comprehensive Plan & Zone Map Amendment, and Site & Design Review (File Nos. 711-23-000278-PA1 & 711-23-000279-SP)

V. Next Meeting - April 24, 2024

VI. COMMISSION MEMBER COMMENTS

VII. ADJOURN

Please note that these documents are also available on the City's website 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

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CITY OF REDMOND
Community Development Department

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REDMOND URBAN AREA PLANNING COMMISSION

Council Chambers

MINUTES

February 21, 2024

Commissioners Present: Chair Norman Schultz, Vice-Chair Ben Schimmoller, Mercedes Cook-Bostick, Tom Kuhn, *Absent: Heather DeWolf, Michael Rogers, Joseph Zampko*

Youth Ex Officio: Ray Randall (*absent*)

City Staff: Kyle Roberts, *Planning Director*; Sarah Vowell, *Associate Planner*; John Roberts, *Deputy City Manager*, Jamie Buddenbohn, *Planning Permit Coordinator*

Visitors: Tobias Colvin, *Council Liaison*

Media: None

(The 3 digits after a motion title show the number of commissioners voting in favor/opposed/abstaining.)

I. CALL TO ORDER – INTRODUCTIONS

Chair Schultz called the worksession of the Redmond Urban Area Planning Commission to order at 5:00 pm, February 21, 2024, with a quorum present (4 of 7 commissioners).

II. CITIZEN COMMENTS FOR ITEMS NOT ON THE AGENDA

None.

III. ELECTION OF OFFICERS (CHAIR & VICE CHAIR)

Ben Schimmoller nominated himself for the position of Chair, seconded by Commissioner Cook-Bostick.

The Commission voted unanimously to elect Ben Schimmoller to the position of Chair.

Commissioner Cook-Bostick nominated Norman Schultz for the position of Vice-Chair, seconded by Chair Schimmoller.

The Commission voted unanimously to elect Norman Schultz to the position of Vice-Chair.

[\[The Commission returned to Item IV.\]](#)

Planning Director Kyle Roberts asked the Commissioners if they were still interested in moving the time of the meetings from 5:00 to 5:30 pm; the Commission discussed the idea.

Motion 2 (4/0/0): Chair Schimmoller moved to shift the start time to 5:30 pm, seconded by Vice-Chair Schultz. The motion passed unanimously.

IV. APPROVAL OF MINUTES

A. January 17, 2024

Motion 1 (4/0/0): Commissioner Cook-Bostick moved to approve the January 17, 2024, minutes as presented, seconded by Vice-Chair Schultz. The motion passed unanimously.

[The Commission returned to Item III.]

V. DEVELOPMENT CODE: PURPOSE, FORM, FUNCTION, & IMPACT

Mr. Roberts stated this item might be moved to the March meeting agenda.

VI. BUILDING PERMIT REVIEW: PROCESS & STANDARDS

Associate Planner Sarah Vowell walked the Commission through the building permit review process and the standards that are applied using as an example a simple, single-family subdivision called Lavawood.

Questions from the Commission were addressed regarding the level of detail when reviewing height planning, whether the City or the applicant determined the numbers where the slopes were, why Redmond measured house height differently from surrounding jurisdictions, how often cross-department meetings occur during the review process, and the difficulty in determining whether to apply current or prior standards.

Deputy City Manager John Roberts presented on Redmond's population growth, permit numbers, and the development trends being seen, highlighting that Redmond just became the 16th biggest city in Oregon and the growth that would be seen on Helmholtz Way and in annexations.

Questions from the Commission were addressed regarding the average sizes of multi-family dwellings that go up in Redmond, if the developments on Helmholtz were exclusively residential, the City's plan for the traffic on Helmholtz, ODOT's financial constraints when addressing Helmholtz and areas around 35th Street, and what caused multifamily and single to even out again.

VII. Next Meeting – March 20, 2024

Mr. Kyle Roberts spoke about a potential presentation on the Development Code and a finalized work plan for 2024 for the next meeting, that Staff would assemble a landscaping advisory committee including a Planning Commissioner or two to look at improving the new landscaping regulations, that April 3rd at 5:30 pm was proposed for the Commission's public hearing on the Redmond Area Park and Recreation District's project, and the complex in terms of land use applications CORE3 project which would have a public hearing with the Commission on April 24th to be continued to May 1st for taking action.

Chair Schimmoller disclosed he had spent a lot of time on CORE3 in his other line of work, which he described.

VIII. COMMISSION MEMBER COMMENTS

Chair Schimmoller expressed appreciation for Staff's work tonight on the educational presentations, reminded the Commissioners that 5:30 pm was their new meeting time starting March 20th, welcomed new Commissioner Kuhn, and thanked the Commission for their trust in his chairing this year.

Vice Chair Schultz spoke of a noise/hum near Fred Meyer.

IX. ADJOURN

With no further business, Chair Schimmoller adjourned the meeting at 5:56 pm.

APPROVED by the Redmond Urban Area Planning Commission and SIGNED by me this _____ day
of _____, 2024.

ATTEST:

_____/s/
Ben Schimmoller
Chair

_____/s/
Kyle Roberts
Planning Director

REDMOND REGIONAL RECREATION CENTER COMPREHENSIVE PLAN & ZONE MAP AMENDMENT AND SITE & DESIGN REVIEW

HEARING DATE: April 3, 2024 at 5:30 PM in Redmond City Hall Council Chambers and via digital conference (GoTo Meeting)

HEARINGS BODY: Redmond Urban Area Planning Commission

FILE NUMBERS: 711-23-000278-PA1 and 711-23-000279-SP

FILE NAME: Redmond Regional Recreation Center

REQUEST: Approval of a Comprehensive Plan & Zone Map Amendment and a Site & Design Review

LOCATION: 3515 SW Lava Avenue (taxlot: 1513180003100) in Redmond, OR 97756

APPLICANT: Katie Hammer, Redmond Area Park & Recreation District
Colin McArthur, AICP, Cameron McCarthy Landscape Architecture & Planning

PROPERTY OWNER: Redmond Area Park & Recreation District (RAPRD)

REVIEWING STAFF: Kyle Roberts, AICP, Planning Director

RECOMMENDATION: Approval with Conditions



Figure 1 - Vicinity Map

I. BACKGROUND

Site Description:

The subject property is located in west Redmond, adjacent to city limits and located within the Redmond Urban Growth Boundary (UGB). More specifically, the property is located south of Oregon Highway 126, abuts SW 35th Street and SW Lava Avenue, and has a situs address of 3515 SW Lava Avenue (taxlot 1513180003100). The property is 10.50 acres in size, zoned Urban Holding (UH-10), and is vacant and undeveloped with a sizable Bonneville Power Administration (BPA) easement running through the northwestern corner of the property.

The property is described by Statutory Bargain and Sale Deed recorded in Deschutes County Official Record 2016-042976, dated October 12, 2016. The subject property was lawfully created by Partition Plat 1996-40 and subsequently reconfigured by Obsidian Meadows subdivision plat (Deschutes County Official Record 2006-04100), Partition Plat 2009-7, and Lot Line Adjustment 711-16-000073-LLA.

Land Use History:

In 2006, Redmond added more than 2,300 acres of “urbanizable” land along the City’s western and northern boundaries to its UGB, including the subject property. At the same time, a Framework Plan was adopted by the City as part of the expanded UGB to provide general guidance for future land uses, densities, neighborhood amenities and the necessary public facilities and services to serve the parcels. The Framework Plan envisioned a number of neighborhood centers distributed throughout the newly urbanized lands. These centers called for high density residential and mixed use, transitioning to lower residential density moving outward and to the periphery.

The Framework Plan conceptually identified the general area of the subject property as future Mixed Use Employment lands as these lands annex into the city and develop. However, in 2020 the then newly-adopted Redmond Comprehensive Plan & Zone Map designated the subject property to be rezoned to an urban residential zone (R-5, High Density Residential) at time of annexation.

Proposal:

The applicant, Redmond Area Park and Recreation District (RAPRD), submitted applications for: 1) annexation; 2) an amendment to the City’s Comprehensive Plan and Zone Map; and 3) a site and design review. The applicant is proposing to annex the property into city limits and construct a new Redmond Regional Recreation Center that will accommodate various recreational, fitness, and therapeutic activities and amenities for multiple cross-generational activities. In addition to the 55,509 square foot building, the site will be developed with outdoor amenities such as a multi-sport field, basketball and pickleball courts, children’s playground, and more. The proposal is to build out the project in two phases.

The plans submitted and reviewed herein include phase one, which includes:

- Regional recreation building
- SW 35th Street frontage improvements and access connection
- SW Lava Avenue frontage improvements and access connections
- South parking lot
- Southern portion of north parking lot
- Bicycle parking
- Outdoor courtyard and fitness area
- Service and loading area
- Bus drop-off area
- Passenger drop-off area
- Landscape screening

- Screen and sound wall
- Shared-use path along SW 35th Street
- Sun deck and ornamental fencing
- Flagpoles

Phase two will include:

- Multi-sport field
- North parking lot expansion
- Basketball court
- Pickleball courts
- Children's playground
- Nature play area
- Water play area
- Picnic shelter
- Walking path

A component of the applicant's proposal is to amend the Comprehensive Plan and Zone Map's designated zoning district for the property that is applied to the property once annexed. Specifically, the applicant is proposing to amend the Comprehensive Plan and Zone Map zone designation from R-5 to PF (Public Facility). The applicant is requesting this amendment because the proposed recreation facility is not an allowed use in residential zones.

Adjacent Zoning & Land Uses:

	Zoning	Land Use
North	Urban Holding Zone (UH-10)	Rural residential development on large lot
East	General Residential Zone (R-4)	Suburban residential subdivision development
South	High Density Residential Zone (R-5)	Multi-family residential development
West	Urban Holding Zone (UH-10)	Rural residential development and farm use on large lot

Comments:

At the time of completion of this staff report no written comments have been received from the public by the Planning Division concerning these applications.

Attachments:

Attachment A – Project Plans, dated December 15, 2023
 Attachment B – Applicant Burden of Proof
 Attachment C – City Department and Related Agency Comments
 Attachment D – Letters Received from the Public
 Attachment E – Transportation Impact Analysis
 Attachment F – Annexation Agreement

Application Timeline:

The following items are included herein by reference in this land use decision and are located in the record for this matter and are on-file with the Community Development Department, Planning Division:

- Comprehensive Plan Map & Zoning Map Amendment and Site & Design Review applications, materials, and all required elements submitted by the applicant on January 3, 2024
- Adjacent property owner notices of received land use applications mailed on January 3, 2024
- City department and related agency request for comments routed on January 12, 2024
- Application deemed incomplete for review on January 19, 2024

- Application deemed complete for review on February 12, 2024
- Notice to Department of Land Conservation and Development (DLCD) posted February 22, 2024
- Adjacent property owner notices of public hearing mailed on March 8, 2024
- Public Hearing Notice published in the *Bend Bulletin* on March 22, 2024
- Final action 120-day deadline (ORS 227.178) is June 11, 2024¹

Applicable Criteria:

The following are the applicable sections from the Oregon Revised Statutes, Oregon Administrative Rules, the City of Redmond Urban Area Comprehensive Plan, and the Redmond Development Code:

- City of Redmond Comprehensive Plan 2040
- City of Redmond Framework Plan
- City of Redmond Transportation System Plan
- City of Redmond Public Facility Master Plans
- City of Redmond Park Master Plan
- Oregon Revised Statutes (ORS), Chapters 197, 222, and 227
- Oregon Administrative Rules (OAR), Chapter 660:
 - Division 12, Transportation Planning Rule
 - Division 14, Newly Incorporated Cities, Annexation, and Urban Development on Rural Lands
 - Division 15, Statewide Planning Goals and Guidelines
 - Division 18, Post-Acknowledgement Amendments
- City of Redmond Development Code (last amended by Ord. 2022-09)
 - Article I – Zoning Standards
 - Section 8.0065: Establishment of Zones and Districts
 - Section 8.0085: Zoning of Annexed Areas
 - Section 8.0130: Urban Holding UH-10 Zone
 - Section 8.0220: Table E, Permitted Uses
 - Section 8.0225: Table F, Minimum Standards
 - Section 8.0305: Establishment of Clear Vision Areas
 - Section 8.0330: Exterior Lighting
 - Section 8.0500: Off Street Parking
 - Section 8.0505: Off Street Parking and Loading
 - Section 8.0510: Design and Improvement Standards for Parking Lots
 - Section 8.0515: Parking Table and Diagram
 - Section 8.0760: Criteria for Amendments
 - Article II – Land Use Procedures
 - Article IV – Site and Design Review Standards
 - Section 8.3005: Applicability of Site and Design Review
 - Section 8.3020: Site Improvement Agreement
 - Section 8.3035: Design Review Criteria

II. FINDINGS & CONCLUSIONS

Findings:

The Redmond Development Code (RDC) used to evaluate these applications is the code in effect on January 3, 2024, which was last amended by Ordinance 2022-09. RDC Article I – Zoning Standards: Sections 8.0065, 8.0085, 8.0130, 8.0220, 8.0225, 8.0305, 8.0330, 8.0500-8.0515, and 8.0760; and

¹ Final action 120-day deadline does not apply to the Comprehensive Plan & Zone Map amendment request per ORS 227.178(7).

Article IV – Site and Design Review Standards: Sections 8.3005, 8.3020, and 8.3035 set forth the procedure and standards for approval. Staff findings for all applicable standards are presented below.

ARTICLE I – ZONING STANDARDS > INTRODUCTORY PROVISIONS

RDC Sections 8.0065 and 8.0085

8.0065 Establishment of Zones and Districts.

[...]

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.

FINDING: The property is currently zoned Urban Holding (UH-10) and is vacant and undeveloped.

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.

FINDING: The applicant is proposing to rezone the property from R-5 to PF for the purpose of constructing a new public regional recreation center, which is an allowed use in the PF zone.

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.

FINDING: As part of this land use application submittal, the applicant is requesting an amendment to the Comprehensive Plan & Zone Map's zoning designation for the subject property. Upon approval of the request, the property will be zoned from UH-10 to PF once annexed into the city.

ARTICLE I – ZONING STANDARDS > RESIDENTIAL USE ZONES

RDC Section 8.0130

8.0130 Urban Holding UH-10 Zone. The City shall administer the provisions of Title 20 Redmond Urban Area Zoning Ordinance of the Deschutes County Code for this County zoning district.

1. **Master Development Plans.** 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.
2. **Exception to Master Development Plans Requirement.** Approval of a development plan may be granted without going through a Master Development Plan process according to the following requirements:

FINDING: Staff finds that the proposed development is exempt from requiring submittal of a master development plan per subsection 2.A-G. of this section. As part of the applicant's land use submittal is

a proposed amendment to the subject property's Comprehensive Plan and Zone Map zoning designation from a residential zone to a non-residential zone (public facility zone).

Non-Residential Properties.

- A. The development plan is 12 acres or less in size; and,

FINDING: The subject property is 10.50 acres in size; therefore, the proposed development plan is under 12 acres in size.

- B. The development plan addresses the applicable Great Neighborhood Principles; and, the development plan includes an appropriate local grid street plan, that complies with street spacing and connectivity requirements in the Redmond TSP and showing street connectivity and bike/pedestrian system connectivity to adjacent planned and unplanned residential areas; and,

FINDING: The applicant has addressed the Great Neighborhood Principles in the Site and Design Review Neighborhood Compatibility criterion [Section 8.3035(3)(D)] below.

- C. The development plan meets applicable requirements for land near the urban edge; and,

FINDING: This standard is intended to ensure that the proposed development complies with the urban-rural interface standard, defined as the area where urban development interfaces with Deschutes County zoned rural areas. Upon annexation, the subject property will be adjacent to lands outside the city limits but within the Urban Growth Boundary (UGB) on the north and west sides. The proposed building will be located on the eastern portion of the subject property and the areas between the building and the lands outside city limits and within the UGB are planned as park or open space uses. Lastly, the City's Comprehensive Plan Policy 14-1-2 indicates that the urban-rural interface standard applies to urban development located on the edge of the UGB, adjacent to Urban Reserve Area (URA) lands. Staff concludes that this standard is met.

- D. The development approval is obtained through a PUD process except when the property is to be used for a public use, such as for a park or school or some other public facility; and,

FINDING: The proposed development is a regional recreation center, a public use; therefore, development approval obtained through a Planned Unit Development is not required.

- E. Annexation to the City of Redmond is proposed as part of the development plan; and,

FINDING: Annexation into Redmond city limits is proposed as part of the development plan.

- F. The development plan addresses all other applicable requirements of the Redmond Comprehensive Plan and Development Code; and,

FINDING: All applicable requirements of the Redmond Comprehensive Plan and Development Code are addressed in this staff report.

- G. The development plan conforms to the density and design guidelines established for the area in the Redmond Urban Framework Plan and/or an adopted Area Plan.

FINDING: The Framework Plan conceptually identified the general area of the subject property as future Mixed Use Employment lands as these lands annex into the city and develop. However, in 2020

the then newly-adopted Redmond Comprehensive Plan & Zone Map designated the subject property to be rezoned to an urban residential zone at time of annexation. The proposed construction of a regional recreation center will require the applicant request an amendment to the Comprehensive Plan & Zone Map for which the applicant has done. Evaluation of the zoning amendment request is incorporated in this staff report.

Residential Properties.

- H. The parcel is within the City of Redmond or can be annexed to the City; and,
- I. The parcel is 3 acres or less in size; and,
- J. The development plan conforms to the density and design guidelines established for the area in the Redmond Urban Framework Plan and/or an adopted Area Plan; and,
- K. The development plan meets the applicable Great Neighborhood Principles, Land Division, and Site Plan policies; and,
- L. Significant Goal 5 resources, as defined in *Redmond Comprehensive Plan, Chapter 5*, are identified, and managed, in accordance with Redmond's Goal 5 resource protection program; and,
- M. The development plan includes an appropriate local grid street plan that complies with street spacing and connectivity requirements in the Redmond TSP and showing street connectivity and bike/pedestrian system connectivity to adjacent planned and unplanned residential areas; and,
- N. The development plan meets applicable requirements for land near the urban edge and meets applicable planning requirements for land near the urban rural interface; and,
- O. The development application meets all other required elements for one of the City's land use planning approval processes.

FINDING: The applicant is proposing to rezone the subject property to a non-residential zone; therefore, subsection 2.H.-O. are not applicable.

ARTICLE I – ZONING STANDARDS > OTHER ZONES *RDC Sections 8.0220 and 8.0225*

8.0220 Table E, Permitted Uses. The following land uses are permitted outright or conditionally in each respective zone:

"O" means Permitted Outright
 "C" means Permitted Conditionally
 "N" mean Not Allowed

LAND USE:	ZONE					Comment:
<i>Residential</i>	FG	OSPR	PF	Park	Airport Zone / Airport Compatibility Zone	
Homeless Shelter	O	O*	C	N	N	
Public-Owned Affordable Housing Development	O	O	O	O	N	See Section 8.0145
Single Family Dwelling	O	C	N	N	N	In conjunction with a use permitted by this section, a caretaker residence or in OSPR with approved density transfer.
<i>Farm Uses:</i>						

Grazing of livestock and horses	N	O	N	N	N	
Production of crops	N	O	O	N	N	
Livestock stabling	O	N	N	N	N	
Other Farm Uses	N	C	N	N	N	
Non-Residential Uses:						
Mobile Food Pod	N	C	N	N	N	Permitted through Site and Design Review
Mobile Food Unit	N	C	N	N	N	Permitted through Temporary Use Permit, Section 8.0380.
Mobile Food Vendor on private property	O	O	O	O	O	Permitted through Business Licensing provisions in City Code, Section 7.005 et seq. Can only operate between 8 Am and 9 Pm for no more than two consecutive days within a 90-day period and must be located on real property in association with an event.
Mobile Food Vendor on public property	O	O	O	O	O	Permitted through Special Events provisions in City Code, Section 7.350 et seq. or Parks Reservation Permit.
Public or Private Schools	C	N	C	N	N	
Parks, trails, reserve areas	O	O	O	O	N	
Public Facilities including cemetery	N	O/C	O/C	O/C	N	Outright only when approved in the Comp Plan or Other Public Facilities Plan for OSPR and Park Zones. Conditional use if adjacent to "R" zone (applies to the PF zone only)
Public Safety, Emergency Services, Training Coordination Facilities	O	C	O	C	C	
Expo Center Arenas	O	N	N	N	N	
Plaza, Amphitheater for Outdoor Events	O	C	O	O	N	
Campground for use during Events	O	N	N	N	N	
Recreational and Sports Facilities	O	C	O	O	C*	In the Public Facility Zone, recreation facilities shall be in public ownership. *Applies to Airport Compatibility Zone.
Museum, Theater, Community Center	O	C	O/C	C	O	In the Public Facility Zone, outright uses for public and non-profit agencies. Conditional use permits are required for commercial uses exceeding six (6) consecutive months or six (6) months within the same calendar year.
Commercial Use: Accessory to Permitted Use	O	O	O	O	O	In the Public Facility Zone, commercial uses are limited to no more than 50% of the total floor area, building footprint or lot area, whichever is most restrictive. Commercial use subject to a Temporary Use Permit.

RV Park	O	N	N	N	C*	*Applies to Airport Compatibility Zone.
Emergency Shelter	O	O	O	O	O	Reviewed under ORS 197.782. Emergency shelters for natural disaster response are not subject to review.
Supportive Shelter	O	N	O	N	N	See Section 8.0370, Supportive Shelter Standards.
Airport						
Airfields					O	
General Aviation					O	
Passenger Terminal Complexes					O	
Air Cargo & Maintenance Facilities					O	
Support Facilities (Air life, Fire, etc.)					O	
Any use complimentary to aviation					O	
Other Uses					O	Light industrial, manufacturing, or commercial uses consistent with applicable provisions of either the Redmond Airport Master Plan, Redmond Comprehensive Plan or if the uses do not create a safety hazard or otherwise limit approved airport uses as determined by the Airport Director.

FINDING: The applicant is proposing to construct a 55,509 square foot regional recreation center and associated uses. As a recreational facility owned and operated by the Redmond Area Park and Recreation District, the proposed use is outright permitted in the Public Facility zone.

8.0225 Table F, Minimum Standards. The following minimum standards are required in each respective zone (all distances are measured in feet):

Minimum Setbacks/Yards Feet:	FG	OSPR	PF	Park	Airport Zone / Airport Compatibility Zone
Front					
Local Street	10	10	10	10	10
Collector	35	40	25	25	25
Arterial	50	40	50	50	50
Interior Side					
Standard	10	20	F 10-15	F 10-15	F 10-15
Adjacent to R-Zone	25	25	25		
Street Size					
Local Street	10	25	10	10	10
Collector	25	25	25	25	25

Arterial	50	50	50	50	50
Rear					
Interior	10	20	10	10	10
Local Street	10	25	10	10	10
Collector	25	25	25	25	25
Arterial	50	50	50	50	50
Adjacent to R-Zone	25	25	25	25	25
Maximum Building Height - Feet	^A 60	25	60	40	^A 60/45
Minimum Street Frontage - Feet					
Standard Street	50	50	50	50	50
Cul-de-sac	30	30	30	30	30
Lot Coverage Maximum					
Non-Commercial Use					
Use Adjacent to Residential			^E 75%		
Minimum Lot Size/Other	B*	N/A*	N/A*	N/A*	N/A*
*The minimum lot size shall be determined based on demonstration of the ability to develop the site in accordance with the zone standards, off-street parking standards, Site & Design Review Standards, landscaping requirements and other applicable Development Code provisions without adverse impact to water and land resource quality and adjoining properties.					
^A Unless applicant provides written documentation from the Fire Department that the structure will not exceed the capability of available fire-fighting equipment. The maximum building height for all structures in the Airport Zone or Airport Compatibility Zone is 60 feet. If the structure is within 200 feet of the airfield security/perimeter fence, the maximum building height for all structures is 45 feet. No building permit will be issued in the Airport Zone or Airport Compatibility Zone until the FAA Form 7460-1 is received by the City of Redmond from the FAA. See the Airport Control Zone (RDC 8.0230) for additional building height restrictions.					
^B Except for annual fair, any activity of use anticipated to generate 500 or more pm peak traffic trips shall not be permitted unless approved by the City in conjunction with traffic impacts mitigation including but not limited to alternate transportation routes to serve the use, and/or provision of ODOT and City approved temporary traffic control.					
^E No use adjacent to or across the street from a residential zone shall exceed 75% of the lot area including buildings, storage, or facilities.					
^F The minimum side yard shall be 10 feet for 1 and 2 story buildings and 15 feet for 3 story buildings.					

FINDING: This section presents minimum dimensional and siting specification standards for the Public Facility zoning district. Each applicable standard is addressed below:

Setbacks and building height: The proposed regional recreation center building meets the minimum front setback of 10 feet to south property line; the minimum interior side setback of 10 feet to the west property line; the minimum street side setback of 25 feet to the east property line (at its closest point, the building is measured to be 40 feet from the east property line); and the minimum rear interior setback of 10 feet to the north property line. The proposed building is 40 feet at its highest peak, and therefore complies with maximum building height permitted.

Minimum street frontage: The subject property is measured at approximately 628 feet along SW Lava Avenue and approximately 750 feet along SW 35th Street, and therefore complies with the minimum street frontage of 50 feet along SW Lava Avenue and SW 35th Street.

Lot coverage maximum: Because the subject property is located across the street (SW 35th Street and SW Lava Avenue) from residential zones, the lot coverage (defined as the percentage of a lot containing the footprint of structures or buildings) maximum of 75% applies to the proposed development. As proposed on the applicant's project plans, the calculate building footprint is approximately 56,000 square feet in size and therefore calculates to a lot coverage of approximately 12%.

Minimum lot size: There is no minimum lot size requirement for the Public Facility zone; however, the proposal must be able to demonstrate compliance with all applicable zoning standards for which it does or can do so by complying with any applicable conditions of approval.

Staff finds that the proposed development complies with the applicable standards of Section 8.0225.

ARTICLE I – ZONING STANDARDS > SUPPLEMENTARY PROVISIONS
RDC Sections 8.0305 and 8.0330

8.0305 Establishment of Clear Vision Areas. Clear vision areas are measured as follows: starting at the edge of pavement, or curb lines, at the intersection of two vehicular ways, and measuring along each edge of pavement for the distance shown below; this will result in an angle. The end points projecting from the vertex of the angle are then connected, forming a triangle. The area within the triangle is the horizontal clear vision area. The vertical clear vision area is the area above the triangle, between 3' and 8' in height.
Clear vision distances shall be as follows:

1. At an intersection of two streets having 90-degree angles at the intersection, the minimum distance shall be 25 feet.
2. At traffic circles, acute or obtuse angles, and other non-conventional intersections of two streets, the clear vision area may be determined by the Hearings Body or City Engineer. However, the clear vision area shall make every attempt to incorporate the 25' line of sight distance as is stated in (1).
3. All other vehicular intersections, including alleys the minimum clear vision distance shall be 15'.

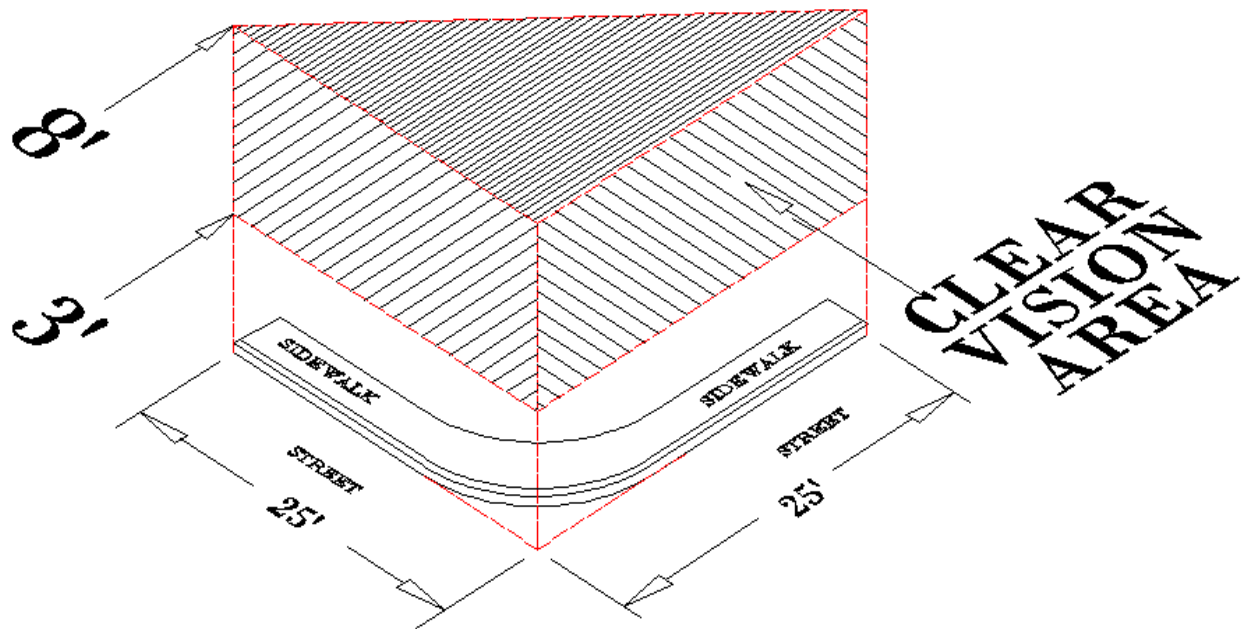


ILLUSTRATION – STREET TO STREET CLEAR VISION AREA

FINDING: The applicant’s proposed landscaping plan complies with the clear vision area standards for all proposed vehicular intersections as well as for the corner of SW 35th Street and SW Lava Avenue.

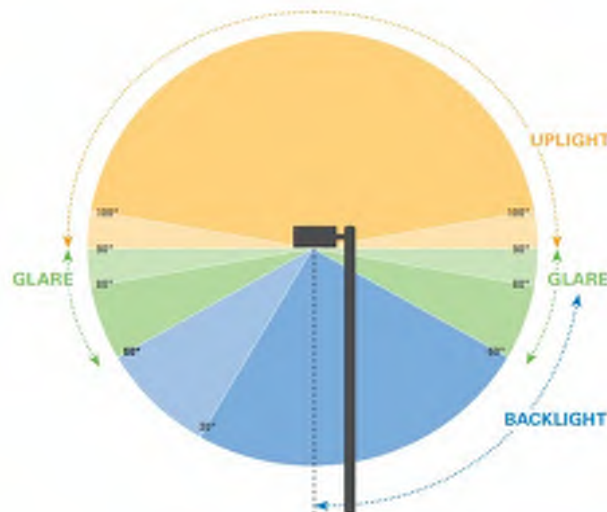
8.0330 Exterior Lighting.

1. **Purpose.** The purpose of this code section is to allow residents, businesses, and public entities to adequately illuminate the outdoor areas on their property without adversely impacting the use of adjacent property and minimizing the impact on Redmond’s dark skies.
2. **Applicability.** The provisions of this code section apply to all outdoor lighting, including security lighting in all zones, unless exempted under this code section. All outdoor lighting subject to this code section shall comply with these requirements. This includes, but is not limited to, new lighting, replacement or repair of existing nonconforming lighting, and any other lighting whether attached to structures, poles, the earth, or any other location that illuminates exterior areas of the property. It is the property owner’s responsibility to ensure compliance with this code section, including lighting installed by a third party or prior property owner.
3. **Requirements for Lighting Regulated by this Code Section**
 - A. All lighting shall be downcast and use a shielded fixture or other means to limit up lighting. The terms “downcast and shielded” mean that the fixture allows no light emission above a horizontal plane through the bottom of the fixture. See illustration A which illustrates downcast lighting and up lighting.
 - B. Lighting shall not shine into neighboring residences, or onto public streets.
 - C. Lighting in the canyon or within 25’ of the canyon rim shall be submitted to and reviewed by the Community Development Director or Planning Commission prior to installation for compliance with this code section.
4. The following shall be exempt from the provisions of this code section:
 - A. City approved lighting within public right-of-way or easement for the principal purpose of illuminating streets, roads, and street signs.

- B. Lighting for public facilities including but not limited to, City Hall, public monuments, public art, public parks, and public landscaping.
- C. All lighting at the Redmond Municipal Airport.
- D. All lighting at the Deschutes County Fairgrounds.
- E. All lighting for public schools, except that sport field lighting shall be turned off within one hour of the end of the event or game.
- F. All lighting of buildings designated as historic by the City of Redmond.
- G. Sign lighting that is otherwise regulated by the provisions of the City of Redmond Sign Code.
- H. Temporary lighting for theatrical, television, performance areas and construction sites as approved by the Community Development Department.
- I. Underwater lighting in swimming pools and other water features.
- J. Emergency lighting that is only used under emergency conditions and other lighting being used during police declared emergency.
- K. Lights used for holiday decorations.
- L. Motion detector lights that operate automatically for periods of less than ten minutes.
- M. Lighting of flags for the United States, State of Oregon, POW, and City of Redmond.
- N. Lighting required by federal or state laws or regulations.
- O. Outdoor lighting fixtures lawfully installed prior to and operable on the effective date of this code section, and which are in compliance with the prior version of RMC 8.0330 may continue to be used as a nonconforming light fixture. Any repair, replacement, or relocation of outdoor light fixtures as of the effective date of this code section shall be subject to the provisions of this code section.

Illustration A:

Downcast means -
Any light that is not "uplight" and is less than 90 degrees down from the fixture shield as shown below.



FINDING: Although the proposed use is considered a public facility, the proposed development is not exempt from these provisions. The applicant has submitted lighting cut sheets and a photometric plan

that demonstrates compliance with these required exterior lighting standards. All proposed lighting will be downcast and shielded and will not shine into neighboring residences or onto public streets.

ARTICLE I – ZONING STANDARDS > OFF-STREET PARKING & LOADING REQUIREMENTS
RDC Sections 8.0500-8.0515

8.0500 Off-Street Parking. Parking space requirements are based on the following standards according to the use (note: all required handicapped parking is included in the calculation derived parking standards). Manufacturing, warehousing, and other industrial uses may base the number of required parking spaces on the number of employees. When the number of employees is specified, persons counted shall be those working on the premises, including proprietors, during the largest shift at peak season.

Land use	Standard
Public and Semi-Public Uses	
Church, Religious Institution	1 space per 4 seats
Convention Center	1 space per 4 seats
Hospital	1.75 space per employee, plus 1.5 spaces per bed (office/outpatient stalls are calculated separately)
Lodge, Club, Non-Profit/Frat Org.	1 space per 4 seats
Park (public or private)	5 spaces per acre
Public Recreation Facility/Community Center	1 space per 300 s.f of net square footage
Public Transportation Station	1 space per 1000 s.f (enclosed)
RV Park (public or private)	1 auto + 1 RV space for each design. RV place + 5 guest spaces (each RV space shall be at least 30' long)
Schools (public or private):	
Elementary	3 spaces per classroom
Middle School	4 spaces per classroom
High School	8 spaces per classroom
College	1 space per employee + 1 space per 2 students
Trade School, Adult Training	1 space per employee + 1 space per student
Utility Facility	1 space

FINDING: The proposed public recreation facility will require one parking space per 300 square feet of net square footage. The Redmond Development Code defines net square footage as the gross square footage of a building less common areas and interior walls. Common areas include stairwells, elevators, storage areas, computer server rooms, other shafts, lobbies, underground parking, and similar kinds of uses. That said, staff has calculated the net square footage of the proposed recreation facility to be approximately 53,000 square feet. The proposed development must therefore provide a minimum of 177 parking spaces. The applicant's plans provide for a grand total of 199 parking spaces.

8.0505 Off-Street Parking and Loading. General provisions are as follows:

1. The provisions and maintenance of off-street parking and loading spaces is the continuing obligation of the property owner. Should the owner or occupant of any lot or building change the use to which the lot or building is sited, thereby increasing off-street parking, or loading requirements, this section must then be complied with. Businesses within the Central Business District (C-2 zone) and Downtown Overlay District (DOD) shall be exempt from this provision if

there is an existing building on the subject site that prevents the addition of on-site parking. Expansions of buildings in the C-2 and DOD zone must comply with this section.

FINDING: The applicant's plans meet the minimum required parking spaces for phase 1. An evaluation of parking needs will be conducted later as part of phase 2 development.

2. Requirements for types of buildings and uses not specifically listed in these standards shall be determined by the Community Development Director, or designee, based upon the requirements for comparable uses listed.

FINDING: Staff determined that the 'Public Recreation Facility/Community Center' land use category was an appropriate to apply to proposed development to determine parking requirements.

3. In the event that several uses occupy a single structure or parcel of land, the total requirements for off-street parking shall be the sum of the net floor area requirements of the several uses computed separately.

FINDING: The applicant's plans meet the minimum required parking spaces for phase 1. An evaluation of parking needs will be conducted later as part of phase 2 development.

4. Owners of two or more uses, structures or parcels of land may agree to utilize jointly the same parking and loading spaces when the hours of operation do not overlap; provided that satisfactory legal evidence is presented to the City in the form of deeds, leases, or contracts to establish the joint use.

FINDING: The proposed development will be under one ownership and located on one parcel.

5. Off-street parking spaces for Dwelling Units (DU) shall be located on the same parcel with those dwellings, or written contract of agreement shall be provided to the City that expressly permits shared use of parking areas which are off-site.

FINDING: The proposed development does not contain any dwelling units.

6. All required parking spaces shall be located not farther than 300 feet from the building or use they are required to serve, measured in a straight line from the building unless approved by the City Engineer.

FINDING: All proposed parking spaces are located no further than 300 feet from the proposed recreation facility.

7. Required parking spaces shall be available for the parking of passenger automobiles of residents, customers, patrons, and employees only, and shall not be used for storage of vehicles or materials or for the parking of trucks used in conducting the business or use.

FINDING: This standard shall be an ongoing requirement of the proposed development.

8. In any zone, every building having a gross floor area of 10,000 square feet or more, which is to be occupied for: manufacturing, storage, warehousing, retail sales, hotel, hospital, laundry, dry cleaning establishment, or other uses similar requiring the receipt or distribution by vehicles, materials or merchandise, shall provide one off-street loading berth, plus one additional loading berth for each additional 20,000 square feet of gross floor area. Each loading berth shall be provided with paved access, driveways and surfacing in the same manner as for off-street

parking, except that each space shall be 10 feet wide and 22 feet long with a height clearance of at least 14 feet. A sight-obscuring screen, berm, or landscaping shall conceal all loading areas from view from public streets or roads.

FINDING: Based upon the lack of information contained in the applicant's plan set and burden of proof, staff is unable to determine whether this standard has been met.

9. Interior loading docks, or loading areas or docks located inside buildings, shall be considered as being screened when securable by a powered overhead door that totally encloses the opening for vehicles being loaded / unloaded.

FINDING: The applicant's plans do not include interior loading docks or loading areas or docks located inside the proposed facility.

10. Loading and unloading of merchandise, equipment, etc. shall not be permitted from public streets or roads.

FINDING: The applicant's plans show a proposed loading and unloading area on the north side of the proposed facility; therefore, no loading and unloading of merchandise, equipment, etc. will occur from SW Lava Avenue or SW 35th Street.

11. Common Parking Areas shall conform to city standards and shall be located within 220 feet of the land use.

FINDING: No common parking areas are proposed.

8.0510 Design and Improvement Standards for Parking Lots. The design and improvement standards for parking lots are:

1. Vehicle Parking Space Sizes and Bicycle Parking Requirements.
 - A. Each regular sized parking space or stall shall be governed by the requirements of Section 8.0515 and shall have a minimum width of 9 feet and a minimum length of 20 feet; must be individually accessible, paved, and shall be continuously maintained by the property owner.
 - B. If desired by the applicant / owner, each compact parking space or stall shall be a minimum width of 8 feet and a minimum length of 18 feet.
 - C. A maximum of 30% compact spaces is permitted as required parking.
 - D. A securable parking space shall be provided for bicycles for each new commercial use. Credit for 1 vehicular parking space shall be given for each 5 bicycle parking spaces (up to 10 bicycle parking spaces / 2 vehicular parking spaces credit possible). However, parking lots containing fewer than 10 vehicular spaces are not eligible for credits, except in the **MUN and MUE** zone. Also, bicycle spaces shall not replace more than 20% of the required parking under any circumstance.

FINDING: As shown on the applicant's plan set, all regular-sized parking spaces are nine feet in width by 20 feet in length; and compact parking spaces are eight feet in width by 20 feet in length. Of the grand total of 199 parking spaces proposed, 14 are compact parking spaces. This equates to 7% of the total parking spaces, well below the maximum of 30% allowed. The applicant proposes 14 bicycle parking spaces and is not seeking a reduction the minimum number of vehicular parking spaces.

2. Except for parking in connection with single family detached dwellings or middle housing, parking and loading areas adjacent to or within a residential zone or adjacent to any dwelling

shall be screened with a sight-obscuring fence or planted screen of not less than three feet in height.

FINDING: Located south and east of the proposed development are residential zones and thus require the parking areas be screened with a sight-obscuring fence or planted screen of not less than three feet in height. The applicant's plans do not provide detail to show compliance with this standard; therefore, this standard is not met.

3. Parking spaces between pavement and landscaping shall be contained by a bumper rail or by a curb which is at least four inches high, and which is set back a minimum of one and one-half feet from the property line.

FINDING: The applicant's plans show that the parking area between pavement and landscaping will be contained by a curb that is six inches high and located further than one and a half feet from property lines.

4. Exterior Artificial lighting of any type shall not shine or create glare in any dwelling, property, or onto any public right of way.

FINDING: The applicant has submitted lighting cut sheets and a photometric plan that demonstrates compliance with required exterior lighting standards, as addressed in Section 8.0330 above. All proposed lighting will be downcast and shielded and will not shine into neighboring residences or onto public streets.

5. Access aisles shall be of sufficient width to permit easy turning and maneuvering. In no case shall access aisles be less than 20' in width. Any access aisle less than 24' in width shall provide "no parking / fire lane" striping or signage, or curbs painted red for "no parking". Further, any access aisle being used as backup room for parking spaces shall be no less than 24' wide.

FINDING: The applicant's plans show that all parking access aisles are proposed to be at least 20 feet in width and those being portions used as backup room for parking spaces are not less than 24 feet wide.

6. Groups of more than two parking spaces shall be so located and served by a driveway so that their use will require no backing movements or other maneuvering within a street right-of-way, other than an alley, unless approved by the City Engineer. Single family detached dwelling and middle housing type are exempt from this standard.

FINDING: The applicant's plans show that all proposed parking spaces are located within the proposed off-street parking lots; therefore, all backing movements or other maneuvering will occur within the parking lots and not within street right-of-way.

7. Service drives to off-street parking areas and internal access aisles shall be designed and constructed both to facilitate the flow of traffic and to provide maximum safety for vehicles and pedestrians. Pedestrian pathways shall be clearly differentiated from vehicular drive aisles on site and may be required to be physically separated from vehicular drives or aisles to ensure pedestrian safety. The number of service drives shall be limited to the minimum that will accommodate anticipated traffic.

FINDING: The applicant's plans show the proposed pedestrian pathways and sidewalks located within the perimeter of the proposed parking lots and are clearly differentiated from the vehicular drive aisles on site. To enhance pedestrian connectivity, the applicant should consider provide better connectivity

from the central portion of the southern parking lot to the large island near the front entrance of the proposed facility.

8. Driveways shall have a minimum vision clearance area as described within RDC section 8.0305 and 8.0310, "Clear Vision areas".

FINDING: The applicant's plans demonstrate compliance with the minimum clear vision area.

9. The following standards shall apply to parking within industrial zones:
 - A. Parking shall not be allowed within 10 feet of a front yard property line or 5 feet of a side yard property line.
 - B. Parking shall not be allowed on collectors or arterials when industrial zoning is contiguous to said street.

FINDING: The subject property is not located within an industrial zone; therefore, this standard does not apply.

ARTICLE I – ZONING STANDARDS > AMENDMENTS *RDC Sections 8.0750 and 8.0760*

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.

FINDING: The applicant has submitted a Comprehensive Plan & Zone Map amendment application with the Community Development Department, requesting an amendment to the Comprehensive Plan & Zone Map's zoning designation of the subject property.

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;

FINDING: Staff has determined the following State statutes that directly apply to this application include:

ORS 197.610: *Submission of proposed comprehensive plan or land use regulation changes to Department of Land Conservation and Development* – with regard to this statutory noticing requirement, notice of the applicant's proposed amendment to the Comprehensive Plan Map has been provided to the Department of Land Conservation and Development; the public hearings advertised in the local newspaper; and notice mailed to adjoining landowners, as required by the Redmond Development Code and State Statute.

ORS 197.250: *Compliance with Goals Required* – compliance with all applicable Statewide Planning Goals is addressed in criterion #2 below.

ORS 197.797: *Local Quasi-Judicial Land Use Hearings* - the applicable Redmond Development Code standards (sections 8.0750 to 8.0775, *Amendments*, and sections 8.1010 through 8.1035, and 8.1300 through 8.1380, *Land Use Procedures*) were developed in compliance with this statute regarding noticing and public hearings. This proposed amendment is subject to Sections 8.1300 through 8.1380

of the Redmond Development Code, which implement the quasi-judicial Statutory requirements. The Planning Commission and City Council's public hearings and review processes meet the statutory requirements for the purpose of the review.

Based on the above discussion and finding, the applicant's proposed amendment to the Comprehensive Plan Map is determined to comply with the applicable State statutes and therefore complies with criterion #1.

2. In conformity with the State-wide planning goals whenever they are determined to be applicable;

FINDING: Conformance with each State-wide planning goal are addressed below:

Goal 1 – Citizen Involvement - calls for the opportunity for citizens to be involved in all phases of the planning process. The Redmond Urban Area Planning Commission serves as the City's formal citizen advisory commission to fulfill Goal 1 and is made up of Redmond area residents. The applicant's proposed amendment to the Comprehensive Plan Map will be reviewed in public hearings with both the Planning Commission as well as City Council in accordance with the Redmond Development Code (RDC). Additionally, the RDC required the applicant to conduct a neighborhood meeting prior to submitting their land use application package, which allowed for citizen input very early in the planning process.

Public notices and agendas for Planning Commission and City Council public hearings are provided in accordance with the RDC. All documents are available for public review. The public notice advertising the April 3rd public hearing with the Planning Commission was published in the *Bend Bulletin*.

Goal 2 – Land Use Planning – requires establishing 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. The applicant's proposed amendment to the Comprehensive Plan Map will be reviewed in accordance with the planning processes and policy framework that have been established in the adopted Redmond Development Code.

Goal 3 – Agricultural Lands – Pursuant to OAR 660-033-0020(1)(c), agricultural land does not include land within acknowledged urban growth boundaries. The subject property is located within an acknowledged urban growth boundary; therefore, this goal is not applicable.

Goal 4 – Forest Lands – Pursuant to OAR 660-006-0020, Goal 4 does not apply within urban growth boundaries. The subject property is located within an acknowledged urban growth boundary; therefore, this goal is not applicable.

Goal 5 – Natural Resources, Scenic and Historic Areas, and Open Spaces – is not applicable because the subject property does not contain any inventoried open spaces, scenic areas, historic resources, or natural resources.

Goal 6 – Air, Water, and Land Resources Quality – the applicant's proposed development (as a result of the proposed amendment to the Comprehensive Plan & Zone Map) will comply with all applicable local, state, and federal air and water quality standards and will not amend any of the said standards. Therefore, the proposed amendment does not alter compliance with Goal 6.

Goal 7 – Areas Subject to Natural Hazards – is not applicable because the subject property is not located within an area of identified natural hazards.

Goal 8 – Recreational Needs – requires local governments to plan and provide for the siting of necessary recreational facilities 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.” Adoption of the City’s Park Master Plan ensures City compliance with Goal 8 vis-à-vis planning for City-owned parks and trails located within city limits. However, RAPRD is a special district with a service area population of approximately 45,000 residents and oversees park and open spaces within the district boundary but outside city limits. RAPRD operates an existing regional facility that was built in 1979. A feasibility study conducted in 2022 examined better ways to serve the community and its future growth by recommending constructing a new recreation and aquatics center.

The applicant proposes a rezone of the subject property from R-5 (high density residential) to PF (public facilities) for the purpose of constructing the new regional recreational center. Approval and execution of proposed plans will result in an increase in the availability of public recreational facilities in the area and will not reduce recreation capacity within Redmond and RAPRD’s service area. The proposed amendment therefore complies with Goal 8.

Goal 9 – Economic Development – requires the City to plan and zone enough land to meet the community’s projected commercial and industrial needs. The City adopted an Economic Opportunities Analysis (EOA) in 2020. This document serves as the City’s compliance document under Goal 9, OAR 660-009-0015, and ORS 197.712. This goal is not relevant to the proposed Comprehensive Plan & Zone Map amendment because the subject property does not contain any lands designated for economic or employment purposes.

Goal 10 – Housing – provides for the housing needs of citizens of the state. Goal 10 requires that communities plan for and maintain an inventory of buildable residential land for needed housing units. The City adopted a Housing Needs Analysis (HNA) in 2019, which serves as the City’s compliance document under Goal 10, OAR Chapter 660, Division 008, and ORS 197.296(3). The HNA concludes that Redmond should plan to accommodate development of 6,963 new dwelling units over the next 20 years in order to house the projected population growth.

The subject property is currently zoned UH-10 with a Comprehensive Plan and Zone Map designation of R-5. The applicant is requesting an amendment to rezone the property from residential to public facility zone. Staff determines that doing so will not result in a reduction of residential buildable land. First, it is unclear why the Comprehensive Plan and Zone Map designated the property as R-5. It appears this occurred in conjunction with the 2040 Greater Redmond Area Comprehensive Plan and Zone Map adoption in 2020 even though the Redmond Framework Plan designated the area as future mixed use employment lands, and that property was under RAPRD (a public agency) ownership.

RAPRD purchased the subject property in 2009 as a potential future site for the proposed regional recreation center. A component to conducting the HNA in 2019 was to update the inventory of buildable residential lands. This involved classifying lands, a category of which was public or exempt land. OAR 660-008-0005(2) defines publicly owned land as generally not considered available for residential uses. Furthermore, classifying lands was done consistent with the rules for consideration of buildable land development by the Department of Land Conservation and Residential Lands Development Workbook. The workbook defined lands in public or semi-public ownership as unavailable for residential development. Based on the presented facts, staff concludes that the subject property is not, or should not be considered part of the buildable residential lands inventory. Therefore, the proposed amendment does not violate compliance with Goal 10.

Goal 11 – Public Facilities and Services – requires the City 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. As growth occurs, frequent updates are made to public facility master plans, pertinent

reports, and documents. The applicant's proposed Comprehensive Plan and Zone Map amendment does not adversely impact capacity of public facilities and services as was determined by issuance of approval of an infrastructure allocation analysis by the City Engineering Department. The analysis was based upon full build out of the subject property with the proposed recreation center and associated amenities. The proposed amendment therefore complies with Goal 11.

Goal 12 – Transportation – requires the City to provide and encourage a safe and convenient and economic transportation system. This goal is implemented through the Transportation Planning Rule (TPR) and OAR 660-012-0060 as well as local regulations (i.e., the City's Transportation System Analysis requirement). The applicant's proposed amendment to the Comprehensive Plan and Zone Map triggered the TPR and required the applicant's traffic impact analysis determine whether the amendment to the subject property's zoning district would significantly affect an existing or planned transportation facility. As detailed in the applicant's tech memo, dated March 26, 2024, the zoning amendment will not significantly affect any transportation facility and as such, the proposal is consistent with the TPR and thus compliant with Goal 12.

Goal 13 – Energy Conservation – is not applicable because the applicant's proposed amendment to the Comprehensive Plan & Zone Map will not have any direct impacts on energy. Additionally, the proposed amendment will not impede energy management or conservation practices.

Goal 14 – Urbanization – requires the City 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. The applicant's proposed amendment to the Comprehensive Plan and Zone Map's zoning designation must comply with the Comprehensive Plan and statewide planning goals, which are addressed in this staff report. The applicant also proposes to annex the subject property into the city, which is permissible given the property is located within the UGB and is contiguous to city limits. Lastly, the proposed amendment will not alter the area of the UGB. The proposed amendment therefore complies with Goal 14.

Goal 15 – Willamette River Greenway – is not applicable to lands within the city of Redmond.

Goal 16 – Estuarine Resources – is not applicable to lands within the city of Redmond.

Goal 17 – Coastal Shorelands – is not applicable to lands within the city of Redmond.

Goal 18 – Beaches and Dunes – is not applicable to lands within the city of Redmond.

Goal 19 – Ocean Resources – is not applicable to lands within the city of Redmond.

Based on the above discussion and finding, the applicant's proposed amendment to the Comprehensive Plan & Zone Map is determined to comply with the statewide planning goals and therefore complies with criterion #2.

3. In conformity with the Redmond Comprehensive Plan, land use requirements and policies; and

FINDING: Staff has examined the applicant's response to this criterion and believes the Comprehensive Plan goal 8 policies cited do not apply as they are intended to apply to the City, not RAPRD. However, staff has identified numerous Comprehensive Plan policies that are applicable to the applicant's request to amend the Comprehensive Plan and Zone Map. The requested amendment is to rezone the subject property zoning designation from R-5 to PF. Chapter 2 of the Comprehensive Plan states that areas designated PF on the Comprehensive Plan Map are intended for development as public and quasi-public facilities serving local and regional needs. Uses may include, among other

public uses, public recreational uses. The purpose and intent of the applicant's request amendment aligns with the Comprehensive Plan's vision for uses in the PF zone. This is in direct relation to Policy 2-1-6. An approval of the applicant's proposed Comprehensive Plan and Zone Map amendment will result in the City Council adopting an ordinance, implementing the change to the map. The community is provided the opportunity to provide input as part of the amendment review process, which complies with Policy 2-3-4.

Policies 9-5-5 and 9-5-6 speak to the need to ensure that Redmond has the services and amenities necessary for its residents as well as to attract workers to Redmond. Services and amenities include parks and open spaces. A rezone of the RAPRD property in conjunction with annexation will allow for the construction of the applicant's proposed new regional recreation center that will provide enhanced recreational amenities for the citizens of Redmond and surrounding area. Policy 11-2-1 calls for the need for the City to coordinate public facility planning for the Redmond UGB with participation and assistance from, among others, RAPRD for recreation facilities-related planning. As identified by the applicant, there is a need for the siting of a new regional recreation facility of which RAPRD is proposing on their property located within the UGB and abutting city limits. Goal 5 of Chapter 12 generally speaks to the need to enhance transit in Redmond. Specifically, Policy 12-5-2 calls for necessary prioritization of improved transit service in areas with access to essential developments and recreational areas. The proposed rezone will allow for the construction of a regional recreation center that will serve many residents in Redmond and the surrounding area. As part of the proposed development, RAPRD has coordinated with Cascades East Transit and plans to construct a transit stop adjacent to the proposed recreation center. Doing so will provide for increased access to a key recreational facility in the community.

Two policies within Chapter 15 speak to livability in Redmond. Policy 15-1-2 states that "Redmond shall build safe places where people from all racial, ethnic and cultural backgrounds thrive socially, economically, academically and physically." RAPRD's mission states "[We lead] our community to health and well-being by providing fun, high-quality recreational experiences and activities for all." And as stated by the applicant, the proposed regional recreation center will accommodate various recreational, fitness, and therapeutic activities and amenities for multiple cross-generational activities. Policy 15-1-11 is similar to the two economic development-related policies from Chapter 9 mentioned above in that this policy speaks to the need for Redmond to promote economic competitiveness through sustainable choices for employment, housing, transportation, education, cultural diversity and enrichment, and recreational opportunities. The applicant's request to amend the zoning of the subject property is needed in order to construct the proposed regional recreation center that will have a positive contribution to the livability of Redmond.

Staff finds that the applicant's proposed amendment to the Comprehensive Plan and Zone Map is supported by a number of Comprehensive Plan policies as stated above. Furthermore, staff finds the amendment request does not conflict with any Comprehensive Plan policies. Therefore, staff concludes that the applicant's request conforms to the Comprehensive Plan.

4. That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning.

FINDING: In 2006, Redmond added more than 2,300 acres of "urbanizable" land along the City's western and northern boundaries to its UGB, including the subject property. At the same time, a Framework Plan was adopted by the City as part of the expanded UGB to provide general guidance for future land uses, densities, neighborhood amenities and the necessary public facilities and services to serve the parcels. The Framework Plan conceptually identified the general area of the subject property as future Mixed Use Employment lands as these lands annex into the city and develop. In 2020, as part

of adoption of the 2040 Greater Redmond Area Comprehensive Plan and Zone Map, the subject property was designated R-5.

RAPRD purchased the subject property in 2009 as a potential site for a new regional recreation center, and the applicant has stated:

In spring 2022, the District completed a feasibility study that examined better ways to serve the community and its future growth by constructing a new Recreation and Aquatics Center. In November 2022, the District sponsored a ballot initiative approved by votes [sic] to provide \$49 million in funding for a new Recreation Center. In 2023, the District began a process led by BRS Architecture to design the new recreation center. The process included several community meetings and meetings with the District's design committee to refine the building and site design.

Given the aforementioned developments (i.e., change of circumstances), staff supports the applicant's request to amend the Comprehensive Plan and Zone Map's zoning designation of the subject property from R-5 to PF (Public Facility) so that the proposed regional recreation center can be constructed on the subject property. Staff believes the change of circumstances is sufficient for compliance with this criterion.

ARTICLE IV – SITE AND DESIGN REVIEW STANDARDS > INTRODUCTORY PROVISIONS
RDC Sections 8.3005, 8.3020, and 8.3035

8.3005 Applicability of Site and Design and Review. Site and Design Review shall be required for any new development or use containing a structure, or multiple structures, unless exempted in Section 8.3010.

FINDING: The proposed development includes an approximately 56,000 square foot structure (regional recreation center) and accessory structures, which requires review of the site and design of the development.

8.3020 Site Improvement Agreement. Where public improvements are required as a condition of approval, the applicant may be required to execute and record an Improvement Agreement subject to the following.

1. The developer may, in lieu of completion of the required improvements, request the Community Development Director, or designee, to approve an agreement specifying the schedule by which the required improvements and repairs shall be completed. Provided, however, any schedule of improvements agreed to other than sidewalks shall not exceed two (2) years from the date of land use approval. The agreement shall also provide the following information:
 - A. The repairs required and cost of the project.
 - B. That the City may call upon the security filed to construct or complete the improvements and repairs if the schedule of improvements is not adhered to.
 - C. That the City shall recover the full cost and expense of any work performed by the City to complete construction of the improvements and repairs including, but not limited to attorneys' and engineering fees.
 - D. That a warranty bond for two (2) years shall be deposited with the City following acceptance of the improvements. Said bond shall be in the amount of ten (10) percent of the value of the improvements.
2. The Community Development Director, or designee, may reject an agreement authorized by this Section for any reason the Community Development Director, or designee, deems sufficient.

FINDING: Although an option when constructing public improvements, the City will not require an improvement agreement as a condition of approving the proposed site and design application.

8.3035 Design Review Criteria. Prior to issuance of a building permit, the following applicable criteria shall be met.

1. **Installation of Utilities.** All new service lines and relocated transmission lines shall be placed underground. Existing overhead transmission lines or utility lines shall be relocated underground unless otherwise approved by the CDD Director, City Engineer, or Hearings Body.

FINDING: As shown in the applicant's plan set, all new service lines will be placed underground. Furthermore, the proposal does not involve relocated transmission lines and existing overhead transmission lines or utility lines. In the northwest corner of the subject property are multiple power lines, located within a utility easement, that are owned and maintained by the Bonneville Power Administration (BPA).

2. **Right-of-Way Dedication & Public Improvements.** Adequate right-of-way dedication and improvements to streets, alleys, sidewalks, bikeways, and other public ways shall be provided by the Owner that conform to City of Redmond adopted Transportation Plan, Transportation Impact Analysis & Access Management Standards, Public Works Standards & Specification, and the local service street policies, including the grid policy. In lieu of actual construction of improvements, the City may choose to accept financial payment, contribution, other approved security, or agreement for the purpose of providing the needed improvements. The City may require that no building permit be issued until public improvements are completed; this shall be clearly identified (if applicable) within the Site Improvement Agreement.

FINDING: Per condition of approval #8, dedication of ten feet of right-of-way will be required for SW 35th Street, in addition to improvements to the property frontages along SW 35th Street and SW Lava Avenue. Lastly, in conformance with the Transportation System Plan and annexation agreement, separated public pedestrian/bike multi-use paths will be required to be constructed along the BPA powerlines/easement through the northwest corner of the subject property and along SW 35th Street property frontage.

3. **Neighborhood Compatibility.** This standard shall not apply to any development that requires a conditional use permit. Subsections B. and D. do not apply to needed housing (ORS 197.307).
 - A. The proposal will be consistent with applicable zoning standards.

FINDING: Submitted and reviewed concurrently with the required Site and Design review is the applicant's request to amend the Comprehensive Plan and Zone Map to rezone the subject property from R-5 to Public Facility zone upon annexation. As such, the proposed regional recreation center is being evaluated using the Public Facility zoning standards. The proposal is consistent with the applicable zoning standards as addressed in Section 8.0225 above.

- B. The location, size, design, and physical characteristics of the proposal (such as setbacks, height, position of structure on the site) will have minimal adverse impact on the livability or value of abutting properties.

FINDING: The applicant has stated:

The proposed RRSC building is setback 40 feet from the closest street, SW 35th Street, is approximately 55,509 square feet in size and approximately 40 feet in height. As shown on the attached plans, the facility is designed to be compatible with surrounding development.

The proposed Redmond Regional Recreation Center (RRRC) builds on the programs, spaces, and amenities established by the public during the feasibility study. The overall facility and site design is focused on capturing the spirit of Redmond, using local architectural materials and forms as interpreted to reflect the modern Central Oregon experience. The site design includes amenities that are needed in the area, including a multipurpose field, playground, splash ground, pickleball courts, and spaces for the community to gather and celebrate the breathtaking views and unique outdoor experiences that make Redmond such a special place.

The proposed RRSC building capitalizes on these views while providing a new public gathering place that offers the surrounding community a place to build physical, emotional, and social wellness. The facility includes a gym, an 8-lane competition pool, a leisure pool, fitness classrooms, a fitness space, and a community wing. The community wing includes multipurpose classrooms, party rooms, and a teaching kitchen to foster a culture of growth and learning. The building also includes a variety of lounge spaces that are intended to act as community living rooms where users are encouraged to gather, study, socialize, and work.

Staff concurs with the applicant's response. Additionally, anticipated additional traffic generated by the proposed development was evaluated with a traffic impact analysis that was reviewed and approved by the City. That analysis concluded that the additional traffic generated will not degrade any of the intersections within the vicinity to below acceptable mobility standards and will not substantially increase queuing conditions over existing conditions. All site driveways are projected to operate safely and efficiently.

SW Lava Avenue and SW 35th Street will be brought up to full City standard, which will include improvements to the subject property's frontages such as replacing curbs and planting street trees. The proposed development will also construct a multi-use pathway along the frontage of SW 35th Street, as identified in the City's Transportation System Plan, and sidewalk along the frontage of SW Lava Avenue. The pathway and sidewalk will enhance pedestrian connectivity and safety in the neighborhood. As required by the Redmond Development Code, all proposed exterior lighting on the subject property will be downcast and shielded and will not shine into neighboring residences or onto public streets. Additionally, the proposed development's parking lots will include screening to prevent or reduce vehicular headlights shining into neighboring residences. Lastly, scenic views of the Cascade Range will be preserved to the greatest extent possible as discussed below when addressing compliance with the Great Neighborhood Principles. Staff has therefore determined that the proposed development will have minimal adverse impact on the livability of abutting properties.

- C. The project will not exceed the operational capacity of public facilities, and which are required to serve the development unless the City Engineer determines that sufficient capacity can be provided. The capacity of public facilities and services shall be based primarily on the City's Water and Wastewater Master Plan and the Transportation System Plan.

FINDING: The proposed project will not exceed the operational capacity of public facilities that are required to serve the proposed development. The applicant was required to submit an infrastructure allocation analysis application to the City Engineering Department. Said application was reviewed and approved by City Engineering, thus confirming the proposed development will not exceed operational capacity of public facilities.

- D. The proposal is consistent with the applicable Great Neighborhood Planning Principles described in Section 8.0270(3)(C)(13) and adopted Area Plans.

FINDING: There are 11 Great Neighborhood Principles, each addressed below:

Transportation: The proposed development will be required to dedicate right-of-way for SW 35th Street and bring the subject property's frontage along SW 35th Street to City standard. Frontage along SW Lava Avenue will be brought up to City standard as well. The applicant will coordinate with Cascades East Transit to locate and construct a transit stop along SW 35th Street. Pedestrian access to and throughout the site is being proposed as shown on the applicant's plan set. In part, this includes constructing a multi-use pathway along the frontage of SW 35th Street, complying with Redmond's Transportation System Plan and terms outlined in the subject property's annexation agreement.

Housing: The proposed development does not include housing as the applicant's request involves rezoning the subject property from R-5 to Public Facility zone and to construct a 55,509 square foot regional recreation center.

Open spaces, greenways, recreation: This principle is generally more applicable to proposed neighborhoods and neighborhood or community parks. The proposed development involves a rezone in order to construct a new regional recreation center and associated amenities intended to serve residents of Redmond and the surrounding area (i.e., within the RAPRD district).

Integrated design elements: The applicant has stated:

As illustrated on the attached plans (Exhibit A), the site design features a courtyard and promenade on the west side of the building. The courtyard will include a mix of open paving, bench seating elements, plant beds with native vegetation, landscape boulders, and a formal lawn area. The western promenade, located west of the gymnasium and courtyard, connects to future outdoor spaces and serves as an aerial emergency access zone for the gymnasium. Shade trees in vegetated tree wells or decomposed granite will be planted within the promenade. The promenade will overlook the lower soccer field and have direct access to that field.

A collection of outdoor spaces that facilitate basketball, pickleball, and children's play are included in the master plan as part of a future construction phase. Four pickleball courts are located adjacent to the BPA utility easement, to the east of these courts is nature play equipment on soft-fall surfacing. A full-sized basketball court with a lawn viewing leisure area is located north of the gymnasium. A children's water feature, serviced by the building's pool mechanical room, is between the basketball court and structured nature play area.

Pedestrian connections through and around the site are provided by the western promenade, a shared-use path along SW 35th Street, a separated sidewalk along SW Lava Avenue, a perimeter sidewalk surrounding the south parking lot, and expanded paving and raised crosswalks near the facility entry. The southeast portion of the south parking lot, adjacent to the intersection of SW 35th Street and SW Lava Avenue, is designed to function as a market and gathering space.

Diverse mix of activities: This principle is more applicable to proposed neighborhoods. However, the proposed development includes a diverse mix of uses intended for multi-generational users and includes recreational amenities that are needed in ever-growing Redmond and surrounding area. Furthermore, the proposed development will be located near existing and planned residential areas and will include a transit stop, therefore, making it accessible to users located farther from the site.

Public art or artistic feature: As stated by the applicant, both the proposed recreation center building and design of the site provide opportunities for the installation of public art. However, this principle has greater applicability to proposed neighborhoods.

Scenic views: The east-west street viewshed of existing SW Lava Avenue will not be adversely impacted by the proposed development. Aside from the proposed recreation center building, the site will be developed with park-related amenities and open spaces, which will allow for the preservation of existing intermittent views of the Cascade Range.

Urban-rural interface: Upon annexation, the subject property will be adjacent to lands outside the city limits but within the Urban Growth Boundary (UGB) on the north and west sides. The proposed building will be located on the eastern portion of the subject property and the areas between the building and the lands outside city limits and within the UGB are planned as park or open space uses. Lastly, the City's Comprehensive Plan Policy 14-1-2 indicates that the urban-rural interface standard applies to urban development located on the edge of the UGB, adjacent to Urban Reserve Area (URA) lands.

Pocket parks/tot lots: This principle does not apply as the proposal is not a residential subdivision.

Canal trails: The subject property does not include any Central Oregon Irrigation District canals or easements.

Green design: The applicant's landscaping plan shows approximately two-thirds of the proposed landscaping will be some form of native landscaping. Furthermore, the applicant has stated that the proposed recreation facility design maximizes solar access.

Lastly, the subject property is not located in an area with an adopted area plan. Staff has determined that the proposed development is consistent with the applicable Great Neighborhood Principles.

4. **Architectural Requirements.**

- A. **Architectural theme.** A specific architectural theme is required for any structure that is a candidate for Site and Design review. The theme used shall be carried out completely in the design and not mixed with conflicting themes. The theme used shall be consistent with all buildings on the subject site.

FINDING: The applicant has stated the following in response to the architectural theme standard:

Four design threads inspire the architectural theme; spirit, roam, authenticity/rooted, and belonging. Through engaging programs, innovative facilities, and passionate staff, the RRSC [regional recreation center] strives to ignite the inner light within each person, empowering them to reach their full potential and shine brightly in their endeavors. Spaces are designed to maximize views of nature, inspiring a sense of aspiration and connection to the surrounding landscape. The use of vibrant colors and dynamic forms further enhances the sense of energy and radiance within the facility.

The RRSC architecture promotes exploration and discovery by designing flexible and adaptable spaces encouraging movement and engagement. The Redmond area prides itself on living in accordance with their beliefs while still honoring changing times and community growth. The RRSC architecture prioritizes transparency and clarity, ensuring spaces are easily navigable and inviting. Clear sightlines, intuitive wayfinding, and transparent walls can promote visibility and create a sense of openness and honesty. The use of natural materials, such as wood, stone, or local materials, contributes to a genuine and authentic atmosphere.

Redmond cultivates a sense of belonging and a sense of place to all who arrive. The RRSC celebrates diversity and inclusivity, creating a space where individuals of different backgrounds, abilities, and interests feel welcomed and valued. The architecture incorporates spaces that encourage social interaction and connection. Gathering areas, common lounges, and communal spaces are strategically placed to facilitate encounters and foster a sense of community.

The subject property is near Redmond's Dry Canyon Park, where elemental colors, textures, and forms inform and inspire the site design. In combination with the building architecture, the proposed landscape design utilizes soft natural tones of brown, yellow, green, gray, and red, much like you find in Redmond's Dry Canyon. The site's textures are a mixture of visually soft zones punctuated with accents of sharp pockets that contrast materials surrounding key elements.

In conjunction with the applicant's statement, staff reviewed the architectural renderings and building elevations included in the plan set and determines the intent of this standard, providing for a unified architectural theme throughout the proposed building, is met.

- B. **False front design.** A false front design of a building shall be avoided, except for the Downtown (C-2) Commercial District.

FINDING: The proposed building does not include a false front design.

- C. **Historical Buildings.** Compliance with the preservation of historic buildings and sites pursuant to section 8.0855 and 8.0860 where applicable.

FINDING: The proposal does not include a historic building.

- D. **Commercial and Industrial buildings.**

[...]

FINDING: The proposed development does not include commercial or industrial buildings.

- E. **Multi-Family Complexes.**

[...]

FINDING: The proposed development does not include multi-family complexes.

- F. **Exterior Mechanical Equipment.** These shall be screened so as not to be visible from public streets or residences and not placed on exterior walls unless fully screened.

FINDING: As shown in the applicant's plan set, exterior mechanical equipment will include a transformer, generator, and lift station, all located just outside the north end of the proposed building. These will be screened by a six-foot tall masonry wall (finish to match building) and therefore will not be visible from public streets or residences.

- G. **Surfacing.** Gravel is prohibited as a surfacing material in the commercial or mixed use zones. Areas that are not part of the required landscaped areas shall be surfaced with asphalt or concrete unless natural, undisturbed open areas.

FINDING: The proposed development is not located in a commercial or mixed use zone. Additionally, as shown in the applicant's plan set, no gravel is proposed as a surfacing material anywhere on the proposed development site.

- H. **Building Design for Automotive Service Stations.** The entrance to the service bays shall not be open to the street but shall be so designed to face the rear or interior side property line.

FINDING: The proposed development does not include an automotive service station.

I. **Retail, Office, Commercial and Mixed Use Buildings in the MUN and MUE zones.**

[...]

FINDING: The proposed development does not include retail, office, commercial, or mixed use buildings and will not be located within the MUN or MUE zone.

5. **Landscaping.**

- A. **Plant sizes.** All required shrubs shall be at least 1-gallon size and all required trees 15-gallon size at time of planting, and no less than 1-1/2" caliper measured 3' above finished grade. Applicants must show evidence of paid contracts or commitments for landscaping work or other proof/evidence the work will be completed as required and on time.

FINDING: As shown on the applicant's landscaping plan, all shrubs will be at least one-gallon size and all trees will be 1-1/2-inch caliper. Installation of all required landscaping will be required prior to issuance of certificate of occupancy.

- B. **Vegetative cover.** All required landscape areas shall be planted with shrubs, trees and or living ground cover to a minimum of 50% vegetative cover at the time of planting. The other 50% may be covered with non-vegetative (not bark) mulch.

FINDING: Based upon the landscaping plan submitted, staff cannot be determined that this standard is met; therefore, the applicant shall resubmit for review and approval a landscaping plan that demonstrates compliance with this standard.

- C. **Outdoor storage and service areas.** Outdoor storage and service areas shall be screened or buffered from adjacent properties or from public rights of way with a minimum 3-foot-tall and wide landscape strip or site obscuring fencing unless otherwise approved when adjacent to a similar use or a use that does not require screening from the proposed use. Screening shall provide no less than 50% visual screening at time of planting or installation and shall be shown by detail or photo.

FINDING: As shown in the applicant's plan set, exterior mechanical equipment will include a transformer, generator, and lift station, all located just outside the north end of the proposed building. These will be screened by a six-foot tall masonry wall (finish to match building) and therefore will not be visible from public streets or residences.

- D. **Areas between buildings and property lines adjacent to a street.** Areas between buildings and property lines adjacent to a street shall be landscaped with trees and shrubs within a minimum 3-foot-wide landscape strip.

FINDING: As shown on the applicant's landscaping plan, the areas between the proposed building and the property lines adjacent to SW 35th Street and SW Lava Avenue will be landscaped with trees and shrubs within a minimum three-foot-wide landscape strip.

- E. **A parking or loading area.** A parking or loading area shall be separated from any lot line adjacent to a roadway by a landscaped strip at least 10 feet in width, and any lot line by a landscaped strip at least 5 feet in width. Within the C-2, C-4, MUN, MUE, or Airport zone, street trees or other landscaping located within the public right-of-way may be provided

and considered as landscaping on site. The City may make an exception of the five (5) foot landscaping strip requirements if the following criteria apply:

1. The properties are adjacent to one another; and,
2. The parking and back up areas are adjacent to a common lot line. If an exception is granted, an easement shall be recorded on the deed. If at any time the parking area is no longer shared, the parking area shall conform to the five (5) foot landscape strip requirements.

FINDING: As shown on the applicant's landscaping plan, all parking or loading areas are separated from property lines adjacent to SW Lava Avenue and SW 35th Street by a landscaped strip at least ten feet in width. Additionally, the western end of the proposed southern parking lot includes a landscaped strip at least five feet in width that separates the parking lot and the western property line.

- F. **Landscape areas abutting parking areas spaces, access aisles and loading zones.** Landscape areas abutting parking spaces, access aisles and loading zones shall incorporate a sight obscuring landscape screen. The screen shall be at least 3 feet higher than the finished grade of the parking area, except in required clear vision areas where the clear vision requirements must be met. The screen height may be achieved by a combination of earth mounding and plant materials. Fences with or without slats may qualify for parking lot screening on interior, side, or rear lot lines, or when adjacent to an alley.

FINDING: Based upon the landscaping plan submitted, staff cannot be determined that this standard is met; therefore, the applicant shall resubmit for review and approval a landscaping plan that demonstrates compliance with this standard.

- G. **Parking lot landscaping.** In addition to meeting all other landscape requirements, at least ten (10%) percent of the paved parking shall include planting beds at least 5 feet wide, plus a ratio of one tree per ten parking spaces shall be planted.

FINDING: As shown on the applicant's landscaping plan, ten percent of the parking lot equates to 8,051 square feet. The applicant's plans show proposed parking lot landscaping of 12 percent (9,474 square feet) with planting beds at least five feet in width. Additionally, based on 199 proposed parking spaces, the applicant shall provide 20 parking lot trees. The applicant is proposing 31 parking lot trees.

- H. **Protection of Parking Lot Landscaping.** Parking lot landscaping shall be protected by a curb or secured wheel guards at least 4" high with a minimum three-foot setback from the property line.

FINDING: The applicant's plans show that the parking lot landscaping will be protected by a curb that is six inches high and located further than three feet from property lines.

- I. **Preservation and Replacement of Trees.** All existing trees having a six (6) inch trunk diameter 3' above grade or greater shall be preserved or replaced with fifteen gallon-sized trees at a 'one-to-one' ratio. Replacement trees shall have a minimum 1-1/2-inch trunk diameter measured at 3' above grade. This criterion shall be met in the submitted landscape plan.

FINDING: As shown in the applicant's plan set, the proposed development will involve removing 41 existing trees and will be replanting 130 trees with two-inch caliper or six to eight feet in height in height.

- J. **Irrigation of plants and trees.** Irrigation systems shall be required for all landscape areas and street trees except those designated for native vegetation. Type of irrigation system and approximate line location shall be shown on the site plan provided.

FINDING: The applicant has submitted an irrigation plan that demonstrates compliance with this standard.

- K. **Street trees.** Street trees are required to be installed on all residential, commercial, and industrial lots fronting on public or private streets, including on lots already platted at the time of adoption of this ordinance (Ord. #2013-04, 05/14/2013), but not yet developed. Street trees shall be provided in accordance with the following requirements:

1. **Street Tree Plan.** A street tree plan shall be provided showing the location of street trees, the types and the installation sizes of the trees and the type of irrigation proposed.
2. **Timing of Improvements.** All street tree(s) shall be installed prior to issuance of a Certificate of Occupancy for said construction. An exception to this shall be when it is not feasible to plant street trees due to cold weather, in which case a posting of a bond for the value of the tree shall be acceptable to ensure the tree is planted at the earliest feasible time as determined by the City.
3. **Number of Trees Required.** The number of street trees planted on each lot is dependent upon the lot width per the table below:

Lot Width	Number of Street Trees Required
Corner Lot	Tree requirements will be based on each street frontage length
50 ft and less	1
51-100 ft	2
101-150 ft	3
151 ft and more	One tree/40 feet of width fronting street

FINDING: The subject property has street frontage of approximately 628 feet along SW Lava Avenue, which will require 16 street trees along SW Lava Avenue. The subject property has street frontage of approximately 750 feet along SW 35th Street, which will require 19 street trees along SW 35th Street. The applicant's landscaping plan demonstrates compliance with this standard.

4. **Spacing of Trees.** Street trees shall be spaced in accordance with the table below:

Lot Width	Tree spacing requirements
50 ft and less	The street tree shall be planted as close as possible to the center of the lot frontage, unless there is a conflict with a driveway, in which case it should be located as close as possible to the center.
50 ft and more	Small canopy and columnar shaped trees shall be planted no further than thirty (30) feet apart
	Medium and large canopy trees shall be planted no further than forty (40) feet apart
Downtown	Per Public Works Standards

An exception to the tree spacing requirements above includes when planting a tree would conflict with existing trees, retaining walls, utilities, driveways, views,

or other similar physical barriers. In those cases, the Community Development Director, or designee, may approve alternative spacing.

FINDING: The applicant's landscaping plan demonstrates compliance with the tree spacing requirements of this standard. Street trees proposed to be spaced greater than 40 feet apart is due to constraints such as the proposed multi-use path or utilities.

5. **Location of Trees.** Street trees shall be planted within existing and proposed planting strips or in City approved sidewalk tree wells on streets without planting strips unless an alternative street tree location is approved during the planning review process. The location of trees shall meet the following setback requirements:

Object Tree Must be Setback from	Distance Street Tree Must Be Setback From Object
Curb or sidewalk	3 ft (small and medium stature tree) and 3 ft (large stature tree); in no cases, shall the tree be more than 10 ft from the curb
Curb line of an intersection, stop/yield signs, and streetlights	25 ft
Adjacent Tree	20 ft
Fire Hydrants, utility poles and directional traffic signs	10 ft
Edge of a driveway	5 ft
Property lines	2 ft

FINDING: The applicant's landscaping plan demonstrates compliance with the required location of tree setback standards.

6. **Caliper Size.** The minimum caliper size at planting shall be 1½ inches for single family residential and 1½ inches for commercial and industrial. If the required caliper is not available, the Community Development Director, or designee, may accept an alternative proposal that is comparable.

FINDING: As shown on the applicant's landscaping plan, all proposed street trees will be at least two inches in caliper at planting.

7. **Approved Tree List.** Types of street trees shall be selected from the City Arborist's approved list of trees.

FINDING: The proposed street tree types listed on the applicant's landscaping plan have been selected from the City Arborist's approved street tree list.

8. **Maintenance.** Maintenance of street trees shall be in accordance with standards listed in Section 3.600 of the Redmond Code.
9. **Utility Easements.** All street trees shall be placed outside utility easements unless the utilities are in a protective conduit. If the existing planter strip contains such easements and is not wide enough to also accommodate street trees, the street tree location requirement in section 4 above may be adjusted by the

Community Development Director, or designee, during the development review process.

FINDING: Based upon the applicant's landscaping plan, it appears that all proposed street trees will be placed outside utility easements. This will require verification as part of the building permit process.

- L. **Maintenance of landscaping.** All landscaping shall be continuously maintained and replaced when necessary to maintain compliance with an approved landscape plan. For landscaping valued in excess of \$5,000, the City may require a maintenance bond.

FINDING: Ongoing maintenance of on-site landscaping is standard requirement. Applicant acknowledges this requirement.

6. **Parking and Unloading Areas/Docks.**

- A. **Off-Street Parking Areas.** Parking areas shall be as near the public entrances to the structure served as possible.
- B. **Parking lot.** The parking shall be dispersed around the building, emphasizing the importance of the building and accessibility to entrances. In the **MUN and MUE** zones, parking shall be located to the side, rear, or under the building or in a designed central parking lot.

FINDING: The applicant's plans show that proposed parking areas are located near the public entrances to the recreation center as possible. It's important to note that the proposed northern parking lot will be used primarily for overflow parking and to provide parking to other on-site uses such as the future multi-sport field, courts, playground area, etc.

- C. **Truck loading areas or docks.** Truck loading areas or docks, where delivery is done by semi truck with a specified loading dock, shall be located or screened from the street or from the major public entrance to the building. The Applicant shall identify the specific type(s) and size of delivery vehicles which will deliver and/or take goods to/from the building; the hours of delivery, the location of delivery doors and their dimensions. Truck loading areas or docks shall not inhibit circulation on-site or create access problems from adjacent streets.

FINDING: Based upon the lack of information contained in the applicant's plan set and burden of proof, staff is unable to determine whether this standard has been met.

7. **General Site Criteria.**

- A. **Grading and Drainage.**
 - 1. **Grading.** Grading of on-site private land shall be managed to ensure that there are no adverse conditions created for neighboring lands or public right-of-way. A stormwater grading plan shall be developed that satisfies the following criteria:
 - a. On-site maintainability.
 - b. Professional civil engineering practices.
 - c. Identify responsibility for the management of the stormwater.
 - 2. **Drainage and Stormwater.** Per direction of the City Engineer, and specified in the City of Redmond Standards and Specifications, drainage shall be managed on-site or as determined reasonable for shared responsibility for both conveyance and disposal of private and public right-of-way stormwater.

The storm event shall be for the 50-year 24-hour storm event, and require the total of public and private runoff to be contained within development boundaries.

At a minimum, a drainage plan shall include engineering calculations meeting professional practice methods of storm volume development, original and new topography of the site, drainage pathways and flow direction, location of retainage, and/or disposal of stormwater.

FINDING: A stormwater grading plan has been submitted and must comply with requirements outlined in condition of approval #11.

3. **Blasting.** A permit for explosive blasting shall be obtained from Redmond Fire & Rescue and City Engineer prior to blasting.

FINDING: The applicant will obtain a permit for blasting prior to any work occurring.

- B. **Clear Vision Standard.** No obstructions greater than three and one half (3 ½) feet high, including any landscaping which will grow greater than three and one half (3 ½) feet high, with the exception of trees whose canopy heights are at all times greater than eight (8) feet, may be placed in a clear vision area as defined in Article I, "Supplementary Provisions".

FINDING: The applicant's proposed landscaping plan complies with the clear vision area standards for all proposed vehicular intersections as well as for the corner of SW 35th Street and SW Lava Avenue.

- C. **Trash Collection Areas.** Trash collection areas shall not be oriented towards building entrances or public streets other than alleys and shall be screened or enclosed with building material which is compatible with those used in the exterior of the building. Location(s) of all trash collection area(s) shall be reviewed and approved by the Community Development Department Director, or designee.

FINDING: The applicant's plans show a proposed trash collection area located on the north side of the proposed recreation center, oriented away from the public street and enclosed by a six-foot tall masonry wall (finish to match building).

- D. **Water and Sewer Service.** Connection to the City's public water and sewer systems shall be required and shall comply with the current Public Works Standards & Specifications.

FINDING: The applicant's plans include connection to the City's public water and sewer systems. Connections shall comply with the current Public Works Standards and Specifications as well as conditions of approval #9 and #10.

- E. **Accessibility.** At least one pedestrian pathway, which meets UBC accessibility requirements, shall be provided within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading and drop off zones, and public streets or sidewalks to an accessible entry. When more than one building or facility is located on a site, at least one accessible route shall be provided between accessible buildings and accessible site facilities. The accessible route shall be the most practical and direct route among accessible building entries, accessible site facilities and the accessible entry to the site. Walks paralleling vehicular ways shall be separated from vehicular ways by curbs, planted areas, railings, or other means between the pedestrian way and vehicular routes.

FINDING: As shown on the applicant's plans, all site pedestrian pathways have been designed to be accessible throughout and to/from the site, which includes to the planned Cascades East Transit bus stop along the subject property frontage on SW 35th Street.

- F. **Streetscape standards in the MUN zone.** New retail, office, commercial and mixed-use development, and major modifications (per RDC 8.3005-8.3010) within the MUN zone shall provide one or more of the Category A pedestrian amenities listed below and all of the Category B amenities, as generally illustrated in the figure below. Pedestrian amenities may be provided within a planting strip or street furnishing zone, building frontage zone or plaza, as shown in the figure below. Use of the public right-of-way requires approval by the roadway authority.

FINDING: The proposed development is not located in the MUN zone; therefore, this standard does not apply.

8. **Transportation System Analysis (TIA).** The development must meet requirements per Section 8.2815 (Transportation System Analysis).

FINDING: The Transportation System Analysis Application (TSAA) dated October 11, 2023, and Traffic Impact Analysis (TIA) updated March 8, 2024, submitted by Sandow Engineering have been reviewed and approved by City Engineering conditioned upon the transportation mitigation requirements identified by the Assistant City Engineer per City Approval Memo dated March 18, 2024, unless otherwise specified.

9. **Access Management Standards.** The development must meet requirements per Section 8.2820 Access Management Standards.

FINDING: These standards are met, subject to condition of approval #8.

Conclusion:

Based upon the submitted plans, materials, and the proposed findings and conditions of approval included herein, staff believes that all requirements can be fulfilled to support the Comprehensive Plan and Zone Map amendment, Spruce Northwest master development plan, and tentative subdivision plan, consistent with all applicable City policies, rules, and regulations.

III. RECOMMENDATION & CONDITIONS OF APPROVAL

Recommendation:

Based on the submitted plans, staff findings and conclusions, staff recommends the Planning Commission make a recommendation to the City Council to approve the RAPRD Redmond Regional Recreation Center project (File Nos: 711-23-000278-PA1 and 711-23-000279-SP), subject to the conditions of approval below.²

Conditions of Approval:

The following conditions of approval shall be required:

1. Any substantial alteration to the approved plans, except as modified by the following conditions of approval, shall be subject to the standards and procedures in RDC Section 8.1400, Modifications of Approval.

² Note: Site and Design (711-23-000279-SP) approval is only for phase 1 of the project as shown in the submitted plan set.

2. Applicant shall construct a Cascades East Transit (CET) bus stop per CET requirements. Coordination with CET shall confirm where a transit stop should be sited along the property frontage along SW 35th Street to best support future routing. The stop shall include a minimum 14' x 8' pad, conduit for future power as part of site frontage improvements, signage, bench, and a shelter, as required by CET.
3. Applicant shall address and demonstrate compliance with RDC Sections 8.0505(8) and 8.3035(6)(C), off-street loading standards.
4. Applicant shall demonstrate compliance with RDC Section 8.0510(2), design and improvement standard for parking lots.
5. To enhance pedestrian safety and connectivity, applicant shall provide for better connectivity from the central portion of the southern parking lot to the large island located near the front entrance of the recreation center building.
6. Applicant shall demonstrate compliance with RDC Sections 8.3035(5)(B) & (F), landscaping standards.
7. The proposed service yard enclosure located on the north side of the recreation center building shall be screened or enclosed with building material which is compatible with those used in the exterior of the recreation center building.
8. **Transportation:** 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. *[COR Code 8.0270(2)(D), 3(B)(1)(a), 3(C)(11) & 3(C)(14)(a & j)] [COR Code 8.3035(2)] [CORPWSS Development Provisions 03]*
 - A) **SW 35th St.** - major collector street. A paved street with curb and sixty (60) ft. public right-of-way, no sidewalk, exists along project/property frontage. New sidewalk or path, driveway and curb return/ramp improvements conforming to City standards shall be required along property frontage. Existing curb shall be repaired and/or replaced at the discretion of City Engineering Inspector at time of building permit, sidewalk construction or utility work. Ten (10) ft. public right-of-way dedication shall be required along project/property frontage for a total right-of-way width of forty (40) ft. west of centerline and conformance to City major collector street standards per COR Standard Drawing 2-1.
 - B) **SW Lava Ave** - local street. A paved street with curb and sixty to seventy (60-70) public right-of-way, no sidewalk, exists along property frontage. New sidewalk, driveway and curb return/ramp improvements conforming to City standards shall be required along property frontage. Existing curb shall be repaired and/or replaced at the discretion of City Engineering Inspector at time of building permit, sidewalk construction or utility work. Unused driveways/curb cuts shall be removed and replaced with City standard curb and sidewalk.
 - C) **Public Pedestrian/Bike Multi-Use Paths** - the separated public pedestrian/bike multi-use paths identified as B17 along the BPA power lines/easement through the northwest corner of project/property and B47 along SW 35th St property frontage per City 2020 Transportation System Plan (TSP) shall be constructed and dedicated per COR Standard Drawing 2-6 for multi-use paths unless otherwise approved by the City Engineer and City Parks Division. At the discretion of the City Engineer, a payment in lieu of construction of B17 may be allowed. Accessible ramps are required where the path intersects with any roadway(s).
 - D) **Street Trees:**
 - 1) No street trees within 50 ft. of a street intersection per COR Standard Drawing 2-27.
 - 2) No trees within 10 ft. of domestic water service, fire service or public storm facilities.

3) Trees shall not conflict with street or stop sign/control device and pedestrian crossing/ADA ramp line of sight.

4) No trees within driveway clear vision areas or blocking public street lighting.

5) Street tree species shall be selected from Redmond Parks Division approved tree list.

E) Traffic Impacts: The Transportation System Analysis Application (TSAA) dated 10-11-23 and Traffic Impact Analysis (TIA) updated 3-8-24 submitted by Sandow Engineering have been reviewed and approved by City Engineering conditioned upon the transportation mitigation requirements identified by the Assistant City Engineer per City Approval Memo dated 3-18-24 unless otherwise specified. Notable required mitigation includes the following: [COR Code 8.0270(3)(C)(11), 8.1010(1)(C) & 8.2815, 8.3030(1) & 8.3035(8)]

1) Total proportionate share of \$72,800 for impacts to OR126/SW 27th St. based on the cost of the parallel route improvements at OR126/SW 35th Street. Total payment shall be required prior to final occupancy approval.

2) The proportionate share will not be required if the City adopts a separate funding mechanism that addresses the impacts in their entirety prior final occupancy. The total payment is either due prior to final occupancy approval.

F) Site Access: Site access and driveway connections shall be subject to City access management, minimum corner clearance, sight-stopping distance, clear vision and driveway construction standards. Driveways/curb cuts shall not conflict with water service/meters, fire vaults, fire hydrants or street catch basins. [COR Code 8.0305, 8.0510(8), 8.2820, 8.3035(7)(B) & 8.3035(9)]

1) Proposed driveway connection to 35th St shall be located directly opposite and/or match travel lanes in Juniper Avenue. Otherwise, site access is acceptable subject to City corner clearance, sight-stopping and clear vision standards. [COR Code 8.0305, 8.2820(1, 4, 8 & 10) & 8.3035(9)]

2) No other direct vehicular access to SW 35th St., a major collector street, shall be permitted except for approved emergency access with locked fire gate/bollards or unless otherwise approved by the City Engineer. [COR Code 8.2820(4) & 8.3035(9)]

3) Parking lots/spaces shall not use or impact public street right-of-way with backing movements, queuing/stacking or other vehicle maneuvering. [COR Code 8.0510(6 & 7)]

4) All new driveway connections shall be constructed per COR Standard Drawings 2-11 thru 2-14. Maximum commercial driveway width = 35 feet. [COR Code 3.300] [CORPWSS Div. II (214)]

5) Postal box installation shall be subject to US Postal Service standards and City Engineer approval. [CORPWSS Design Standards (II)(A)(16)]

9. Water: A twelve (12) inch City water main exists in 35th St. along property frontage. An eight (8) inch City water main and eight (8) inch stub exist in Lava Ave. along property frontage.

A) Connection to the City's public water system shall be required. [COR Code 8.3035(7)(D)]

B) Domestic and/or irrigation water service connection conforming to City standards for institutional/commercial property including City Water Division backflow prevention requirements shall be required with meter located at the property/right-of-way/easement line. A water meter size determination form will be required with building permit submittal to verify adequate service and meter size. A City approved backflow prevention device shall be installed at the point of delivery/property/easement line behind the water meter per COR Standard Drawing 4-18 thru 4-21. Any unused water sewer service shall be abandoned and/or removed per City standards. [COR Code 4.200, 4.161, 8.3035(7)(D)] [CORPWSS Design Standards II(D)(1)(d)]

C) Fire service/sprinkler, private fire hydrant, and irrigation systems shall be subject to City backflow prevention requirements. A detector double check valve assembly (DCDA) shall be installed at the property/right-of-way line per current COR Standard Drawing 4-22 or 4-23. The fire line shall be connected to the City main separate from the domestic service. [COR Code 8.3035(7)(D)] [CORPWSS Design Standards (II)(D)(1)(d)]

D) New fire hydrants and fire/water lines located on-site shall be privately owned and maintained with City approved backflow prevention device located at the property/right-of-way line. [COR Code 8.3035(7)(D)] [CORPWSS Design Standards (II)(D)(1)(d)]

E) Abandonment of any existing water well, cistern or other private water facility located on subject properties shall be in accordance with Oregon Water Resource Department regulations. *[CORPWSS Development Provisions 04.7.00 & 22(13)]*

10. Wastewater: The fifteen (15) inch Sewer Line 'D' City gravity sewer trunk main exists in 35th St. along property frontage. The twenty-four (24) inch downstream section of Sewer "Line D" exists in SW 35th St. at Highland Avenue. An eight (8) inch City gravity sewer main line exists in Lava Ave. along property frontage.

A) Subject property is located within a sanitary gravity sewer basin to be served by the future twenty-four (24) to thirty (30) inch Far West Sewer Interceptor (FWSI) City gravity sewer trunk main planned in future SW 41st St. roughly 700 ft. west of subject property per the current Redmond Wastewater System Master Plan (RWSMP). The FWSI is currently located in Northwest Way at NW Spruce Ave. more than two (2) miles to the northeast of this proposed development. In the absence of the complete FWSI gravity system, an Infrastructure Allocation Analysis Review dated 2-8-24 has been approved by City Engineering for connection to existing City Sewer Line 'D'. *[COR Code 8.0270(3)(C)(12) & COR Code 8.3035(7)(D)] [CORPWSS Development Provisions 03]*

B) Connection to the City's public sewer system shall be required. *[COR Code 8.3035(7)(D)]*

C) Sanitary sewer service connection conforming to City standards for institutional/commercial property including City Wastewater Division pretreatment, monitoring and sampling requirements shall be required. A wastewater pretreatment/discharge survey shall be completed and submitted to the Wastewater Division for each new commercial or institutional user. Any unused sanitary sewer service shall be abandoned and/or removed per City standards. *[COR Code 4.337, 4.338(1) & 8.3035(7)(D)] [CORPWSS Design Standards (II)(C)(3)]*

D) A sanitary sewer sampling manhole conforming to COR Standard Drawing 3-7 shall be required for the new institutional/commercial sewer connection. The sampling manhole shall be constructed, owned and maintained by the property owner. The manhole may be located at the sewer connection within public right-of-way. Privately owned sampling manholes located within public right-of-way are subject to revocable right-of-way permit approval. At the option of the property owner, the sampling manhole may be located on private property within an easement that provides unobstructed access to City personnel. *[COR Code 4.337(1)]*

E) Industrial/Commercial Wastewater Discharge – the following regulatory and pretreatment standards may be required and enforced by City Wastewater Division for building, plumbing and/or mechanical permit approval:

1) All waste lines in any institutional or commercial kitchen or food/beverage preparation areas shall be connected to a grease interceptor compliant with the Oregon Plumbing Specialty Code. The plans must indicate the interceptor manufacturer, model, and volume. The installation of an outside gravity grease interceptor is recommended at this site to avoid high maintenance cost and odors that would be associated with a small inside hydro-mechanical grease interceptor. *[COR Code 4.337(2)]*

2) An oil/water separator, with upstream sediment interceptor and downstream shutoff valve, compliant with the Oregon Plumbing Specialty Code shall be required for all facilities where vehicle washing or oil cleanup is performed or where floor drains are located in a processing or warehouse area. If heated water or detergents are used for washing, a coalescing plate separator is required. The plans must indicate the separator volume, model, and manufacturer. *[COR code 4.337(2)]*

F) Any existing sewage drill hole, septic tank or other private sewer facility located on subject property shall be permanently abandoned in accordance with Deschutes County and Oregon Dept. of Environmental Quality (DEQ) regulations. *[COR Code 4.304(3)] [CORPWSS Development Provisions 04.7.00 & 22(13)]*

11. Site Grading and Drainage:

- A) All site drainage shall be maintained on each site and shall not drain onto public streets/alleys, neighboring properties or irrigation canal laterals. Storm water runoff from private property shall not impact public right-of-way or easements unless otherwise approved by the Public Works Director or City Engineer. *[COR Code 8.3030 & 8.3035(7)(A)] [CORPWSS Development Provisions 23]*
- B) A comprehensive site grading and drainage plan with erosion/sediment control plan and drainage report shall be submitted for Engineering Division review and shall be subject to current City and Central Oregon Stormwater Manual (COSM) design, construction and testing standards. *[COR Code 8.3030 & 8.3035(7)(A)] [CORPWSS Development Provisions 23] [CORPWSS Design Standards (II)(B)]*
- C) Existing/proposed site drainage facilities and stormwater systems shall have capacity or shall be designed for a 50-year/24-hour storm event (2 inches) and have appropriate pretreatment per current City standards. *[CORPWSS Design Standards (II)(B)]*
- D) Containment of the 100-year/24-hour storm event on-site and outfall shall be required. *[CORPWSS Development Provisions 23.2.00(5)]*
- E) New on-site private drywells and other underground injection control (UIC) systems not part of the public drainage system must be registered and approved and/or permitted by the Oregon Department of Environmental Quality (DEQ) prior to construction or building permit issuance. Contact DEQ UIC Program Coordinator at 503-229-5945. Send copy of completed UIC permit application to DEQ and City of Redmond, 3100 NW 19th Street, Redmond, OR, 97756.
- F) UIC locations for pavement area drainage shall not conflict with existing active City municipal, community or private water wells. UIC's serving paved areas may not be located within public or community wellhead protection areas or 500 ft. of existing irrigation or drinking water wells. The location of any proposed UIC within 500 ft. or 2-year time of travel of an existing active water well shall be identified on the plans. *[CORPWSS Design Standards (II)(B)(2)(h)] [OAR 340-044-0018]*
- G) New storm drain ponds, basins or swales shall include eighteen (18) inch filter layer of compost amended topsoil, 3:1 max. side slopes, inlets, surface treatment/landscaping, flood overflow point and erosion control.
- H) Erosion control such as rip-rap, drain rock or other energy dissipation will be necessary on inlet/outlet areas or pipes in storm swales and along conveyance swales.
- I) Trash enclosure storm drainage shall comply with Central Oregon Stormwater Manual (COSM) Chapter 10 and City Wastewater/Stormwater Div. hydraulic isolation and/or pre-treatment requirements. *[COSM 10.3.4]*
- J) Proposed on-site storm facilities may not be located within existing public right-of-way or easements and shall not impact existing public drainage facilities.

12. Construction Plans: Upon land use approval, a separate set of construction drawings may be submitted directly to the Engineering Division for design review and approval of all proposed and/or required public infrastructure improvements, water/sewer service connections, site grading/drainage and utilities. *[COR Code 8.3025(2), 8.3030 & 8.3035(7)(A)] [CORPWSS Development Provisions 04 & 23]*

//////////////////// **END OF CONDITIONS** //////////////////////

Prepared by:
Kyle Roberts, AICP
Planning Director

VICINITY MAP



CONTACT LIST

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SHEET LIST

SHEET NO.	SHEET NAME
1.0 - GENERAL	
G001	COVER SHEET - LAND USE SUBMITTAL
G000	ABBREVIATIONS, SYMBOLS, AND GENERAL NOTES
G011	FIRST FLOOR CODE PLAN
CIVIL	
C101	EXISTING CONDITIONS AND REMOVAL PLAN
C301	GRADING AND DRAINAGE PLAN
C401	UTILITY PLAN
LANDSCAPE	
L000	OVERALL MASTER PLAN
L100	TREE REMOVAL AND PRESERVATION PLAN
L201	SITE PLAN
L202	SITE PLAN
L400	IRRIGATION MAINLINE PLAN
L500	LANDSCAPE PLAN
2.0 - ARCHITECTURE	
A100	ARCHITECTURAL SITE PLAN
A101	OVERALL FIRST FLOOR PLAN
A130	OVERALL ROOF PLAN
A301	OVERALL BUILDING ELEVATIONS
A302	OVERALL BUILDING ELEVATIONS
ELECTRICAL	
E100	SITE PHOTOMETRIC
E101	SITE PHOTOMETRIC
E102	SITE PHOTOMETRIC DETAILS

ABBREVIATIONS

AB	ANCHOR BOLT	MIN	MINIMUM
AC	AIR CONDITIONING	MIR	MIRROR
ACC	ACCESSIBLE OR ACCESSIBILITY	MO	MASONRY OPENING
ACCT	ACCENT	MTD	MOUNTED
ACUST	ACOUSTICAL	MTG	MEETING
ADA	AMERICANS WITH DISABILITIES ACT	MTL	METAL
ADJ	ADJUSTABLE		
ADJT	ADJACENT	(N)	NEW
AF	ABOVE FINISH FLOOR	NA	NOT APPLICABLE
ALUM	ALUMINUM	NAT	NATATORIUM
ALT	ALTERNATE	NIC	NOT IN CONTRACT
APC	ACRYLIC POLYMER COATING	NTS	NOT TO SCALE
APPROX	APPROXIMATE	NOM	NOMINAL
ARCH	ARCHITECT/ARCHITECTURAL	NON-COM	NON-COMBUSTIBLE
ASPH	ASPHALT		
AUTO	AUTOMATIC	OC	ON CENTER
AWI	AMERICAN WOODWORKING INST.	OD	OUTSIDE DIAMETER
		OF	OFF
B&F	STANDARD (2X) SMALL DRAWERS OVER FILE DRAWER	OPG	OPENING
BD	BITUM	OPP	OPPOSITE
BLOC	BUILDING	OVC	OVER
BLK	BLOCK	OF	OWNER FURNISHED
BLOCK	BLOCKING	OFI	OWNER FURNISHED
BM	BENCH MARK		
BM	BEAM		
B.O.	BOTTOM OF		
BKG	BEARING		
BMT	BASIMENT	PC	PRECAST CONCRETE
		PCV	POLYVINYL CHLORIDE
CAB	CABINET	PL	PLATE
CB	CEMENTITIOUS BACKER BOARD	PLG	PLUMBING
CFA	COMPUTER FLOOR AREA	PLAM	PLASTIC LAMINATE
CHNL	CHANNELS	PLYWD	PLYWOOD
CJ	CONTROL JOINT	PNL	PANEL
CL	CENTER LINE	PR	PAIR
CLG	CEILING	PRF	PREFABRICATED
CLGR	CERAMIC MOSAIC TILE	PORF	PORCELAIN TILE
CMT-B	CERAMIC MOSAIC TILE BASE	PT	PARTITION
CMU	CONCRETE MASONRY UNIT	QT	QUARRY TILE
COL	COLUMN		
CONC	CONCRETE	R	RISER
CONTR	CONSTRUCTION	RAD	RADIUS
CONSTR	CONSTRUCTION	RACUETBALL	RACQUETBALL
COORD	COORDINATE	RB	RUBBER BASE
COT	CASEWORK	RCP	REFLECTED CEILING PLAN
CSWK	CONSTRUCTION SPECIFICATIONS	RD	ROOF DRAIN
CSI	INSTITUTE	RE	REFER
CTP	CERAMIC TILE PAVERS	REF	REFERENCE
CUH	CABINET UNIT HEATER	REIN	REINFORCED
CWT	CERAMIC WALL TILE	REIN	REINFORCED
		RESIL	RESILIENT
D	DOOR	REV	REVISION
DBL	DOUBLE (IN PLAN)	RFG	ROOFING
DEMO	DEMOLISH/DEMOLITION	RM	ROOM
DEPT	DEPARTMENT	R-NOSING	RUBBER STAIR NOSING
DF	DRINKING FOUNTAIN	RD	ROUGH OPENING
DA	DAMETER	RT	RIGHT OF WAY
DML	DIMENSION	RTH	RUBBER TRACK FLOOR SYSTEM
DISP	DISPENSER	RTU	ROOF TOP UNIT
DOWN	DOWN	SAT	SUSPENDED ACOUSTICAL TILE
DR	DOWN SPOUT	SC	SCHEDULE
DTL	DETAIL	SCHED	SCHEDULE
DW	DRAWING	S-CONC	SEALED CONCRETE
DWG	DRAWING	SEAL	SEALER
		SECT	SECTION
(E)	EXISTING	SF	SQUARE FOOT/FEET
EA	EXTERIOR INSULATION & FINISH	SHEET	SHEET
EFS	SYSTEM	SHWR	SHOWER
EJ	ELEVATION	SH	SIMILAR
ELEV	ELEVATOR	SHM	SHEET METAL AND AIR
ELEC	ELECTRICAL	SHM	CONDITIONING CONTRACTOR
ENCL	ENCLOSURE	SHM	NATIONAL ASSOCIATION
ENGR	ENGINEERED	SPEC	SPECIFICATIONS
EPF	EPOXY POURED FLOOR	SQ	SQUARE
EQ	EQUAL	S-SL	SOLID SURFACE
EQUIP	EQUIPMENT	S-STL	STAINLESS STEEL
EQUIV	EQUIVALENT	ST	STAIN
EX	EXPOSED	STC	STATION
EKH	EXHAUST	STC	SOUND TRANSMISSION CLASS
EXP	EXPANSION	STD	STANDARD
EXP-JT	EXPANSION JOINT	STHG	SHEATHING
EXT	EXTENSION	STHL	STEEL
EW	EACH WAY	SUPPL	SUPPLIED
EWC	ELECTRIC WATER COOLER	SUSP	SUSPENDED
		STOR	STORAGE
FACT-F	FACTORY FINISH	STR	STRINGER
FBGL	FIBERGLASS	STR	STRUCTURAL
FD	FLOOR DRAIN	STRCT	STRUCTURE, STRUCTURAL
FDM	FOUNDATION	SYMT	SYMMETRICAL
FE	FIRE EXTINGUISHER	SYST	SYSTEM
FEC	FIRE EXTINGUISHER CABINET		
FF	FINISH FLOOR	T	TREAD (IN PLAN)
FFSE	FURNITURE, FIXTURES & EQUIPMENT	T	TEMPERED (ON WINDOW)
FG	FINISH GRADE	TB	TACK BOARD
FHC	FIRE HOSE CABINET	TBB	TILE BACKER BOARD
FIN	FINISHED	TBD	TO BE DETERMINED
FIN-FLR	FINISH FLOOR	T&B	TOP & BOTTOM
FIX	FIXTURE	TC	TOP OF CURB
FLD	FIELD	T&G	TONGUE & GROOVE
FLR	FLOOR	TEL	TELEPHONE
FLRG	FLOORING	TEMP	TEMPERED
FO	FACE OF STUD	THK	THICKNESS
FOS	FIRE RESISTIVE	THLD	THRESHOLD
FR	FRAME	T.O. B	TOP OF BEAM
FRMG	FRAMING	T.O. C	TOP OF CONCRETE
FRP	FIBER REINFORCED PANEL	T.O. F	TOP OF FLOOR/FOOTING
FT	FOOT/FEET	T.O. M	TOP OF MASONRY
FTG	FOOTING	T.O. S	TOP OF SLAB
FURN	FURNITURE	T.O. STL	TOP OF STEEL
FUT	FUTURE	TS	TUBE STEEL
		TV	TELEVISION
GA	GAUGE	TYP	TYPICAL
GAL	GALVANIZED	TYPE 'X'	FIRE RATED GYPSUM BOARD
GB	GRAB BAR		
GC	GENERAL CONTRACTOR	UBC	UNIFORM BUILDING CODE
GIM	GALVANIZED HOLLOW METAL	UNWR	UNDERWRITER'S LABORATORY
GL	GLASS	UNFN	UNFINISHED
GLU LAM	GLUE LAMINATED WOOD	UNFN	UNFINISHED
GMGU	GLASS MESH GYPSUM UNIT		
GR	GRADE	VAR	VARIABLE
GYP BD/GWB	GYPSUM BOARD	VNR	VENEER
		VERV	VERTICAL
HB	HOSE BIB	VEST	VESTIBULE
HC	HOLLOW CORE	VERY	VERY IN FIELD
HDB	HARDBOARD	VOC	VOLATILE ORGANIC COMPOUND
HDR	HEADER		
HDRW	HARDWARE	W	WASHER (IN PLAN)
HM	HOLLOW METAL	W	WIRE GLASS (ON WINDOW)
HORIZ	HORIZONTAL	WC	WATER CLOSET
HPC	HIGH PERFORMANCE COATING	WD	WOOD
HRI	HEATING ROOFTOP UNIT	WID	WIDE
HTR	HEATER	WF	WATER HEATER
HVAC	HEATING, VENTING & AIR CONDITIONING	WH	WROUGHT IRON
		WI	WITHOUT
IBC	INTERNATIONAL BUILDING CODE	WP	WATERPROOF
ID	INSIDE DIAMETER	WR	WATER RESISTANT
INDIC	INDICATOR	WT	WEIGHT
INSUL	INSULATION	WWF	WELDED WIRE FABRIC
INT	INTERIOR		
JAN	JANITOR	℄	CENTER LINE
JT	JOINT	<	ANGLE
JST	JOIST	[	CHANNEL
KD	KITCHEN	Ø or ∅	DIAMETER
KT	KITCHEN	℄	PLATE
LAM	LAMINATE	⊗	AT
LAV	LAVATORY	X	BY
LF	LINEAR FOOT	&	AND
LN	LINEOLEUM	#	POUND OR NUMBER
LT	LIGHT	+/-	PLUS OR MINUS
MAT.	MATERIAL	'	FEET
MANUF	MANUFACTURE	"	INCHES
MAX	MAXIMUM	()	QUANTITY
MB	MARKER BOARD		
MD	METAL DECK		
MOD	MEDIUM DENSITY FIBERBOARD		
MECH	MECHANICAL		
MH	MANHOLE		
MSC	MISCELLANEOUS		

REFER TO CONSTRUCTION SPECIFICATION INSTITUTE, UNIFORM DRAWING SYSTEM AND TO PROJECT SPECIFICATIONS FOR REFERENCE STANDARDS & ADDITIONAL ABBREVIATIONS

SYMBOLS LEGEND

	ELEVATION INDICATOR		WINDOW INDICATOR
	TEMPERED GLAZING		SPANDREL GLAZING
	GLAZING LOCATION		GLAZING TYPE
	ROOM DESIGNATION		INTERIOR ELEVATION INDICATOR
	WALL TYPE INDICATOR		EXTERIOR ELEVATION INDICATOR
	ROOF TYPE INDICATOR		DETAIL REFERENCE
	FLOOR TYPE INDICATOR		REVISION INDICATOR
	DOOR INDICATOR		SURFACE MOUNTED FIRE EXTINGUISHER CABINET
	ACCESSORY INDICATOR		SEMI-RECESSED FIRE EXTINGUISHER CABINET
	PAINT FINISH INDICATOR, SEE A900		WALL MOUNTED FIRE EXTINGUISHER BRACKET
	FLOOR FINISH INDICATOR, SEE A900		
	FINISH INDICATOR, SEE A900		
	FLOOR MATERIAL TRANSITION INDIC.		
	CORNER GUARD		
	GYM EQUIPMENT, WALL PADS		
	MARKER OR TACKBOARD		
	RECESSED FLOOR SLAB		
	LEVEL CHANGE INDICATOR		

MATERIALS LEGEND

	EARTH/COMPACT FILL		GRAVEL/POROUS FILL
	CONCRETE (PRECAST OR CAST IN PLACE)		SAND/MORTAR/PLASTER/GROUT
	CONCRETE BLOCK		STEEL
	ALUMINUM		CONTINUOUS WOOD BLOCKING
	NON-CONTINUOUS WOOD BLOCKING		WOOD FINISH
	PLYWOOD		PARTICLE BOARD
	GYPSUM BOARD		GLASS
	BATT/LOOSE FILL INSULATION		RIGID INSULATION
	CARPET		WOOD GLULAM
	BRICK/STONE VENEER		SOLID SURFACE

GENERAL REQUIREMENTS

1. ATTENTION ALL USERS OF THESE DRAWINGS, GENERAL CONTRACTORS, SUB-CONTRACTORS, MANUFACTURERS, SUPPLIERS, CAREFULLY AND THOROUGHLY REVIEW THESE GENERAL NOTES. IT IS YOUR RESPONSIBILITY TO KNOW AND ADHERE TO THESE REQUIREMENTS.

2. THE DRAWINGS AND SPECIFICATIONS ARE SEPARATED INTO DISCIPLINES FOR THE CONVENIENCE OF THE ARCHITECT AND THE CONTRACTOR. THE SEPARATIONS USED HEREIN ARE USED ONLY FOR THE PURPOSES OF CONVENIENCE AND REFERENCE, AND IN NO WAY DO THEY DEFINE OR LIMIT THE SCOPE OR INTENT OF ANY PART OF THE DRAWINGS, OR OF THE DRAWINGS AND SPECIFICATIONS AS A WHOLE. THE FACT THAT THE DRAWINGS ARE SEPARATED IN NO WAY SUGGESTS THAT THE WORK IS NOT TO BE CONSTRUCTED AS A COMPLETE, INTEGRATED AND UNIFIED WHOLE.

3. EVERY EFFORT HAS BEEN MADE TO MAKE THESE DOCUMENTS CONCISE AND COORDINATED. TO DEFINE WORK IN THE MOST LOGICAL PLACE AND TO ELIMINATE REDUNDANCY. DO NOT PRESUME THAT YOUR SCOPE OF WORK IS SINGULARLY DEFINED. YOUR SCOPE OF WORK IS DEFINED THROUGHOUT THE ENTIRE SET OF DRAWINGS AND SPECIFICATIONS AND IS NOT CONTAINED IN JUST ONE SERIES OF DRAWINGS OR DIVISION OF SPECIFICATIONS. YOU MUST REVIEW THE ENTIRE SET OF CONTRACT DOCUMENTS TO DETERMINE YOUR SCOPE OF WORK.

4. THE DRAWINGS AND SPECIFICATIONS, INCLUDING DRAWINGS PREPARED BY SPECIFIC ENGINEERING DISCIPLINES (SUCH AS CIVIL, STRUCTURAL, MECHANICAL, ELECTRICAL, ETC.) ARE COMPLEMENTARY. ITEMS SHOWN IN ANY ONE LOCATION IN THE DRAWINGS SHALL BE CONSIDERED TO BE REQUIREMENTS OF THE CONTRACT FOR CONSTRUCTION. IN THE EVENT OF AN INCONSISTENCY BETWEEN THE DRAWINGS AND SPECIFICATIONS, OR WITHIN EITHER DOCUMENT, THE CONTRACTOR SHALL SEEK CLARIFICATION OR INTERPRETATION FROM THE ARCHITECT PRIOR TO BIDDING. WHERE INCONSISTENCIES ARE NOT CLARIFIED PRIOR TO BIDDING, AND WHERE THE ACTUAL SOLUTION OR INTENT CANNOT BE REASONABLY INFERRED, THE CONTRACTOR SHALL PROVIDE THE BETTER QUALITY OR GREATER QUANTITY OF WORK.

5. MECHANICAL AND ELECTRICAL DRAWINGS SHOW INFORMATION IN A DIAGRAMMATIC FASHION WITHOUT DIMENSIONING. THE GENERAL CONTRACTOR IS TO COORDINATE THE LOCATIONS OF ALL M.E. EQUIPMENT WITH RESPECT TO THE ARCHITECTURAL AND STRUCTURAL DETAILING OF SHAFTS, CHASES, AND SUCH.

6. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH SITE CONDITIONS AS THEY MAY AFFECT CARRYING OUT THE WORK AS DESCRIBED IN THESE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL INVESTIGATE, VERIFY, AND BE RESPONSIBLE FOR ALL CONDITIONS OF THE PROJECT, AND NOTIFY THE ARCHITECT OF ANY CONDITIONS THAT REQUIRE MODIFICATION BEFORE PROCEEDING WITH THE WORK.

7. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITY LINES. LOCATIONS SHOWN ARE APPROXIMATE. REPAIR ALL DAMAGE TO UTILITY LINES CAUSED BY CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.

8. ALL PERSONS DIRECTLY OR INDIRECTLY ASSOCIATED WITH THE PROJECT SHALL BE FAMILIAR WITH THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT, AND IMPLEMENT THOSE RULES AS THEY APPLY TO THIS PROJECT.

9. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, LABOR, AND SERVICES NECESSARY TO COMPLETE THE WORK.

10. ALL WORK PERFORMED SHALL BE IN ACCORDANCE WITH THE BUILDING CODE & LOCAL AMENDMENTS. REFER TO CODE ANALYSIS AND CODE PLANS.

11. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL TRADES AND THE PREVENTION OF CONFLICT BETWEEN ALL TRADES.

12. PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR SHALL CONDUCT A WALK THROUGH INSPECTION WITH THE OWNER TO DETERMINE IN WRITING THE CONDITION OF THE WORK ALREADY IN PLACE. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING EQUIPMENT PRESENTLY IN PLACE THAT IS DAMAGED DURING CONSTRUCTION.

13. CONTRACTOR SHALL SUBMIT CONFIRMATION OF ORDERED MATERIALS OR ITEMS NECESSARY TO COMPLETE THE PROJECT WITH PROJECTED DELIVERY DATE GREATER THAN FOUR WEEKS.

14. ALL SUB-CONTRACTORS SHALL SUBMIT SHOP DRAWINGS AS REQUIRED FOR ARCHITECTS APPROVAL PRIOR TO COMMENCING ANY WORK.

15. SEAL AROUND ALL PENETRATIONS THROUGH EXISTING AND PROPOSED FIRE RATED PARTITIONS. PROVIDE UL APPROVED FIRESTOP SYSTEM TO MEET REQUIRED RATING.

GENERAL NOTES

DRAWINGS AND DIMENSIONS

1. DO NOT SCALE THE DRAWINGS.

2. ALL DIMENSIONS ON PLANS ARE TO FACE OF BLOCK OR TO FACE OF STUD UNLESS NOTED OTHERWISE.

3. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT IMMEDIATELY SHOULD ANY DISCREPANCIES BE FOUND IN THE DRAWINGS AND SPECIFICATIONS.

4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CHECKING ALL FIELD CONDITIONS AND DIMENSIONS AS THEY RELATE TO THIS PROJECT. SHOULD DISCREPANCIES EXIST BETWEEN THE WORK INDICATED AND ACTUAL FIELD CONDITIONS NOTIFY THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.

5. ACTUAL CONTRACT LIMITS ARE TO BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE OWNER BEFORE ACTUAL CONSTRUCTION WORK BEGINS. ANY INDICATION OF PROJECT LIMITS OR LINES OF DEMARCATION ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, AND ARE NOT TO BE TAKEN LITERALLY.

6. SEE GENERAL NOTES ON ALL 'X' SERIES DRAWINGS FOR INFORMATION RELATED TO PLANS AND DETAILS ON THOSE SHEETS.

7. THE TERM 'ALIGH' REFERS TO LOCATING DIFFERENT COMPONENTS OF CONSTRUCTION TO PROVIDE A FLUSH FINISH SURFACE.

8. CONTRACTORS AND ALL SUB-CONTRACTORS SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION AND/OR ORDERING OF MATERIALS.

9. USE OF THE WORD 'VERIFY' POINTS OUT A SITUATION WHICH MUST BE CONFIRMED PRIOR TO PROCEEDING WITH THE WORK. FABRICATION OF EQUIPMENT, OR ORDERING MATERIAL, NOTIFY THE ARCHITECT OF ANY DISCREPANCY.

10. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF ALL CEILING FIXTURES. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR COMPLETE CONSTRUCTION REQUIREMENTS.

11. ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS SHOW WHERE EXPOSED DUCTWORK IS TO BE INSTALLED AT A SPECIFIC ELEVATION IN A CONTROLLED PATTERN. THE CONTRACTOR MUST RELY ON ALL OF THESE DISCIPLINES TO COMPLETE THE WORK AND SHOULD NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.

12. THE GENERAL CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES INSTALLING THEIR RESPECTIVE EQUIPMENT IN THE CEILING PLENUMS. MECHANICAL, ELECTRICAL, STRUCTURAL, AND FIRE SPRINKLER SYSTEMS ALL SHARE THIS SAME SPACE. EACH SUB-CONTRACTOR IS TO REVIEW THE REQUIREMENTS OF THEIR WORK WITH THE AWARENESS OF THE OTHER TRADES THAT NEED TO SHARE THESE SPACES AND MUST NOT ASSUME THAT THEIR INSTALLATION HAS BEEN CONSIDERED IN THE DESIGN AND SHOP DRAWINGS OF THE OTHER TRADES.

13. ALL DOORS TO BE LOCATED 4" OFF ADJACENT CMU OR METAL STUD WALL UNLESS DIMENSIONED OTHERWISE ON THE PLAN.

PARTITION NOTES

1. PROVIDE AND INSTALL ALL BLOCKING STIFFENERS, BRACING BACK-UP PLATES AND SUPPORTING BRACKETS REQUIRED FOR THE INSTALLATION OF ALL CASEWORK AND OF ALL FLOOR MOUNTED OR SUSPENDED MECHANICAL AND ELECTRICAL EQUIPMENT.

2. COORDINATE METAL STUD GAUGE WITH PRE-APPROVED EQUIPMENT ANCHORAGE. WHERE A DISCREPANCY OCCURS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.

3. THERE SHALL BE NO BACK-TO-BACK ELECTRICAL, TELEPHONE, OR OTHER OUTLETS, EXCEPT WHERE SPECIFICALLY SHOWN.

4. PROVIDE ACOUSTIC (SOUND) SEALANT AT NON-RATED WALLS AND FIRE-RATED SEALANT AT SMOKE PARTITION AND AS REQUIRED BY TEST NUMBER.

CONSTRUCTION NOTES

1. DRAWINGS ARE PREPARED USING DIMENSIONS AND PRODUCT CONFIGURATIONS OR DETAILS OF SPECIFIC MANUFACTURERS (TYPICALLY THE FIRST MANUFACTURER LISTED UNDER 'ACCEPTABLE MANUFACTURERS' IN THE SPECIFICATIONS). DIMENSIONS AND DETAILS FOR SPECIFIC PRODUCTS MAY CHANGE BEFORE THEY ARE ACTUALLY INCORPORATED INTO THE WORK, AND PRODUCTS BY OTHER MANUFACTURERS MAY ALSO BE ACCEPTABLE. THEREFORE, ACTUAL INSTALLATION DETAILS AND DIMENSIONS MAY DIFFER FROM THOSE SHOWN. CONTRACTOR SHALL VERIFY INSTALLATION REQUIREMENTS FOR ALL PRODUCTS TO BE INCORPORATED IN THE WORK (INCLUDING PARTITION THICKNESS FOR RECESSED OR SEMI-RECESSED PRODUCTS), AND IS RESPONSIBLE FOR ACCOMMODATING AND COORDINATING CHANGES TO OTHER MATERIALS OR PRODUCTS THAT ARE NECESSARY BECAUSE OF THESE DIFFERENCES.

2. PROVIDE SLOD BLOCKING WITHIN PARTITIONS AT ALL LOCATIONS WHERE ITEMS WILL BE MOUNTED ON PARTITIONS INCLUDING, BUT NOT LIMITED TO: ACCESSORIES, CASEWORK TRIM, FLASHING, WALL MOUNTED EQUIPMENT, TACK/BULLETIN/MARKER BOARDS, ETC.

3. ALL WOOD BLOCKING SHALL BE FIRE-RETARDANT WOOD. - VERIFY PER IBC 603

4. MAINTAIN RATING AT ALL BLOCKOUTS FOR ALL FIRE EXTINGUISHERS AND TOILET ACCESSORIES THAT ARE TO BE INSTALLED IN RATED WALLS.

5. PROVIDE 24" X 24" ACCESS PANELS IN PARTITIONS WHERE REQUIRED FOR MECHANICAL EQUIPMENT EXCEPT WHERE SIZES ARE OTHERWISE NOTED.

6. PROVIDE GYPSUM BOARD CONTROL JOINTS IN PARTITIONS AND CEILINGS AT 36"-0" MAX SPACING. COORDINATE TO MEET FIRE RESISTIVE RATINGS OF THE ASSEMBLY. FIRESTOP JOINTS AT RATED PARTITIONS. SUB-CONTRACTOR MUST PROVIDE A SUBMITTAL FOR JOINT MATERIAL.

7. CAULK ALL JOINTS OR CRACKS WHICH OCCUR WHERE DISSIMILAR MATERIALS INTERSECT PERPENDICULAR TO EACH OTHER AND WHERE THE INTERSECTION IS EXPOSED TO VIEW, UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

8. FIREBLOCK ALL CONCEALED SPACES, SOFFITS, SHAFTS, CHASES AND CEILING AREAS PER REQUIREMENTS OF THE IBC AND THE LOCAL JURISDICTIONS AMENDMENTS.

9. PROVIDE CONTINUOUS PERIMETER BUILDING INSULATION AT ALL EXTERIOR WALLS FROM SLAB TO ROOF DECK.

10. THE ARCHITECTURAL AND STRUCTURAL DRAWINGS BOTH DESCRIBE VARIOUS FLOOR SLAB SLOPE REQUIREMENTS, RECESSES, AND EDGE CONDITIONS. USE BOTH SETS OF DRAWINGS WHEN INSTALLING THE FLOOR SLAB.

11. PROVIDE SLIP JOINT CONNECTIONS AT PARTITIONS THAT EXTEND TO STRUCTURE ABOVE. PROVIDE BRACING ABOVE AS REQUIRED. REFER TO STRUCTURAL DRAWINGS AND TO SLIP JOINT DETAILS.

12. ASSUME LEVEL 4 FINISH FOR ALL GYPSUM BOARD PARTITIONS, UNLESS NOTED OTHERWISE.

13. ALL EXPOSED CMU CORNERS TO BE BULLNOSE JOINT.

14. GROUT CMU CENTER SCORE JOINT SIMILAR TO OTHER ADJACENT JOINTS.

15. IT IS THE INTENT OF THE DESIGN THAT ALL METAL STUD PARTITIONS BE OF SUFFICIENT WIDTH TO ADEQUATELY ENCLOSE PIPING, CONDUITS, AND RECESSED EQUIPMENT. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES WITH THIS INTENT.

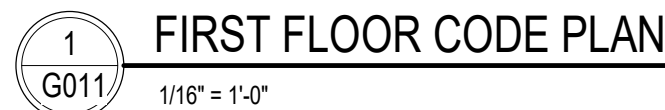
16. ALL VERTICAL AND HORIZONTAL PIPES, CONDUITS, DUCTS, ETC. IN FINISHED ROOMS OR AREAS THROUGHOUT THE BUILDING SHALL BE FURRED IN TO MATCH THE ROOM FINISH, UNLESS OTHERWISE NOTED.

17. WHERE MECHANICAL WORK PENETRATES ANY COMPONENT OF A FIRE-RATED ASSEMBLY, PROVIDE THE APPROPRIATE FIRE AND/OR SMOKE DAMPERS. IF IT IS NOT CLEAR WHETHER DUCTWORK PENETRATES A PORTION OF THE RATED ASSEMBLY, OBTAIN CLARIFICATION FROM THE ARCHITECT PRIOR TO BIDDING. SEAL AROUND ALL PENETRATIONS THROUGH PROPOSED FIRE RATED PARTITIONS. PROVIDE UL APPROVED FIRESTOP SYSTEM TO MEET REQUIRED RATING.

18. THE FIRE SPRINKLER SYSTEM WILL BE DESIGNED BY THE INSTALLING SUB-CONTRACTOR. THE GENERAL CONTRACTOR SHALL COORDINATE LAYOUT, CLEARANCES, AND LOCATION OF HEAD HEIGHTS WITH THE STRUCTURE, MECHANICAL DUCTWORK, ELECTRICAL LIGHTING, DRAINAGE PIPING, AND THE ARCHITECTURAL REFLECTED CEILING PLANS. THE SPRINKLER DESIGN MUST BE COORDINATED WITH THE PROVISIONS OF ALL ENGINEERING AND ARCHITECTURAL DOCUMENTS AND SHOULD NOT RELY SOLELY ON ONE SERIES OF DRAWINGS OR ONE DISCIPLINE. CONTRACTOR SHALL ADJUST OR ADD FIRE SPRINKLER HEADS TO ACCOMMODATE PARTITION LAYOUT. HEAD SPACING AND PLACEMENT SHALL MEET CODE REQUIREMENTS. SUB-CONTRACTOR SHALL COORDINATE ANY SPRINKLER HEAD LAYOUT CONFLICTS WITH THE ARCHITECT.

19. AT RAINSCREEN PANEL INSTALLATION USE HORIZONTAL STRAPPING AS REQUIRED PER MANUFACTURER'S RECOMMENDATION WHERE DENGSLASS OR GYP BOARD IS USED AS EXTERIOR SHEATHING.

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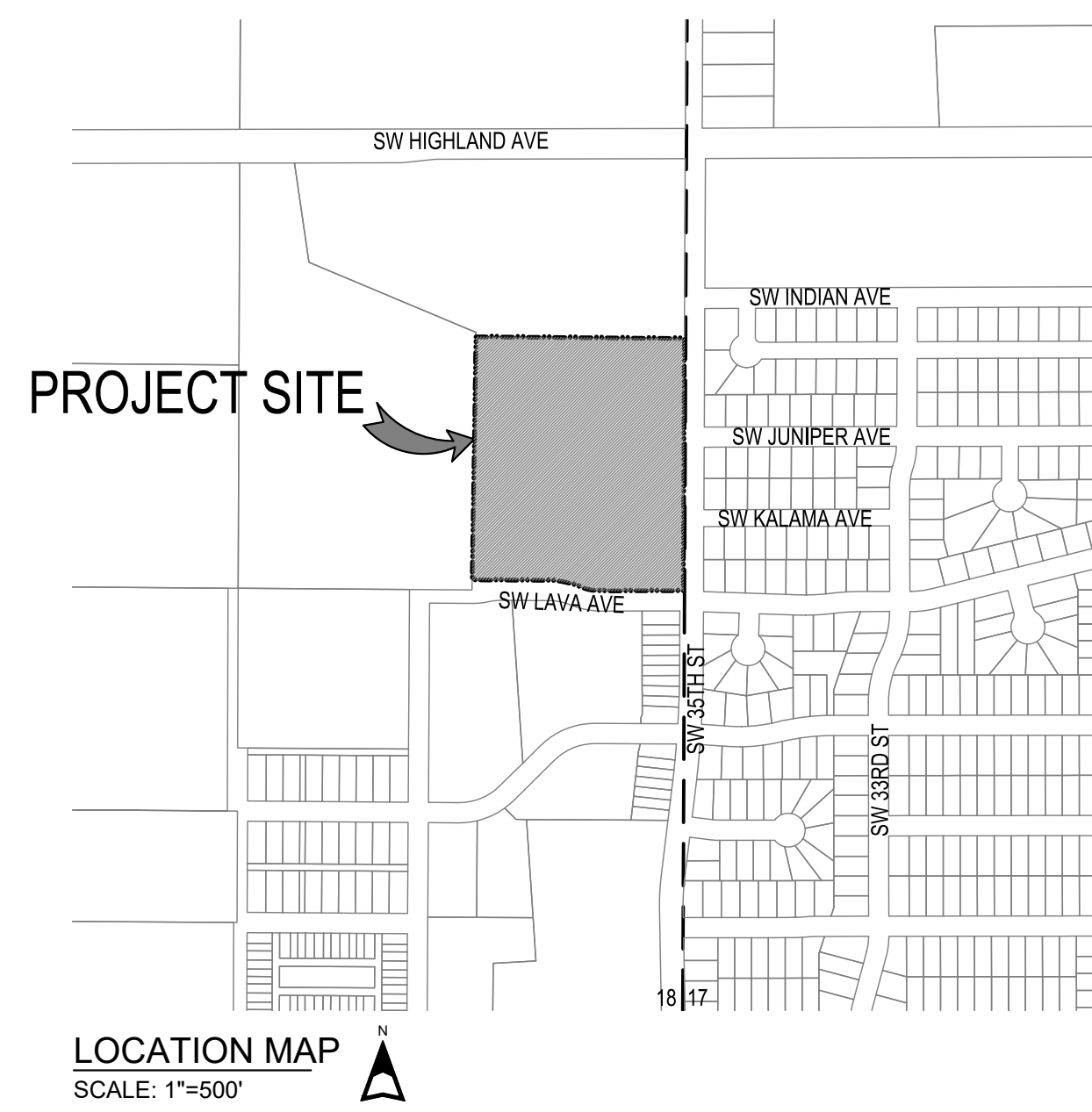


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Date: 2023.12.15
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Sheet title:
EXISTING CONDITIONS AND
REMOVAL PLAN

C101

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LEGEND

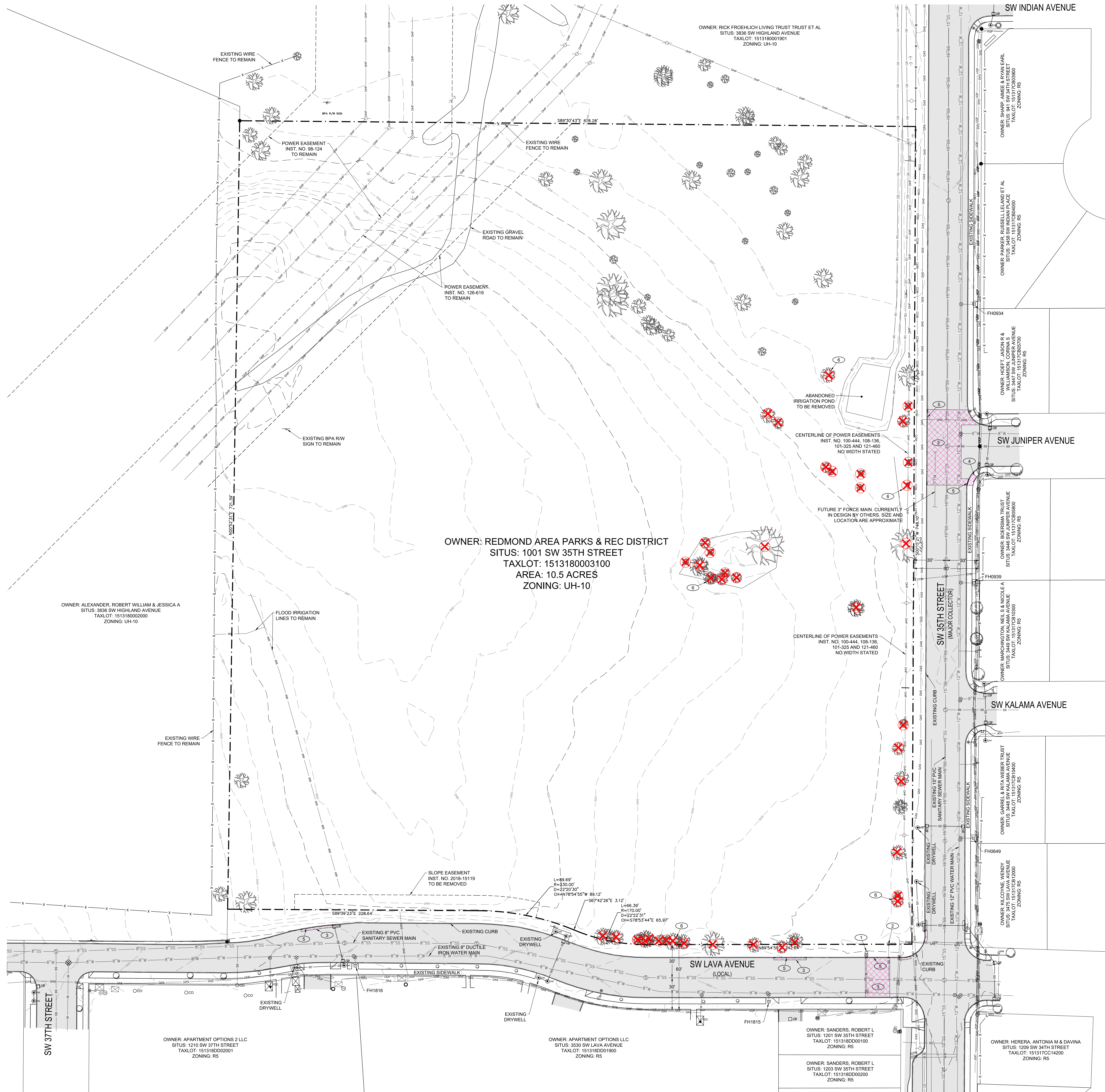
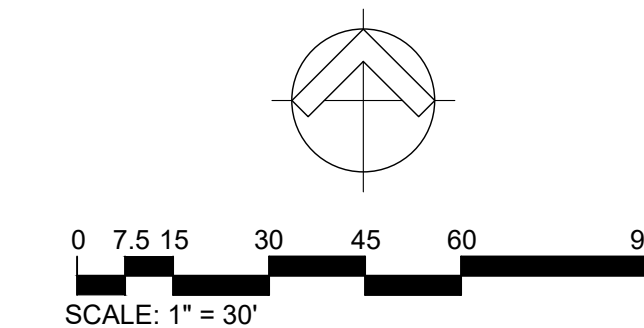
- PROJECT BOUNDARY
- TAXLOT LINE
- CURB LINE
- OVERHEAD POWER
- UNDERGROUND POWER
- UNDERGROUND GAS LINE
- UNDERGROUND SEWER LINE
- UNDERGROUND SEWER FORCE MAIN
- UNDERGROUND STORM DRAIN
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND CABLE TV LINE
- UNDERGROUND WATER LINE
- GRADE BREAK
- FENCE
- ASPHALT PAVING
- CONCRETE
- CATCH BASIN
- STORM MANHOLE
- DRYWELL
- DRYWELL WITH GRATE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- WATER MANHOLE
- CURB INLET CATCH BASIN
- LIGHT
- UTILITY POLE WITH LIGHT
- GUY POLE / ANCHOR
- UTILITY POLE
- ELECTRIC TRANSFORMER & CONC. PAD
- ELECTRIC SERVICE
- CABLE TV SERVICE / RISER
- TELEPHONE RISER
- TELEPHONE MANHOLE
- GAS METER
- GAS SERVICE
- GAS VALVE
- SEWER MANHOLE
- SEWER CLEANOUT
- SEWER SERVICE
- PRESSURE SEWER VALVE
- ROAD SIGN
- MAILBOX
- CONTOUR LINE, 5' INTERVAL
- CONTOUR LINE, 1' INTERVAL
- FOUND MONUMENT
- PONDEROSA PINE TREE (SIZE AS NOTED)
- JUNIPER TREE (SIZE AS NOTED)

REMOVAL KEY NOTES

- REMOVE EXISTING WATER SERVICE TO MAIN
- REMOVE EXISTING SEWER SERVICE TO MAIN
- REMOVE EXISTING HMA PAVEMENT
- REMOVE EXISTING PCC PAVEMENT
- REMOVE EXISTING CONCRETE CURB
- REMOVE EXISTING TREE (TYP)

REMOVAL LEGEND

- EXISTING HMA PAVEMENT TO BE REMOVED
- EXISTING PCC PAVEMENT TO BE REMOVED
- EXISTING CONCRETE CURB TO BE REMOVED
- EXISTING TREE TO BE REMOVED





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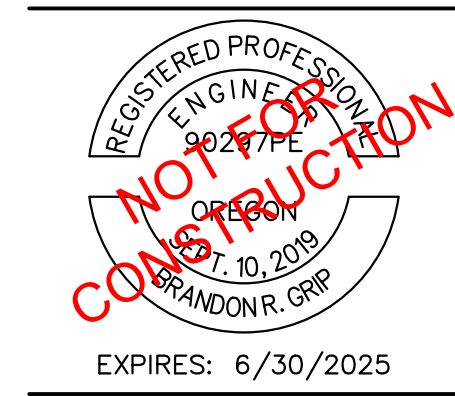
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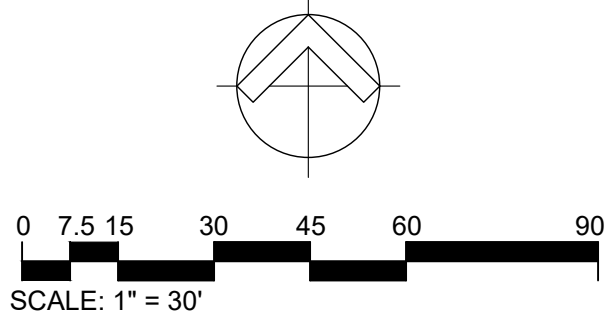


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Sheet title:
GRADING AND DRAINAGE
PLAN

C201

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DRAINAGE BASIN DATA

BASIN ID	IMPERVIOUS AREA (SF)	CURVE NUMBER	50-YR PEAK RUNOFF RATE (CFS / GPM)	50-YR RUNOFF VOLUME (CF / GAL)	INFILTRATION METHOD	FACILITY ID	DRAIN ROCK VOLUME (CY)	DRAIN ROCK FLOOR AREA (SF)	TEST INFILTRATION RATE (GPM)	TEST WATER VOLUME (CF / GAL)
TA-1	15,835	98	0.55 / 247	2,341 / 17,503	DRYWELL	DW1	90	304	20	859 / 6,400
TA-2	20,795	98	1.03 / 462	4,406 / 32,957	DRYWELL	DW2	170	574	36	1,612 / 12,100
TA-3	25,913	98	0.90 / 404	3,832 / 28,663	DRYWELL	DW3	150	506	32	1,390 / 10,400
TA-4	15,024	98	0.52 / 233	2,221 / 16,813	DRYWELL	DW4	90	304	20	788 / 5,900
TA-5	13,820	98	0.48 / 215	2,058 / 15,394	DRYWELL	DW5	80	270	17	750 / 5,600
TA-6	24,045	98	0.84 / 377	3,555 / 26,591	DRYWELL	DW6	140	473	30	1,284 / 9,600
TA-7	25,479	98	0.88 / 395	3,767 / 28,177	DRYWELL	DW7	150	506	32	1,353 / 10,100
TA-8	24,188	98	0.84 / 377	3,577 / 26,756	DRYWELL	DW8	140	473	30	1,297 / 9,700

STORMWATER MODELING SOFTWARE: HYDROCAD VERSION 10.00

50-YEAR, 24-HOUR STORM EVENT = 2.0 IN

100-YEAR, 24-HOUR STORM EVENT = 2.2 IN

TYPE 1, 24-HOUR STORM DISTRIBUTION

TIME OF CONCENTRATION, TC = 5 MIN

TEST INFILTRATION RATE = 6.0 IN/HR

DESIGN FACTOR OF SAFETY = 1.5

DESIGN INFILTRATION RATE = 4.0 IN/HR

(TEST INFILTRATION RATE (GPM) SHOWN IN TABLE FOR THE VARIOUS DRAIN ROCK FLOOR AREAS AT 6.0 IN/HR)

CONSTRUCTION KEY NOTES

- PROPOSED ASPHALT CONCRETE PAVEMENT
- PROPOSED CONCRETE PAVEMENT, LIGHT-DUTY
- PROPOSED CONCRETE PAVEMENT, HEAVY-DUTY
- PROPOSED CONCRETE STAIRS WITH HANDRAIL
- PROPOSED STANDARD 12" CONCRETE CURB (6" REVEAL)
- PROPOSED FLUSH CONCRETE CURB (0" REVEAL)
- PROPOSED MOUNTABLE CURB
- PROPOSED CURB TERMINATION
- PROPOSED FENCING WITH GATES
- PROPOSED BOULDER LANDSCAPE WALL
- PROPOSED PARKING LOT STRIPING AND SIGNAGE (TYP)
- PROPOSED WHEEL STOP (TYP OF 4)
- PROPOSED COMPACTED AGGREGATE WEARING SURFACE
- PROPOSED MASONRY WALL
- PROPOSED DECK/PATIO
- PROPOSED BOLLARD (TYP)
- PROPOSED BENCH (TYP)
- PROPOSED FLAG POLE (TYP OF 3)
- PROPOSED CAST IN PLACE CONCRETE WALL
- PROPOSED BICYCLE PARKING
- PROPOSED CITY STANDARD DRIVEWAY APPROACH
- PROPOSED CITY STANDARD CONCRETE SIDEWALK
- PROPOSED CITY STANDARD CONCRETE CURB (6" REVEAL)
- PROPOSED CITY STANDARD PERPENDICULAR CURB RAMP
- PROPOSED AC PAVEMENT PATCH
- PROPOSED ASPHALT PAVEMENT MULTI-USE PATH
- PROPOSED CLEAR VISION AREA (TYP)
- PROPOSED PUBLIC ACCESS EASEMENT
- PROPOSED 10' RIGHT-OF-WAY DEDICATION

LEGEND

- DRAINAGE BASIN BOUNDARY
- EXISTING PROPERTY LINE
- EXISTING CURB
- PROPOSED CONCRETE CURB
- EXISTING 1' GROUND SURFACE CONTOUR
- EXISTING 5' GROUND SURFACE CONTOUR
- PROPOSED 1' GROUND SURFACE CONTOUR
- PROPOSED 5' GROUND SURFACE CONTOUR
- PROPOSED STORM DRAIN LINE (SIZE AS NOTED)
- PROPOSED AREA DRAIN
- PROPOSED CATCH BASIN
- PROPOSED SEDIMENTATION MANHOLE
- PROPOSED DRYWELL
- PROPOSED ASPHALT CONCRETE PAVEMENT
- PROPOSED CONCRETE PAVEMENT, LIGHT-DUTY
- PROPOSED CONCRETE PAVEMENT, HEAVY-DUTY
- PROPOSED COMPACTED AGGREGATE





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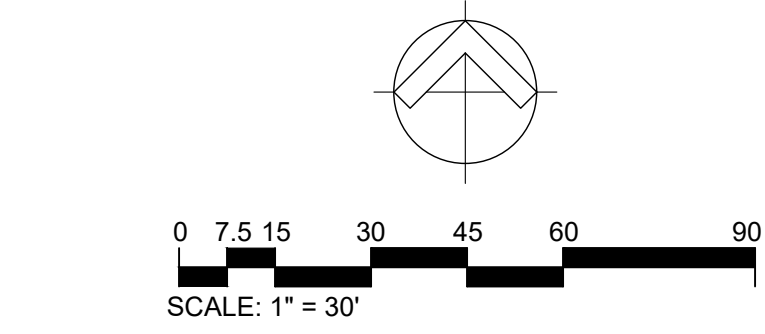


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UTILITY PLAN

C301

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STORM KEY NOTES

- 1 PROPOSED 8" STORM DRAIN (TYP)
- 2 PROPOSED CONNECTION TO ROOF DRAIN (TYP OF 2)
- 3 PROPOSED 12" AREA DRAIN
- 4 PROPOSED PRECAST DOUBLE GRATE CATCH BASIN
- 5 PROPOSED SEDIMENTATION MANHOLE
- 6 PROPOSED DRYWELL ASSEMBLY

WATER KEY NOTES

- 1 PROPOSED 4" DOUBLE CHECK VALVE ASSEMBLY
- 2 PROPOSED 4" WATER LINE (TYP)
- 3 PROPOSED CONNECTION TO BUILDING WATER
- 4 PROPOSED FIRE VAULT WITH FDC, PW, AND DCDA
- 5 PROPOSED 8" FIRE WATER LINE (TYP)
- 6 PROPOSED CONNECTION TO BUILDING FIRE SPRINKLER SYSTEM
- 7 PROPOSED HYDRANT ASSEMBLY, PRIVATE
- 8 PROPOSED 6" HYDRANT LINE (TYP)
- 9 PROPOSED 8" FIRE SERVICE
- 10 PROPOSED 4" WATER SERVICE AND METER VAULT
- 11 PROPOSED WATER EASEMENT
- 12 PROPOSED HYDRANT ASSEMBLY, PUBLIC

UTILITY LEGEND

- PROPERTY BOUNDARY
- - - - - PROPOSED PROPERTY LINE PER ROW DEDICATION
- - - - - 25-FOOT ZONING YARD SETBACK
- 8"SS PROPOSED SANITARY SEWER LINE (SIZE AS NOTED)
- 8"SD PROPOSED STORM DRAIN LINE (SIZE AS NOTED)
- 6"W PROPOSED WATER LINE (SIZE AS NOTED)
- 6"FW PROPOSED FIRE SPRINKLER WATER LINE (SIZE AS NOTED)
- UT PROPOSED SHARED UTILITY TRENCH
- PROPOSED TRANSFORMER VAULT
- PROPOSED CATCH BASIN
- PROPOSED SEDIMENTATION MANHOLE
- PROPOSED DRYWELL

SEWER KEY NOTES

- 1 PROPOSED PRESSURE SEWER LIFT STATION. LIFT STATION INCLUDES DUPLEX SUBMERSIBLE GRINDER (EXPLOSION AND CORROSION PROOF) SEWAGE PUMPS WITH STAINLESS STEEL GUIDE RAIL SYSTEM, CONTROL PANEL, PRECAST CONCRETE WET WELL, TRAFFIC RATED STEEL ACCESS HATCH.
- 2 PROPOSED 8" GRAVITY SEWER
- 3 PROPOSED 8" SEWER CLEANOUT (TYP OF 2)
- 4 PROPOSED 2" PRESSURE SEWER
- 5 PROPOSED CONNECTION TO BUILDING SEWER (TYP OF 2)
- 6 PROPOSED 2" PRESSURE SEWER SERVICE. NOTE: CITY OF REDMOND PRESSURE MAIN IS CURRENTLY BEING DESIGNED BY OTHERS. LOCATION, SIZE, AND DEPTH ARE APPROXIMATE.

DRY UTILITY KEY NOTES

- 1 PROPOSED SHARED UTILITY TRENCH (POWER, COMMUNICATIONS, GAS)
- 2 PROPOSED TRANSFORMER VAULT
- 3 PROPOSED SITE LIGHTING (TYP)
- 4 PROPOSED GENERATOR

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LEGEND

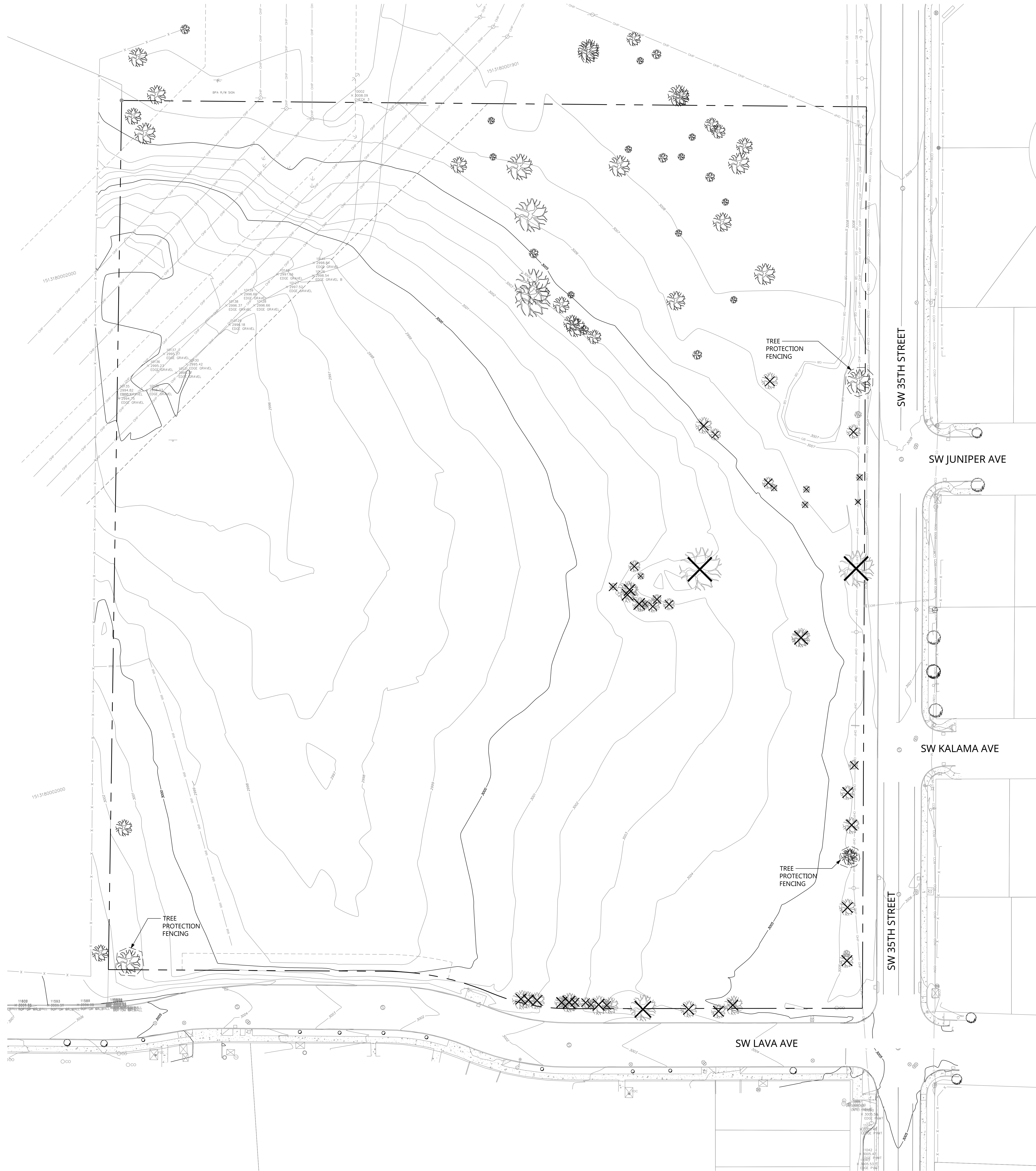
- PROPERTY LINE
- BPA EASEMENT
- APPROXIMATE LIMITS OF PHASE 1 CONSTRUCTION
- PROPOSED TREES
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- IRRIGATED LAWN
- PLANT BED
- NATIVE RESTORATION

KEY NOTES

- A SHARED USE PATH
- B OUTDOOR COURTYARD, FITNESS AREA
- C SUN DECK & ORNAMENTAL FENCING
- D POTENTIAL AREA FOR INFORMAL MARKET SPACE
- E PARKING LOT SOUTH
- F PARKING LOT NORTH
- G SERVICE / LOADING AREA
- H PASSENGER DROP-OFF
- I BIKE PARKING
- J FLAGPOLES
- K SCREEN PLANTING
- L SCREENING MATERIAL
- M ADA PARKING
- N RAISED CROSSWALK
- O BUS DROP-OFF
- P SPECTATOR SEATING (Future Phase)
- Q SOCCER FIELD & LIGHTING (Future Phase)
ARTIFICIAL TURF FIELD (Alternate)
- R PICKLE BALL COURTS, FENCING & LIGHTING (Future Phase)
- S PLAYGROUND STRUCTURE (Future Phase)
- T OUTDOOR BATHROOMS (Future Phase)
- U BASKETBALL COURT (Future Phase)
- V SPRAY GROUND (Future Phase)
- W SHADE STRUCTURE (Future Phase)
- X PARKING LOT (Future Phase)

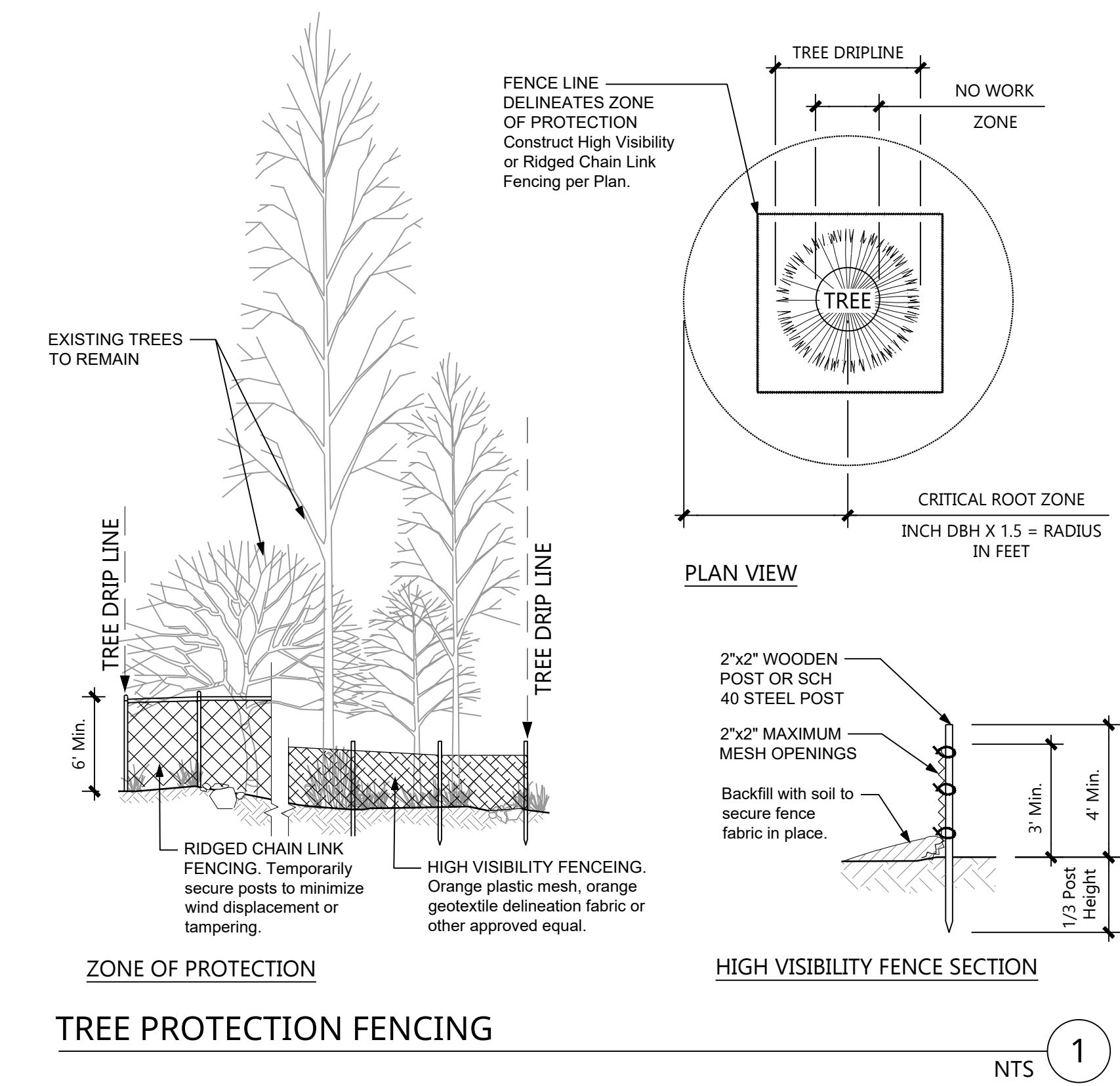
PLANTING PRECEDENTS





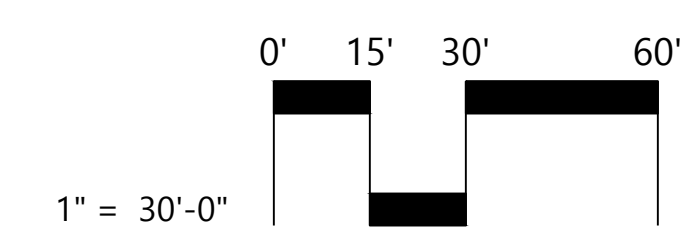
LEGEND

- EXISTING TREES
Protect/To Remain
- EXISTING TREES
To be Removed
- HIGH VISIBILITY FENCING
- RIDGED CHAINLINK FENCING
- CRITICAL ROOT ZONE
See Tree Protection Fencing Detail
- PROPERTY LINE

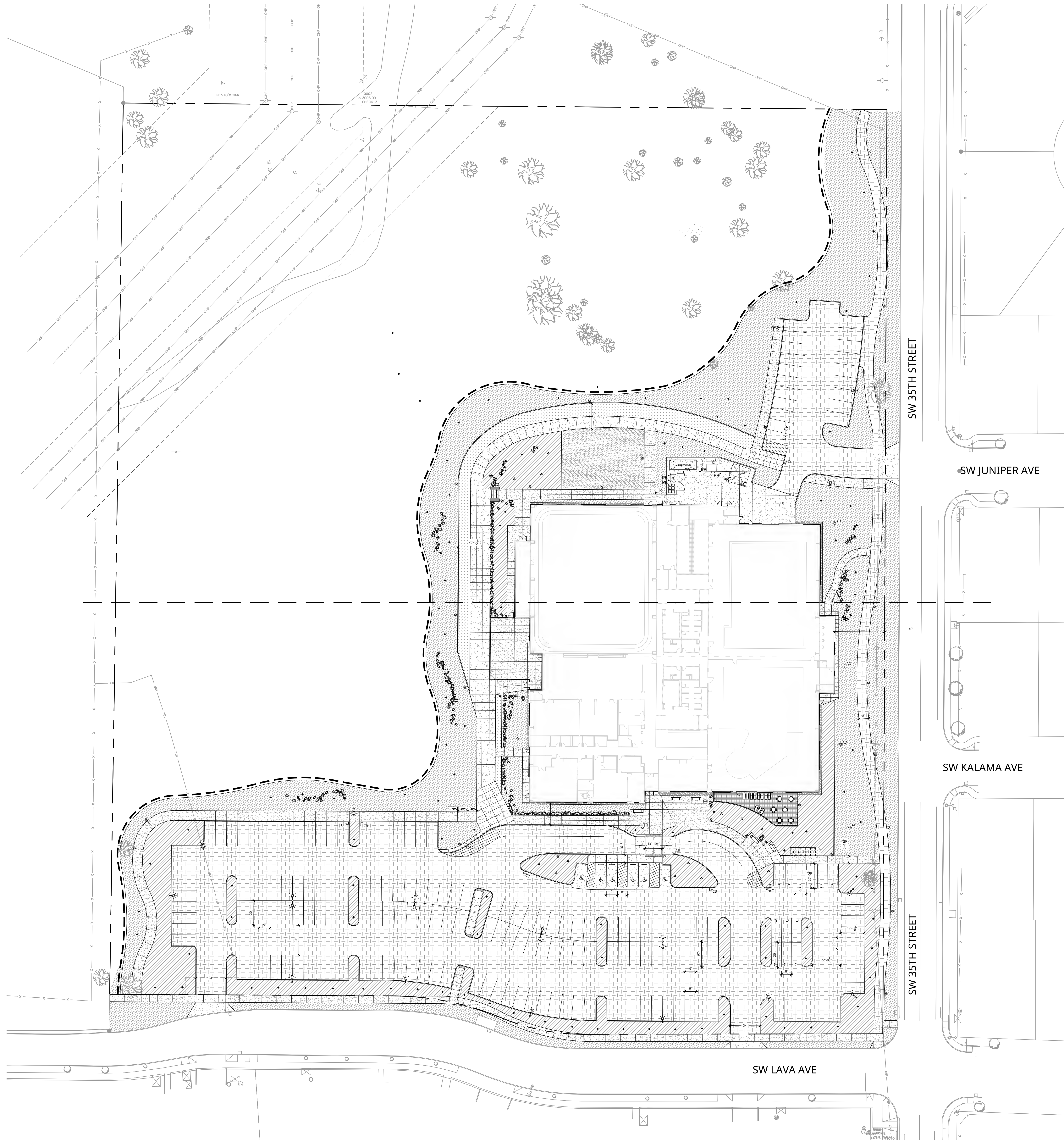


TREE PROTECTION NOTES

- All base information except tree and vegetation information provided by:
HWA
62930 O.B. RILEY RD, STE. 100
BEND, OR 9773
T: 541.389.9351
Contact: Patrick Cole
- Watering - Water trees if required by the Owner's Representative. Watering will be required if it is judged that root removal is necessary for construction and threatens the survival of the tree. Use a slow drip or soaker hose to provide one inch water per week until completion of construction.
- Tree Protection Fence - Install fence during initial mobilization at the site and maintain until substantial completion.
- Zone of Protection - Boundaries as indicated and directed by the Owner's Representative. Enclose areas with rigid chain link fencing. Obtain advance written authorization from the Owner's Representative for removal or modification of fencing. There shall be no work conducted in the enclosed area, no storage, no traffic nor other activity not previously approved.
- Critical Root Zone (CRZ) - Determined by Owner's Representative and shown on plans, within this zone only trench-less boring at pre-authorized depths, "air spade" trenching or hand digging. Do not cut roots larger than 1.5 inches diameter without approval. Cut roots, and protect exposed roots as required.
- The CRZ of existing trees shown is based on a mathematical formula, and does not accurately depict actual root locations. Should roots prove to be more prevalent than expected at this location, construction activity will impact the zone to the extent that the tree may potentially be removed.



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LANDSCAPE TABULATIONS

REDMOND DEVELOPMENT CODE 8.3025

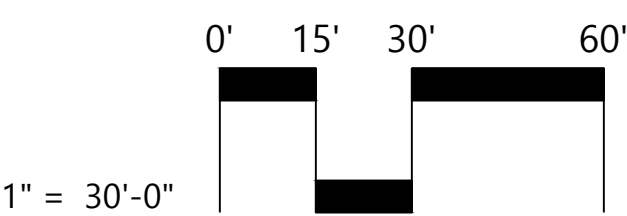
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PROPOSED LANDSCAPE AREA (16%) :	78,876 SF
TOTAL PARKING LOT AND DRIVE AISLE AREA:	80,510 SF
REQUIRED PARKING LOT LANDSCAPE (10%):	8,051 SF
PROPOSED PARKING LOT LANDSCAPE (12%):	9,474 SF
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TOTAL REQUIRED PARKING SPACES:	187 STALLS
PROPOSED STANDARD PARKING SPACES:	177 STALLS
PROPOSED COMPACT PARKING SPACES:	14 STALLS
PROPOSED ELECTRIC CHARGING STATIONS:	02 STALLS
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TOTAL PROPOSED PARKING SPACES:	199 STALLS

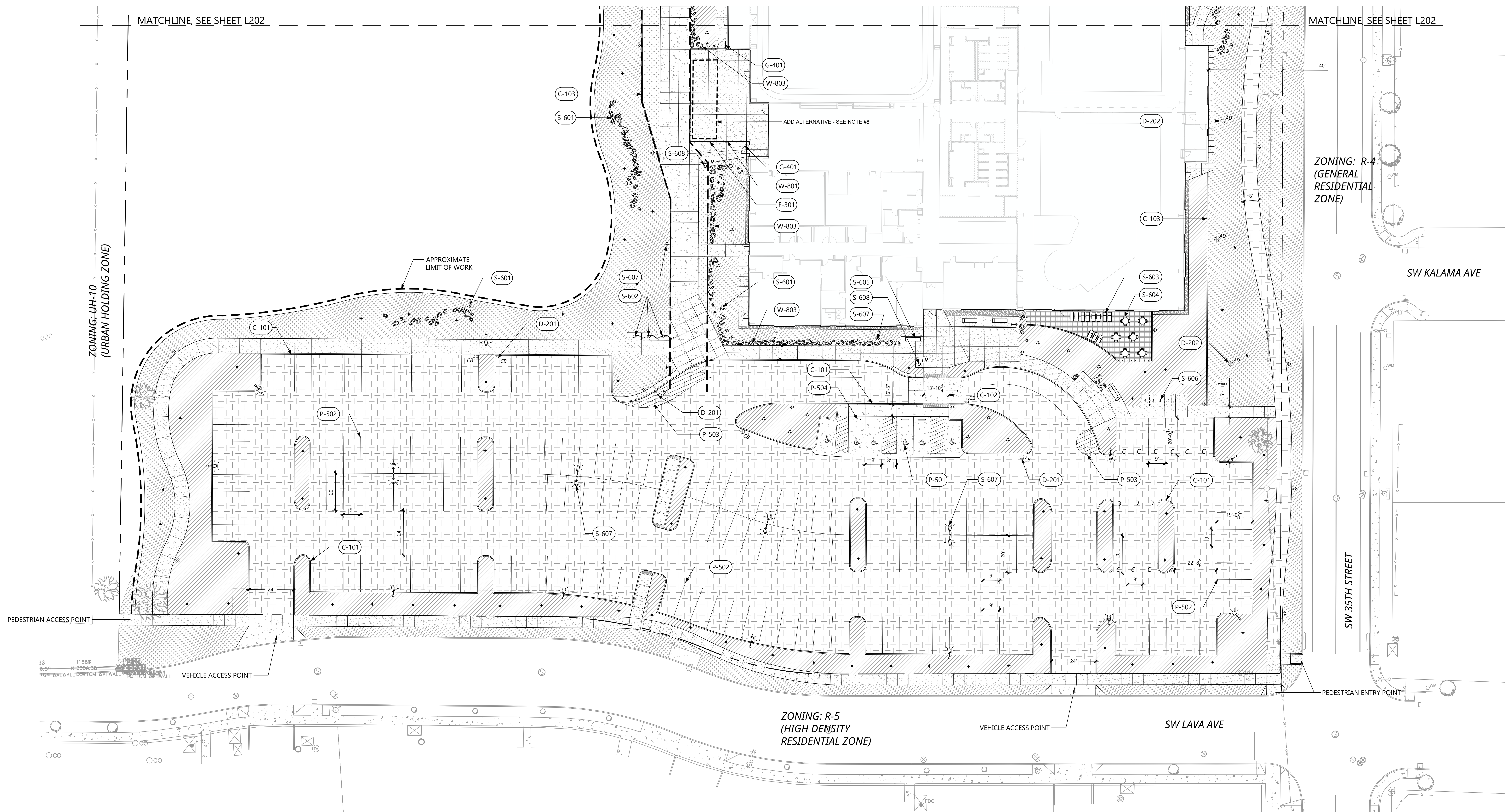
HATCH LEGEND

SYMBOL	DESCRIPTION
	STANDARD CONCRETE PAVING -See Civil
	VEHICULAR CONCRETE PAVING -See Civil
	ROCK MULCH -See Detail 4/603
	ASPHALT PAVING -See Civil
	NATIVE OR ADAPTIVE NATIVE LANDSCAPE
	ORNAMENTAL PLANTING
	IRRIGATED LAWN
	CONCRETE UNIT PAVERS
	REINFORCED FIRE LANE -See Detail 4/L603
	DETECTABLE PAVERS

SITE PLAN NOTES

- All survey information provided by:
HWA
62930 O.B. RILEY RD, STE. 100
BEND, OR 97703
T: 541.389.9351
CONTACT: Patrick Cole
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SITE PLAN KEY NOTES

SYMBOL	CONCRETE
(C-101)	STANDARD CONCRETE CURB -See Civil
(C-102)	RAISED PEDESTRIAN CROSSING
(C-103)	CONCRETE MOW STRIP -See Detail 4/L602
SYMBOL	DRAINS
(D-201)	CATCH BASIN -See Civil
(D-202)	AREA DRAIN -See Civil
SYMBOL	FENCE
(F-301)	FENCE -See Detail 1/L603
SYMBOL	GATE
(G-401)	PEDESTRIAN SINGLE SWING GATE -See Detail 2/L603
(G-402)	ENCLOSED TRASH AND RECYCLING GATE
SYMBOL	PARKING
(P-501)	ADA PARKING STALL Standard: 9'x20' with 6' access aisle Van-accessible: 9'x20' with 8' access aisle
(P-502)	STANDARD 10'x20' PARKING STALL
(P-503)	PAVEMENT STRIPING
(P-504)	CONCRETE WHEEL STOP -See Detail 5/L602
(P-505)	ELECTRIC VEHICLE CHARGING STATION -See Electrical

SYMBOL	SITE FURNISHINGS
(S-601)	ACCENT BOULDERS -See Detail 6/L602
(S-602)	FLAG POLE -See Specs
(S-603)	LOUNGE SEATING
(S-604)	TABLE AND CHAIRS
(S-605)	BENCH -See Specs
(S-606)	BIKE RACK -See Detail 7/L602
(S-607)	SITE LIGHTING -See Detail 9/L602
(S-608)	TRASH AND RECYCLING RECEPTACLES -See Specs
(S-609)	PROTECTIVE BOLLARD Concrete filled steel tube -See Detail 8/L602
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SYMBOL	WALL
(W-801)	CONCRETE RETAINING WALL --See Detail 5/L603
(W-802)	SERVICE YARD ENCLOSURE Finish to match building -See Arch
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CONSTRUCTION

Project Number:	2023.019
Issue:	LAND USE
Date:	2023.12.15
Drawn By:	EG, CR
Checked By:	JB
Revisions:	
Rev.	Date:

Sheet Title:
SITE PLAN



BARKER
RINKER
SEACAT
ARCHITECTURE

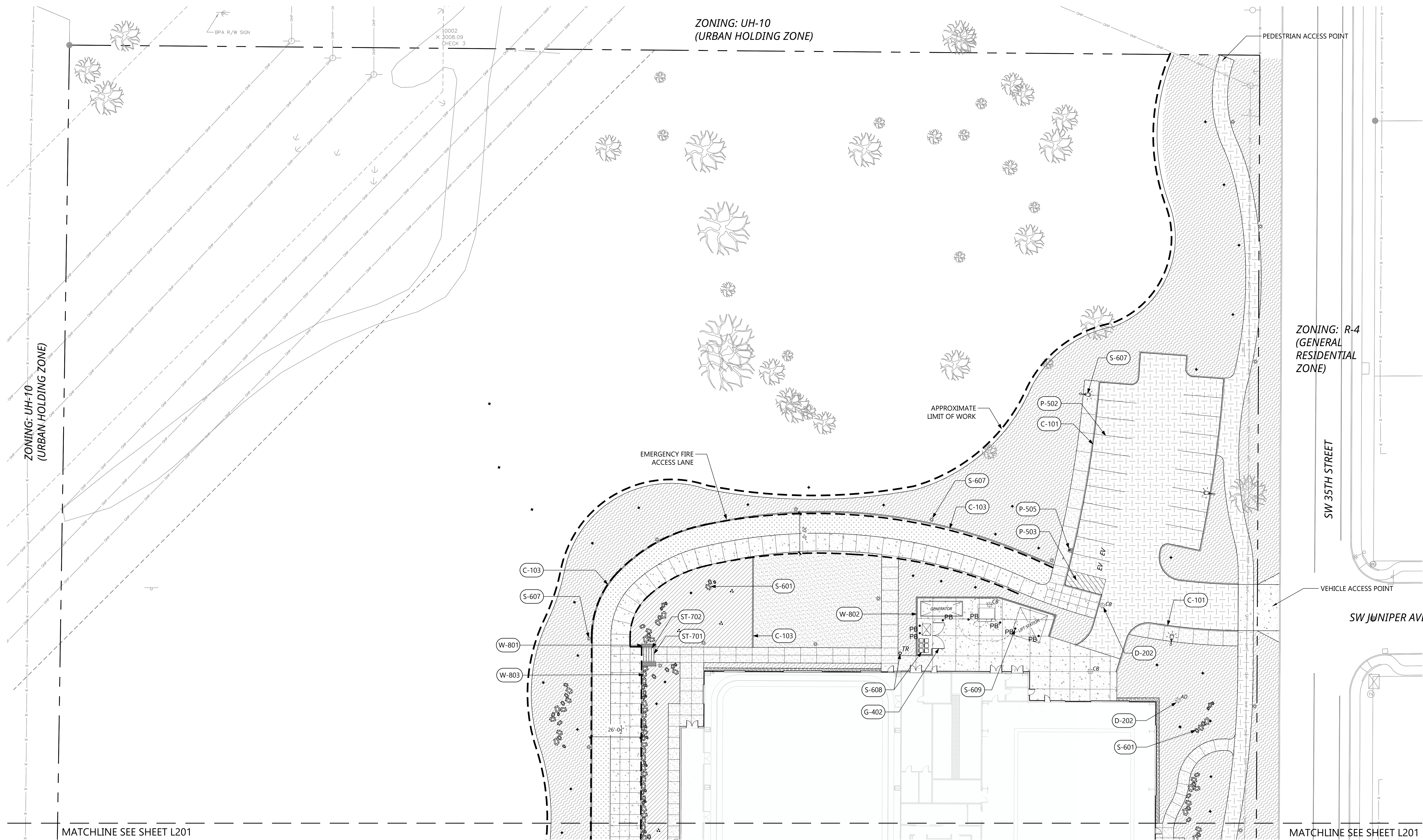
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Landscape Architecture & Planning
160 E. Broadway, Eugene, OR 97401
220 NW 10th Avenue, Portland, OR 97209
541-485-7385
www.cameronmccarthy.com

REDMOND REGIONAL RECREATION CENTER

1001 SW 35TH ST.



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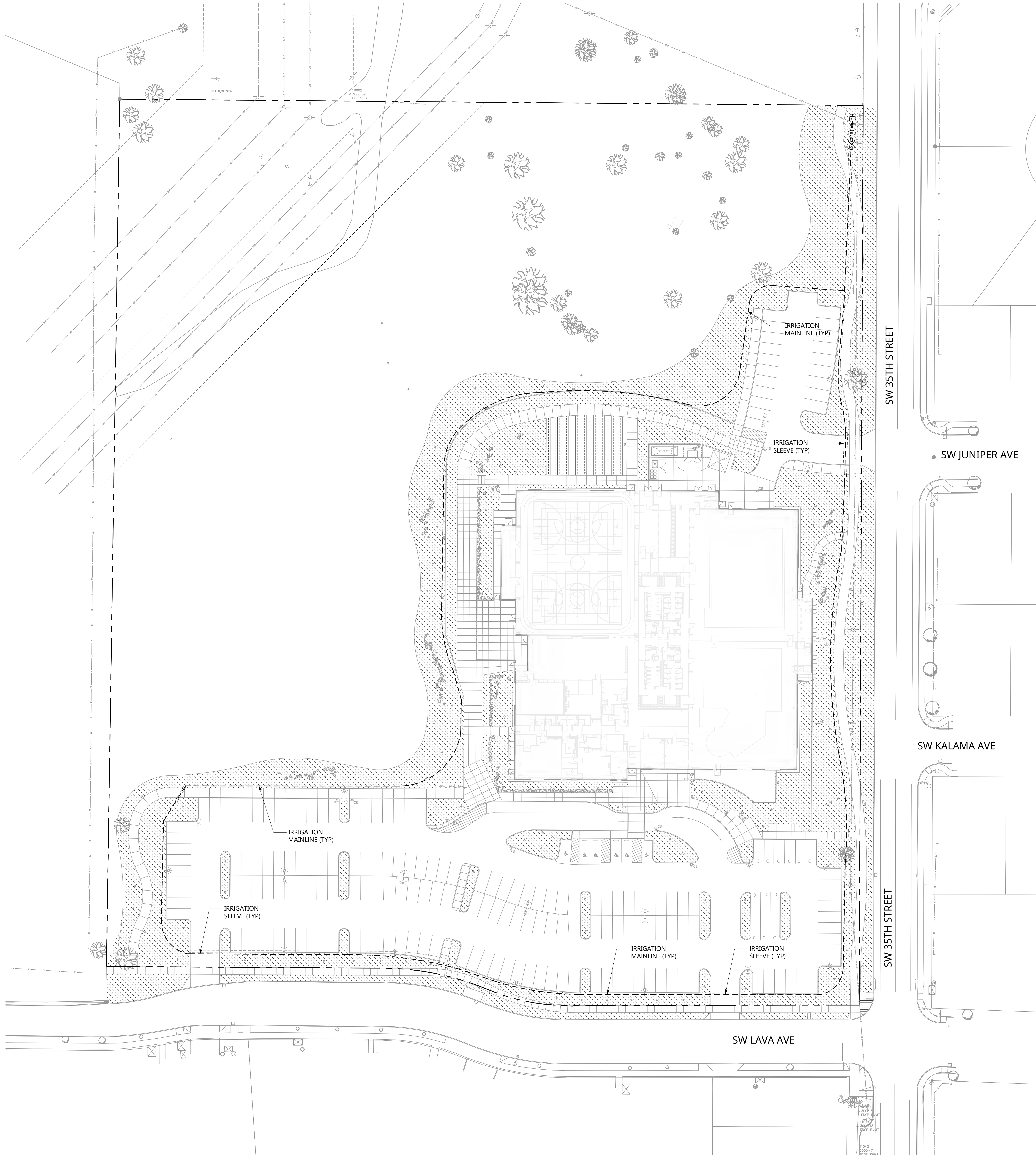
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Revisions:	
Rev.	Date:

Sheet Title:
SITE PLAN

L202

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SYMBOL LEGEND

- PROPOSED TREE (TRUNK)
- EXISTING TREE TO REMAIN
- PROPERTY LINE
- SETBACK LINE

IRRIGATION SCHEDULE

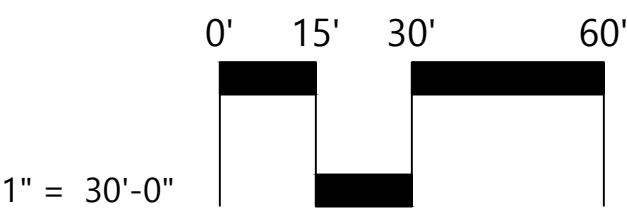
SYMBOL	DESCRIPTION
	SHRUB SPRAY AREA 4'-15' radius (1,2m-4,6m), triangular spaced, head to head coverage.
	TURF SPRAY AREA 4'-15' radius (1,2m-4,6m), triangular spaced, head to head coverage.
SYMBOL	MANUFACTURER/MODEL
	Rain Bird 1804 8 Series MPR
	Rain Bird 1812-SAM-PRS 8 Series MPR
	Rain Bird 1804-SAM-PRS-5 Series Stream
SYMBOL	MANUFACTURER/MODEL
	Rain Bird PGA-PRS-D Globe 1"
	Rain Bird 44-LRC 1"
	Superior B400
	Superior AV
	Rain Bird PGA-PRS-D Globe 1"
	Zurn 350XL 3/4"
	Rain Bird ESP4ME3 with (3) ESP-SM6
	Rain Bird LNK2WFI
	Rain Bird WR2-RFC
	Rain Bird FS-150-B
	POINT OF CONNECTION
	Irrigation Lateral Line: PVC Schedule 40
	Irrigation Mainline: PVC Schedule 40
	Pipe Sleeve: PVC Schedule 40
	Valve Callout
	Valve Number
	Valve Flow
	Valve Size

GENERAL IRRIGATION NOTES

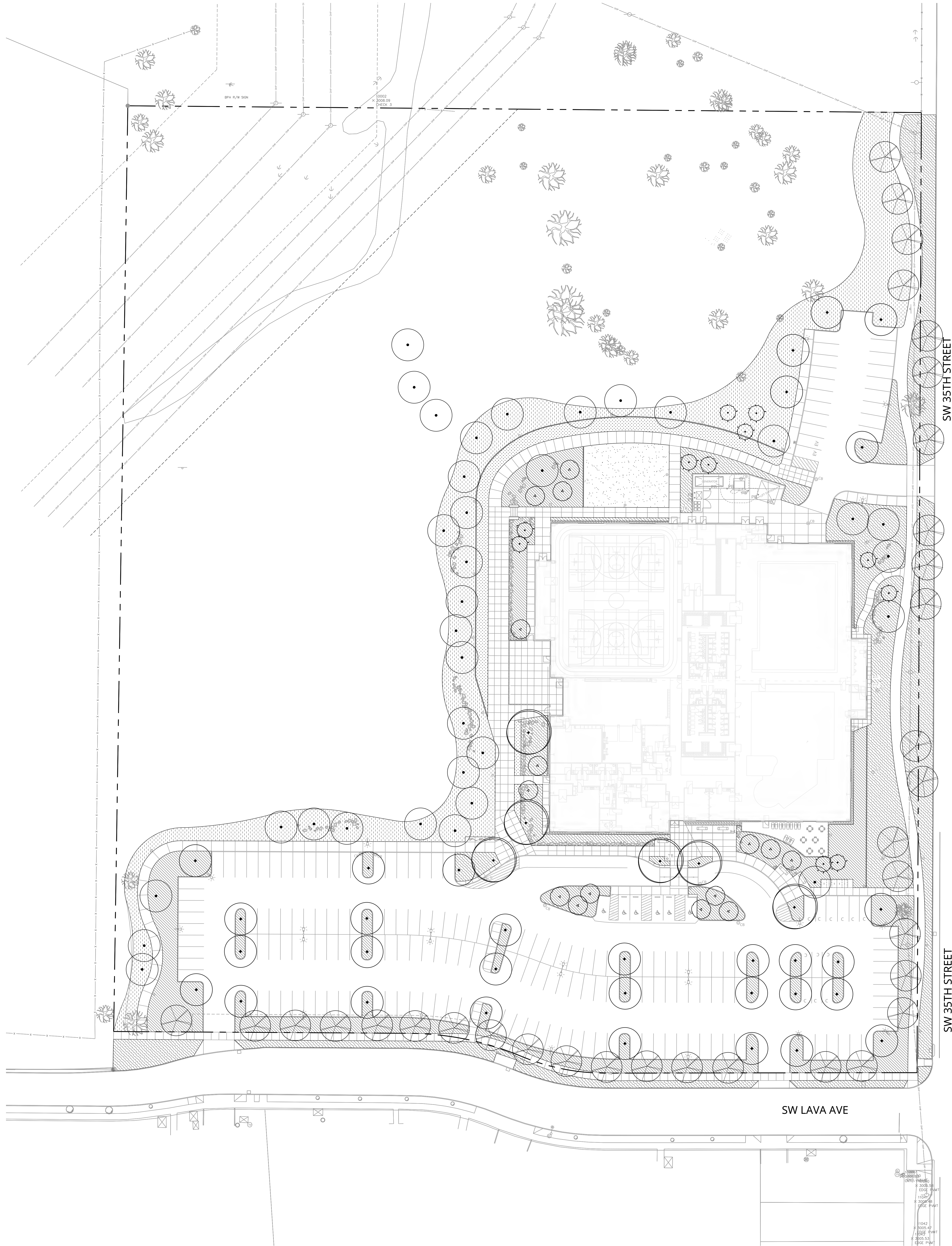
- THIS DOCUMENT IS PRELIMINARY AND IS INTENDED TO SHOW THE PROPOSED LANDSCAPE IMPROVEMENTS WILL MEET ZONING AND CODE COMPLIANCE. THE LANDSCAPE DOCUMENTS SUBMITTED WITH THE BUILDING PERMIT APPLICATION WILL SHOW THE COMPLETE EXTENT OF THE PROPOSED WORK.
- ALL LANDSCAPE AREAS SHALL BE IRRIGATED WITH A PERMANENT AUTOMATIC IRRIGATION SYSTEM. ALL PLANTED AREAS WILL UTILIZE HIGH EFFICIENCY SPRAY HEADS AND ROTORS. ALL TREES WILL UTILIZE (2) BUBBLERS FOR IRRIGATION.
- VERIFY EXACT LOCATIONS AND ROUTING OF EXISTING AND PROPOSED UNDERGROUND UTILITIES PRIOR TO STARTING ANY EXCAVATION. ANY DAMAGE TO EXISTING PIPES, UNDERGROUND UTILITIES OR RELATED FACILITIES TO BE REPAIRED AT CONTRACTOR'S EXPENSE IN A MANNER APPROVED BY OWNER'S REPRESENTATIVE.
- BARRICADE AND PROTECT TRUNKS, LIMBS, ROOTS AND ROOT ZONES BEYOND DRIP LINE OF EXISTING TREES AND PLANT MATERIALS TO REMAIN AS DIRECTED BY OWNER'S REPRESENTATIVE. CUT NO LIMBS OR ROOTS LARGER THAN 1.5" IN DIAMETER WITHOUT APPROVAL OF OWNER'S REPRESENTATIVE.
- IRRIGATION LAYOUT IS DIAGRAMMATIC. IT IS INTENDED THAT ALL IRRIGATION LINES WILL BE ROUTED THROUGH LAWNS AND PLANT BEDS EXCEPT WHERE NOTED ON DRAWINGS. ADJUST ROUTING OF IRRIGATION, HEADS, AND SLEEVES AS NECESSARY FOR ANY EXISTING OR PROPOSED UTILITIES. LOCATE IRRIGATION MAIN LINE, LATERAL LINES, AND VALVE BOXES TO AVOID CONFLICT WITH THE TREE PLANTINGS.
- INSTALL SPRAY HEADS 3" FROM ADJACENT PAVEMENT, CURBS, AND PLANTING EDGES; 6" FROM CURBS IN PARKING AREAS UNLESS DIRECTED OTHERWISE BY OWNER'S REPRESENTATIVE. INSTALL SPRINKLERS 2 FEET FROM FACE OF CURB AT PLANT BEDS PARALLEL TO PARKING LOT STALLS.
- ADJUST RADIUS ON SPRAY HEADS AS NECESSARY TO MINIMIZE OVERSPRAY WHILE ACHIEVING FULL AND EVEN COVERAGE OF PLANTED AREAS.
- PROVIDE ALL NECESSARY WIRING REQUIRED TO MAKE THE IRRIGATION SYSTEM A FULLY SERVICEABLE AND OPERATIONAL CONTROLLED SYSTEM AT THE COMPLETION OF THE PROJECT.
- VERIFY ALL PIPE SIZING WITH SCHEDULE 40 AND CLASS 200 PIPE CHARTS.
- LOCATE IRRIGATION MAINLINE, LATERAL LINES, AND VALVE BOXES TO AVOID CONFLICT WITH THE TREE PLANTINGS. PLACE VALVE BOXES FOR LAWN IRRIGATION IN PLANT BEDS WHERE NOTED ON PLANS.
- CONTRACTOR TO HYDRO-TRENCH OR AIR SPADE WITHIN DRIP LINE OF EXISTING TREES.
- VERIFY EXISTING IRRIGATION SYSTEM AND MAINTAIN SERVICE WHERE APPLICABLE. COORDINATE WITH OWNER'S REPRESENTATIVE.
- DO NOT WILLFULLY INSTALL THE SPRINKLER SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS, GRADE DIFFERENCES OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE IRRIGATION CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.
- VERIFY LOCATION OF (E) MAIN LINES AND LATERAL LINES. REPAIR ANY DAMAGES AND CONFIRM PROPER OPERATION OF (E) IRRIGATION ZONES IMPACTED BY CONSTRUCTION.
- EXISTING LANDSCAPES TO REMAIN WITH EXISTING IRRIGATION PRIOR TO CONSTRUCTION. SHALL BE MADE OPERATIONAL DURING CONSTRUCTION. COORDINATE ANTICIPATED DISRUPTION OF EXISTING IRRIGATION WITH OWNER. ALL IRRIGATION SYSTEMS INTERRUPTED BY CONSTRUCTION SHALL BE RECONNECTED AS SOON AS POSSIBLE.

SCHEDULE 40 PIPE SIZING CHART	
Size 1" or smaller	
GPM	SIZE
0-7	3/4"
7-11	1"
11-21	1 1/4"
21-29	1 1/2"
29-49	2"
49-69	2 1/2"
69-110	3"

CLASS 200 PIPE SIZING CHART	
Size 1" or larger	
GPM	SIZE
10-17	1"
17-27	1 1/4"
27-36	1 1/2"
36-56	2"
56-83	2 1/2"



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CONCEPT PLANT SCHEDULE

	ACCENT TREE Acer circinatum / Vine Maple Acer ginnala / Amur Maple Acer palmatum 'Sango Kaku' / Coral Bark Maple Cercis canadensis / Eastern Redbud Multi-trunk Prunus serrulata 'Kwanzan' / Kwanzan Japanese Flowering Cherry	15	2" cal, As Shown 2" cal, As Shown 2" cal, As Shown 2" cal, As Shown 2" cal, As Shown
	DECIDUOUS SHADE TREE Acer rubrum 'October Glory' / October Glory Red Maple Aesculus x carnea 'Fort McNair' / Fort McNair Red Horsechestnut Fraxinus americana 'Junginger' / Autumn Purple® White Ash Quercus palustris / Pin Oak	34	2" cal, As Shown 2" cal, As Shown 2" cal, As Shown 2" cal, As Shown
	DECIDUOUS SPECIMEN TREE Acer rubrum 'Frankred' TM / Red Sunset Red Maple Fagus sylvatica 'Tricolor' / Tricolor European Beech Quercus rubra / Red Oak Ulmus x 'Accolade' / Accolade Elm	6	2" cal, As Shown 2" cal, As Shown 2" cal, As Shown 2" cal, As Shown
	EVERGREEN TREE Picea pungens 'Glauca' / Blue Colorado Spruce Pinus flexilis 'Vanderwolf's Pyramid' / Vanderwolf's Pyramid Limber Pine Pinus nigra / Austrian Pine Tsuga mertensiana / Mountain Hemlock	11	6'-8" Height, As Shown 6'-8" Height, As Shown 6'-8" Height, As Shown 5'-7", As Shown
	DECIDUOUS STREET TREE Acer rubrum / Red Maple Carpinus caroliniana / American Hornbeam Crataegus crus-galli inermis / Thornless Cockspur Hawthorn Pyrus calleryana 'Bradford' / Bradford Callery Pear Tilia cordata / Littleleaf Linden	33	2" cal, As Shown Transplanted 2" cal, As Shown Transplanted 2" cal, As Shown
	PARKING LOT TREE Acer rubrum 'Bowhall' / Bowhall Red Maple Fraxinus pennsylvanica / Green Ash Gleditsia triacanthos inermis 'Shademaster' / Shademaster Honey Locust	31	2" cal, As Shown 2" cal, As Shown 2" cal, As Shown
	IRRIGATED LAWN	3,292 sf	
	NATIVE AND ADAPTIVE NATIVE LANDSCAPE Echinacea purpurea / Purple Coneflower Festuca idahoensis / Idaho Fescue Achnatherum hymenoides / Indian Ricegrass Chamaebatia millefolium / Fernbush Koeleria macrantha / Prairie Junegrass Linum perenne lewisii / Blue Flax Eriogonum umbellatum / Sulfurflower Buckwheat	30,328 sf #1 #1 #1 #1 #1	
	NATIVE REVEGETATION Chrysothamnus nauseosus / Rubber Rabbitbrush Festuca idahoensis / Idaho Fescue Koeleria macrantha / Prairie Junegrass Penstemon fruticosus / Shrubby Penstemon Artemisia tridentata tridentata / Big Basin Sagebrush Linum lewisii / Lewis Flax Pseudoroegneria spicata inermis / Beardless Bluebunch Wheatgrass Achillea millefolium / Common Yarrow	29,194 sf #5 #1 #1 #5 #5 #1 #1	
	ORNAMENTAL LANDSCAPE Caryopteris x clandonensis / Bluebeard Chamaebatia millefolium / Fernbush Cornus sericea / Red Twig Dogwood Geranium x 'Rozanne' / Rozanne Cranesbill Physocarpus opulifolius 'Jefani' / Amber Jubilee® Ninebark Polystichum munitum / Western Sword Fern Sedum x 'Autumn Joy' / Autumn Joy Sedum Calamagrostis x acutiflora 'Karl Foerster' / Karl Foerster Feather Reed Grass Helictotrichon sempervirens / Blue Oat Grass Gaillardia x grandiflora 'Arizona Sun' / Arizona Sun Blanketflower Hosta sieboldiana 'Elegans' / Elegans Hosta Nepeta racemosa 'Walker's Low' / Walker's Low Catmint Salvia x sylvestris 'May Night' / May Night Sage	23,445 sf #5 #5 #5 #1 #5 #1 #1 #1 #1 #1 #1 #1	
	REINFORCED FIRE LANE LANDSCAPE Achillea millefolium / Common Yarrow Festuca idahoensis / Idaho Fescue Linum lewisii / Lewis Flax Lupinus albus / Sickle-keeled Lupine	4,629 sf #1 #1 #1 #1	

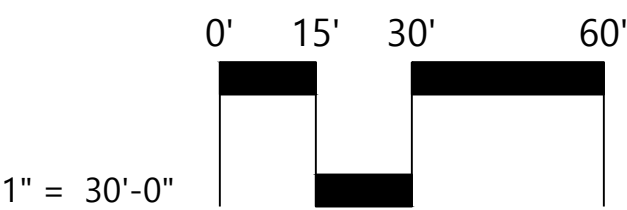
LANDSCAPE TABULATIONS

REDMOND DEVELOPMENT CODE 8.3025

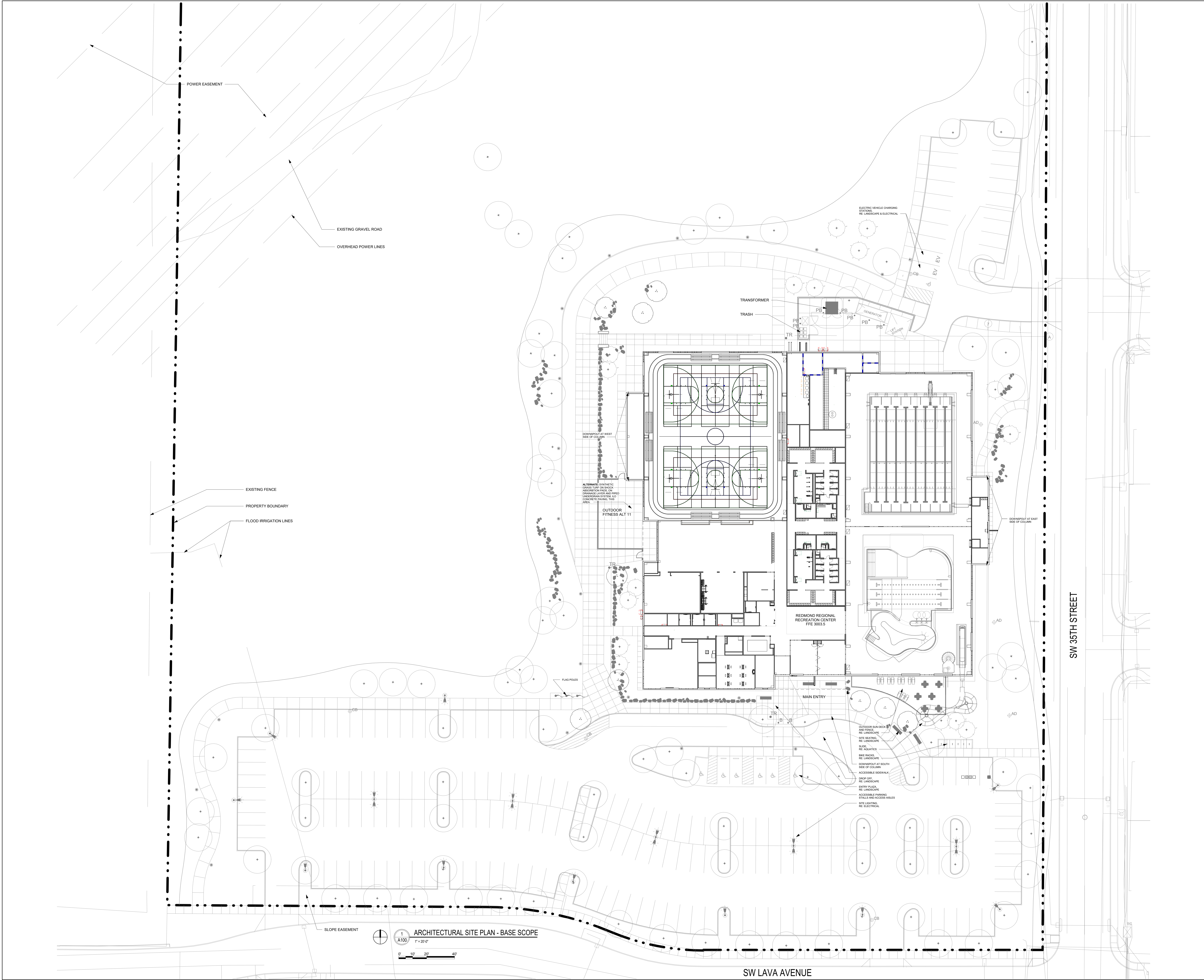
STREET TREE REQUIREMENT:	1 TREE/40' MIN
REQUIRED SW LAVA STREET TREES:	16 Trees
EXISTING SW LAVA STREET TREES TO REMAIN:	00 Trees
PROPOSED SW LAVA STREET TREES:	16 Trees
TOTAL PROPOSED SW LAVA STREET TREES:	16 Trees
REQUIRED SW 35TH STREET TREES:	19 Trees
EXISTING SW 35TH STREET TREES TO REMAIN:	02 Trees
PROPOSED SW 35TH STREET TREES:	17 Trees
TOTAL PROPOSED SW 35TH STREET TREES:	19 Trees
PARKING LOT TREE REQUIREMENT:	1 TREE/8 STALLS
REQUIRED PARKING LOT TREES:	25 Trees
EXISTING PARKING LOT TREES TO REMAIN:	00 Trees
PROPOSED PARKING LOT TREES:	31 Trees
TOTAL PARKING LOT TREES PROVIDED:	31 TREES

GENERAL PLANTING NOTES

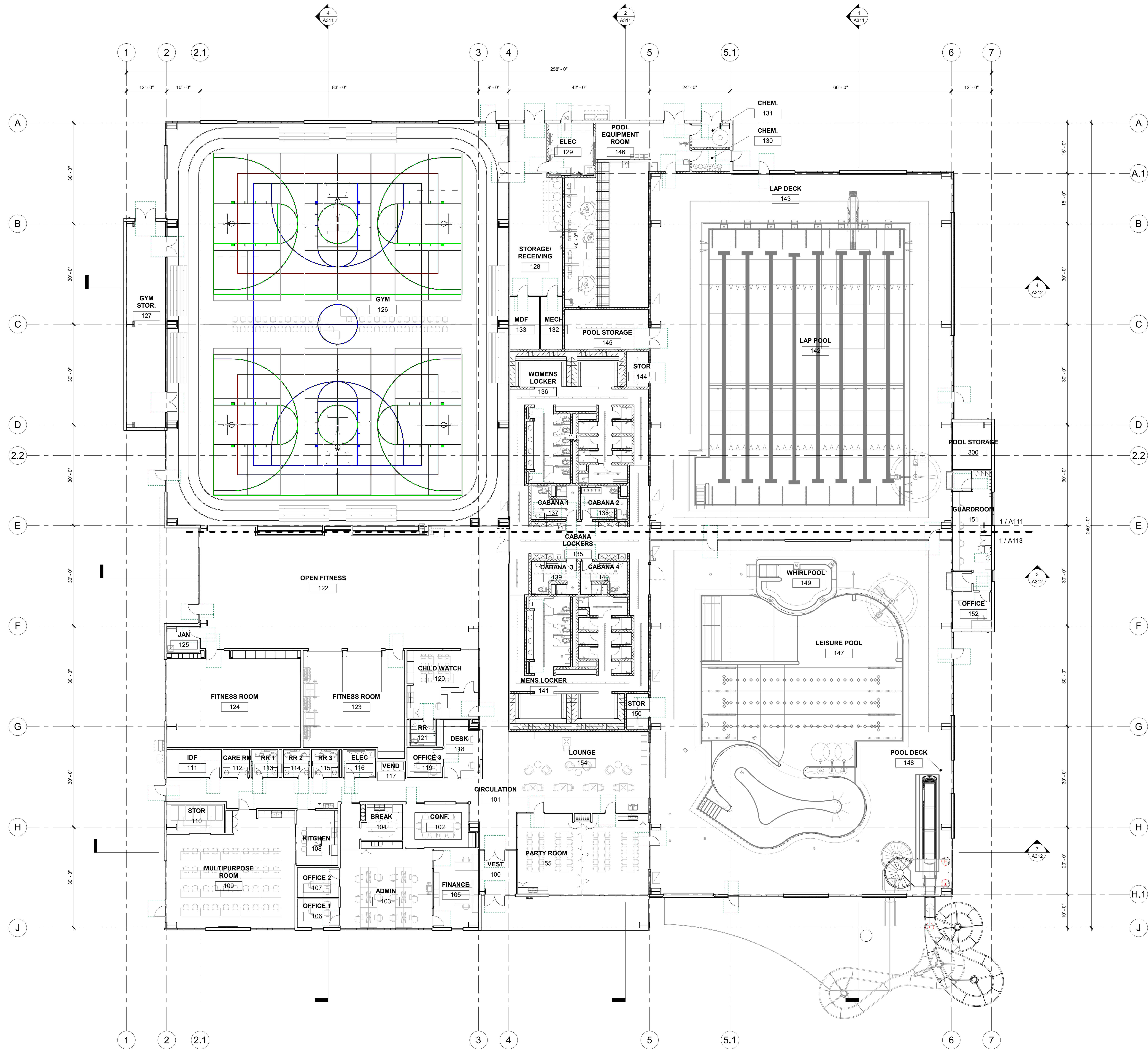
1. Verify exact locations and routing of existing underground utilities prior to starting excavation. Repair any damage to existing pipes, utilities, or related facilities at Contractor's expense in a manner approved by Owner's Representative.
2. Do not install any plant materials until Owner's Representative has reviewed and approved irrigation system installation, area coverage balancing, soil preparation and finish grading. Refine the shape and finish grade of plant beds as directed by Owner's Representative.
3. Protect all existing trees and plant materials to remain including limbs, trunks, roots and root zones.
4. Finish grade is top of topsoil. Mulch is in addition.
5. Prune all new plant materials as directed by Owner's Representative.
6. Make minor adjustments in tree spacing as necessary to accommodate the irrigation system as installed.
7. Where new lawn abuts existing, provide a smooth transition and make repairs as necessary to existing lawn.
8. Plant quantities shown are for Contractor's convenience only. Contractor is responsible for verifying plant quantities and providing 100% coverage of entire area at spacing shown.
9. Triangle space all shrubs and groundcovers, unless otherwise noted.



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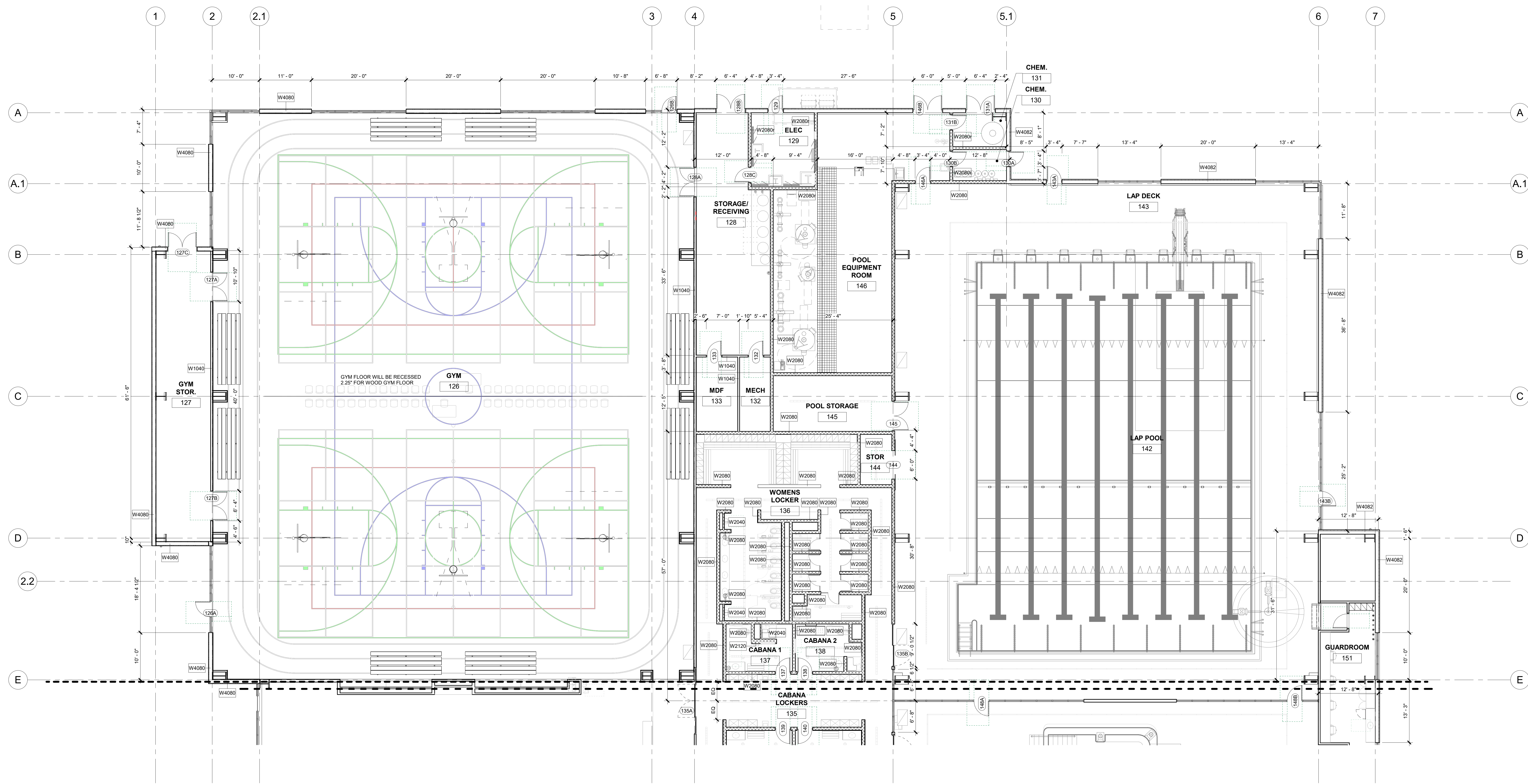


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1 FIRST FLOOR PLAN
A101 3/2" = 1'-0"

12/14/2023 6:08:30 PM Autodesk Docs\\Redmond Region Recreation Center\\RRRC_ARCH_R24.rvt



1 FIRST FLOOR DIMENSION PLAN - AREA A
1/8" = 1'-0"

FLOOR PLAN GENERAL NOTES

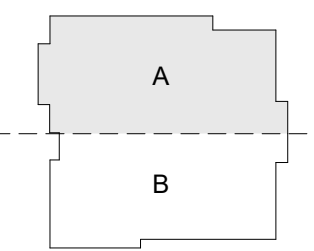
- INTERIOR STOREFRONT IS 10' TALL UNLESS NOTED, BASIS OF DESIGN TRIPAB® VERSAGLAZE® 450 FRAMING SYSTEM 2" SIGHTLINE.

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FLOOR PLAN GENERAL NOTES

1. INTERIOR STOREFRONT IS 10' TALL UNLESS NOTED. BASIS OF DESIGN TRIFAB® VERSAGLAZ® 450 FRAMING SYSTEM 2" SIGHTLINE

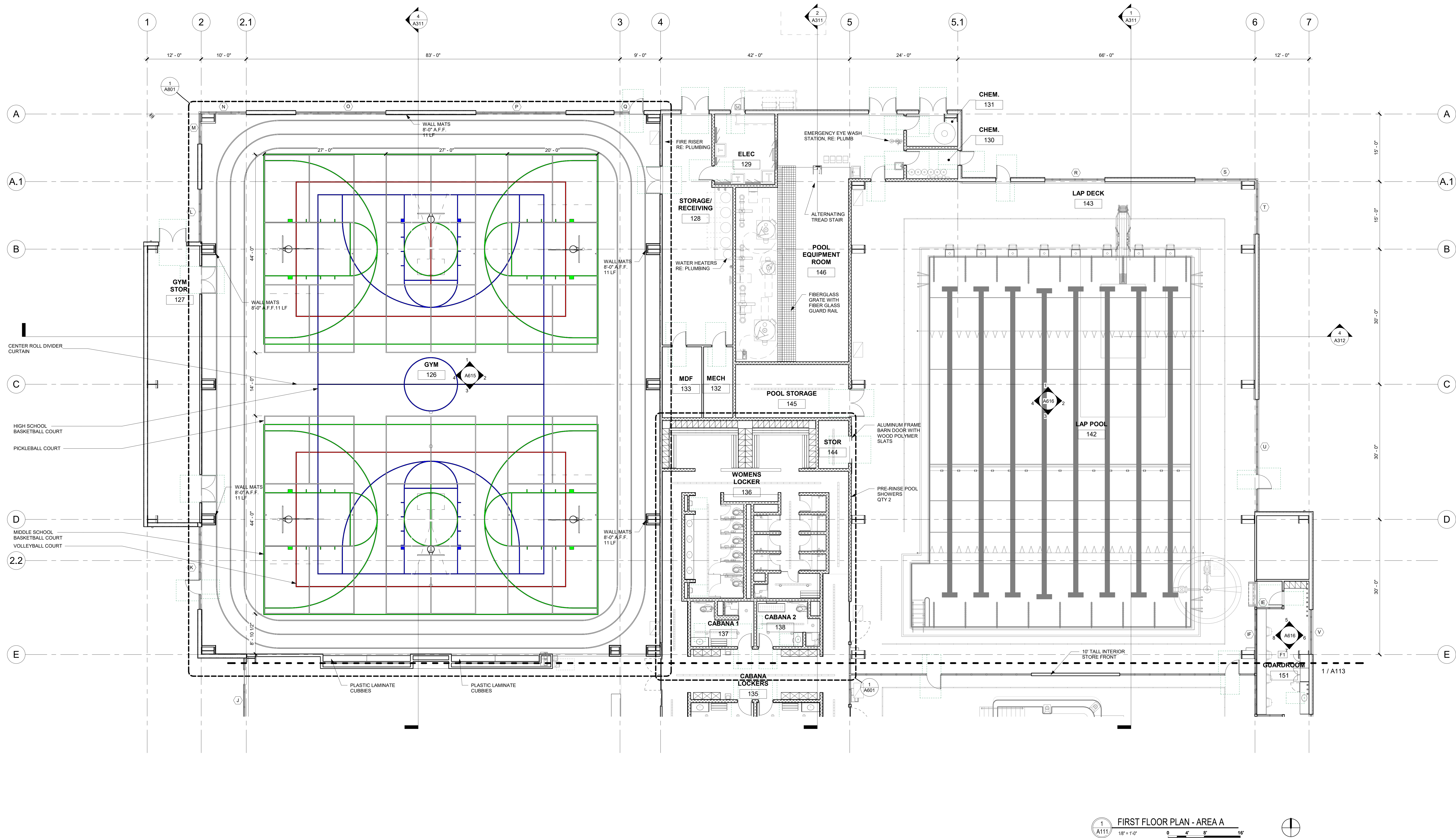
REDMOND REGIONAL RECREATION CENTER
1001 SW 35TH STREET, REDMOND, OR 97756



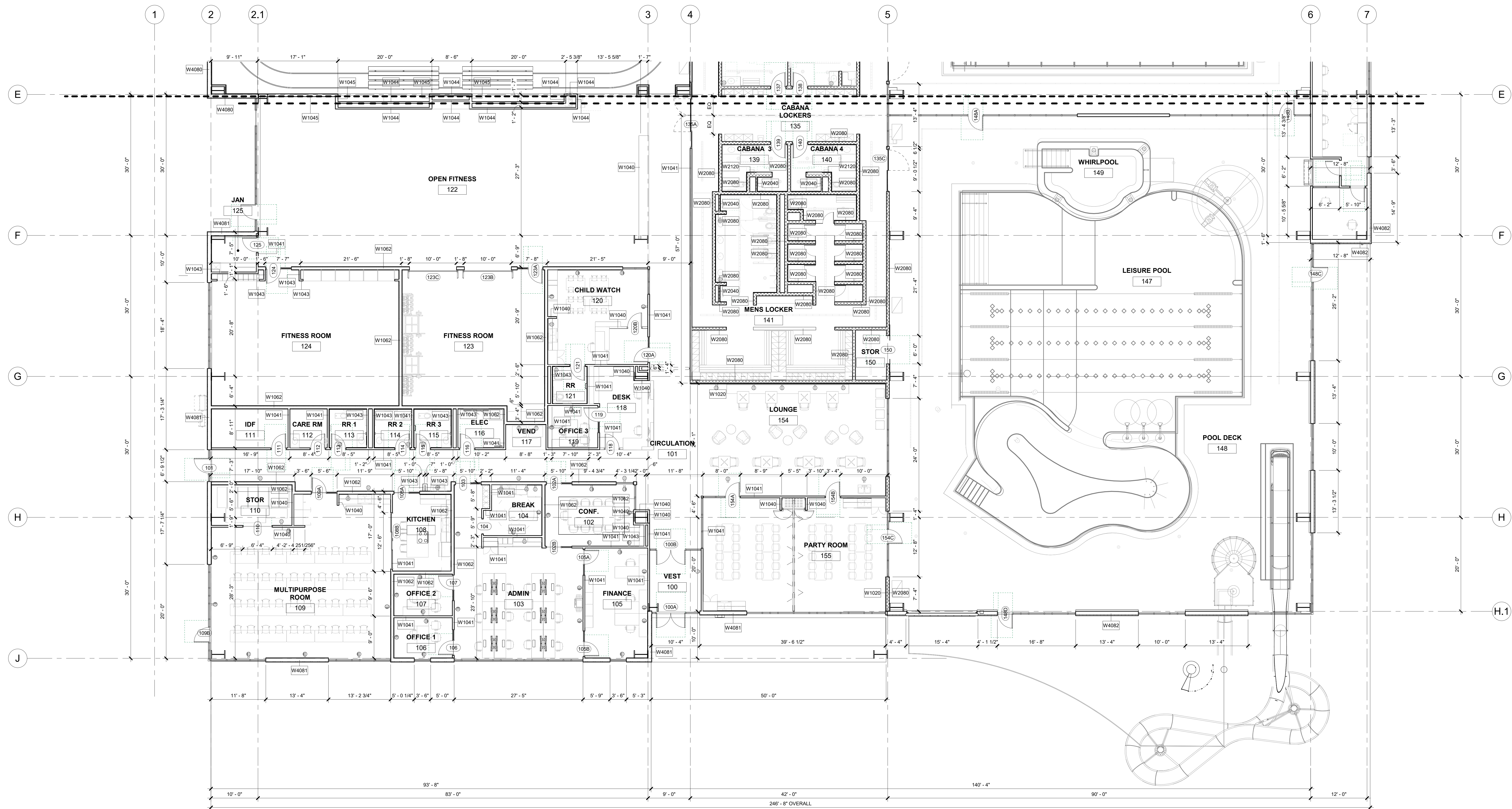
Project Number:	2023.019
Issue:	LAND USE
Date:	2023.12.15
Drawn By:	AO
Checked By:	KH
Revisions:	
Rev.	Date:

Sheet title:
FIRST FLOOR PLAN - AREA A

A111
© 2023 Barker Rinker Seacat Architecture



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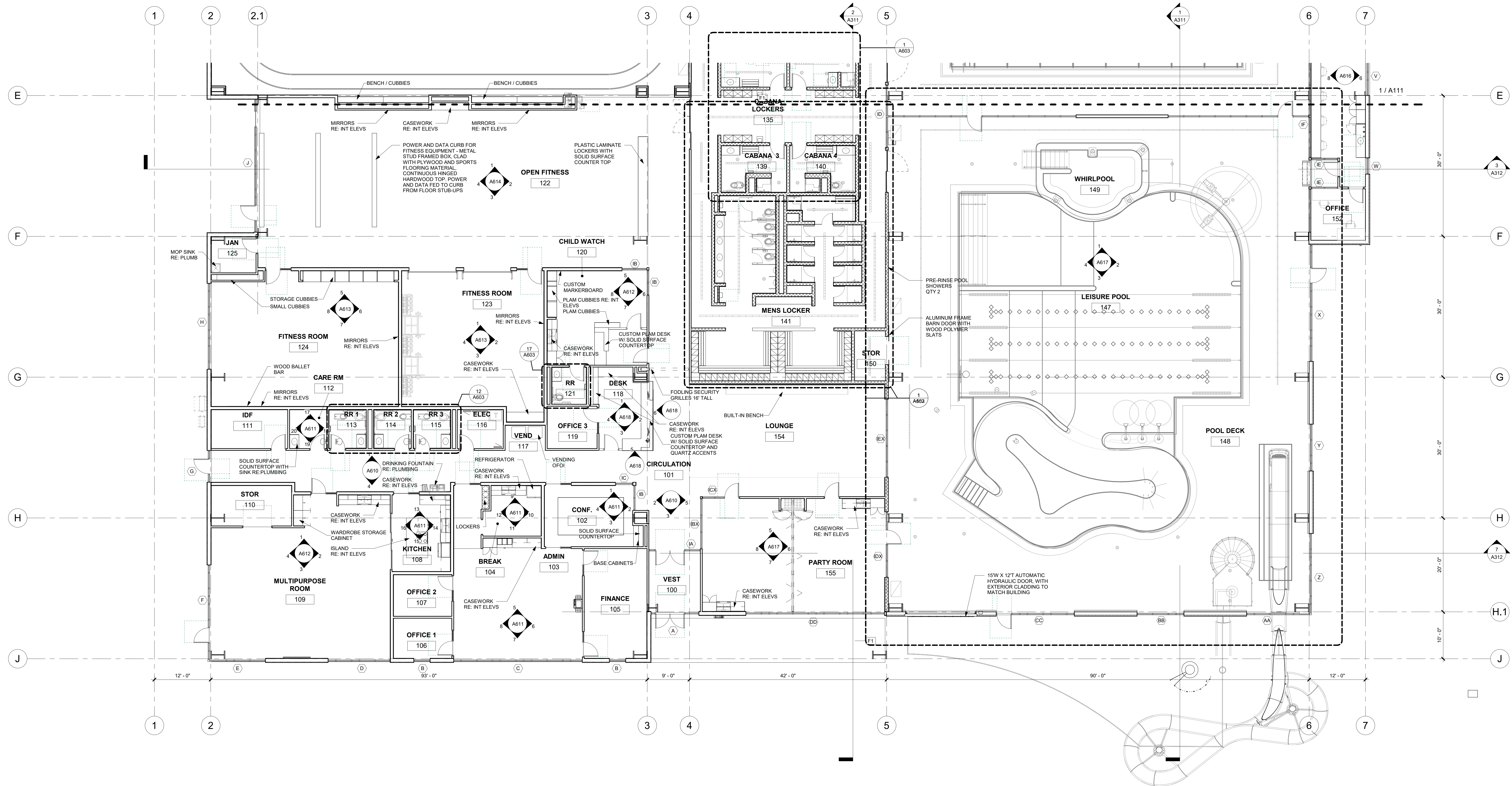


1 FIRST FLOOR DIMENSION PLAN - AREA B
1/8" = 1'-0"

FLOOR PLAN GENERAL NOTES

- INTERIOR STOREFRONT IS 10' TALL UNLESS NOTED, BASIS OF DESIGN TRIFAB® VERSAGLAZER® 450 FRAMING SYSTEM 2" SIGHTLINE.

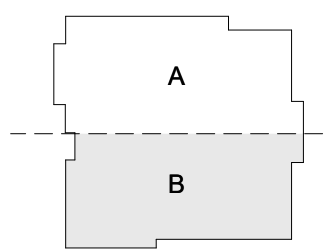
12/14/2023 6:08:35 PM Autodesk Docs//Redmond Region Recreation Center/RRRC_ARCH_R24.rvt



1 FIRST FLOOR PLAN - AREA B
A113 1/8" = 1'-0"

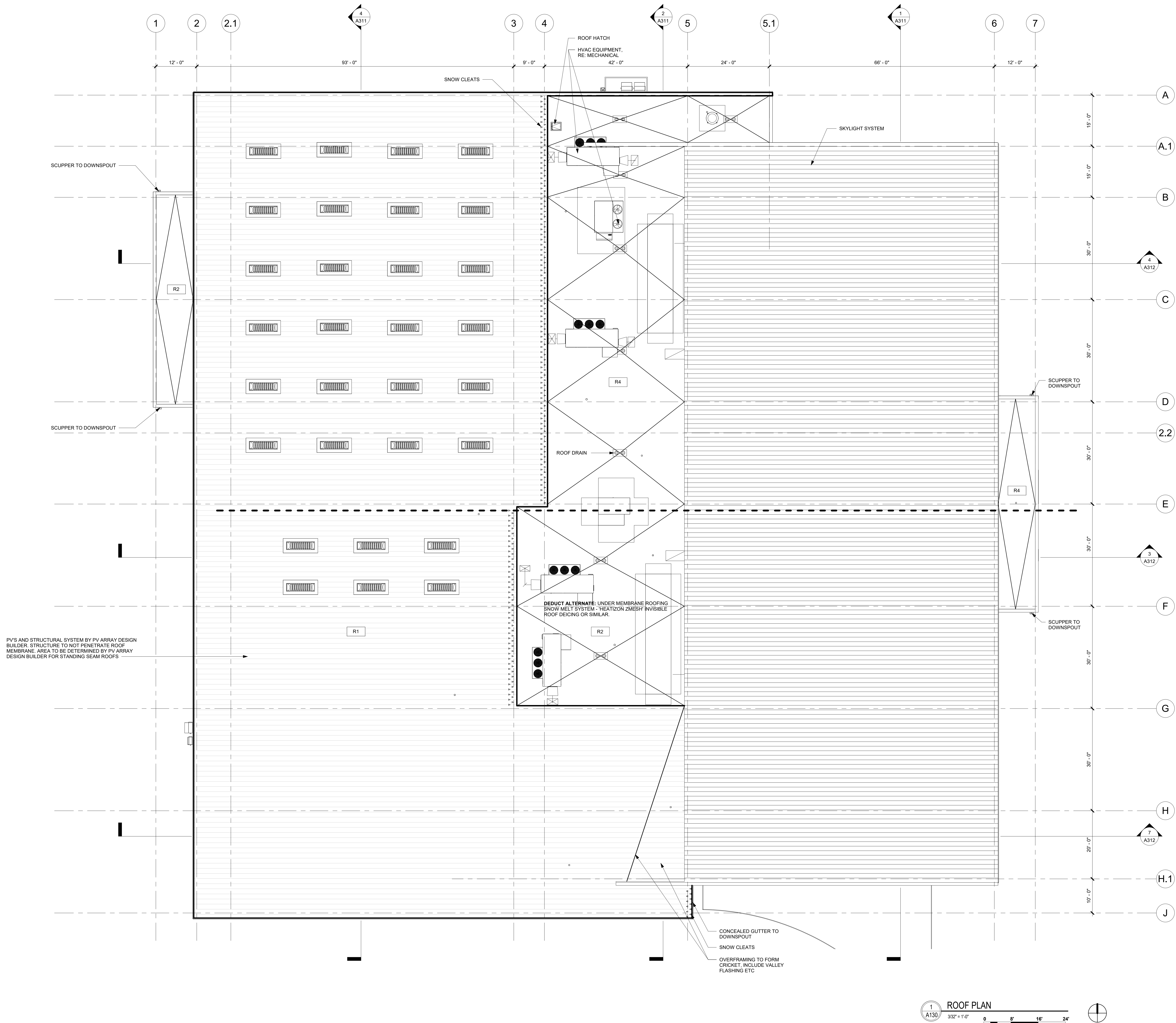
FLOOR PLAN GENERAL NOTES

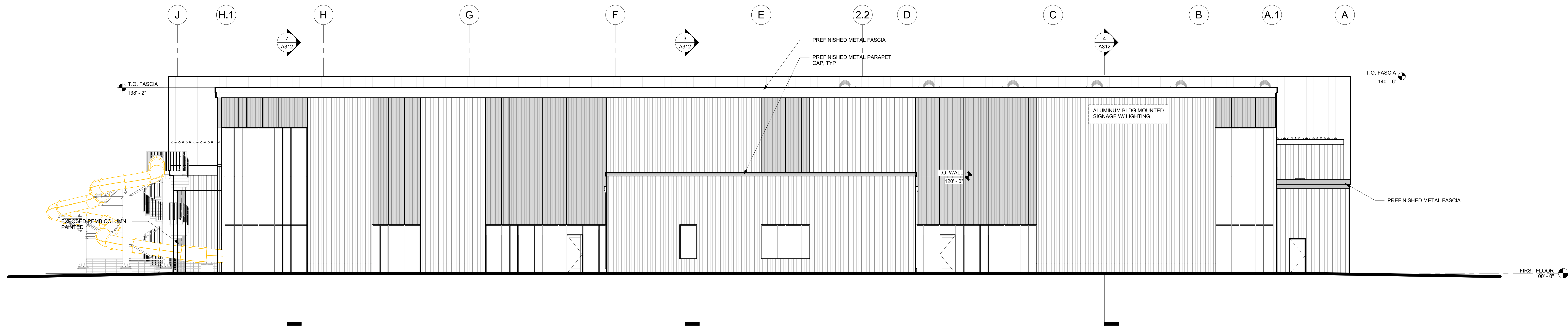
- INTERIOR STOREFRONT IS 10' TALL UNLESS NOTED. BASIS OF DESIGN TRIFAB® VERSAGLAZE® 450 FRAMING SYSTEM 2" SIGHTLINE.



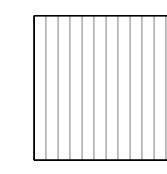
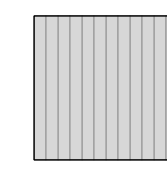
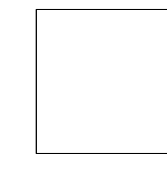
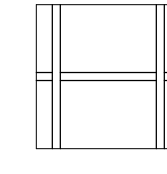
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Issue:	LAND USE
Date:	2023.12.15
Drawn By:	AO
Checked By:	KH
Revisions:	
Rev.	Date:

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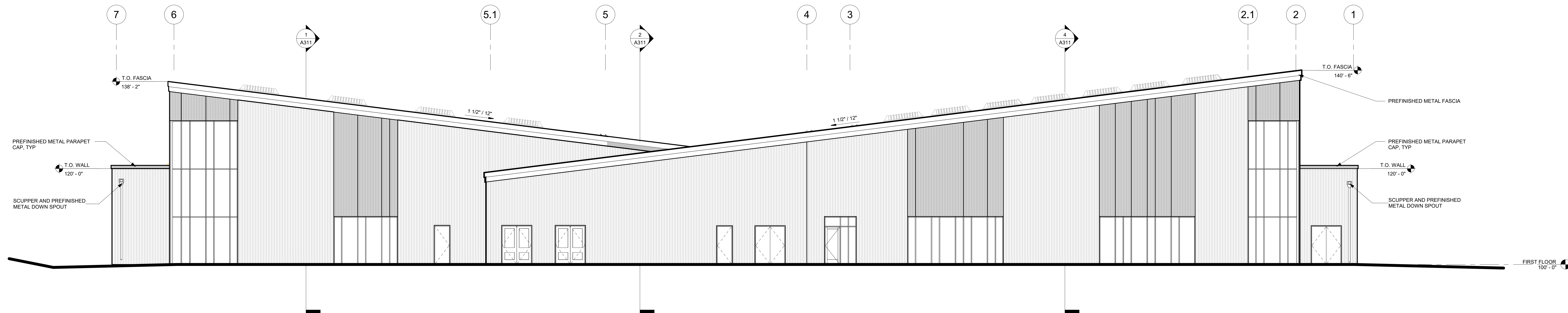


EXTERIOR MATERIALS

-  METAL SIDING - PREMIUM COLOR, NEUTRAL, ARCHITECTURAL SERIES CORRUGATED METAL SIDING (VERTICAL), PROFILE AND MANUF TBD. RE: FLOOR PLAN AND WALL TYPES FOR MORE INFO.
-  METAL SIDING OVER WINDOWS - (2) PREMIUM COLORS OF PANEL, ARCHITECTURAL SERIES CORRUGATED METAL SIDING (VERTICAL), PROFILE AND MANUF TBD. RE: FLOOR PLAN AND WALL TYPES FOR MORE INFO.
-  NUDO FOUNDATION INSULATION PROTECTION LAYER (NOT SHOWN CURRENTLY), COLORED FRP PROTECTION BAND WHERE PERIMETER FOUNDATION INSULATION IS EXPOSED ABOVE GRADE (BELOW SIDING AT BASE OF WALL), THIS WILL BE FURTHER COORDINATED W/ GRADE IN FUTURE DWG ISSUES.
-  CURTAIN WALL - WINDOWS OVER 12' IN HEIGHT, BASIS OF DESIGN 1800UT SYSTEM™1 CURTAIN WALL 10 1/2" SYSTEM
ALTERNATE 1: STACKED STOREFRONTS ILO CURTAIN WALL - EVERY OTHER PEMB WALL GIRT CONTINUES THROUGH THE TALL WINDOWS, DIVIDING THEM INTO 10' TALL SECTIONS. WALL GIRT WRAPPED W/ BLOCKING, INSULATION, AND BREAK METAL TO MATCH WINDOW FRAME. INTENT IS FOR THIS TO STILL APPEAR AS TALL WINDOW WITH 8" - 12" HORIZONTAL MULLIONS AT 10' INTERVALS WHERE GIRTS ARE WRAPPED W/ BREAK METAL.
ALTERNATE 1.1: 1800UT SYSTEM™1 CURTAIN WALL 7.5" SYSTEM WITH ONE MID SPAN ANCHOR PROVIDED BY PEMB OR OTHER
ALTERNATE 1.2: 1800UT SYSTEM™1 CURTAIN WALL 6" SYSTEM WITH TWO MID SPAN ANCHOR PROVIDE BY PEMB OR OTHER
STOREFRONT - WINDOWS LESS THAN 12' IN HEIGHT, BASIS OF DESIGN TRIFAB® 451UT FRAMING SYSTEM 4 1/2" DEEP WITH 2" SIGHTLINE.

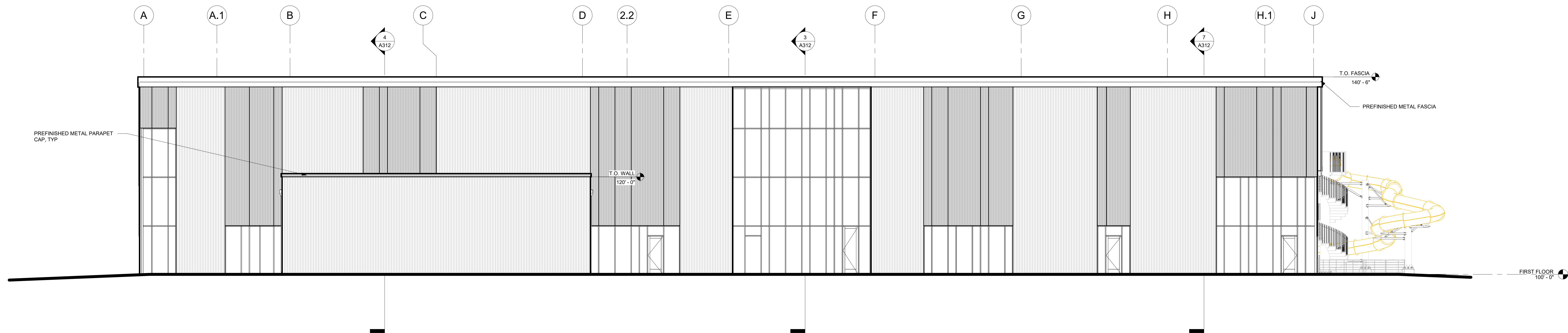
2 EAST ELEVATION

1/8" = 1'-0"
0 4' 8' 16'



1 NORTH ELEVATION

1/8" = 1'-0"
0 4' 8' 16'



EXTERIOR MATERIALS

METAL SIDING - PREMIUM COLOR, NEUTRAL, ARCHITECTURAL SERIES CORRUGATED METAL SIDING (VERTICAL), PROFILE AND MANUF TBD. RE: FLOOR PLAN AND WALL TYPES FOR MORE INFO.

METAL SIDING OVER WINDOWS - (2) PREMIUM COLORS OF PANEL, ARCHITECTURAL SERIES CORRUGATED METAL SIDING (VERTICAL), PROFILE AND MANUF TBD. RE: FLOOR PLAN AND WALL TYPES FOR MORE INFO.

NUDO FOUNDATION INSULATION PROTECTION LAYER (NOT SHOWN CURRENTLY), COLORED FRP PROTECTION BAND WHERE PERIMETER FOUNDATION INSULATION IS EXPOSED ABOVE GRADE (BELOW SIDING AT BASE OF WALL), THIS WILL BE FURTHER COORDINATED W/ GRADE IN FUTURE DWG ISSUES.

CURTAIN WALL - WINDOWS OVER 12' IN HEIGHT, BASIS OF DESIGN 1800UT SYSTEM™1 CURTAIN WALL 10 1/2" SYSTEM

ALTERNATE 1: STACKED STOREFRONTS ILO CURTAIN WALL - EVERY OTHER PEMB WALL GIRT CONTINUES THROUGH THE TALL WINDOWS, DIVIDING THEM INTO 10' TALL SECTIONS. WALL GIRT WRAPPED W/ BLOCKING, INSULATION, AND BREAK METAL TO MATCH WINDOW FRAME. INTENT IS FOR THIS TO STILL APPEAR AS TALL WINDOW WITH 8" - 12" HORIZONTAL MULLIONS AT 10' INTERVALS WHERE GIRTS ARE WRAPPED W/ BREAK METAL.

ALTERNATE 1.1: 1800UT SYSTEM™1 CURTAIN WALL 7.5" SYSTEM WITH ONE MID SPAN ANCHOR PROVIDED BY PEMB OR OTHER

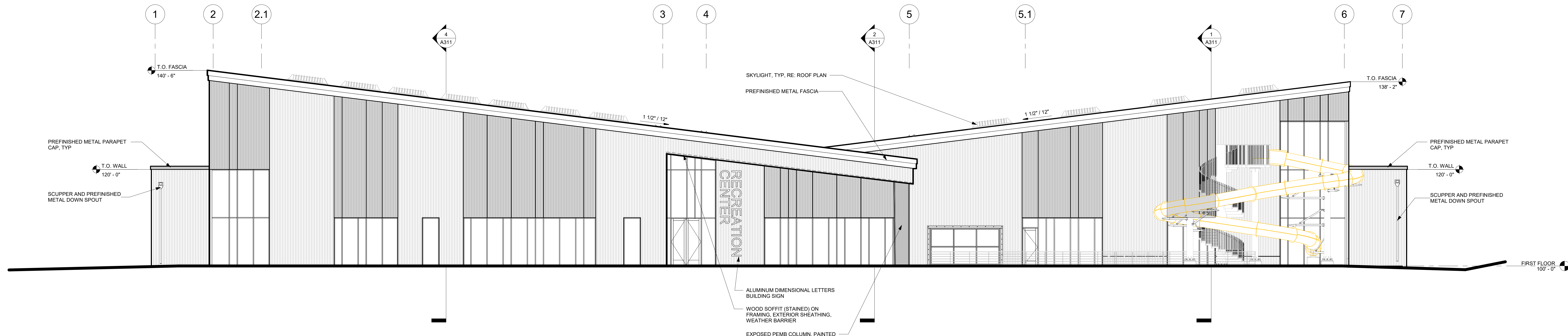
ALTERNATE 1.2: 1800UT SYSTEM™1 CURTAIN WALL 6" SYSTEM WITH TWO MID SPAN ANCHOR PROVIDE BY PEMB OR OTHER

STOREFRONT - WINDOWS LESS THAN 12' IN HEIGHT, BASIS OF DESIGN TRIFAB® 45/UT FRAMING SYSTEM 4 1/2" DEEP WITH 2" SIGHTLINE.

WEST ELEVATION

1/8" = 1'-0"

0 4' 8' 16'



SOUTH ELEVATION

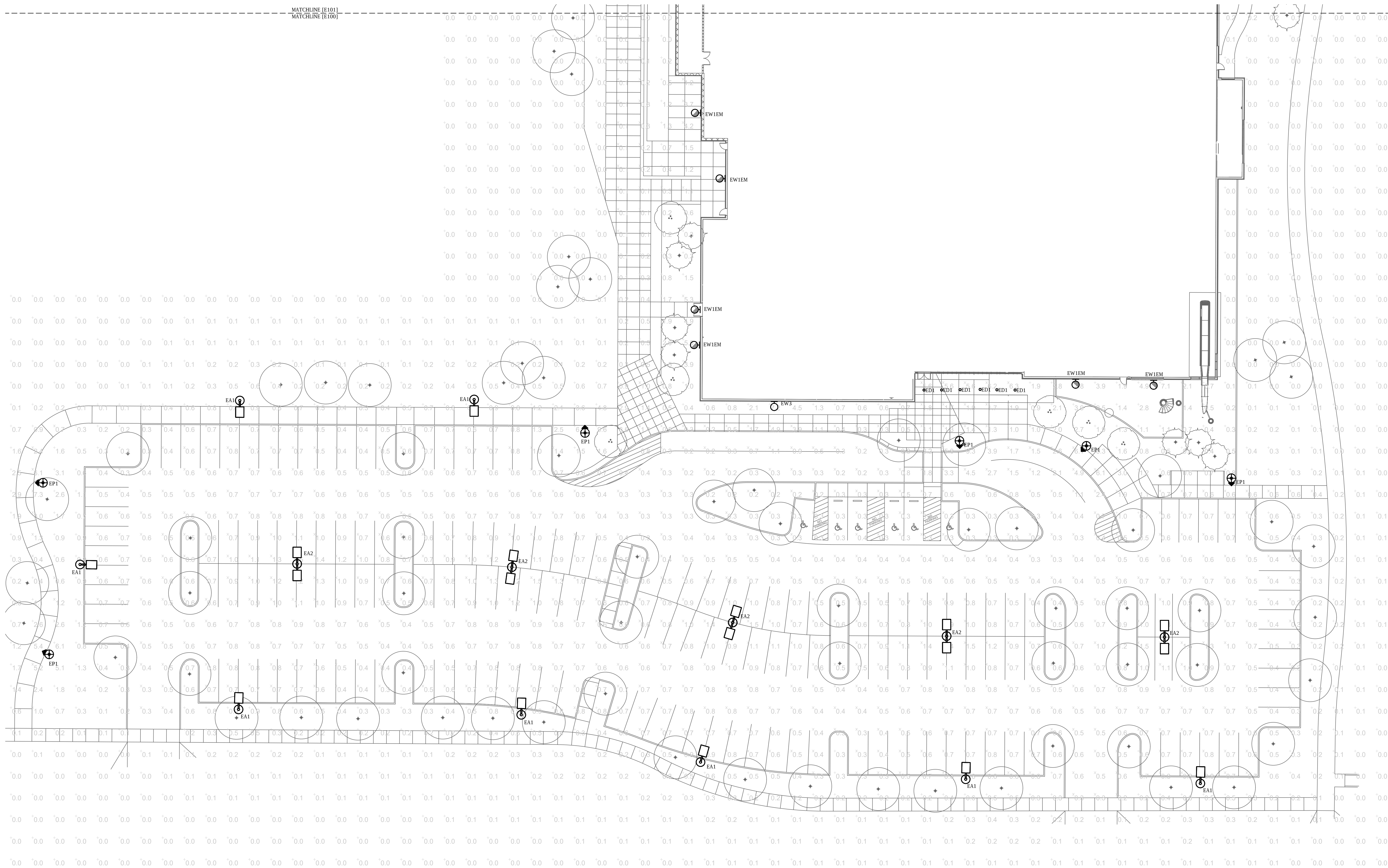
1/8" = 1'-0"

0 4' 8' 16'

GENERAL NOTES	
A.	ALL SITE LIGHTING RELATED TO WORK AND MATERIALS SHALL COMPLY WITH CITY, COUNTY AND OTHER APPLICABLE GOVERNING AUTHORITY REQUIREMENTS.
B.	SITE LIGHTING DESIGN REFERENCES REDMOND OREGON DEVELOPMENT CODE - CHAPTER 4 - DEVELOPMENT REGULATIONS - EXTERIOR LIGHTING 4.1ES HANDBOOK DESIGN CRITERIA.
C.	PER IES HANDBOOK DESIGN CRITERIA THIS IS CONSIDERED A L20 NIGHTTIME OUTDOOR ZONE FOR LOW AMBIENT LIGHTING.
F.	RESIDENTIAL EXTERIOR ENTRIES OF ZONE L20 THE LIGHTING SHALL PROVIDE AT LEAST 0.1 FC AVG LUMINANCE PER THE IES HANDBOOK FOR RESIDENTIAL FACILITIES.
G.	ALL LIGHT FIXTURES SHALL BE ORIENTED SUCH THAT THEIR DISTRIBUTION CENTERLINE IS ORTHOGONAL TO THE TANGENT LINE OF THE CURB/WALL BELOW.
H.	ALL BUILDING-MOUNTED AND POLE-MOUNTED LIGHTING SHALL BE DIRECTED DOWNWARD AND IS FULL CUTOFF. ALL LIGHT SOURCES SHALL BE FULLY SHIELDED SO THE LIGHT SOURCE IS NOT VISIBLE FROM ADJACENT PROPERTIES AND PUBLIC RIGHTS-OF-WAY, AND TO PREVENT GLARE.
I.	REFER TO LIGHTING FIXTURE SCHEDULE FOR ADDITIONAL LIGHTING FIXTURE HANGING HEIGHTS AND OVERALL FIXTURE HEIGHTS.

LIGHTING FIXTURES	
A	LUMINAIRE TYPE, REFERENCING LUMINAIRE SCHEDULE, TYPICAL ALL FIXTURES.
○	HALL MOUNTED LUMINAIRE
○	DOWNLIGHT LUMINAIRE
⊕	HATCH INDICATES EMERGENCY LUMINAIRE
⊕	PEDESTRIAN POLE OR POST TOP

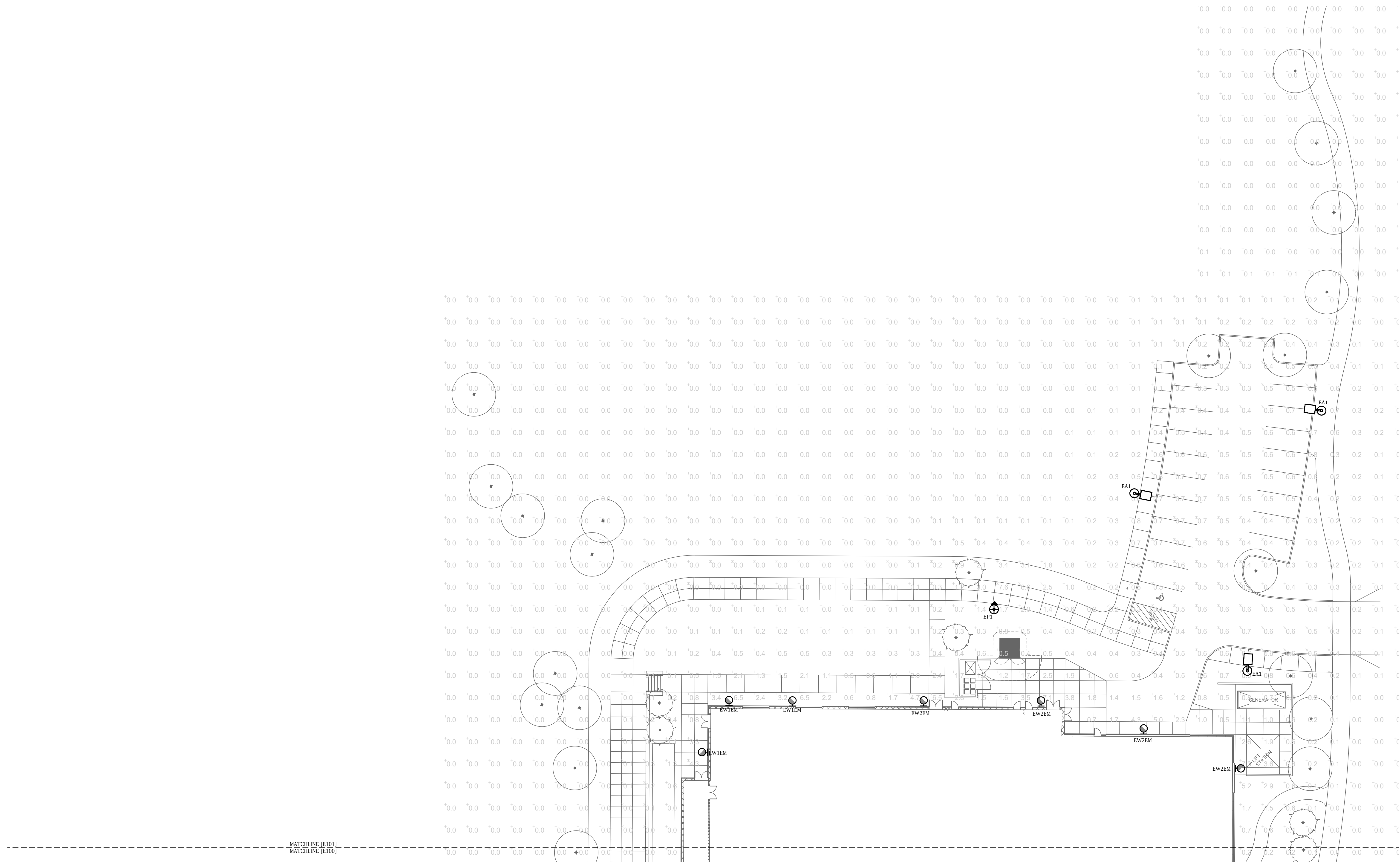
Statistics						
Description	Symbol	Avg	Min	Max	MaxMin	AvgMin
EXPRESS PATH NORTH	⊕	1.8%	7.8%	22.8%	35.0%	8.0%
EXPRESS PATH SOUTH	⊕	2.5%	7.8%	22.8%	35.0%	8.0%
PARKING NORTH	⊕	2.5%	6.7%	22.8%	35.0%	8.0%
PARKING SOUTH	⊕	2.7%	4.9%	22.8%	34.6%	7.5%
PROPERTY LINE	+	5.1%	5.5%	5.5%	N/A	N/A
SIDEWALKS	⊕	2.8%	7.6%	22.8%	N/A	N/A
WALKWAY/ENTRANCE SOUTH	⊕	1.6%	6.1%	22.8%	35.0%	8.0%



GENERAL NOTES	
A.	ALL SITE LIGHTING RELATED TO WORK AND MATERIALS SHALL COMPLY WITH CITY, COUNTY AND OTHER APPLICABLE GOVERNING AUTHORITY REQUIREMENTS.
B.	SITE LIGHTING DESIGN REFERENCES REDMOND OREGON DEVELOPMENT CODE - CHAPTER 4 - DEVELOPMENT REGULATIONS - EXTERIOR LIGHTING & IES HANDBOOK DESIGN CRITERIA.
C.	PER IES HANDBOOK DESIGN CRITERIA THIS IS CONSIDERED A L20 NIGHTTIME OUTDOOR ZONE FOR LOW AMBIENT LIGHTING.
F.	RESIDENTIAL EXTERIOR ENTRIES OF ZONE L20 THE LIGHTING SHALL PROVIDE AT LEAST 0.1 FC AVG LUMINANCE PER THE IES HANDBOOK FOR RESIDENTIAL FACILITIES.
G.	ALL LIGHT FIXTURES SHALL BE ORIENTED SUCH THAT THEIR DISTRIBUTION CENTERLINE IS ORTHOGONAL TO THE TANGENT LINE OF THE CURB/WALL BELOW.
H.	ALL BUILDING-MOUNTED AND POLE-MOUNTED LIGHTING SHALL BE DIRECTED DOWNWARD AND IS FULL CUTOFF. ALL LIGHT SOURCES SHALL BE FULLY SHIELDED SO THE LIGHT SOURCE IS NOT VISIBLE FROM ADJACENT PROPERTIES AND PUBLIC RIGHTS-OF-WAY, AND TO PREVENT GLARE.
I.	REFER TO LIGHTING FIXTURE SCHEDULE FOR ADDITIONAL LIGHTING FIXTURE MOUNTING HEIGHTS AND OVERALL FIXTURE HEIGHTS.

LIGHTING FIXTURES	
A	LUMINAIRE TYPE, REFERENCING LUMINAIRE SCHEDULE, TYPICAL ALL FIXTURES.
○	WALL-MOUNTED LUMINAIRE
●	DOWNLIGHT LUMINAIRE
⊕	HATCH INDICATES EMERGENCY LUMINAIRE
⊕	PEDESTRIAN POLE OR POST TOP

Statistics					
Description	Symbol	Avg	Max	Min	Max/Min
EXPRESS PATH NORTH	✕	1.6%	7.6%	0.2%	36.5:1
EXPRESS PATH SOUTH	✕	2.2%	7.3%	0.2%	36.5:1
PARKING NORTH	✕	0.4%	0.7%	0.2%	3.5:1
PARKING SOUTH	✕	0.7%	0.4%	0.2%	3.5:1
PROPERTY LINE	+	0.1%	0.5%	0.0%	N/A
SIGNALS	✕	0.6%	7.6%	0.0%	N/A
WALKWAYS/ENTRANCE SOUTH	✕	1.6%	6.1%	0.2%	30.5:1



1 SITE PHOTOMETRIC
E101 SCALE: 1" = 20'-0"

Project Number:	2023.019
Issue:	LAND USE
Date:	2023.12.15
Drawn By:	CK VI
Checked By:	MS
Revisions:	
Rev	Date

[illegible]

5	EW2
E102	SCALE: NONE

2	EA1, EA2
E102	SCALE: NONE

3	E102
E101	SCALE: NONE

4	EW1,EW3
E102	SCALE: NONE

5	EW2
E102	SCALE: NONE



REDMOND AREA PARK AND RECREATION DISTRICT

REDMOND REGIONAL RECREATION CENTER

**Comprehensive Plan Map and Zoning Map Amendment and
Site and Design Review Application**

December 20, 2023

INDEX

WRITTEN STATEMENT

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3.0 Submittal Requirments 9

4.0 Approval Criteria and Standards 13

EXHIBITS

Plan SetA

Existing and Proposed ZoningB

Traffic Impact AnalysisC

Fire Flow AnalysisD

Infrastructure Allocation ApplicationE

Title ReportF

Neighborhood Meeting DocumentationG

1.0 PROJECT INFORMATION

Applicant’s Request: Approval of Comprehensive Plan Map and Zoning Map Amendment and Site and Design Review applications for the development of a new Regional Recreation Center accommodating a wide variety of recreational, fitness, and therapeutic activities and amenities for multiple cross-generational activities.

Property Owners: Redmond Area Park and Recreation District
PO Box 843
Redmond, OR 97756
541.548.7275

Applicant: Redmond Area Park and Recreation District
PO Box 843
Redmond, OR 97756
541.548.7275

Applicant’s Representative: Colin McArthur, AICP
Principal Planner
Cameron McCarthy
160 E Broadway
Eugene, Oregon 97401
541.485.7385
cmcarthur@cameronmccarthy.com

Project Name: Redmond Regional Recreation Center

Subject Property: Map 15231800
Tax Lot 03100

Location: 1001 SW 35TH

Property Size: 10.50 acres

Development Area: 248,400 square feet

Plan Designation: R5 – High Density Residential

Zoning Designation: UH-10 – Urban Holding

Partition: Partition Plat (PP) No. 1996-4

Application Types: Comprehensive Plan Map and Zoning Map Amendment

**Redmond Area Park and Recreation District
Redmond Regional Recreation Center
Comprehensive Plan Map and Zoning Map Amendment and
Site and Design Review Application**

December 20, 2023

Site and Design Review

Pre-Development Meeting: 711-23-000155-PLNG
December 5, 2023

Neighborhood Meeting: December 7, 2023 (Exhibit G)

2.0 PROPOSAL

2.1 Overview

Redmond Area Park and Recreation District (“RAPRD”, “District”) requests Comprehensive Plan Map and Zoning Map Amendment and Site and Design review application approval for the development of a new Regional Recreation Center. The subject site is identified on Map No. 15231800 as Tax Lot No. 03100 and is 10.50 acres in size. The subject property is designated R5 – High Density Residential by the 2040 *Greater Redmond Area Comprehensive Plan* and UH-10 Urban Holding by the *Redmond Development Code*. The subject property is located at 1001 SW 35th Street and is vacant and undeveloped.

The attached plans (Exhibit A) and other exhibits demonstrate that the applicant requests approval to construct a new Redmond Regional Recreation Center, accommodating various recreational, fitness, and therapeutic activities and amenities for multiple cross-generational activities. The proposal involves a concurrent request for Annexation approval.

On December 5, 2023, the Redmond City Council approved a draft Annexation Agreement that includes a provision initiating a resolution annexing the subject property into the City once the City has received all required consents and a signed Annexation Agreement, proposed comprehensive plan zone amendments have been achieved, and all other City requirements have been met. The Annexation Agreement was signed by the City of Redmond and the applicant on December 14, 2023.¹ The consents and signed Annexation Agreement are included with the Annexation application. This proposal represents the request for Comprehensive Plan Amendment and Zoning Map Amendment approval and other requirements (Site and Design Review).

2.2 Project Description

RAPRD is a special district with a service area population of approximately 45,000 residents. The District currently operates the Cascade Swim Center, a six-lane lap pool that was built in 1979. In spring 2022, the District completed a feasibility study that examined better ways to serve the community and its future growth by constructing a new Recreation and Aquatics Center. In November 2022, the District sponsored a ballot initiative that was approved by votes to provide \$49 million in funding for a new Recreation Center.

The proposed Redmond Regional Recreation Center (RRRC) builds on the programs, spaces, and amenities established by the public during the feasibility study. The overall facility and site design is focused on capturing the spirit of Redmond, using local architectural materials and forms as interpreted to reflect the modern Central Oregon experience. The site design includes amenities that are needed in the area, including a multipurpose field,

¹ Annexation Agreement. Redmond Area Park and Recreation District (RAPRD). 1001 SW 35th St., Taxlot 1513180003100. December 14, 2023.

playground, splash ground, pickleball courts, and spaces for the community to gather and celebrate the breathtaking views and unique outdoor experiences that make Redmond such a special place.

The proposed RRSC building capitalizes on these views while providing a new public gathering place that offers the surrounding community a place to build physical, emotional, and social wellness. The facility includes a gym, an 8-lane competition pool, a leisure pool, fitness classrooms, a fitness space, and a community wing. The community wing includes multipurpose classrooms, party rooms, and a teaching kitchen to foster a culture of growth and learning. The building also includes a variety of lounge spaces that are intended to act as community living rooms where users are encouraged to gather, study, socialize, and work.

Existing Conditions

The subject site is at the intersection of SW 35th Street and Northwest Lava Avenue. A stand of native Juniper Trees, Fescue grasses, Sagebrush, and Rabbit Brush with outcroppings of native basalt boulders characterizes the site. The site provides intermittent views of the Three Sisters Wilderness area towards the south and east. The highest point of the site is in the northeast corner, with the lowest point to the west, approximately at the midpoint of the property line, a total of 13 feet lower. Near the midpoint, on the east side of the site, is a topographic knoll, approximately 4 feet higher than the surrounding terrain. There is roughly 12 feet of topographic change from the northeast corner of the site along SW 35th Street to the west. Soil conditions consist of a shallow layer of silty sands (typically 0-36" thick) underlain by basalt bedrock. The Bonneville Power Administration (BPA) owns and maintains multiple power lines within a utility easement in the northwest corner of the site. The utility easement restricts any significant development in this portion of the site.

Phasing

The project is planned to be constructed in two phases, Phase One and a future phase, as shown on Sheet L101 (Exhibit A). Phase One includes:

- RRSC building (55,509 square feet)
- SW 35th Street frontage improvements and access connection
- SW Lava Avenue frontage improvements and access connections
- South parking lot (181 parking spaces)
- North parking lot (20 parking)
- Bicycle parking (14 parking spaces)
- Outdoor courtyard and fitness area
- Service and loading area
- Bus drop-off area
- Passenger drop-off area
- Landscape screening,
- Screen and sound wall
- Shared-use Path along SW 35th Street

- Sun deck and ornamental fencing
- Flagpoles

The Future Phase includes:

- Multisport field
- North parking lot expansion
- Basketball court
- Pickleball courts
- Children's playground
- Nature play area
- Water play area
- Picnic shelter
- Walking path

The proposed RRSC building is located on the east side of the property, approximately four feet below SW 35th Street to the west. The primary parking area is located south of the building, between the building and SW Lava Avenue, and contains a formal drop-off area suitable for emergency vehicle staging. An additional parking area serving the building and additional outdoor elements is located north of the building, with access from SW 35th Avenue. A multisport field is planned on the west side of the site, approximately six feet below the building's finish floor elevation.

Access

The site is bounded on two sides by public streets. SW 35th Street, on the east side, is classified as a major collector. SW Lava Avenue, on the south, is classified as a local street.² Two primary access points from SW Lava Avenue are proposed. An additional access point is proposed from SW 35th street for service vehicles and a secondary parking lot. The SW 35th Street right-of-way is currently 60 feet in width. RDC 8.2710 Table 1 specifies a right-of-way width of 80 feet for major collector streets.

The project involves the dedication of 10 feet of additional right-of-way to accommodate the planned width on the east side of SW 35th Street. Access improvements along SW 35th Street include a 6-foot wide shared-use path. Access improvements along SW Lava Avenue include a 5-foot wide sidewalk.

Infrastructure

There is an existing 12-inch water main line within SW 35th Street and an 8-inch water main line within SW Lava Avenue. Service lines will provide domestic and fire service to the

² City of Redmond Transportation System Plan. December 2020.

building tapped into the 12-inch main line within SW 35th Street. Planned water service sizes to the RRRC building are 6-inch lines for fire and 3-inch lines for domestic.

There is an existing 15-inch wastewater main line within SW 35th Street and an 8-inch sewer main line within SW Lava Avenue. A service line will provide wastewater service to the building tapped into the 15-inch main line within SW 35th Street. Planned wastewater service will be provided by a 6-inch line and a sampling manhole at the property line per city standards.

The City of Redmond is currently performing an evaluation of the existing 15-inch wastewater main line to confirm if it has available capacity for the proposed RRRC development. If the wastewater system does not have capacity, the project will be required to construct a private, on-site sewage lift station and approximately 600 feet of off-site force main line within SW 35th Street from the northeast corner of the site to an existing 24-inch gravity wastewater interceptor line.

Electric, natural gas, phone, and cable utilities exist within the SW 35th Street and SW Lava Avenue rights-of-way. Services to the RRRC building are proposed from the existing lines along the east side of SW 35th Street to the northeast corner where the electrical and mechanical rooms will be located. The utility providers are as follows:

- Electric: Pacific Power
- Natural Gas: Cascade Natural Gas
- Telephone: Lumen
- Cable TV: Bend Broadband

The City of Redmond has no municipal stormwater system, and all properties must contain and dispose of stormwater on site. City standards require storm drain systems to be designed to handle the 50-year/24-hour storm event (2.0 inches) and that the 100-year/24-hour storm event (2.2 inches) be contained on site. This will be accomplished with a proposed system of underground dry wells throughout the site to infiltrate all stormwater into the ground for groundwater recharge. The dry wells will be reviewed and authorized by the Oregon Department of Environmental Quality (DEQ).

Site Design

The site design features a courtyard and promenade on the west side of the building. The courtyard will include a mix of open paving, bench seating elements, plant beds with native vegetation, landscape boulders, and a formal lawn area. The western promenade, located west of the gymnasium and courtyard, connects to future outdoor spaces and serves as an aerial emergency access zone for the gymnasium. Shade trees in vegetated tree wells or decomposed granite will be planted within the promenade. The promenade will overlook the lower soccer field and have direct access to that field.

A collection of outdoor spaces that facilitate basketball, pickleball, and children's play are included in the master plan as part of a future construction phase. Four pickleball courts are

located adjacent to the BPA utility easement, to the east of these courts is nature play equipment on soft-fall surfacing. A full-sized basketball court with a lawn viewing leisure area is located north of the gymnasium. A children's water feature, serviced by the building's pool mechanical room, is between the basketball court and structured nature play area.

Pedestrian connections through and around the site are provided by the western promenade, a shared-use path along SW 35th Street, a separated sidewalk along SW Lava Avenue, a perimeter sidewalk surrounding the south parking lot, and expanded paving and raised crosswalks near the facility entry. The southeast portion of the south parking lot, adjacent to the intersection of SW 35th Street and SW Lava Avenue, is designed to function as a market and gathering space.

Building Design

The RRSC building design emphasizes its public nature and strong connection to the surrounding landscape, capitalizing on its view of the Cascade Mountain Range and the Three Sisters. This design is further reinforced in the interior environment's layout and design to create a unified facility between its exterior expression and internal character. In addition to considering the internal organization of the program spaces, the proposed architecture is also purposeful in how the spaces connect to the exterior and the site around the building. The facility is designed with strategically located canopies, areas of glass, and outdoor gathering spaces that capture visual interest and not only draw patrons to the facility but also create an indoor/outdoor relationship that expands the facility's offerings and heightens the user's experience.

2.6 Approval

As previously noted, the Redmond City Council approved a draft Annexation Agreement that includes a provision initiating a resolution annexing the subject property into the City. The signed Annexation Agreement is included with the Annexation application and filed separately. The proposal involves a Comprehensive Plan Map and Zoning Map Amendment to change the zoning designation from R5 High Density Residential to PF Public Facility. Recreation and Sports Facilities are permitted outright in the PF zone under RDC 8.0220 Table E. The proposed project also requires Site and Design Review approval, pursuant to RDC 9.3005, because the development includes a structure not otherwise exempted in RDC 8.3010.

Master Development Plan approval is required as a condition of annexation, or before or concurrent with rezoning from UH-10 to City zoning districts, unless excepted in RDC 8.0130.2. Comprehensive Plan Map and Zoning Map Amendments may be initiated by a property owner and are reviewed in accordance with RDC 8.0765 and RDC 8.0770. Site and Design Review applications are reviewed as an administrative land use decision consistent with RDC 8.1310 and the requirements in RDC 8.3025. The applications are subject to the following approval criteria:

- Exemption to Master Development Plans criteria in RDC 8.0130.2.

- Comprehensive Plan Map and Zoning Map Amendment approval criteria in RDC 8.0760.
- Site and Design Review approval criteria in RDC 8.3035.
- Great Neighborhood Principles in RDC 8.0270.

Findings of compliance with applicable goals, rules, policies, criteria, and standards are provided in Section 4.

3.0 SUBMITTAL REQUIREMENTS

This section includes the submittal requirements, in **bold** text, listed on the Comprehensive Plan Map and Zoning Map Amendment and Site and Design Review application forms and responses in plain text.

3.1 Comprehensive Plan Map and Zoning Map Amendment

1. **Electronic Copy of all application materials (PDF or JPEG) listed below submitted via jump drive/CD or emailed to planredmond@redmondoregon.gov**

The application materials are submitted via email.

2. **Application. The application must be signed by the owner(s) and shall include the information requested on this form. If the owner does not sign the application, then a letter of authorization must be signed by the owner for the agent.**

The application form is signed by the owner, RAPRD.

3. **Payment of Fees (please see application). Note: the hearing fee is separate.**

Review fees are paid by the owner, RAPRD.

4. **Deposit for a Hearing. If a hearing is required by the City.**

The hearing deposit is paid by the owner, RAPRD.

5. **Title Report or Subdivision Guarantee, including legal description of property.**

A title report for the subject property is included as Exhibit F.

6. **Written Statement explaining evidence that will be presented to the Planning Commission to enable them to make a decision (see boxes below). Provide proposed amended text if submitting for a text amendment.**

This document constitutes the written statement. The proposal does not involve a text amendment.

7. **Narrative Statement or Burden of Proof: RDC 8.1010 application requirements for development actions or land use actions shall: D. Be filed with a narrative statement or Burden of Proof, that explains how the application satisfies each and all of the relevant criteria and standards in the Redmond Development**

Code in sufficient detail for review and decision-making. Samples are available upon request.

This document constitutes the narrative statement and burden of proof.

- 8. Vicinity Map displaying two streets and a north arrow; a tax lot map is acceptable.**

See Sheet No. G0000 Cover Sheet (Exhibit A).

3.2 Site and Design Review

- 1. Electronic Copy of all application materials (PDF or JPEG) listed below submitted via jump drive/CD or emailed to planredmond@redmondoregon.gov**

The application materials are submitted via email.

- 2. Pre-Development Meeting. RDC 8.3015 requires a Pre-Development Application prior to submittal of this application.**

The Pre-Development meeting was held on December 5, 2023 (711-23-000155-PLNG).

- 3. Application. The application must be signed by the owner(s) and shall include the information requested on this form. If the owner does not sign the application, then a letter of authorization must be signed by the owner for the agent.**

The application form is signed by the owner, RAPRD.

- 4. Payment of Fees (please see application). Note: the hearing fee is separate.**

Review fees are paid by the owner, RAPRD.

- 5. Deposit for a Hearing. If a hearing is required by the City.**

The hearing deposit is paid by the owner, RAPRD.

- 6. Title Report or Subdivision Guarantee, including legal description of property.**

A title report for the subject property is included as Exhibit F.

- 7. Narrative Statement or Burden of Proof: RDC 8.1010 application requirements for development actions or land use actions shall: D. Be filed with a narrative statement or Burden of Proof, that explains how the application satisfies each**

and all of the relevant criteria and standards in the Redmond Development Code in sufficient detail for review and decision-making. Samples are available upon request.

This document constitutes the narrative statement and burden of proof.

- 8. Neighborhood Meeting. The applicant may be required to conduct a neighborhood meeting prior to submittal of this application. Requirements and procedures for neighborhood meetings are outlined in RDC 8.0385.**

The Neighborhood Meeting was held on December 7, 2023, with documentation included as Exhibit G.

- 9. Transportation System Analysis. RDC 8.1010(1)(C) requires this application be filed with a Trip Generation Report or Transportation Impact Analysis, approved by City Engineering, when required per RDC 8.2815.**

The transportation system analysis is included as Exhibit C.

- 10. Vicinity Map displaying two streets and a north arrow; a tax lot map is acceptable.**

See Sheet No. G0000 Cover Sheet (Exhibit A).

- 11. ODOT General Correspondence for all projects on Hwy 97 and Hwy 126.**

The proposal does not involve ODOT facilities.

- 12. Supplemental information: All agreements with local governments that affect the land and proposed use of property.**

The proposal does not involve any other agreements with local governments.

- 13. Fire Flow Analysis**

The Fire Flow Analysis is included as Exhibit D.

- 14. Neighborhood Compatibility Statement: RDC 8.3035(3) requirements for design review criteria (second and fourth bullets do not apply to needed housing, ORS 197.307):**

Findings of compliance with RDC 8.0270 are provided in Section 4.

- 15. Site and Landscape Plans: One (1) full size plan. Standard engineering scales shall be used. See following Site Plan and Landscape Elements.**

See Sheet No. L500 Landscape Plan (Exhibit A).

- 16. Preliminary Grading and Storm Draining Plan: One (1) full size plan. Standard engineering scales shall be used.**

See Sheet No. C301 Grading and Storm Drainage (Exhibit A).

- 17. Building Elevations: One (1) full size plan. Standard engineering scales shall be used.**

- a. Drawing or sketches of all four views of each new structure.**

See Sheet No. A301 and A302 Overall Building Elevations (Exhibit A).

- b. Building materials, colors (fascia, doors, trim, etc.), pitch of roof, shape and other design features of the building(s).**

See Sheet No. A301 and A302 Overall Building Elevations (Exhibit A).

- c. All exterior mechanical devices.**

See Sheet No. A130 Overall Roof Plan (Exhibit A).

- 18. Floor Plans: One (1) full size plan. Standard engineering scales shall be used. Include the class of construction. See the following required components.**

- a. All significant rooms within each structure, label or number rooms, including square footage for each room.**

See Sheet No. A110, A111, A112, and A113 First Floor Plans (Exhibit A).

- b. Electrical/mechanical equipment areas.**

See Sheet No. A110, A111, A112, and A113 First Floor Plans (Exhibit A).

- 19. Lighting Plans: One (1) full size plan. Standard engineering scales shall be used. Include the class of construction.**

- a. All exterior light locations.**

See Sheet No. E100 and E101 (Exhibit A).

- b. Brochure, illustration, cut sheet or photo for each light fixture type to be used.**

See Sheet No. E102 (Exhibit A).

4.0 APPROVAL CRITERIA AND STANDARDS

RDC 8.0130.2. establishes the approval criteria for exceptions to Master Development Plan approval, RDC 8.0760 establishes the approval criteria and standards for Comprehensive Plan Map and Zoning Map Amendment approval, RDC 8.3035 establishes the approval criteria and standards for Site and Design Review approval, and RDC 8.0270 establishes the approval criteria and standards for Great Neighborhood Principles. Findings of compliance with applicable goals, rules, policies, criteria, and standards are provided in plain text with criteria in **bold** indented text.

4.1 Exception to Master Development Plan Requirement

8.0130 Urban Holding UH-10 Zone

2. **Exception to Master Development Plans Requirement. Approval of a development plan may be granted without going through a Master Development Plan process according to the following requirements:**

Non-Residential Properties.

- A. **The development plan is 12 acres or less in size; and,**

The subject property is 10.50 acres in size. This requirement is satisfied.

- B. **The development plan addresses the applicable Great Neighborhood Principles; and, the development plan includes an appropriate local grid street plan, that complies with street spacing and connectivity requirements in the Redmond TSP and showing street connectivity and bike/pedestrian system connectivity to adjacent planned and unplanned residential areas; and,**

Section 4.4. of the proposal addresses applicable Great Neighborhood Principles, with findings incorporated by reference herein. This requirement is satisfied.

- C. **The development plan meets applicable requirements for land near the urban edge; and,**

Although not defined in the *Redmond 2040 Comprehensive Plan* or the *Redmond Development Code*, the urban-rural interface is generally considered the edge between the city limits boundary and rural lands inside the UGB or the edge of the UGB and rural lands in Deschutes County jurisdiction. Upon annexation, the subject property is adjacent to land outside city limits and within the UGB on the north and west sides, designated for Low

Density Residential uses. The proposal does not involve residential development. The proposed RRSC building is located on the east side of the property. Areas between the building and adjacent lands outside the UGB are planned as park or open space uses. There are no other known applicable requirements for land near the urban edge. Therefore, this requirement is satisfied.

- D. The development approval is obtained through a PUD process except when the property is to be used for a public use, such as for a park or school or some other public facility; and,**

The property is to be used for a public use, a recreation and sports facility. This requirement is satisfied.

- E. Annexation to the City of Redmond is proposed as part of the development plan; and,**

As previously noted, the Redmond City Council approved a draft Annexation Agreement that includes a provision initiating a resolution annexing the subject property into the City. The signed Annexation Agreement is included with the Annexation application and filed separately. Therefore, this requirement is satisfied.

- F. The development plan addresses all other applicable requirements of the Redmond Comprehensive Plan and Development Code; and,**

Findings of consistency with the Redmond Comprehensive Plan are included in Section 4.2. below and incorporated by reference herein. The proposal is subject to Site and Design review approval, which ensures compliance with the Redmond Development Code. Findings of consistency with the Redmond Development Code are included in Section 4.3. below and incorporated by reference hearing. Therefore, this requirement is satisfied.

- G. The development plan conforms to the density and design guidelines established for the area in the Redmond Urban Framework Plan and/or an adopted Area Plan.**

Redmond Framework Plan

In 2006, the City expanded the Urban Growth Boundary (UGB) by 2,299 gross acres to address housing and associated land use needs, including parks, public facilities, and neighborhood commercial services.³ The subject property was included in the UGB

³ Resolution No. 2006-24. City of Redmond and Deschutes County Findings Document for Amendments to the Redmond Urban Growth Boundary (UGB Amendments). August 8, 2006.

expansion area and zone UH-10 Urban Holding following amendments to the Deschutes County Code. The subject property is designated Mixed Use Employment by the City of Redmond Framework Plan. The UGB Amendments discuss the purpose of Mixed Use Employment Centers:⁴

*“ * * * will provide land for types of commercial uses not sufficiently provided for inside the existing UGB * * *, will serve residential development in the UGB expansion area, and will disperse employment from being concentrated primarily along Highway 97 and in industrial areas east of the highway. * * * ”*

*“ * * * Mixed Use Employment Centers proposed in the plan will provide for a mix of land uses, a choice of housing, and access to local jobs and services. Land in the proposed UGB expansion area is also set aside for public facilities (e.g. schools), parks, and open space.”⁵*

The subject property was purchased by the applicant in 2009 as a potential future site for a recreation center. In spring 2022, the District completed a feasibility study that examined better ways to serve the community and its future growth by constructing a new Recreation and Aquatics Center. In November 2022, the District sponsored a ballot initiative that was approved by votes to provide \$49 million in funding for a new Recreation Center.

RAPRD is a special district with a service area population of approximately 45,000 residents, which will be served by the proposed RRSC in addition to serving visitors. The proposed recreation center will employ several full-time and part-time staff in specialties such as fitness and aquatics. The proposed recreation center will provide key services to the Redmond community, including health, wellness, and education. The above findings note that land in UGB expansion areas is set aside for public services, and the proposed recreation center is a public facility. The subject property is not within the boundaries of an adopted Area Plan. Based on the preceding findings, the proposal is consistent with this requirement.

This criterion is satisfied.

4.1 Comprehensive Plan Map Zoning Map Amendment

8.0760 Criteria for Amendments. The burden of proof is upon the applicant. The applicant shall show the proposed change is:

⁴ Resolution No. 2006-24. City of Redmond and Deschutes County Findings Document for Amendments to the Redmond Urban Growth Boundary. August 8, 2006. p. 45.

⁵ Resolution No. 2006-24. City of Redmond and Deschutes County Findings Document for Amendments to the Redmond Urban Growth Boundary. August 8, 2006. p. 49.

1. In conformity with all applicable State statutes;

ORS 227.188 Amendments to a city comprehensive plan map is applicable to the request. The City of Redmond has authorized the Planning Commission to conduct a hearing and make final decisions on applications for amendments to the City comprehensive plan map. The planning process will involve a public hearing with the Planning Commission. Therefore, this statute is satisfied. Other applicable State statutes are addressed in the findings under subsection 2. Below and are incorporated by reference herein.

2. In conformity with the State-wide planning goals whenever they are determined to be applicable;

Statewide planning goals are written in **bold**, and relevant approval criteria are summarized in *italics*, followed by proposed findings of fact in standard text.

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.

Goal 1 addresses the need to develop a citizen involvement program to ensure citizen involvement in all phases of the land use planning process. The City has acknowledged provisions for citizen involvement that ensure the opportunity for citizens to be involved in all phases of the planning process and that set out requirements for such involvement in compliance with Goal 1 (see OAR 660-015). The proposal does not amend the City's citizen involvement program, and the process for reviewing the proposal complies with Goal 1 since it complies with and surpasses the requirements of the citizen involvement provisions.

While not required for a demonstration of compliance under Goal 1, the planning process for the proposed RRSC has included many community meetings and other public meetings and community events preceding the formal adoption process. The process leading up to the proposed amendments has employed significant public involvement opportunities.

In spring 2022, the District completed a feasibility study that examined better ways to serve the community and its future growth by constructing a new Recreation and Aquatics Center.⁶ The feasibility study process included three community workshop events:

- January 2022 Workshop #1: Overview of what a modern recreation center can be and potential program amenities.

⁶ RAPRD. Redmond Recreation Center Feasibility Report. May 2022.

- March 2022 Workshop #2: Overview of plan options that included the programs selected at the previous meeting.
- April 2022 Workshop #3: The design team presented final conceptual building plans and building character imagery.

In November 2022, the District sponsored a ballot initiative approved by votes to provide \$49 million in funding for a new Recreation Center. In 2023, the District began a process led by BRS Architecture to design the new recreation center. The process included several community meetings and meetings with the District's design committee to refine the building and site design.

On December 7, 2023, the District and consultants held a neighborhood meeting, with documentation included as Exhibit G.

The Redmond Planning Commission will meet jointly and will accept testimony on the proposal at a public Hearing. Through the procedures established by the city, citizens receive notice of hearings in a generally published local paper and have the opportunity to be heard regarding the proposed amendments. Notice of the public hearing is provided in accordance with RDC requirements. Since the proposal complies with the City's citizen involvement program and citizens have opportunities to be involved in the procedure, the proposal is consistent with Goal 1.

Goal 2: Land Use Planning

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.

Goal 2 requires each local government in Oregon to have and follow a comprehensive land use plan and implementing regulations. Cities and counties must build their comprehensive plans on a factual basis and follow their plan when making decisions on appropriate zoning. City and county plans must also be consistent with one another.

The City's land use code (Chapter 8 Development Regulations) specifies the procedure and criteria to be used in considering this proposal, consistent with the City's acknowledged comprehensive plan. This land use application follows specified amendment and permit procedures and fulfills all applicable approval criteria to demonstrate such compliance. As relevant here, the process for adoption of these amendments also complies with the state's administrative rules under Goal 2, for Post Acknowledgement Plan Amendments (see OAR 660-018). There are no exceptions to Statewide Planning Goal 2 required, and the record shows that there is an adequate factual basis for these amendments, including an extensive record of public participation to date.

The Goal 2 coordination requirement is met when the City engages in an exchange, or invites such an exchange, between the City and any affected governmental unit and when

the City uses the information obtained in the exchange to balance the needs of residents. To comply with the Goal 2 coordination requirement, the City will engage in an exchange about the subject of these plan amendments with all the affected governmental units. Specifically, the City will provide notice of the proposed action and opportunity to comment to Deschutes County and the Oregon Department of Land Conservation and Development. The proposed amendments are therefore consistent with Statewide Planning Goal 2.

Goal 3: Agricultural Lands

To preserve and maintain agricultural lands.

Pursuant to OAR 660-015-0000(3) agricultural lands do not include lands located within acknowledged urban growth boundaries (UGB). The entirety of the subject site is located within Redmond's UGB. This Goal is not applicable to the proposal as the subject area and actions do not affect any agricultural plan designation or use. Therefore, this Goal is not relevant, and the proposed amendments do not affect compliance with Statewide Planning Goal 3.

Goal 4: Forest Lands

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.

Pursuant to OAR 660-006-0020, Statewide Planning Goal 4 is not applicable within UGBs. The entirety of the subject site is located within Redmond's UGB. This Goal is not applicable to the proposal as the subject area and actions do not affect any forest plan designations or use. There are no forest lands related to the proposed amendments and zone change. Therefore, this Goal is not relevant, and the proposed amendments do not affect compliance with Statewide Planning Goal 4.

Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources

To conserve open space and protect natural and scenic resources.

The following Oregon Administrative Rule (OAR 660-023-0250) applies to this Comprehensive Plan Map amendment request:

OAR 660-023-0250

- (3) *Local governments are not required to apply Goal 5 in consideration of a PAPA unless the PAPA affects a Goal 5 resource. For purposes of this section, a PAPA would affect a Goal 5 resource only if:*
- (a) *The PAPA creates or amends a resource list or a portion of an acknowledged plan or land use regulation adopted in order to protect a significant Goal 5 resource or to address specific requirements of Goal 5;*
 - (b) *The PAPA allows new uses that could be conflicting uses with a particular significant Goal 5 resource site on an acknowledged resource list; or*
 - (c) *The PAPA amends an acknowledged UGB and factual information is submitted demonstrating that a resource site, or the impact areas of such a site, is included in the amended UGB area.*

The proposed amendments do not create or amend a list of Goal 5 resources, a plan, or a land use regulation adopted to protect a significant Goal 5 resource or to address specific requirements of Goal 5 and do not amend the acknowledged urban growth boundary. Therefore, the proposed amendments do not trigger the need to consider Goal 5 according to OAR 660-023-0250(3)(a) or 3(c).

There are no additional resources that require analysis under the OARs noted above. The proposed amendments will maintain established protection measures for inventoried Goal 5 resources within and adjacent to the subject property. Therefore, the proposed amendments are consistent with Statewide Planning Goal 5.

Goal 6: Air, Water and Land Resources Quality

To maintain and improve the quality of the air, water and land resources of the state.

The purpose of Goal 6 is to maintain and improve the quality of the air, water, and land resources of the state. Generally, Goal 6 requires that development comply with applicable state and federal air and water quality standards. In the context of the proposed Comprehensive Plan Map and Zoning Map amendment, Goal 6 requires that the applicant demonstrate that it is reasonable to expect that applicable state and federal environmental quality standards can be met.

The proposed amendments do not modify any of the Goal 6 related policies of the *Redmond Comprehensive Plan*, nor do they amend the Redmond Development Code, other applicable Goal 6 policies, or any regulations implementing those policies. Therefore, the proposed amendments do not alter the City's compliance with Goal 6.

Goal 7: Areas Subject to Natural Disasters and Hazards

To protect life and property from natural disasters and hazards.

Goal 7 requires that development subject to damage from natural hazards and disasters be planned and/or constructed with appropriate safeguards and mitigation. The goal also requires that plans be based on an inventory of known areas of natural disaster and hazards, such as areas prone to landslides, flooding, etc.

The proposed development of the site as a Regional Recreation Center does not propose incompatible levels of development with steep slopes (such as roads, homes, or other infrastructure) and will be designed accordingly to minimize the risk posed by steep slopes. The site is located well outside of any established FEMA flood hazard areas. Therefore, approval of the proposed amendments will not alter the City's acknowledged compliance with Goal 7 through its adopted plans, codes, and procedures.

Goal 8: Recreational 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.

Goal 8 requires local governments to plan and provide for the siting of necessary recreational facilities to "satisfy the recreational needs of the citizens of the state and visitors," and where appropriate, provide for the siting of recreational facilities, including destination resorts. RAPRD is a special district with a service area population of approximately 45,000 residents. RAPRD oversees park and open spaces within the district boundary but outside of the Redmond city limits. Parks and trails that are inside the Redmond city limits are operated and maintained by City of Redmond Parks Division. The 2018 Citywide Park Master Plan was adopted by the City of Redmond as part of the Metro Plan's compliance with Goal 8.

The applicant proposes conversion of 10.50 acres of High Density Residential land for parks and recreation purposes. The proposed amendments designate said land for public facility use, consistent with the definition of a Recreation Center and Sports Facility permitted in the zoning district. City approval of the proposal will constitute an increase in the availability of public recreational facilities in the area following development of said facility. As such, changing the designation of the subject property will have no impact on the City's existing park and open space supply. In no case, as a result of the proposed amendment, will a reduction in recreational facilities occur. Through the proposed amendments, the proposal will increase the amount of recreation capacity within Redmond.

The proposal does not involve the siting of destination resorts. Based on these findings, the proposed amendments are consistent with Goal 8.

Goal 9: Economic Development

To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.

Goal 9 requires the city to provide adequate opportunities for a variety of economic activities vital to the health, welfare, and prosperity of the citizens. The proposed amendments will not affect the city's capacity for economic development, and do not alter the City's compliance with Goal 9.

Goal 10: Housing

To provide for the housing needs of citizens of the state.

Similar to Goal 9, Goal 10 is intended to protect residential land inventories and requires implementation measures that promote housing opportunities in various economic ranges and densities. Goal 10 requires that communities plan for and maintain an inventory of buildable residential land for needed housing units.

The subject property was purchased by the applicant in 2009 as a potential future site for a recreation center. The *2019 Redmond Housing Needs Analysis* represents the housing needs analysis consistent with the requirements of Goal 10 and OAR 660-008. The subject property is shown on the Comprehensive Plan Designations map within the Urban Holding Plan Designation.⁷ Exhibit 81 lists the rules for consideration of buildable land development status consistent with the Oregon Department of Land Conservation and Residential Lands Development Workbook. The exhibit defines the development status of public or exempt land as:

"Lands in public or semi-public ownership are considered unavailable for residential development. This includes lands in Federal, State, County, or City ownership as well as lands owned by churches and other semi-public organizations and properties with conservation easements. Public lands were identified using the Assessor's property tax exemption codes."

RAPRD is a public agency; therefore, the subject property is exempt from the analysis and considered unavailable for residential development. The proposed amendments do not negatively affect the residential land inventory. Based on these findings, the proposed amendments are consistent with Goal 10.

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.

⁷ 2019 Redmond Housing Needs Analysis. Exhibit 80. Residential land base bay plan designation, Redmond UGB, 2018. P. 87.

Goal 11 requires the provision of a timely, orderly, and efficient arrangement of public facilities and services. The subject site can be served by an orderly extension of urban services. The proposed amendments will not affect the ability to provide needed services. Therefore, the amendments are consistent with Goal 11.

Goal 12: Transportation

To provide and encourage a safe, convenient and economic transportation system.

Goal 12 requires local governments to provide and encourage a safe, convenient, and economical transportation system. The proposed map amendment involves approximately 10.50 acres of property within the High Density Residential plan designation. In compliance with OAR 660-012-0060, a transportation analysis report is included as Exhibit C. This report highlights that the PM peak hour and average daily trip (ADT) generation associated with the proposed use is a reduction in the potential that would be generated by the site if it were developed under land use permissions associated with the existing plan and zone designations. Therefore, the amendments are consistent with Goal 12.

Goal 13: Energy Conservation

To conserve energy.

The Energy goal is a general planning goal and provides limited guidance for site-specific map amendments. Goal 13 is directed at the development of local energy policies and implementing provisions and does not establish any requirements with respect to other types of land use decisions. To the extent that Goal 13 could be applied to the proposed amendments, the designations are consistent with Goal 13. The proposal will not hinder management or conservation practices related to energy consumption.

Goal 14: Urbanization

To provide for an orderly and efficient transition from rural to urban land use.

The focus of Goal 14 is on urban growth boundaries, their establishment and change, and, to a lesser degree, the treatment of land within and outside of urban growth boundaries. The subject property is within the UH-10 Urban Holding plan designation and will be designed R5 High Density Residential upon annexation approval. The proposed amendments change the plan and zone designation from R5 High Density Residential to PF Public Facility.

The proposed amendments are submitted with a concurrent request for formal Annexation approval. The annexation process is designed to ensure an orderly and efficient transition from rural to urban land use. Based on these findings, the proposed amendments are consistent with Goal 14.

Goal 15: Willamette River Greenway

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.

Goal 15 does not apply to the proposal because the subject area is not located within the Willamette River Greenway.

Goal 16 Estuarine Resources, Goal 17 Coastal Shorelands, Goal 18 Beaches and Dunes, and Goal 19 Ocean Resources

The subject site is not located within any coastal, ocean, estuarine, or beach and dune resources-related area. Goals 16-19 do not apply to this application.

3. In conformity with the Redmond Comprehensive Plan, land use requirements and policies; and

The subject property is designated R5 High Density Residential by the 2040 Redmond Comprehensive Plan. The High Density Residential designation corresponds to the description of the Residential High Density (RH) area:⁸

“Areas designated RH are intended primarily for development as multi-family development complexes, condominiums, congregate living facilities, and other attached dwelling products. Planned urban densities are expected to average more than 8 dwelling units per acre. The Development Code may establish more than one zoning district for the RH designation to address local conditions and the need for different development review criteria.”

According to RDC 8.0135 Table A, park uses are permitted outright, and public facility uses are permitted conditionally in the R-5 zone. The proposal involves a Zoning Map Amendment to change the zoning from R-5 to PF. Recreation and Sports Facilities are permitted outright in the PF zone.

The proposal does not involve residential densities. The site is bounded on two sides by public streets. SW 35th Street, on the east side, is classified as a major collector. SW Lava Avenue, on the south, is classified as a local street.⁹ The project involves the dedication of 10 feet of additional right-of-way to accommodate the planned width on the east side of SW

⁸ 2040 Redmond Comprehensive Plan. December 8, 2020. p. 16.

⁹ City of Redmond Transportation System Plan. December 2020.

35th Street. Access improvements along SW 35th Street include a 6-foot wide shared-use path. Access improvements along SW Lava Avenue include a 5-foot wide sidewalk.

There is an existing 12-inch water main line within SW 35th Street and an 8-inch water main line within SW Lava Avenue. Service lines will provide domestic and fire service to the building tapped into the 12-inch main line within SW 35th Street. There is an existing 15-inch wastewater main line within SW 35th Street and an 8-inch sewer main line within SW Lava Avenue. A service line will provide wastewater service to the building tapped into the 15-inch main line within SW 35th Street. The City of Redmond is currently performing an evaluation of the existing 15-inch wastewater main line to confirm if it has available capacity for the proposed RRRC development. If the wastewater system does not have the capacity, the project will be required to construct a private, on-site sewage lift station and approximately 600 feet of off-site force main line within SW 35th Street. Electric, natural gas, phone, and cable utilities exist within the SW 35th Street and SW Lava Avenue rights-of-way.

As shown on Sheet L200, the majority of the 10.50-acre site is planned for park and open space uses. The proposed RRSC building is 55,509 square feet in size and is planned to be the only structure on the site. The remainder of the site is dedicated to parks, open spaces, and service uses. Therefore, the findings demonstrate that the proposal is consistent with the *2040 Redmond Comprehensive Plan*. The subject property is not within the boundaries of an adopted Area Plan. This criterion is satisfied.

4. That there is a change of circumstances, further studies justifying the amendment or mistake in the original zoning.

In 2006, the City expanded the Urban Growth Boundary (UGB) by 2,299 gross acres to address housing and associated land use needs, including parks, public facilities, and neighborhood commercial services.¹⁰ The subject property was included in the UGB expansion area and zone UH-10 Urban Holding following amendments to the Deschutes County Code. The subject property was designated R5 High Density Residential by the 2040 Greater Redmond Area Comprehensive Plan Map and Zone Map. The proposed amendments change the plan and zone designation from R5 High Density Residential to PF Public Facility.

The subject property was purchased by the applicant in 2009 as a potential future site for a recreation center. In spring 2022, the District completed a feasibility study that examined better ways to serve the community and its future growth by constructing a new Recreation and Aquatics Center.¹¹ In November 2022, the District sponsored a ballot initiative approved by votes to provide \$49 million in funding for a new Recreation Center. In 2023, the District

¹⁰ Resolution No. 2006-24. City of Redmond and Deschutes County Findings Document for Amendments to the Redmond Urban Growth Boundary (UGB Amendments). August 8, 2006.

¹¹ RAPRD. Redmond Recreation Center Feasibility Report. May 2022.

began a process led by BRS Architecture to design the new recreation center. The process included several community meetings and meetings with the District's design committee to refine the building and site design. On December 7, 2023, the District and consultants held a neighborhood meeting, with documentation included as Exhibit G.

RAPRD is a special district with a service area population of approximately 45,000 residents, which will be served by the proposed RRSC in addition to serving visitors. The proposed recreation center will employ several full-time and part-time staff in specialties such as fitness and aquatics. The proposed recreation center will provide key services to the Redmond community, including health, wellness, and education.

The UGB Amendments note that land in UGB expansion areas is intended to be set aside for public services,¹² and the proposed recreation center is a public facility. Based on the preceding findings, the proposal is consistent with the change in circumstances provision of this criterion, proving justification for the proposed amendments.

4.3 Site and Design Review

8.3035 Design Review Criteria. Prior to issuance of a building permit, the following applicable criteria shall be met.

- 1. Installation of Utilities. All new service lines and relocated transmission lines shall be placed underground. Existing overhead transmission lines or utility lines shall be relocated underground unless otherwise approved by the CDD Director, City Engineer, or Hearings Body.**

As shown on C201 and C301 (Exhibit A), all new service lines are underground. The proposal does not involve relocated transmission lines and existing overhead transmission lines or utility lines. The Bonneville Power Administration (BPA) owns and maintains multiple power lines within a utility easement in the northwest corner of the site. The utility easement restricts any significant development in this portion of the site.

- 2. Right-of-Way Dedication & Public Improvements. Adequate right-of-way dedication and improvements to streets, alleys, sidewalks, bikeways, and other public ways shall be provided by the Owner that conform to City of Redmond adopted Transportation Plan, Transportation Impact Analysis & Access Management Standards, Public Works Standards & Specification, and the local service street policies, including the grid policy. In lieu of**

¹² Resolution No. 2006-24. City of Redmond and Deschutes County Findings Document for Amendments to the Redmond Urban Growth Boundary. August 8, 2006. p. 49.

actual construction of improvements, the City may choose to accept financial payment, contribution, other approved security, or agreement for the purpose of providing the needed improvements. The City may require that no building permit be issued until public improvements are completed; this shall be clearly identified (if applicable) within the Site Improvement Agreement.

As shown on Sheet L200, the project involves the dedication of 10 feet of additional right-of-way to accommodate the planned width on the east side of SW 35th Street. Access improvements along SW 35th Street include a 6-foot wide shared-use path. Access improvements along SW Lave Avenue include a 5-foot wide wide sidewalk. Therefore, this standard is satisfied.

- 3. Neighborhood Compatibility. This standard shall not apply to any development that requires a conditional use permit. Subsections B. and D. do not apply to needed housing (ORS 197.307).**

The proposal does not involve a conditional use permit. This standard does not apply.

A. The proposal will be consistent with applicable zoning standards.

The proposal involves a concurrent request for Comprehensive Plan Map and Zoning Map Amendment approval to change the plan and zone designation from R5 High Density Residential to PF Public Facility. Recreation and Sports Facilities are permitted outright in the PF zone under RDC 8.0220 Table E. The proposed project also requires Site and Design Review approval, pursuant to RDC 9.3005, because the development includes a structure not otherwise exempted in RDC 8.3010. Upon approval, the proposal is consistent with applicable zoning standards.

B. The location, size, design, and physical characteristics of the proposal (such as setbacks, height, position of structure on the site) will have minimal adverse impact on the livability or value of abutting properties.

The proposed RRSC building is setback 40 feet from the closest street, SW 35th Street, is approximately 55,509 square feet in size and approximately 40 feet in height. As shown on the attached plans, the facility is designed to be compatible with surrounding development.

The proposed Redmond Regional Recreation Center (RRRC) builds on the programs, spaces, and amenities established by the public during the feasibility study. The overall facility and site design is focused on capturing the spirit of Redmond, using local architectural materials and forms as interpreted to reflect the modern Central Oregon experience. The site design includes amenities that are needed in the area, including a multipurpose field,

playground, splash ground, pickleball courts, and spaces for the community to gather and celebrate the breathtaking views and unique outdoor experiences that make Redmond such a special place.

The proposed RRSC building capitalizes on these views while providing a new public gathering place that offers the surrounding community a place to build physical, emotional, and social wellness. The facility includes a gym, an 8-lane competition pool, a leisure pool, fitness classrooms, a fitness space, and a community wing. The community wing includes multipurpose classrooms, party rooms, and a teaching kitchen to foster a culture of growth and learning. The building also includes a variety of lounge spaces that are intended to act as community living rooms where users are encouraged to gather, study, socialize, and work. Based on the above findings, this standard is satisfied.

C. The project will not exceed the operational capacity of public facilities, and which are required to serve the development unless the City Engineer determines that sufficient capacity can be provided. The capacity of public facilities and services shall be based primarily on the City's Water and Wastewater Master Plan and the Transportation System Plan.

The site is bounded on two sides by public streets. SW 35th Street, on the east side, is classified as a major collector. SW Lava Avenue, on the south, is classified as a local street.¹³ Two primary access points from SW Lava Avenue are proposed. An additional access point is proposed from SW 35th street for service vehicles and a secondary parking lot. The SW 35th Street right-of-way is currently 60 feet in width. RDC 8.2710 Table 1 specifies a right-of-way width of 80 feet for major collector streets.

The project involves the dedication of 10 feet of additional right-of-way to accommodate the planned width on the east side of SW 35th Street. Access improvements along SW 35th Street include a 6-foot wide shared-use path. Access improvements along SW Lava Avenue include a 5-foot wide sidewalk.

There is an existing 12-inch water main line within SW 35th Street and an 8-inch water main line within SW Lava Avenue. Service lines will provide domestic and fire service to the building tapped into the 12-inch main line within SW 35th Street. Planned water service sizes to the RRRC building are 6-inch lines for fire and 3-inch lines for domestic.

There is an existing 15-inch wastewater main line within SW 35th Street and an 8-inch sewer main line within SW Lava Avenue. A service line will provide wastewater service to the building tapped into the 15-inch main line within SW 35th Street. Planned wastewater service

¹³ City of Redmond Transportation System Plan. December 2020.

will be provided by a 6-inch line and a sampling manhole at the property line per city standards.

The City of Redmond is currently performing an evaluation of the existing 15-inch wastewater main line to confirm if it has available capacity for the proposed RRRC development. If the wastewater system does not have capacity, the project will be required to construct a private, on-site sewage lift station and approximately 600 feet of off-site force main line within SW 35th Street from the northeast corner of the site to an existing 24-inch gravity wastewater interceptor line.

The City of Redmond has no municipal stormwater system, and all properties must contain and dispose of stormwater on site. City standards require storm drain systems to be designed to handle the 50-year/24-hour storm event (2.0 inches) and that the 100-year/24-hour storm event (2.2 inches) be contained on site. This will be accomplished with a proposed system of underground dry wells throughout the site to infiltrate all stormwater into the ground for groundwater recharge. The dry wells will be reviewed and authorized by the Oregon Department of Environmental Quality (DEQ).

Based on the above findings, this standard is satisfied.

D. The proposal is consistent with the applicable Great Neighborhood Planning Principles described in Section 8.0270(3)(C)(13) and adopted Area Plans.

The Great Neighborhood Planning Principles in 8.0270(3)(C)(13) are addressed in Section 4.4.

4. Architectural Requirements.

A. Architectural theme. A specific architectural theme is required for any structure that is a candidate for Site and Design review. The theme used shall be carried out completely in the design and not mixed with conflicting themes. The theme used shall be consistent with all buildings on the subject site.

Four design threads inspire the architectural theme; spirit, roam, authenticity/rooted, and belonging. Through engaging programs, innovative facilities, and passionate staff, the RRSC strives to ignite the inner light within each person, empowering them to reach their full potential and shine brightly in their endeavors. Spaces are designed to maximize views of nature, inspiring a sense of aspiration and connection to the surrounding landscape. The use of vibrant colors and dynamic forms further enhances the sense of energy and radiance within the facility.

The RRSC architecture promotes exploration and discovery by designing flexible and adaptable spaces encouraging movement and engagement. The Redmond area prides itself on living in accordance with their beliefs while still honoring changing times and community growth. The RRSC architecture prioritizes transparency and clarity, ensuring spaces are easily navigable and inviting. Clear sightlines, intuitive wayfinding, and transparent walls can promote visibility and create a sense of openness and honesty. The use of natural materials, such as wood, stone, or local materials, contributes to a genuine and authentic atmosphere.

Redmond cultivates a sense of belonging and a sense of place to all who arrive. The RRSC celebrates diversity and inclusivity, creating a space where individuals of different backgrounds, abilities, and interests feel welcomed and valued. The architecture incorporates spaces that encourage social interaction and connection. Gathering areas, common lounges, and communal spaces are strategically placed to facilitate encounters and foster a sense of community.

The subject property is near Redmond's Dry Canyon Park, where elemental colors, textures, and forms inform and inspire the site design. In combination with the building architecture, the proposed landscape design utilizes soft natural tones of brown, yellow, green, gray, and red, much like you find in Redmond's Dry Canyon. The site's textures are a mixture of visually soft zones punctuated with accents of sharp pockets that contrast materials surrounding key elements.

Based on the above findings, this standard is satisfied.

B. False front design. A false front design of a building shall be avoided, except for the Downtown (C-2) Commercial District.

As shown on A301, the proposal does not involve a false front design. This standard does not apply.

B. Historical Buildings. Compliance with the preservation of historic buildings and sites pursuant to section 8.0855 and 8.0860 where applicable.

The proposal does not involve a historic building. This standard does not apply.

C. Commercial and Industrial buildings.

The proposal does not involve commercial or industrial buildings. This standard does not apply.

D. Multi-Family Complexes. This section establishes a process for the review of multi-family complexes development proposals in order to promote functional, safe, innovative, and attractive development that is compatible with the natural and man-made environment. The

intent is to promote compatible development, foster the attractiveness and functional utility of multi-family development, protect public and private investments in the area, raise the level of community expectations for the quality of its environment.

The proposal does not involve multi-family complexes. This standard does not apply.

- E. Exterior Mechanical Equipment. These shall be screened so as not to be visible from public streets or residences and not placed on exterior walls unless fully screened.**

As shown on Sheet A100 (Exhibit A), exterior mechanical equipment includes a transformer, generator, and lift station. The equipment is screened from view from public streets and residential property by a masonry wall, and is not located on exterior walls. This standard is satisfied.

- F. Surfacing. Gravel is prohibited as a surfacing material in the commercial or mixed use zones. Areas that are not part of the required landscaped areas shall be surfaced with asphalt or concrete unless natural, undisturbed open areas.**

The subject site is not within a commercial or mixed use zone. This standard does not apply.

- G. Building Design for Automotive Service Stations. The entrance to the service bays shall not be open to the street but shall be so designed to face the rear or interior side property line.**

The proposal does not involve an automotive service station. This standard does not apply.

- H. Retail, Office, Commercial and Mixed Use Buildings in the MUN and MUE zones.**

The proposal does not involve uses in the MUN and MUE zones. This standard does not apply.

5. Landscaping.

- A. Plant sizes. All required shrubs shall be at least 1-gallon size and all required trees 15-gallon size at time of planting, and no less than 1-1/2" caliper measured 3' above finished grade. Applicants must show evidence of paid contracts or commitments for landscaping work or**

other proof/evidence the work will be completed as required and on time.

Required shrub and tree sizes are shown on L500, per the above standard. Evidence of landscape work will be provided as part of the construction process. This standard is satisfied.

- B. Vegetative cover. All required landscape areas shall be planted with shrubs, trees and or living ground cover to a minimum of 50% vegetative cover at the time of planting. The other 50% may be covered with non-vegetative (not bark) mulch.**

As shown on L500, all required landscape areas are proposed to be planted with shrubs, trees, and/or groundcover to a minimum of 50% vegetative cover at time of planting. This standard is satisfied.

- C. Outdoor storage and service areas. Outdoor storage and service areas shall be screened or buffered from adjacent properties or from public rights of way with a minimum 3-foot-tall and wide landscape strip or site obscuring fencing unless otherwise approved when adjacent to a similar use or a use that does not require screening from the proposed use. Screening shall provide no less than 50% visual screening at time of planting or installation and shall be shown by detail or photo.**

As shown on Sheet A100 (Exhibit A), the outdoor storage and services area includes a garbage and recycling, transformer, generator, and lift station. The area is screened from view from public streets and residential property by a 6-foot tall masonry wall. This standard is satisfied.

- E. Areas between buildings and property lines adjacent to a street. Areas between buildings and property lines adjacent to a street shall be landscaped with trees and shrubs within a minimum 3-foot-wide landscape strip.**

As shown on Sheet L500 (Exhibit A), areas between the RRSC building and SW 35th Street and SW Lava Avenue are landscaped with trees and shrubs in landscape strips that exceed 3 feet in width. This standard is satisfied.

- F. A parking or loading area. A parking or loading area shall be separated from any lot line adjacent to a roadway by a landscaped strip at least 10 feet in width, and any lot line by a landscaped strip at**

least 5 feet in width. Within the C-2, C-4, MUN, MUE, or Airport zone, street trees or other landscaping located within the public right-of-way may be provided and considered as landscaping on site. The City may make an exception of the five (5) foot landscaping strip requirements if the following criteria apply:

As shown on Sheet L500 (Exhibit A), parking and loading areas are separated from lot lines adjacent to SW 35th Street and SW Lava Avenue by landscape strips exceeding 10 feet in width. This standard is satisfied.

- G. Landscape areas abutting parking areas spaces, access aisles and loading zones. Landscape areas abutting parking spaces, access aisles and loading zones shall incorporate a sight obscuring landscape screen. The screen shall be at least 3 feet higher than the finished grade of the parking area, except in required clear vision areas where the clear vision requirements must be met. The screen height may be achieved by a combination of earth mounding and plant materials. Fences with or without slats may qualify for parking lot screening on interior, side, or rear lot lines, or when adjacent to an alley.**

As shown on Sheet L500 (Exhibit A), landscape areas abutting parking spaces, access aisles, and loading zones include proposed landscaping in compliance with the above screening. This standard is satisfied.

- H. Parking lot landscaping. In addition to meeting all other landscape requirements, at least ten (10%) percent of the paved parking shall include planting beds at least 5 feet wide, plus a ratio of one tree per ten parking spaces shall be planted.**

Sheet L500 (Exhibit A) includes a Landscape Tabulations table addressing tree requirements, and all plan beds are greater than 5 feet in width. This standard is satisfied.

- I. Protection of Parking Lot Landscaping. Parking lot landscaping shall be protected by a curb or secured wheel guards at least 4" high with a minimum three- foot setback from the property line.**

As shown on C201 (Exhibit A), all parking lot landscaping is protected by a 6 inch tall curb. This standard is satisfied.

- J. Preservation and Replacement of Trees. All existing trees having a six (6) inch trunk diameter 3' above grade or greater shall be**

preserved or replaced with fifteen gallon-sized trees at a 'one-to-one' ratio. Replacement trees shall have a minimum 1-1/2-inch trunk diameter measured at 3' above grade. This criterion shall be met in the submitted landscape plan.

As shown on L100 (Exhibit A), the proposed development involves the removal of 41 trees and as shown on L500 (Exhibit A), the replanting of 130 trees with 2-inch caliper or 6-8 feet in height. This standard is satisfied.

- K. Irrigation of plants and trees. Irrigation systems shall be required for all landscape areas and street trees except those designated for native vegetation. Type of irrigation system and approximate line location shall be shown on the site plan provided.**

Proposed irrigation of plants and trees is shown on L400 (Exhibit A). This standard is satisfied.

- L. Street trees. Street trees are required to be installed on all residential, commercial, and industrial lots fronting on public or private streets, including on lots already platted at the time of adoption of this ordinance (Ord. #2013-04, 05/14/2013), but not yet developed. Street trees shall be provided in accordance with the following requirements:**

- 1. Street Tree Plan. A street tree plan shall be provided showing the location of street trees, the types and the installation sizes of the trees and the type of irrigation proposed.**

Proposed street trees are shown on L500 (Exhibit A), with means of irrigation shown on L400 (Exhibit A). This standard is satisfied.

- 2. Timing of Improvements. All street tree(s) shall be installed prior to issuance of a Certificate of Occupancy for said construction. An exception to this shall be when it is not feasible to plant street trees due to cold weather, in which case a posting of a bond for the value of the tree shall be acceptable to ensure the tree is planted at the earliest feasible time as determined by the City.**

All proposed street trees will be installed prior to issuance of the certificate of occupancy. This standard is satisfied.

3. Number of Trees Required.

19 trees are required along SW 35th Street and 16 trees are required along SW Lave Avenue, as shown in the Landscape Tabulations table on L500 (Exhibit A). This standard is satisfied.

4. Spacing of Trees.

Street tree spacing, in conformance with this standard, is shown on L500 (Exhibit A). This standard is satisfied.

5. Location of Trees. Street trees shall be planted within existing and proposed planting strips or in City approved sidewalk tree wells on streets without planting strips unless an alternative street tree location is approved during the planning review process. The location of trees shall meet the following setback requirements:

The location of street trees, in conformance with this standard, is shown on L500 (Exhibit A). This standard is satisfied.

6. Caliper Size.

As shown on L500 (Exhibit A), proposed street trees are 2-inch caliper size. This standard is satisfied.

7. Approved Tree List.

As shown on L500 (Exhibit A), proposed street trees are selected from the City Arborist's approved list of trees. This standard is satisfied.

8. Maintenance.

Proposed street tree maintenance will occur in conformance with the above requirement. This standard is satisfied.

9. Utility Easements.

As shown on L500 (Exhibit A), all proposed street trees are located outside of utility easements. This standard is satisfied.

M. Maintenance of landscaping. All landscaping shall be continuously maintained and replaced when necessary to maintain compliance

with an approved landscape plan. For landscaping valued in excess of \$5,000, the City may require a maintenance bond.

All proposed landscaping, as shown on L500 (Exhibit A), will be maintained and replaced in conformance with the landscape plan and this standard. This standard is satisfied.

6. Parking and Unloading Areas/Docks.

A. Off-Street Parking Areas. Parking areas shall be as near the public entrances to the structure served as possible.

Sheet L200 (Exhibit A) shows that the proposed off-street parking areas are near public entrances. This standard is satisfied.

B. Parking lot. The parking shall be dispersed around the building, emphasizing the importance of the building and accessibility to entrances. In the MUN and MUE zones, parking shall be located to the side, rear, or under the building or in a designed central parking lot.

As shown on Sheet L200 (Exhibit A), the proposed parking is dispersed to the south and north of the building and is accessible to the main entrances. The subject property is not within the MUN and MUE zones. This standard is satisfied.

C. Truck loading areas or docks. Truck loading areas or docks, where delivery is done by semi truck with a specified loading dock, shall be located or screened from the street or from the major public entrance to the building. The Applicant shall identify the specific type(s) and size of delivery vehicles which will deliver and/or take goods to/from the building; the hours of delivery, the location of delivery doors and their dimensions. Truck loading areas or docks shall not inhibit circulation on- site or create access problems from adjacent streets.

As shown on Sheet L200 (Exhibit A), the truck delivery area is located on the north side of the RRC building and is screened from the street by a 6-foot tall masonry wall. This standard is satisfied.

7. General Site Criteria.

A. Grading and Drainage.

1. **Grading.** Grading of on-site private land shall be managed to ensure that there are no adverse conditions created for neighboring lands or public right- of-way. A stormwater grading plan shall be developed that satisfies the following criteria:
 - a. **On-site maintainability.**
 - b. **Professional civil engineering practices.**
 - c. **Identify responsibility for the management of the stormwater.**

A stormwater grading plan, in conformance with the above criteria, is included as C201 (Exhibit A). This standard is satisfied.

2. **Drainage and Stormwater.** Per direction of the City Engineer, and specified in the City of Redmond Standards and Specifications, drainage shall be managed on-site or as determined reasonable for shared responsibility for both conveyance and disposal of private and public right-of-way stormwater.

As shown on C201 (Exhibit A), all stormwater drainage is proposed to be managed on site. This standard is satisfied.

3. **Blasting.** A permit for explosive blasting shall be obtained from Redmond Fire & Rescue and City Engineer prior to blasting.

The applicant's contract will obtain a permit for blasting prior to any work occurring. This standard is satisfied.

- B. **Clear Vision Standard.** No obstructions greater than three and one half (3 ½) feet high, including any landscaping which will grow greater than three and one half (3½) feet high, with the exception of trees whose canopy heights are at all times greater than eight (8) feet, may be placed in a clear vision area as defined in Article I, "Supplementary Provisions".

As shown on L500 (Exhibit A), no obstructions greater than 3½- feet high are proposed within clear vision areas. This standard is satisfied.

- C. **Trash Collection Areas.** Trash collection areas shall not be oriented towards building entrances or public streets other than alleys and shall be screened or enclosed with building material which is compatible with those used in the exterior of the building.

Location(s) of all trash collection area(s) shall be reviewed and approved by the Community Development Department Director, or designee.

As shown on L500 (Exhibit A, the trash collection area is located at the rear of the RRSB building, is oriented away from the public street, and is screened by a 6-foot tall masonry wall. This standard is satisfied.

- D. Water and Sewer Service. Connection to the City's public water and sewer systems shall be required and shall comply with the current Public Works Standards & Specifications.**

Proposed water and sewer connections are shown on C301 (Exhibit A), in compliance with the above standard. This standard is satisfied.

- E. Accessibility. At least one pedestrian pathway, which meets UBC accessibility requirements, shall be provided within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading and drop off zones, and public streets or sidewalks to an accessible entry. When more than one building or facility is located on a site, at least one accessible route shall be provided between accessible buildings and accessible site facilities. The accessible route shall be the most practical and direct route among accessible building entries, accessible site facilities and the accessible entry to the site. Walks paralleling vehicular ways shall be separated from vehicular ways by curbs, planted areas, railings, or other means between the pedestrian way and vehicular routes.**

All site pathways are designed to be accessible, as shown on L200 (Exhibit A). This standard is satisfied.

- F. Streetscape standards in the MUN zone. New retail, office, commercial and mixed-use development, and major modifications (per RDC 8.3005-8.3010) within the MUN zone shall provide one or more of the Category A pedestrian amenities listed below and all of the Category B amenities, as generally illustrated in the figure below. Pedestrian amenities may be provided within a planting strip or street furnishing zone, building frontage zone or plaza, as shown in the figure below. Use of the public right-of-way requires approval by the roadway authority.**

The subject property is not within the MUN zone. This standard does not apply.

Based on the above findings, this criterion is satisfied.

4.4 Great Neighborhood Principles

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.
 - a. **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.

As noted previously, the site is bounded on two sides by public streets. SW 35th Street, on the east side, is classified as a major collector. SW Lava Avenue, on the south, is classified as a local street.¹⁴ As shown on L200 (Exhibit A), two primary access points from SW Lava Avenue are proposed. An additional access point is proposed from SW 35th street for service vehicles and a secondary parking lot. The SW 35th Street right-of-way is currently 60 feet in width. RDC 8.2710 Table 1 specifies a right-of-way width of 80 feet for major collector streets.

The project involves the dedication of 10 feet of additional right-of-way to accommodate the planned width on the east side of SW 35th Street. Access improvements along SW 35th Street include a 6-foot wide shared-use path. Access improvements along SW Lava Avenue include a 5-foot wide sidewalk. As shown on L000, future phases of the project include a trail connection, a walking path around the site, and additional pedestrian connections.

The proposal does not involve the completion of a street grid, traffic calming techniques, or curved streets. Therefore, based on the above findings, this principle is satisfied.

¹⁴ City of Redmond Transportation System Plan. December 2020.

- b. **Housing. 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.**

The proposal does not involve housing. This principle does not apply.

- c. **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.**

The proposal does not involve new neighborhoods and neighborhood or community parks. The proposal involves the conversion of 10.50 acres of High Density Residential land for parks and recreation purposes. The proposed amendments designate said land for public facility use, consistent with the definition of a Recreation Center and Sports Facility permitted in the zoning district.

As shown on the attached plans (Exhibit A), and discussed under findings for subsection d. below, the proposal involves uses consistent with the definitions of community parks and special use areas in the *Citywide Park Master Plan*.¹⁵

"Community Parks

Community parks are large park sites developed for organized play that generally contain a wide array of both passive and active recreation facilities and appeal to a diverse group of users. In general, community parks are designed for active and structured recreational activities and sports, although complementary passive components such as pathways, picnic areas and natural areas provide non-organized opportunities for individual and family activities.

¹⁵ City of Redmond. *Citywide Park Master Plan*. January 2018. p. 17 and 19.

*Community parks are generally 10 to 40 acres in size, should meet a minimum size of 15 acres when possible and serve residents within a 2-mile drive, walk or bike ride from the site. * * **

“Special Use Areas

*Special use facilities include single-purpose recreational areas or stand-alone sites designed to support a specific, specialized use. This classification may include stand-alone sport field complexes, golf courses, sites of historical or cultural significance, such as museums, historical landmarks and structures, and public plazas in or near commercial centers. * * **”

The proposal involves a regional recreation center and the site is organized to support that use. The current phase, and future phases of the project, include both passive and active recreational opportunities that are intended to appeal to a diverse group of users. The findings demonstrate that the project will deliver usable open space with recreational amenities intended for the larger community, consistent with this principle.

- 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.**

As illustrated on the attached plans (Exhibit A), the site design features a courtyard and promenade on the west side of the building. The courtyard will include a mix of open paving, bench seating elements, plant beds with native vegetation, landscape boulders, and a formal lawn area. The western promenade, located west of the gymnasium and courtyard, connects to future outdoor spaces and serves as an aerial emergency access zone for the gymnasium. Shade trees in vegetated tree wells or decomposed granite will be planted within the promenade. The promenade will overlook the lower soccer field and have direct access to that field.

A collection of outdoor spaces that facilitate basketball, pickleball, and children’s play are included in the master plan as part of a future construction phase. Four pickleball courts are located adjacent to the BPA utility easement, to the east of these courts is nature play equipment on soft-fall surfacing. A full-sized basketball court with a lawn viewing leisure area is located north of the gymnasium. A children’s water feature, serviced by the building’s pool mechanical room, is between the basketball court and structured nature play area.

Pedestrian connections through and around the site are provided by the western promenade, a shared-use path along SW 35th Street, a separated sidewalk along SW Lava Avenue, a perimeter sidewalk surrounding the south parking lot, and expanded paving and raised crosswalks near the facility entry. The southeast portion of the south parking lot, adjacent to the intersection of SW 35th Street and SW Lava Avenue, is designed to function as a market and gathering space.

The above findings demonstrate that the site includes integrated design elements. Therefore, this criterion is satisfied.

- 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.**

As illustrated on the attached plans (Exhibit A), the overall facility and site design is focused on capturing the spirit of Redmond, using local architectural materials and forms as interpreted to reflect the modern Central Oregon experience. The site design includes amenities that are needed in the area, including a multipurpose field, playground, splash ground, pickleball courts, and spaces for the community to gather and celebrate the breathtaking views and unique outdoor experiences that make Redmond such a special place.

The project is planned to be constructed in two phases, Phase One and a future phase, as shown on Sheet L101 (Exhibit A). Phase One includes:

- RRSC building (55,509 square feet)
- SW 35th Street frontage improvements and access connection
- SW Lava Avenue frontage improvements and access connections
- South parking lot (181 parking spaces)
- North parking lot (20 parking)
- Bicycle parking (14 parking spaces)
- Outdoor courtyard and fitness area
- Service and loading area
- Bus drop-off area
- Passenger drop-off area
- Landscape screening,
- Screen and sound wall
- Shared-use Path along SW 35th Street
- Sun deck and ornamental fencing
- Flagpoles

The Future Phase includes:

- Multisport field
- North parking lot expansion
- Basketball court
- Pickleball courts
- Children's playground
- Nature play area
- Water play area
- Picnic shelter
- Walking path

The above findings demonstrate that the project includes a diverse mix of uses intended for multi-generational users. Therefore, this principle is satisfied.

- 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.**

As illustrated in the attached plans (Exhibit A), both the RRSC building and site design provide opportunities for the installation of public art. The proposal does not involve neighborhoods. Therefore, this principle is satisfied.

- 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.**

The subject site is at the intersection of SW 35th Street and Northwest Lava Avenue. A stand of native Juniper Trees, Fescue grasses, Sagebrush, and Rabbit Brush with outcroppings of native basalt boulders characterizes the site. The site provides intermittent views of the Three Sisters Wilderness area towards the south and east. The highest point of the site is in the northeast corner, with the lowest point to the west, approximately at the midpoint of the property line, a total of 13 feet lower. Near the midpoint, on the east side of the site, is a topographic knoll, approximately 4 feet higher than the surrounding terrain. There is roughly 12 feet of topographic change from the northeast corner of the site along SW 35th Street to the west.

The RRSC building design emphasizes its public nature and strong connection to the surrounding landscape, capitalizing on its view of the Cascade Mountain Range and the Three Sisters. This design is further reinforced in the interior environment's layout and design to create a unified facility between its exterior expression and internal character. In addition to considering the internal organization of the program spaces, the proposed

architecture is also purposeful in how the spaces connect to the exterior and the site around the building. The facility is designed with strategically located canopies, areas of glass, and outdoor gathering spaces that capture visual interest and not only draw patrons to the facility but also create an indoor/outdoor relationship that expands the facility's offerings and heightens the user's experience.

Therefore, based on these findings, this principle is satisfied.

- 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.**

Although not defined in the *Redmond 2040 Comprehensive Plan* or the *Redmond Development Code*, the urban-rural interface is generally considered the edge between the city limits boundary and rural lands inside the UGB or the edge of the UGB and rural lands in Deschutes County jurisdiction. On December 5, 2023, the Redmond City Council approved a draft Annexation Agreement that includes a provision initiating a resolution annexing the subject property into the City.

Upon annexation, the subject property is adjacent to land outside city limits and within the UGB on the north and west sides, designated for Low Density Residential uses. The proposal does not involve residential development. The proposed RRSC building is located on the east side of the property, well over 100 feet from the west and north property lines. Areas between the building and adjacent lands outside the UGB are planned as park or open space uses. Therefore, based on the above findings, the proposal achieves the transition embodied in this principle.

- 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.**

The proposal does not involve pocket parks or tot lots. This principle does not apply.

- 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).

The proposal does not involve canal trails. This principle does not apply.

- k. Green Design. Energy-efficient design through solar access setbacks, xeriscaping, and planting of drought-resistant trees to minimize water usage and provide shade.**

As illustrated on L000 (Exhibit A), the proposed RRSC design maximizes solar access, and the proposed landscaping incorporates xeriscaping and drought-resistant trees that provide shade in the overall site design. Therefore, this principle is satisfied.

Based on the above findings, this criterion is satisfied.

4.5 Conclusion

Based on available information, supporting materials, and findings, the proposed Comprehensive Plan and Zoning Map Amendment and Site and Design Review application is consistent with all applicable approval criteria and provisions.

EXHIBITS

EXHIBIT A PLAN SET

EXHIBIT B EXISTING AND PROPOSED ZONING

EXHIBIT C TRAFFIC IMPACT ANALYSIS

EXHIBIT D FIRE FLOW ANALYSIS

EXHIBIT E

INFRASTRUCTURE ALLOCATION APPLICATION

EXHIBIT F TITLE REPORT

EXHIBIT G

NEIGHBORHOOD MEETING DOCUMENTATION

MEMORANDUM

**Redmond Area Park and Recreation District
Redmond Regional Recreation Center
Comprehensive Plan Map and Zoning Map Amendment and Site and
Design Review Application**

To: Kyle Roberts, AICP
Planning Director

From: Colin McArthur, AICP
Principal Planner

Date: February 9, 2024

Subject: **Redmond Regional Recreation Center (File Nos. 711-23-000277-ANN, 7111-23-000278-PA1, & 711-23-000279-SP) Completeness Check Review Supplemental Information**

The completeness check review for the Annexation, Comprehensive Plan & Zone Map Amendment, and Site & Design Review applications identified a need for the following information:

- 1. Per Section 8.1010(1)(C), RDC, a Transportation Impact Analysis (TIA), approved by City Engineering, must be submitted with the land use applications. While your submission includes the TIA, it does not include an approval by City Engineering.*
- 2. While your narrative addresses Section 8.0760(3), RDC, it does not reference specific Comprehensive Plan goals and policies that support the proposed amendment to the Comprehensive Plan & Zone Map for the proposed project.*

Regarding Item No. 1, the Applicant has submitted a Transportation System Analysis Application, including a TIA, which is under review by City Engineering. The memorandum addresses Item No. 2 and includes supplemental information and findings under Section 8.0760(3) and specific Comprehensive Plan goals and policies that support the project.

RDC 8.0760(3)

The following Comprehensive Plan goals and policies are relevant to the request. Findings of compliance with applicable goals and policies are provided in plain text with goals and policies in **bold** indented text.

STATEWIDE PLANNING GOAL 2 LAND USE PLANNING AND PROCEDURES

GOAL 1 COORDINATION

Ensure that Redmond's Comprehensive Plan, implementation tools, and administration procedures build on the community's vision for the future and align with regional, state, and federal plans and regulations.

POLICY 2-1-7 Identify and assign land uses in a way that encourages the best relationship between places where people live, work, shop and recreate.

In 2006, the City expanded the Urban Growth Boundary (UGB) by 2,299 gross acres to address housing and associated land use needs, including parks, public facilities, and neighborhood commercial services.¹ The subject property was included in the UGB expansion area and zoned UH-10 Urban Holding following amendments to the Deschutes County Code.

The subject property is designated R5 High Density Residential by the 2040 Greater Redmond Area Comprehensive Plan Map and Zone Map. The proposed amendments change the plan and zone designation from R5 High Density Residential to PF Public Facility.

The proposed recreation center will provide key services to the Redmond community, including health, wellness, and education. The UGB Amendments note that land in UGB expansion areas is intended to be set aside for public services, and the proposed recreation center is a public facility. The application includes findings of consistency with the Great Neighborhood Planning Principles in RDC 8.2070(3)(C)(13), which are incorporated by reference herein.

Therefore, the proposal is consistent with this policy.

STATEWIDE PLANNING GOAL 8 RECREATIONAL NEEDS

GOAL 1 ENGAGE AND INFORM THE COMMUNITY

Redmond's Parks Division fosters and expands the social connections linking the City together and bridging its neighborhoods.

¹ Resolution No. 2006-24. City of Redmond and Deschutes County Findings Document for Amendments to the Redmond Urban Growth Boundary (UGB Amendments). August 8, 2006.

POLICY 8-1-1 Encourage and support active and ongoing participation by diverse community members in the planning and decision-making for parks and recreational opportunities

The planning process for the proposed RRSC has included participation by diverse community members in planning and decision-making through significant public involvement opportunities. In spring 2022, the District completed a feasibility study that examined better ways to serve the community and its future growth by constructing a new Recreation and Aquatics Center.² The feasibility study process included three community workshop events:

- January 2022 Workshop #1: Overview of what a modern recreation center can be and potential program amenities.
- March 2022 Workshop #2: Overview of plan options that included the programs selected at the previous meeting.
- April 2022 Workshop #3: The design team presented final conceptual building plans and building character imagery.

In November 2022, the District sponsored a ballot initiative approved by votes to provide \$49 million in funding for a new Recreation Center. In 2023, the District began a process led by BRS Architecture to design the new recreation center. The process included several community meetings and meetings with the District's design committee to refine the building and site design. On December 7, 2023, the District and consultants held a neighborhood meeting, with documentation included as Exhibit G.

Therefore, the proposal is consistent with this policy.

GOAL 3 CREATE GREAT PARKS AND PUBLIC SPACES

Redmond's parks meet local needs for active and passive recreation, enhance the environmental and visual quality of the community, and healthy living.

POLICY 8-3-3 Establish and operate specialized recreational facilities (e.g. sport facilities, off leash dog areas, skateparks, community gardens) to respond to identified public needs, as appropriate.

As noted, in spring 2022, the District completed a feasibility study that examined better ways to serve the community and its future growth by constructing a new Recreation and Aquatics Center. The proposed RRRC builds on the programs, spaces, and amenities established by the public during the feasibility study. The overall facility and site design is focused on capturing the spirit of Redmond, using local architectural materials and forms as interpreted to reflect the modern Central Oregon experience. The site design includes amenities that are needed in the area, including a multipurpose field, playground, splash ground, pickleball courts, and spaces for the community to gather and celebrate the breathtaking views and unique outdoor experiences that make Redmond such a special place.

² RAPRD. Redmond Recreation Center Feasibility Report. May 2022.

The proposed RRSC building capitalizes on these views while providing a new public gathering place that offers the surrounding community a place to build physical, emotional, and social wellness. The facility includes a gym, an 8-lane competition pool, a leisure pool, fitness classrooms, a fitness space, and a community wing. The community wing includes multipurpose classrooms, party rooms, and a teaching kitchen to foster a culture of growth and learning. The building also includes a variety of lounge spaces that are intended to act as community living rooms where users are encouraged to gather, study, socialize, and work.

Therefore, the proposal is consistent with this policy.

GOAL 4 CONNECT TRAILS AND NEIGHBORHOODS

Redmond's parks, and open spaces are connected with safe and accessible trails, bikeways and pedestrian linkages.

POLICY 8-4-3 Support other City departments in the implementation of the Bicycle & Pedestrian Network Plan.

- c) Coordinate with neighboring jurisdictions, Deschutes County, RAPRD and COID to provide a connected trail network that provide continuous walking and biking access between parks, natural areas and other key destinations, especially along the Pilot Butte Canal and the BPA corridor.***

The subject site is at the intersection of SW 35th Street and Northwest Lava Avenue. The Bonneville Power Administration (BPA) owns and maintains multiple power lines within a utility easement in the northwest corner of the site. The utility easement restricts any significant development in this portion of the site.

The site is bounded on two sides by public streets. SW 35th Street, on the east side, is classified as a major collector. The project involves the dedication of 10 feet of additional right-of-way to accommodate the planned width on the east side of SW 35th Street. Access improvements along SW 35th Street include a 6-foot wide shared-use path. Access improvements along SW Lave Avenue include a 5-foot wide sidewalk.

The proposal provides walking and biking facilities that contribute to improving the connected trail network within Redmond. Therefore, the proposal is consistent with this policy.

GOAL 5 FOSTER A HEALTHY, ACTIVE COMMUNITY

Redmond's parks and facilities bring residents together, encourage and amplify healthy lifestyles, and foster community pride and identity.

POLICY 8-5-1 Identify opportunities to create public gathering spaces that enable residents of all ages to connect with each other.

d) Continue to partner and coordinate with RAPRD in their planning for recreation programs and to maximize the use of recreation facilities.

The proposed RRSC building is a new community gathering place that offers the surrounding community a place to build physical, emotional, and social wellness. The facility includes a gym, an 8-lane competition pool, a leisure pool, fitness classrooms, a fitness space, and a community wing. The community wing includes multipurpose classrooms, party rooms, and a teaching kitchen to foster a culture of growth and learning. The building also includes a variety of lounge spaces that are intended to act as community living rooms where users are encouraged to gather, study, socialize, and work. The facility will increase the availability of recreation programs in the community and enable further partnership and coordination with the city.

Therefore, the proposal is consistent with this policy.

CITY OF REDMOND PLANNING GOAL 15 LIVABILITY

GOAL 1 LIVABILITY

Redmond shall guide development by implementing forward-looking policies to improve livability, retain community identity, create a high quality of life, and support a safe environment.

POLICY 15-1-2 Redmond shall build safe places where people from all racial, ethnic and cultural backgrounds thrive socially, economically, academically and physically.

The RRSC building design emphasizes its public nature and strong connection to the surrounding landscape, capitalizing on its view of the Cascade Mountain Range and the Three Sisters. This design is further reinforced in the interior environment's layout and design to create a unified facility between its exterior expression and internal character. In addition to considering the internal organization of the program spaces, the proposed architecture is also purposeful in how the spaces connect to the exterior and the site around the building. The facility is designed with strategically located canopies, areas of glass, and outdoor gathering spaces that capture visual interest and not only draw patrons to the facility but also create an indoor/outdoor relationship that expands the facility's offerings and heightens the user's experience.

Upon opening, the RRSC building will be a place where people of all racial, ethnic, and cultural backgrounds can gather socially, explore learning opportunities, and physically recreate.

Therefore, the proposal is consistent with this policy.



CITY OF REDMOND
Engineering Division

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TO: KYLE ROBERTS, *Planning Division/Community Development Department*

FROM: DAVID PILLING, *Engineering Division/Public Works Department*

DATE: March 20, 2024

SUBJECT: **711-23-000279-PLNG-SP: RAPRD Master Plan & New Recreation Center**

Redmond Area Park & Recreation District/Barker Rinker Seacat Architecture/Hickman, Williams & Assoc.
Tax Lot 15-13-18-3100

Subject property located west of SW 35th St., south of Highland Ave. (OR126) and north of Obsidian Avenue. 1001 SW 35th Street. The Engineering Division provides the following recommendations based on the submitted site plan set dated 12-15-23 per Redmond Development (COR) Code Section (**pre-January 2024 update**) 8.0270, 8.0305, 8.0500, 8.0505(11), 8.0510(6 & 7), 8.1010(1)(C), 8.2815, 8.2820 and 8.3000-3050 and City of Redmond Public Works Standards and Specifications (CORPWSS):

1. **Transportation:** 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. [COR Code 8.0270(2)(D), 3(B)(1)(a), 3(C)(11) & 3(C)(14)(a & j)] [COR Code 8.3035(2)] [CORPWSS Development Provisions 03]

A) **SW 35th St.** - major collector street. A paved street with curb and sixty (60) ft. public right-of-way, no sidewalk, exists along project/property frontage. New sidewalk or path, driveway and curb return/ramp improvements conforming to City standards shall be required along property frontage. Existing curb shall be repaired and/or replaced at the discretion of City Engineering Inspector at time of building permit, sidewalk construction or utility work. Ten (10) ft. public right-of-way dedication shall be required along project/property frontage for a total right-of-way width of forty (40) ft. west of centerline and conformance to City major collector street standards per COR Standard Drawing 2-1.

B) **SW Lava Ave** - local street. A paved street with curb and sixty to seventy (60-70) public right-of-way, no sidewalk, exists along property frontage. New sidewalk, driveway and curb return/ramp improvements conforming to City standards shall be required along property frontage. Existing curb shall be repaired and/or replaced at the discretion of City Engineering Inspector at time of building permit, sidewalk construction or utility work. Unused driveways/curb cuts shall be removed and replaced with City standard curb and sidewalk.

C) **Public Pedestrian/Bike Multi-Use Paths** - the separated public pedestrian/bike multi-use paths identified as B17 along the BPA power lines/easement through the northwest corner of project/property and B47 along SW 35th St property frontage per City 2020 Transportation System Plan (TSP) shall be constructed and dedicated per COR Standard Drawing 2-6 for multi-use paths unless otherwise approved by the City Engineer and City Parks Division. At the discretion of the City Engineer, a payment in lieu of construction of B17 may be allowed. Accessible ramps are required where the path intersects with any roadway(s).

D) **Street Trees:**

1) No street trees within 50 ft. of a street intersection per COR Standard Drawing 2-27.

2) No trees within 10 ft. of domestic water service, fire service or public storm facilities.

3) Trees shall not conflict with street or stop sign/control device and pedestrian crossing/ADA ramp line of sight.

4) No trees within driveway clear vision areas or blocking public street lighting.

5) Street tree species shall be selected from Redmond Parks Division approved tree list.

E) **Traffic Impacts:** The Transportation System Analysis Application (TSAA) dated 10-11-23 and Traffic Impact Analysis (TIA) updated 3-8-24 submitted by Sandow Engineering have been reviewed and approved by City Engineering conditioned upon the transportation mitigation requirements identified by the Assistant City Engineer per City Approval Memo dated 3-18-24 unless otherwise specified. Notable required mitigation includes the following: [COR Code 8.0270(3)(C)(11), 8.1010(1)(C) & 8.2815, 8.3030(1) & 8.3035(8)]

1) Total proportionate share of \$72,800 for impacts to OR126/SW 27th St. based on the cost of the parallel route improvements at OR126/SW 35th Street. Total payment shall be required prior to final occupancy approval.

2) The proportionate share will not be required if the City adopts a separate funding mechanism that addresses the impacts in their entirety prior final occupancy. The total payment is either due prior to final occupancy approval.

F) Site Access: Site access and driveway connections shall be subject to City access management, minimum corner clearance, sight-stopping distance, clear vision and driveway construction standards. Driveways/curb cuts shall not conflict with water service/meters, fire vaults, fire hydrants or street catch basins. [COR Code 8.0305, 8.0510(8), 8.2820, 8.3035(7)(B) & 8.3035(9)]

1) Proposed driveway connection to 35th St shall be located directly opposite and/or match travel lanes in Juniper Avenue. Otherwise, site access is acceptable subject to City corner clearance, sight-stopping and clear vision standards. [COR Code 8.0305, 8.2820(1, 4, 8 & 10) & 8.3035(9)]

2) No other direct vehicular access to SW 35th St., a major collector street, shall be permitted except for approved emergency access with locked fire gate/bollards or unless otherwise approved by the City Engineer. [COR Code 8.2820(4) & 8.3035(9)]

3) Parking lots/spaces shall not use or impact public street right-of-way with backing movements, queuing/stacking or other vehicle maneuvering. [COR Code 8.0510(6 & 7)]

4) All new driveway connections shall be constructed per COR Standard Drawings 2-11 thru 2-14. Maximum commercial driveway width = 35 feet. [COR Code 3.300] [CORPWSS Div. II (214)]

5) Postal box installation shall be subject to US Postal Service standards and City Engineer approval. [CORPWSS Design Standards (II)(A)(16)]

2. Water: A twelve (12) inch City water main exists in 35th St. along property frontage. An eight (8) inch City water main and eight (8) inch stub exist in Lava Ave. along property frontage.

A) Connection to the City's public water system shall be required. [COR Code 8.3035(7)(D)]

B) Domestic and/or irrigation water service connection conforming to City standards for institutional/commercial property including City Water Division backflow prevention requirements shall be required with meter located at the property/right-of-way/easement line. A water meter size determination form will be required with building permit submittal to verify adequate service and meter size. A City approved backflow prevention device shall be installed at the point of delivery/property/easement line behind the water meter per COR Standard Drawing 4-18 thru 4-21. Any unused water sewer service shall be abandoned and/or removed per City standards. [COR Code 4.200, 4.161, 8.3035(7)(D)] [CORPWSS Design Standards II(D)(1)(d)]

C) Fire service/sprinkler, private fire hydrant, and irrigation systems shall be subject to City backflow prevention requirements. A detector double check valve assembly (DCDA) shall be installed at the property/right-of-way line per current COR Standard Drawing 4-22 or 4-23. The fire line shall be connected to the City main separate from the domestic service. [COR Code 8.3035(7)(D)] [CORPWSS Design Standards (II)(D)(1)(d)]

D) New fire hydrants and fire/water lines located on-site shall be privately owned and maintained with City approved backflow prevention device located at the property/right-of-way line. [COR Code 8.3035(7)(D)] [CORPWSS Design Standards (II)(D)(1)(d)]

E) Abandonment of any existing water well, cistern or other private water facility located on subject properties shall be in accordance with Oregon Water Resource Department regulations. [CORPWSS Development Provisions 04.7.00 & 22(13)]

3. Wastewater: The fifteen (15) inch Sewer Line 'D' City gravity sewer trunk main exists in 35th St. along property frontage. The twenty-four (24) inch downstream section of Sewer "Line D" exists in SW 35th St. at Highland Avenue. An eight (8) inch City gravity sewer main line exists in Lava Ave. along property frontage.

A) Subject property is located within a sanitary gravity sewer basin to be served by the future twenty-four (24) to thirty (30) inch Far West Sewer Interceptor (FWSI) City gravity sewer trunk main planned in future SW 41st St. roughly 700 ft. west of subject property per the current Redmond Wastewater System Master Plan (RWSMP). The FWSI is currently located in Northwest Way at NW Spruce Ave. more than two (2) miles to the northeast of this proposed development. In the absence of the complete FWSI gravity system, an Infrastructure Allocation Analysis Review dated 2-8-24 has been approved by City Engineering for connection to existing City Sewer Line 'D'. [COR Code 8.0270(3)(C)(12) & COR Code 8.3035(7)(D)] [CORPWSS Development Provisions 03]

B) Connection to the City's public sewer system shall be required. [COR Code 8.3035(7)(D)]

C) Sanitary sewer service connection conforming to City standards for institutional/commercial property including City Wastewater Division pretreatment, monitoring and sampling requirements shall be required. A wastewater pretreatment/discharge survey shall be completed and submitted to the Wastewater Division for each new commercial or institutional user. Any unused sanitary sewer service shall be abandoned and/or removed per City standards. [COR Code 4.337, 4.338(1) & 8.3035(7)(D)] [CORPWSS Design Standards (II)(C)(3)]

D) A sanitary sewer sampling manhole conforming to COR Standard Drawing 3-7 shall be required for the new institutional/commercial sewer connection. The sampling manhole shall be constructed, owned and maintained by the property owner. The manhole may be located at the sewer connection within public right-of-way. Privately owned sampling manholes located within public right-of-way are subject to revocable right-of-way permit approval. At the option of the property owner, the sampling manhole may be located on private property within an easement that provides unobstructed access to City personnel. [COR Code 4.337(1)]

E) Industrial/Commercial Wastewater Discharge – the following regulatory and pretreatment standards may be required and enforced by City Wastewater Division for building, plumbing and/or mechanical permit approval:

1) All waste lines in any institutional or commercial kitchen or food/beverage preparation areas shall be connected to a grease interceptor compliant with the Oregon Plumbing Specialty Code. The plans must indicate the interceptor manufacturer, model, and volume. The installation of an outside gravity grease interceptor is recommended at this site to avoid high maintenance cost and odors that would be associated with a small inside hydro-mechanical grease interceptor. [COR Code 4.337(2)]

2) An oil/water separator, with upstream sediment interceptor and downstream shutoff valve, compliant with the Oregon Plumbing Specialty Code shall be required for all facilities where vehicle washing or oil cleanup is performed or where floor drains are located in a processing or warehouse area. If heated water or detergents are used for washing, a coalescing plate separator is required. The plans must indicate the separator volume, model, and manufacturer. [COR code 4.337(2)]

F) Any existing sewage drill hole, septic tank or other private sewer facility located on subject property shall be permanently abandoned in accordance with Deschutes County and Oregon Dept. of Environmental Quality (DEQ) regulations. [COR Code 4.304(3)] [CORPWSS Development Provisions 04.7.00 & 22(13)]

4. Site Grading and Drainage:

A) All site drainage shall be maintained on each site and shall not drain onto public streets/alleys, neighboring properties or irrigation canal laterals. Storm water runoff from private property shall not impact public right-of-way or easements unless otherwise approved by the Public Works Director or City Engineer. [COR Code 8.3030 & 8.3035(7)(A)] [CORPWSS Development Provisions 23]

B) A comprehensive site grading and drainage plan with erosion/sediment control plan and drainage report shall be submitted for Engineering Division review and shall be subject to current City and Central Oregon Stormwater Manual (COSM) design, construction and testing standards. [COR Code 8.3030 & 8.3035(7)(A)] [CORPWSS Development Provisions 23] [CORPWSS Design Standards (II)(B)]

C) Existing/proposed site drainage facilities and stormwater systems shall have capacity or shall be designed for a 50-year/24-hour storm event (2 inches) and have appropriate pretreatment per current City standards. [CORPWSS Design Standards (II)(B)]

D) Containment of the 100-year/24-hour storm event on-site and outfall shall be required. [CORPWSS Development Provisions 23.2.00(5)]

E) New on-site private drywells and other underground injection control (UIC) systems not part of the public drainage system must be registered and approved and/or permitted by the Oregon Department of Environmental Quality (DEQ) prior to construction or building permit issuance. Contact DEQ UIC Program Coordinator at 503-229-5945. Send copy of completed UIC permit application to DEQ and City of Redmond, 3100 NW 19th Street, Redmond, OR, 97756.

F) UIC locations for pavement area drainage shall not conflict with existing active City municipal, community or private water wells. UIC's serving paved areas may not be located within public or community wellhead protection areas or 500 ft. of existing irrigation or drinking water wells. The location of any proposed UIC within 500 ft. or 2-year time of travel of an existing active water well shall be identified on the plans. [CORPWSS Design Standards (II)(B)(2)(h)] [OAR 340-044-0018]

G) New storm drain ponds, basins or swales shall include eighteen (18) inch filter layer of compost amended topsoil, 3:1 max. side slopes, inlets, surface treatment/landscaping, flood overflow point and erosion control.

H) Erosion control such as rip-rap, drain rock or other energy dissipation will be necessary on inlet/outlet areas or pipes in storm swales and along conveyance swales.

I) Trash enclosure storm drainage shall comply with Central Oregon Stormwater Manual (COSM) Chapter 10 and City Wastewater/Stormwater Div. hydraulic isolation and/or pre-treatment requirements. [COSM 10.3.4]

J) Proposed on-site storm facilities may not be located within existing public right-of-way or easements and shall not impact existing public drainage facilities.

5. Construction Plans: Upon land use approval, a separate set of construction drawings may be submitted directly to the Engineering Division for design review and approval of all proposed and/or required public infrastructure improvements, water/sewer service connections, site grading/drainage and utilities. [COR Code 8.3025(2), 8.3030 & 8.3035(7)(A)] [CORPWSS Development Provisions 04 & 23]



REDMOND FIRE & RESCUE

341 NW Dogwood Avenue, Redmond, OR 97756

Phone: (541) 504-5000 Fax: (541) 526-1254

www.rdmfire.org

March 26, 2024

Kyle Roberts
Planning Director
City of Redmond
411 SW 9th Street
Redmond, OR 97756

Re: Redmond Region Recreation Center
Tax Lot ID: 1513180003100

Dear Kyle,

Thank you for the opportunity to review the proposed site plan surrounding the above-named development project. These notes are provided regarding the plans received March 26, 2024 and are based on the current New Construction Guide. There may be more or less requirements needed based upon the final project design, however, Redmond Fire & Rescue will endorse this proposal predicated on the following criteria and conditions of approval.

FIRE APPARATUS ACCESS:

1. **FIRE APPARATUS ACCESS ROADS:** Access roads shall be provided for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction. Exception: Approved agricultural and equine structures complying with ORS 455.315 are not required to have fire apparatus access roads (see New Construction Guide Appendix C). Access roads are not required to be modified for commercial buildings that undergo a change in occupancy, change in use, or conversion from agricultural or equine exempt to non-exempt unless there is a change to the structure's square footage or building footprint. (OFC 503.1.1)
2. **FIRE ACCESS ROAD DISTANCE FROM BUILDINGS:** The access shall extend to within 150 feet of all portions of the exterior wall of the first story of the building as measured by an approved route around the exterior of the building or facility. (OFC 503.1.1)
3. **ADDITIONAL ACCESS ROADS – COMMERCIAL/INDUSTRIAL HEIGHT:** Buildings exceeding 30 feet in height or three stories in height shall have at least two separate means of fire apparatus access. (D104.1)
4. **AERIAL FIRE APPARATUS ROADS:** Buildings with a vertical distance between the grade plane and the highest roof surface that exceeds 30 feet in height shall be provided with a fire apparatus access road constructed for use by aerial apparatus with an unobstructed driving surface width of not less than 26 feet. For the purposes of this section, the highest roof surface

shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of the parapet walls, whichever is greater. Any portion of the building may be used for this measurement, provided that it is accessible to firefighters and is capable of supporting ground ladder placement. (OFC D105.1, D105.2)

5. **AERIAL APPARATUS OPERATIONS:** At least one of the required aerial access routes shall be located within a minimum of 15 feet and a maximum of 30 feet from the building and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial access road is positioned shall be approved by the Fire Marshal. Overhead utility and power lines shall not be located over the aerial access road or between the aerial access road and the building. (D105.3, D105.4)
6. **MULTIPLE ACCESS ROADS SEPARATION:** Where two access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the area to be served (as identified by the Fire Marshal), measured in a straight line between accesses. (OFC D104.3)
7. **FIRE APPARATUS ACCESS ROAD WIDTH AND VERTICAL CLEARANCE:** Fire apparatus access roads shall have an unobstructed driving surface width of not less than 20 feet (26 feet adjacent to fire hydrants (OFC D103.1)) and an unobstructed vertical clearance of not less than 13 feet 6 inches. (OFC 503.2.1 & D103.1)
8. **NO PARKING SIGNS:** Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles and 20 feet of unobstructed driving surface, “No Parking” signs shall be installed on one or both sides of the roadway and in turnarounds as needed. Signs shall read “NO PARKING - FIRE LANE” and shall be installed with a clear space above grade level of 7 feet. Signs shall be 12 inches wide by 18 inches high and shall have red letters on a white reflective background. (OFC D103.6)
9. **NO PARKING:** Parking on emergency access roads shall be as follows (OFC D103.6.1-2):
 1. 20-26 feet road width – no parking on either side of roadway
 2. 26-32 feet road width – parking is allowed on one side
 3. Greater than 32 feet road width – parking is not restricted**Note:** For specific widths and parking allowances, contact the local municipality.
10. **PAINTED CURBS:** Where required, fire apparatus access roadway curbs shall be painted red (or as approved) and marked “NO PARKING FIRE LANE” at 25-foot intervals. Lettering shall have a stroke of not less than one inch wide by six inches high. Lettering shall be white on red background (or as approved). (OFC 503.3)
11. **FIRE APPARATUS ACCESS ROADS WITH FIRE HYDRANTS:** Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet and shall extend 20 feet before and after the point of the hydrant. (OFC D103.1)
12. **SURFACE AND LOAD CAPACITIES:** Fire apparatus access roads shall be of an all-weather surface that is easily distinguishable from the surrounding area and is capable of supporting not less than 75,000 pounds live load (gross vehicle weight). Documentation from a registered engineer that the final construction is in accordance with approved plans, or the requirements of the Fire Code may be requested. (OFC 503.2.3)

13. **TURNING RADIUS:** The inside turning radius and outside turning radius shall not be less than 30 feet and 50 feet respectively, measured from the same center point. (OFC 503.2.4 & D103.3)
14. **ACCESS ROAD GRADE:** Fire apparatus access roadway grades shall not exceed 10%. Alternate methods and materials may be available at the discretion of the Fire Marshal (for grade exceeding 10%).
15. **ANGLE OF APPROACH/GRADE FOR INTERSECTIONS:** Intersections shall be level (maximum 5%) with the exception of crowning for water run-off. (OFC 503.2.7 & D103.2)
16. **AERIAL APPARATUS OPERATING GRADES:** Portions of aerial apparatus roads that will be used for aerial operations shall be as flat as possible. Front to rear and side to side maximum slope shall not exceed 10%.
17. **GATES:** Gates securing fire apparatus roads shall comply with all of the following (OFC D103.5, and 503.6):
 1. Minimum unobstructed width shall be not less than 20 feet (or the required roadway surface width).
 2. Gates shall be set back at minimum of 30 feet from the intersecting roadway or as approved.
 3. Electric gates shall be equipped with a means for operation by fire department personnel
 4. Electric automatic gates shall comply with ASTM F 2200 and UL 325.
18. **ACCESS DURING CONSTRUCTION:** Approved fire apparatus access roadways shall be installed and operational prior to any combustible construction or storage of combustible materials on the site. Temporary address signage shall also be provided during construction. (OFC 3310.1)
19. **TRAFFIC CALMING DEVICES:** Shall be prohibited on fire access routes unless approved by the Fire Marshal. (OFC 503.4.1).

FIREFIGHTING WATER SUPPLIES:

20. **COMMERCIAL BUILDINGS – REQUIRED FIRE FLOW:** The minimum fire flow and flow duration shall be determined in accordance with OFC Table B105.2. The required fire flow for a building shall not exceed the available GPM in the water delivery system at 20 psi residual. (OFC B105.3)
Note: OFC B106, Limiting Fire-Flow is also enforced, except for the following:
 - The maximum needed fire flow shall be 3,000 GPM, measured at 20 psi residual pressure.
 - Redmond Fire & Rescue does not adopt Occupancy Hazards Modifiers in section B105.4-B105.4.1
21. **FIRE FLOW WATER AVAILABILITY:** Applicants shall provide documentation of a fire hydrant flow test or flow test modeling of water availability from the local water purveyor if the project includes a new structure or increase in the floor area of an existing structure. Tests shall be conducted from a fire hydrant within 400 feet for commercial projects, or 600 feet for residential development. Flow tests will be accepted if they were performed within 5 years as

long as no adverse modifications have been made to the supply system. Water availability information may not be required to be submitted for every project. (OFC Appendix B)

22. **WATER SUPPLY DURING CONSTRUCTION:** Approved firefighting water supplies shall be installed and operational prior to any combustible construction or storage of combustible materials on the site. (OFC 3312.1)

FIRE HYDRANTS:

23. **FIRE HYDRANTS – COMMERCIAL BUILDINGS:** Where a portion of the building is more than 400 feet from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the building, on-site fire hydrants and mains shall be provided. (OFC 507.5.1)

- This distance may be increased to 600 feet for buildings equipped throughout with an approved automatic sprinkler system.
- The number and distribution of fire hydrants required for commercial structure(s) is based on Table C105.1, following any fire-flow reductions allowed by section B105.3.1. Additional fire hydrants may be required due to spacing and/or section 507.5 of the Oregon Fire Code.

24. **FIRE HYDRANT(S) PLACEMENT:** Hydrant placement will be based on the following guidelines: (OFC C104)

- Existing hydrants in the area may be used to meet the required number of hydrants as approved. Hydrants that are up to 600 feet away from the nearest point of a subject building that is protected with fire sprinklers may contribute to the required number of hydrants. (OFC 507.5.1)
- Hydrants that are separated from the subject building by railroad tracks shall not contribute to the required number of hydrants unless approved by the Fire Marshal.
- Hydrants that are separated from the subject building by divided highways or freeways shall not contribute to the required number of hydrants. Heavily traveled collector streets may be considered when approved by the Fire Marshal.
- Hydrants that are accessible only by a bridge shall be acceptable to contribute to the required number of hydrants only if approved by the Fire Marshal.

25. **PRIVATE FIRE HYDRANT IDENTIFICATION:** Private fire hydrants shall be painted red in color. (OFC 507)

26. **FIRE HYDRANT DISTANCE FROM AN ACCESS ROAD:** Fire hydrants shall be located not more than 15 feet from an approved fire apparatus access roadway unless approved by the Fire Marshal. (OFC C102.1)

27. **PHYSICAL PROTECTION:** Where fire hydrants are subject to impact by a motor vehicle, guard posts, bollards or other approved means of protection shall be provided. (OFC 507.5.6 & OFC 312)

28. **CLEAR SPACE AROUND FIRE HYDRANTS:** A 3-foot clear space shall be provided around the circumference of fire hydrants. (OFC 507.5.5)

29. **FIRE DEPARTMENT CONNECTION (FDC) LOCATIONS:** FDCs shall be located within 100 feet of a fire hydrant (or as approved). Hydrants and FDC's shall be located on the same side of the fire apparatus access roadway or drive aisle, fully visible, and recognizable from the street or nearest point of the fire department vehicle access or as otherwise approved. (OFC 912.2.1 & NFPA 13)
- Fire department connections (FDCs) shall normally be located remotely and outside of the fall-line of the building when required. FDCs may be mounted on the building they serve, when approved.
 - FDCs shall be plumbed on the system side of the check valve when sprinklers are served by underground lines also serving private fire hydrants.

See marked up plans for vault details.

BUILDING ACCESS AND FIRE SERVICE FEATURES

30. **EMERGENCY RESPONDER RADIO COVERAGE:** In new buildings where the design reduces the level of radio coverage for public safety communications systems below minimum performance levels, a distributed antenna system, signal booster, or other method approved by Redmond Fire & Rescue shall be provided. (OFC 510)
- Emergency responder radio system testing and/or system installation is required for this building. Please contact me (using my contact info below) for further information including an alternate means of compliance that is available. If the alternate method is preferred, it must be requested from Redmond Fire & Rescue prior to issuance of building permit.
 - Testing shall take place after the installation of all roofing systems; exterior walls, glazing and siding/cladding; and all permanent interior walls, partitions, ceilings, and glazing.

See attached fee estimate for fee in lieu.

31. **KNOX BOX:** A Knox Box for building access may be required for structures and gates. See Appendix B for further information and detail on required installations. Order via www.knoxbox.com or contact Redmond Fire & Rescue for assistance and instructions regarding installation and placement. (OFC 506.1)

Knox box is required to be installed.

32. **FIRE PROTECTION EQUIPMENT IDENTIFICATION:** Rooms containing controls to fire suppression and detection equipment shall be identified as "Fire Control Room." Signage shall have letters with a minimum of 4 inches high with a minimum stroke width of 1/2 inch, and be plainly legible, and contrast with its background. (OFC 509.1)
33. **PREMISES IDENTIFICATION:** New and existing buildings shall have approved address numbers; building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property, including monument signs. These numbers shall contrast with their background. Numbers shall be a minimum of 4 inches high with a minimum stroke width of 1/2 inch. (OFC 505.1)

If you have questions or need further clarification, please feel free to contact me at **541-504-5010**.

Sincerely,

Tom Mooney

Tom Mooney
Fire Marshal
Tom.mooney@rdmfire.org

Cc: File

From: [LandUse](#)
To: [Kyle Roberts](#)
Subject: 711-23-000277-PLNG (ANN), 711-23-000278-PLNG (PA1), 711-23-000279-PLNG (SP) COID Comments
Date: Tuesday, January 16, 2024 10:18:36 AM
Attachments: [lmao001.onq](#)

[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 Kyle,

COID's comments are below. Please let me know if you have any questions. Thanks!

January 16, 2024

Sent Via Email Only

Re: 711-23-000277-PLNG (ANN)
711-23-000278-PLNG (PA1)
711-23-000279-PLNG (SP)
1001 SW 35th Street, Redmond, OR 97756
1513180003100

Please be advised that Central Oregon Irrigation District (COID) has reviewed This proposal includes three distinct applications to annex into Redmond city limits a 10.50-acre parcel and to develop a new regional recreation center. The first application is a request to annex the subject property into Redmond city limits (711-23-000277-PLNG). The second application is a request for an amendment to the Redmond Comprehensive Plan zoning designation from R-5 to Public Facility Zone (711-23-000278-PLNG). The third application is a request for a site & design review for a proposed ~55,500 square foot regional recreation center and associated amenities (711-23-000279-PLNG). (dated January 12, 2024). COID has no facilities or water rights on the subject property (TAXLOT: 1513180003100).

Central Oregon Irrigation District

Spencer Stauffer | Land Use Technician

Central Oregon Irrigation District | [1055 SW Lake Court Redmond, OR 97756](#) | 541.504.7575



ATTACHMENT D

No public comments were received by the Planning Division.



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
www.redmondoregon.gov

March 18, 2024

Kelly Sandow
Sandow Engineering
541.513.3376
kellysandow@sandowengineering.com
160 Madison St. Suite A Eugene, Oregon 97402

Re: Approval Memo for Redmond Recreation Center Traffic Impact Analysis (711-23-000117-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.
- **SW 35th St.** - major collector street. A paved street with curb and sixty (60) ft. public right-of-way, no sidewalk, exists along project/property frontage. A multiuse path conforming to City of Redmond Standards and Specifications is required along SW 35th Street frontage per the Transportation System Plan (identified as B17 and B47 in the TSP). At the discretion of the City Engineer, a payment in lieu of construction of B17 may be allowed. Accessible ramps are required where the path intersects with any roadway(s). Driveway and curb return/ramp improvements conforming to City standards shall be required along property frontage. Existing curb shall be repaired and/or replaced at the discretion of City Engineering Inspector at time of building permit, sidewalk construction or utility work. Ten (10) ft. public right-of-way dedication shall be required along project/property frontage for a total right-of-way width of forty (40) ft. west of centerline and conformance to City major collector street standards per COR Standard Drawing 2-1.
- **SW Lava Ave** - local grid street. A paved street with curb and sixty to seventy (60-70) public right-of-way, no sidewalk, exists along property frontage. New sidewalk, driveway and curb return/ramp improvements conforming to City standards shall be required along property frontage. Existing curb shall be repaired and/or replaced at the discretion of City Engineering Inspector at time of building permit, sidewalk construction or utility work. Unused driveways/curb cuts shall be removed and replaced with City standard curb and sidewalk.
- Directional curb ramps will be required at all intersections serving crossings in all directions.
- A total proportionate share of \$72,800 is required for impacts to OR 126/SW 27th Street, based on the cost of the parallel route improvements at OR 126/SW 35th Street. The proportionate share will not be required if the City adopts a separate funding mechanism that addresses the impacts in their entirety prior to Certificate of Occupancy. The total payment is due prior to Certificate of Occupancy.
- Suitable fire access must be maintained.

Please contact me with any questions.

Lindsey Crowsigt, PE
Assistant City Engineer | City of Redmond | Lindsey.Crowsigt@redmondoregon.gov | 541-306-1647

TECH MEMO

DATE: March 26, 2024

TO: Lindsey Croomsigt, PE
City of Redmond

FROM: Kelly Sandow P.E.
Sandow Engineering

RE: RAPRD- TPR Evaluation



The following provides a trip generation analysis demonstrating compliance with OAR 660-012-0060, Transportation Planning Rule, for the proposed zone change of Tax Lot 3100 of Assessors Map 15-13-19 in Redmond, Oregon.

The site is approximately 10 acres, is vacant, and is currently zoned R-5 High Density Residential. The proposal is to rezone the property from R5 to PF-Public Facilities.

As per OAR 660-012-0060, a Land Use Amendment/zone change is required to demonstrate that the reasonable worst-case development potential of the proposed zoning will not have a significant impact on the adjacent transportation system when compared to the existing zoning/Transportation System Plan.

Existing Zoning Development Potential

The existing zoning is R-5 High-Density Residential. As per Redmond Code of Ordinances Section 8.140 Table B Minimum Standards, the maximum density for developments in an R-5 zone is:

- Single Family= 8/acre
- Duplex= no max density, but minimum parcel size equals about 16/acres
- Townhomes= 25/acre
- Multi-family = 17.4/acre

Therefore, the 10-acre parcel would generate the following:

- 80 single-family units, or
- 160 duplex units, or
- 250 townhomes, or
- 175 Multi-family units

The PM peak hour trips for each scenario above are estimated using the ITE Trip Generation Manuals 11th ed. The most closely matched land uses are:

- 210-Single Family Detached. This ITE land use trip data is used for the single-family lots.
- 215-Single Family Attached. This ITE land use trip data is used for the duplex and townhome units. This land use is defined as single-family units that are attached to another unit by an adjoining side wall, but units are not stacked on top of each other.
- 220-Multi-Family Low Rise. This ITE Land Use is defined as a building with 3 or more attached units and 2-3 floors.

Table 1 provides the PM peak hour trip generation rates for the development scenarios discussed above.

TABLE 1: PM PEAK HOUR TRIP GENERATION ESTIMATES- EXISTING ZONING

Development Scenario	ITE Code	Rate	Trips
80 Single Family Units	210-Single Family Detached	$\ln(T)=0.94\ln(x)+0.27$	81
160 Duplex Units	215- Single Family Attached	$T=0.60(x)-3.93$	92
250 Townhome Units	215- Single Family Attached	$T=0.60(x)-3.93$	146
174 Multi-Family Units	220-Multi-Family Low Rise	$T=0.43(x)+20.55$	95

The Daily Trips for 250 Townhomes are provided in Table 2.

TABLE 2: DAILY TRIP GENERATION ESTIMATES- EXISTING ZONING

Development Scenario	ITE Code	Rate	Trips
250 Townhome Units	215- Single Family Attached	$T=7.62(x)-50.48$	1855

The reasonable worst case development potential for the existing zoning is 250 Townhomes units generating 146 PM peak hour trips and 1,855 daily trips.

Proposed Zoning Development Proposal

The proposed zoning is PF-Public Facility. As per Redmond Code of Ordinances Section 8.210 Table E, the most intensive allowed uses within this zone are:

- Plaza, Amphitheater for Outdoor Events. This land use is unlikely to be constructed at the location due to the need for the event area and parking.

- Recreational and Sports Facilities

The highest intensity use of the PF zoning is a Recreational and Sports Facility. This is similar to what is proposed on site. Considering parking requirements, pedestrian facilities, landscaping, and service areas, the reasonable maximum building square footage is 74,000 square feet. The most appropriate ITE land use is 495-Recreational Community Center. This land use is described as a stand-alone public facility that includes several indoor and recreational activities for adults and children. Following the ITE methodology, the vehicle trips are estimated using the average rate. This is due to the number of studies and the R^2 value. The independent value is the building's square footage. Table 3 provides the trip generation estimates for the proposed development.

TABLE 3: RIP GENERATION ESTIMATES- PROPOSED ZONING

Time Period	Size (sf)	Rate	Trips
ADT	74.0	28.82	2,133
PM Peak Hour	74.0	2.5	185

As demonstrated in Table 3, the reasonable worst-case development potential of the existing zoning will generate 185 PM peak hour trips and 2,133 daily trips.

Findings

The reasonable worst-case development for the existing zoning will generate 147 PM peak hour trips and 1,855 daily Trips. The reasonable worst-case development potential of the proposed zoning will generate 185 PM peak hour trips and 2,133 daily trips.

TRAFFIC IMPACT ANALYSIS

REDMOND REGION RECREATION CENTER

REDMOND AREA PARK AND RECREATION DISTRICT

Redmond, Oregon

December 8, 2023

Updated March 8, 2024

160 Madison Street, Suite A
Eugene, Oregon 97402
541.513.3376

SANDOW
ENGINEERING

Traffic Impact Analysis

Redmond Region Recreation Center



Redmond, Oregon

December 8, 2023

Updated March 8, 2024

Kelly Sandow PE

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160 Madison Street, Suite A

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project # 6079

EXECUTIVE SUMMARY

This report provides the Traffic Impact Analysis and findings prepared for the proposed Redmond Area Parks and Recreation District's new Region Recreation Center in Redmond, Oregon. The subject site is located at 1001 SW 35th Street. The site is currently vacant, and the applicant is proposing the construction of a recreational center containing a 74,000-square-foot indoor recreational building, outdoor playing fields and courts, and a playground area.

The analysis evaluates adjacent roadways and intersections for the existing conditions and conditions with the full completion of the recreation center.

FINDINGS

- The addition of development traffic will not degrade any of the study intersections to below the acceptable mobility standards.
- The addition of development traffic will not substantially increase queuing conditions over the background conditions.
- All site driveways are projected to operate safely and efficiently.
- The addition of development traffic at the studied intersections will not perpetuate any existing crash patterns. Additionally, the existing crash data does not indicate a high crash rate or apparent pattern of crashes at the study area intersections that should be mitigated.
- The intersection of Highland Avenue at 27th Street currently does not meet the ODOT mobility standards during the PM peak hour. The v/c is projected at 1.06 for the year 2025 and 1.08 for the year 2030 PM peak hour conditions. The addition of development trips does not increase the v/c. As per ODOT criteria, if the v/c is not worsened, mitigation is not triggered. Therefore, no mitigation is required for this intersection.
- The intersection of Highland Avenue at Rimrock Way currently does not meet the ODOT mobility standards during the PM peak hour. The v/c is projected at 1.05 for the year 2025 and 1.10 for the year 2030 PM peak hour conditions. The addition of development trips does not increase the v/c. As per ODOT criteria, if the v/c is not worsened, mitigation is not triggered. Therefore, no mitigation is required for this intersection.
- At the intersection of Highland Avenue at 35th Street, the southbound approach will not meet the v/c standard in the background conditions. The City has this intersection included in the System Development Charge/Capital Improvement list. Therefore, no further proportionate share contribution or further mitigation is required by this project.
- At the intersection of 35th Street at Obsidian Avenue, there is vegetation in the northwest corner that restricts the line of sight to the west to approximately 430 feet. This is likely an attributing factor to the crash patterns seen at this intersection. It is recommended that this vegetation be removed.

- At the intersection of 35th Street at Obsidian Avenue, on-street parking and vegetation within the northeast corner restrict the available line of sight to the east to approximately 100 feet. Again, this is likely an attributing factor to the crash patterns seen at this intersection. It is recommended that this vegetation be removed. Additionally, it is recommended that no parking be allowed along the north side curb line within 100 feet of the curb line for 35th Avenue. This will allow a line-of-sight of approximately 275 feet, meeting the minimum requirement, which is the SSD.

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1.0 PROJECT INFORMATION

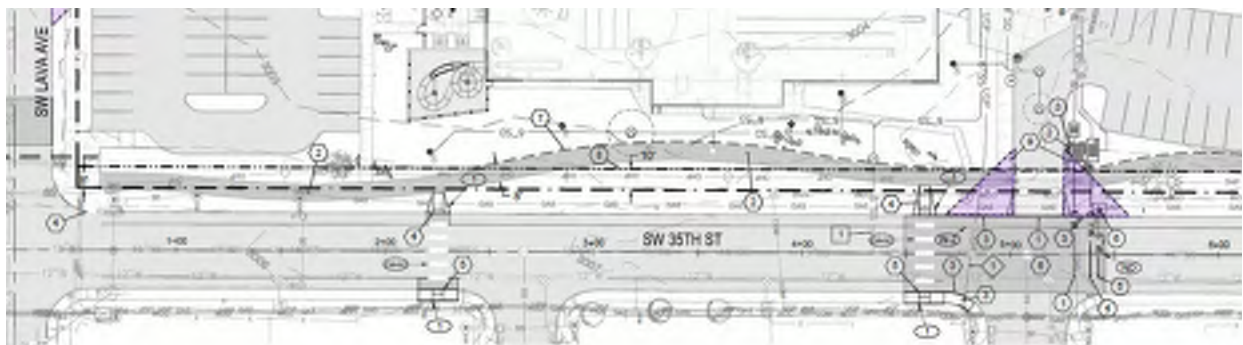
This report provides the Traffic Impact Analysis and findings prepared for the proposed Redmond Area Parks and Recreation District's (RAPRD) new Region Recreation Center in Redmond, Oregon. The subject site is located at 1001 SW 35th Street at Tax Lot 3100 of Assessor's Map 15-13-18. The site is bounded by SW 35th Street to the east and SW Lava Avenue to the south. Figure 1 contains the site location.

The site is approximately 10 acres, is currently vacant, and is zoned R-5 High Density Residential.

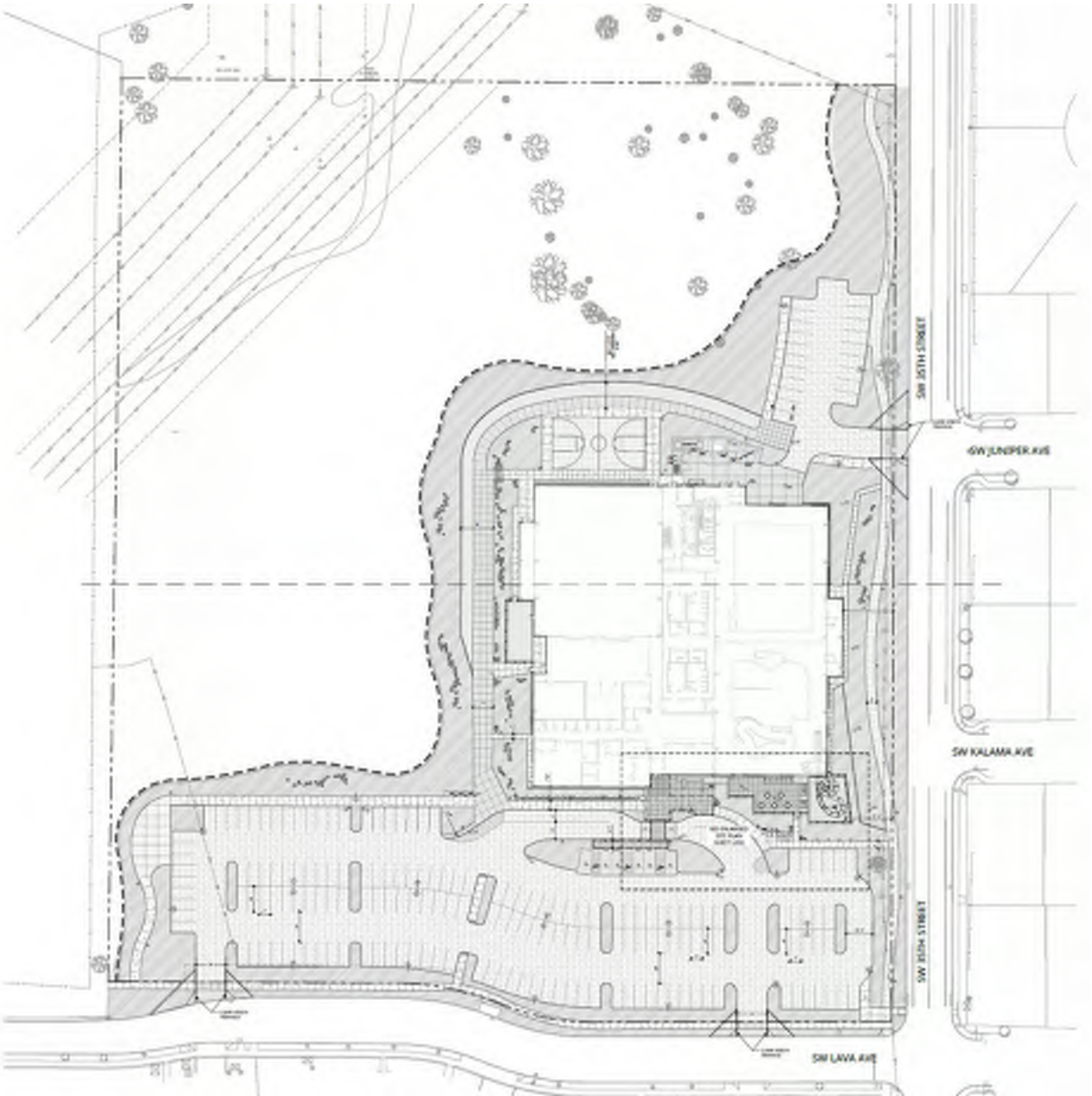
RAPRD is proposing a new recreational center with a 74,000 square foot building containing indoor recreational facilities such as a swimming pool, ball courts, locker room, and workout areas and outdoor recreational activities such as playing field, pickleball courts, picnic area, playground, and splash pad. The site plan is included in Appendix A.

Vehicle access to the site will be from three new access connections. One access will be from 35th Street, aligning with Juniper Street. This will be a full movement access and will connect to the smaller parking area in the northeast corner of the site. Two access connections will be from Lava Avenue. These connections will both be full movement accesses and will connect to the larger parking area at the south end of the site.

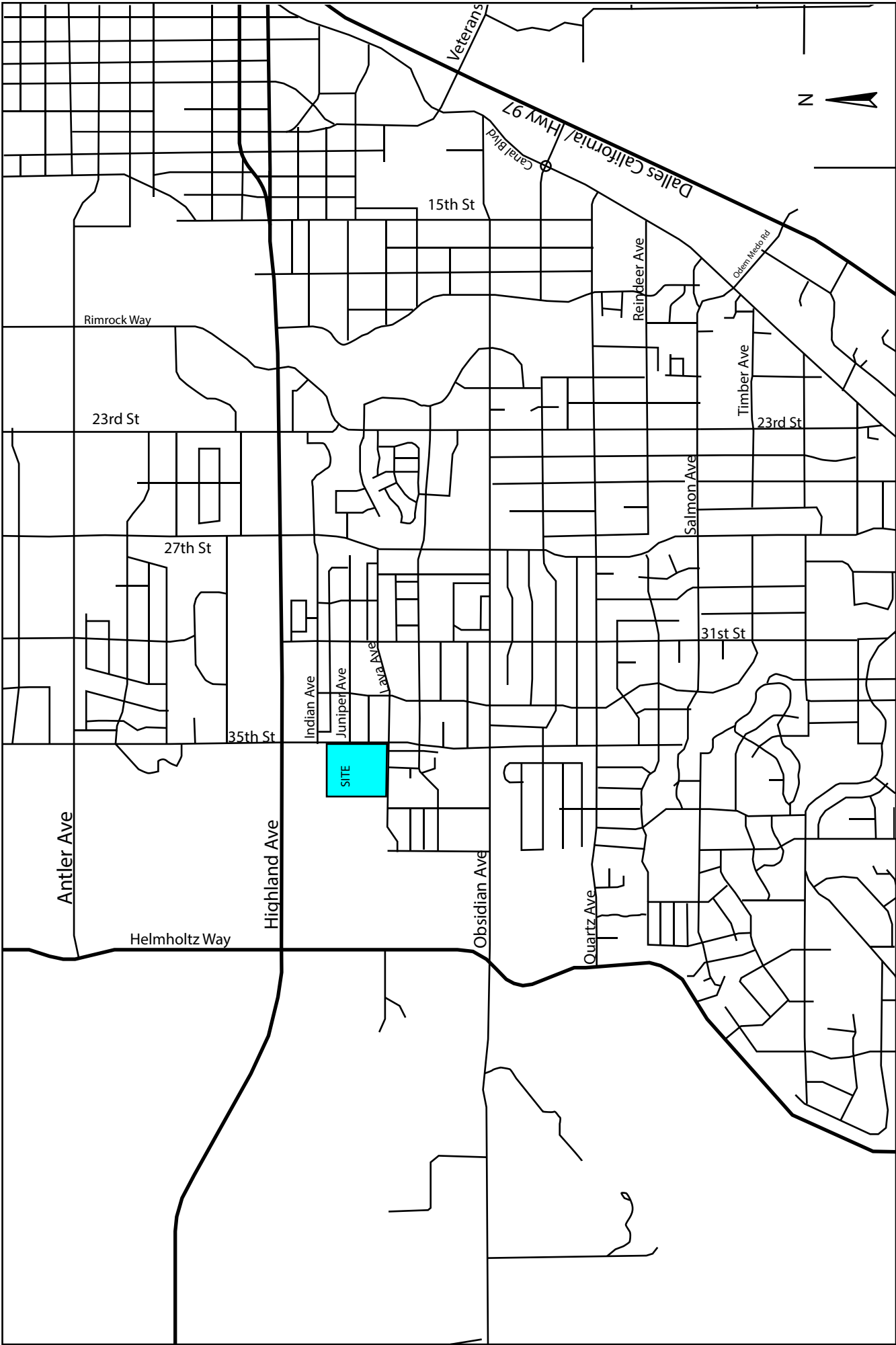
The project includes the construction of a set-back asphalt multi-use path along the 35th Street frontage and a set-back sidewalk along the Lava Avenue frontage. Pedestrian access will be provided via multiple walkways connecting to the new sidewalk/multi-use path. High visibility crosswalk striping and rectangular rapid flashing beacons will be placed across 35th Street along the south side of the intersection with Juniper Avenue and just south of Kalama Avenue.



35th Street Crosswalks



Site Plan



Redmond Region Recreation Center, Redmond, OR

Figure 1: Site Location and Vicinity Map

2.0 SCOPE OF WORK

The traffic study is performed in accordance with the Traffic Impact Analysis requirements found within the Redmond Development Code Section 8.2815. As per Section 8.2815, the following is required in the analysis. Appendix B contains the scope of work coordinated with the City of Redmond.

1) Trip Generation evaluation for the Daily Trips and PM Peak Hour trips

As demonstrated in Section 3.0 of this report, the site is anticipated to generate an additional 2,133 Daily trips and 185 PM peak hour trips, triggering a Traffic Impact Analysis.

2) The Traffic Impact Analysis is performed for the following:

- i. Access Connections
- ii. Nearest intersecting Collector or Arterial streets
- iii. Any Collector or Arterial Street connection that will have an additional 25 peak hour trips from the development

Evaluation is to be completed for:

- i. Existing conditions, year 2023
- ii. Anticipated Year of Completion, year 2025, with and without the proposed development
- iii. 5-year forecast beyond completion, year 2030, with and without the proposed development

3) The analysis includes:

- i. Level of Service
- ii. Volume to Capacity
- iii. 95th percentile queuing
- iv. Turn lane warrant analysis
- v. Crash evaluation
- vi. Sight Distance
- vii. Signal Warrant analysis
- viii. ADT analysis for adjacent local streets

3.0 SITE TRIP GENERATION AND DISTRIBUTION

3.1 TRIP GENERATION

The pm peak hour vehicle trips generated by the site are estimated using the ITE Trip Generation Manuals 11th ed. The most appropriate ITE land use is 495-Recreational Community Center. This land use is described as a stand-alone public facility that includes several indoor and recreational activities for adults and children. Following the ITE methodology, the vehicle trips are estimated using the average rate. This is due to the number of studies and the R² value. The independent value is the building's square footage. Table 1 provides the trip generation estimates for the proposed development.

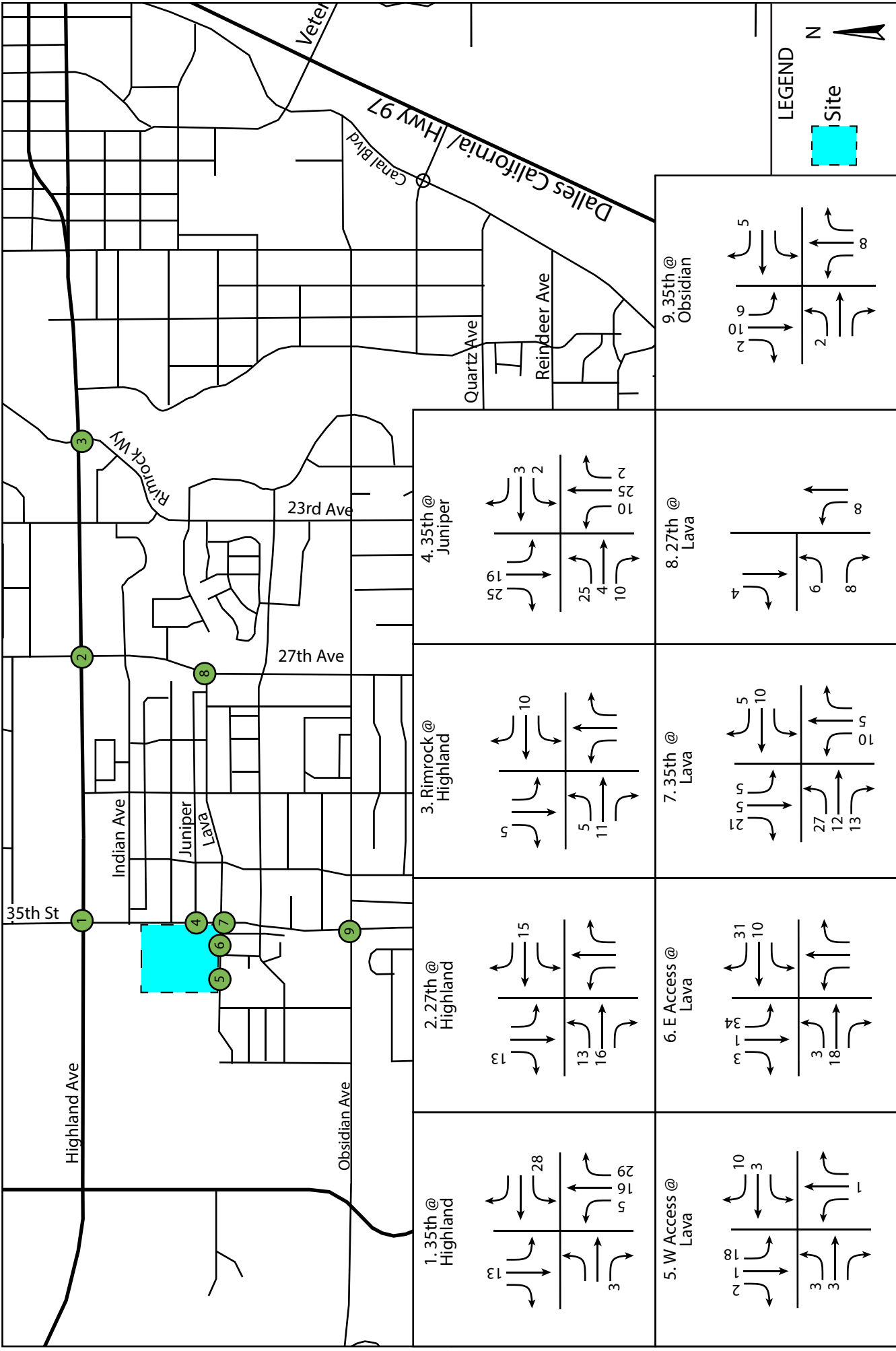
TABLE 1: TRIP GENERATION

Time Period	Size (sf)	Rate	Trips	In	Out
ADT	74.0	28.82	2,133	(50%) 1,066	(50%) 1,067
PM Peak Hour	74.0	2.5	185	(47%) 87	(53%) 98

3.2 TRIP DISTRIBUTION

The vehicle trips are distributed on the system based on the existing traffic patterns and reasonable origins and destinations. Figure 2 provides the PM peak hour trip distribution. The trip distribution within the area is as follows.

- 20% to/from south on 35th
- 40% to/from east
- 10% to/from west
- 30% to/from north of Highland Ave



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Figure 2: PM Development Trip Distribution

4.0 EXISTING ROADWAY CONDITIONS

4.1 STUDY AREA

All intersections that are collector or arterial streets directly upstream or downstream of the site and any collector or arterial street intersections with 25 or more added trips from the development proposal are to be included in the study. All collector or arterial street intersections receiving 25 or more development trips are the following:

- Highland Avenue at 35th Street
- Highland Avenue at 27th Street
- Highland Avenue at Rimrock Way
- 35th Street at Access/Juniper Avenue
- 35th Street at Lava Avenue
- 35th Street at Obsidian Avenue
- Lava Avenue at 27th Street

The nearest collector or arterial intersections are 35th Street at Highland Avenue and 35th Street at Obsidian Avenue. These intersections are included within the study.

4.2 STREET NETWORK

The characteristics of roadways with intersections receiving 25 or more vehicle trips from the recreation center are included in Table 2.

TABLE 2: ROADWAY CHARACTERISTICS WITHIN STUDY AREA

Characteristic	Highland Avenue	35 th Street	Lava Avenue	Obsidian Ave	27 th Street	Rimrock Way
Jurisdiction	ODOT	City	City	City	City	City
Functional Classification	Statewide	Major Collector	Local	Minor Collector	Minor Arterial	Major Collector
Posted Speed	35-55	25/35	25	35/45	35	35
Lanes per Direction	1-2	1	1	1	1	1
Center Left Turn lane	East of 27 th	None	None	None	Yes	Yes
Restrictions in the Median	Yes	None	None	None	None	None
Bikes Lanes Present	Yes	Yes	None	Intermittent	Yes	Yes
Sidewalks Present	-South side only between 35 th and 23 rd -Both sides east of 23 rd	Yes, missing between Highland and Lava	Yes, missing along the frontage	East of 39 th	Yes	Yes
Transit Route	Yes	No	No	No	No	No
On-Street Parking	No	-Intermittent north of Obsidian -East side south of Obsidian	Yes	East of 35 th	No	No

4.3 INTERSECTION CONFIGURATION

The following describes the intersections included within the study. Figure 3 provides an illustration of the intersection control and lane configurations.

Highland Ave at 35th Street: This is a 4-legged, 2-way stop-controlled intersection. Highland Avenue is the free movement, and 35th Street is the stop-controlled approach. There are separate left turn pockets on Highland and separate right turn pockets on 35th Street. The southeast corner has sidewalks and ADA ramps. All the other approaches are unimproved.

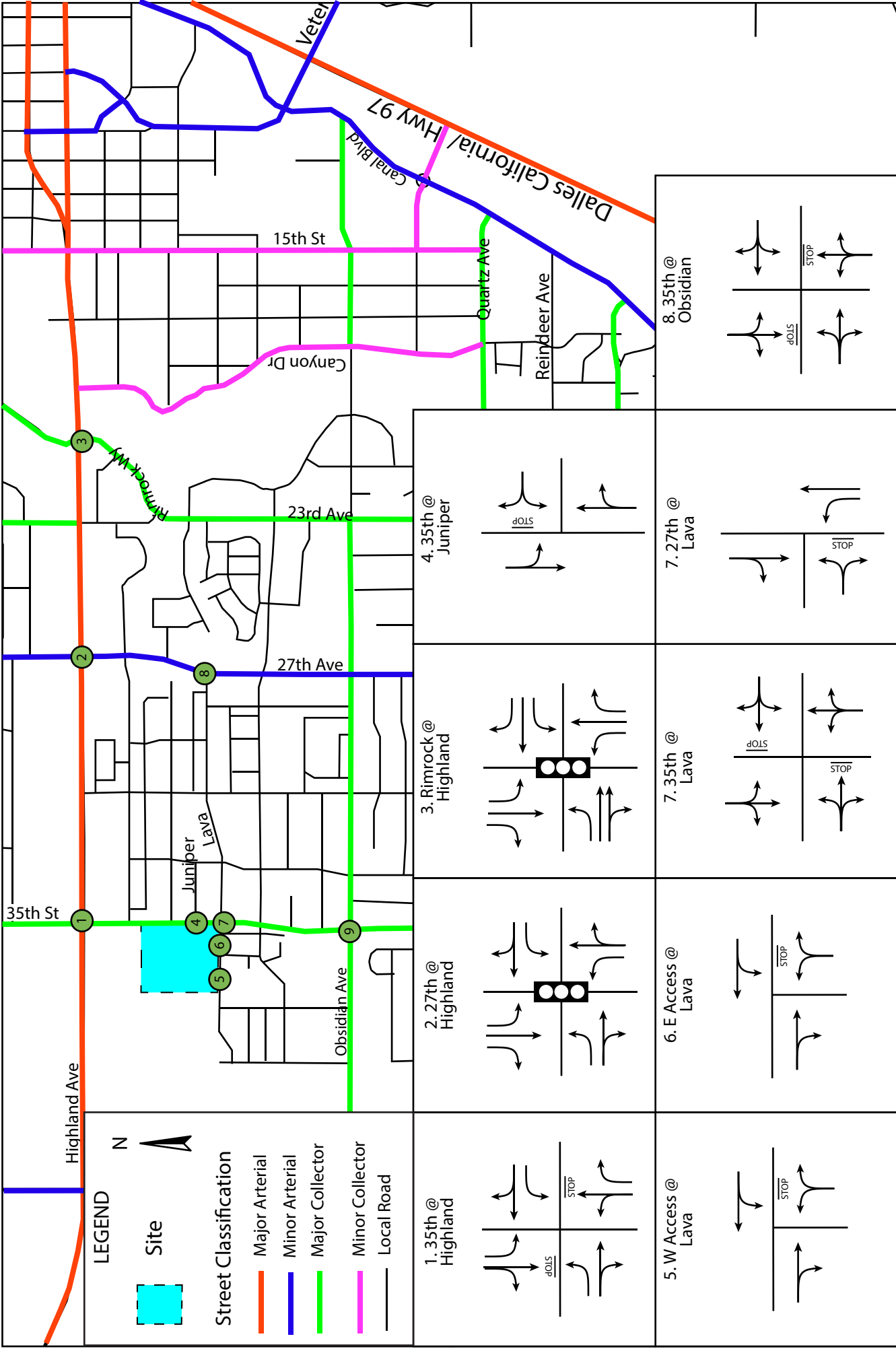
Highland Ave at 27th Street: This is a 4-legged signalized intersection. All four approaches have separate left turn lanes with protective-permissive-phasing, and the southbound approach has a separate right turn pocket. All 4 approaches have ADA ramps, marked pedestrian crosswalks, and bike lanes.

Highland Avenue at Rimrock Way: This is a 4-legged signalized intersection. All four approaches have separate left turn lanes with protective-permissive phasing and separate right turn pockets on three of the approaches. Highland Avenue has two lanes in each direction from this intersection east. All four approaches have ADA ramps, marked pedestrian crosswalks, and bike lanes.

35th Street at Lava Avenue: This is a 4-legged, 2-way stop-controlled intersection. The Lava Ave approaches have the stop control. Currently, the northeast corner does not have sidewalks or ramps, which will be constructed with this project. There are no marked crosswalks. 35th Ave has marked bike lanes on both sides.

Lava Avenue at 27th Street: This is a stop control T-intersection with Lava as the stop control. There is a separate left turn pocket on 27th St. There are ADA ramps but no marked crosswalks on all approaches. 27th St has striped bike lanes with buffer striping.

35th Street at Obsidian Avenue: This is a 4-legged, 2-way stop-controlled intersection. Obsidian Ave has on street parking east of 35th St and bike lanes west of 35th Ave. 35th Avenue has striped bike lanes on both sides north of Obsidian and a striped bike lane on the west side of Obsidian. All approaches have ADA ramps and no marked crosswalks.



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Figure 3: Intersection Control, Lane Configuration

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4.4 INTERSECTION CRASH EVALUATION

A crash investigation was performed for the study area intersections. The analysis investigates crashes that have been reported to the state for the most recent 5 years, 1/01/2017-12/31/2021, to determine the crash rate in crashes per million vehicles on the roadway and the types of crashes that occurred. Crash data for the year 2022 is incomplete at this time and, therefore, not used in the analysis. The crash data is evaluated as per ODOT's Analysis Procedures Manual methodology utilizing the Highway Safety Manual's critical crash rate calculations. The crash rate is compared to the calculated critical crash rate. If the crash rate exceeds the critical crash rate, the location is investigated for further mitigation measures. Crash data was provided by ODOT for the study area and included in Appendix C. The results of the crash analysis are provided in Table 3. The crash summary is provided in Table 4.

TABLE 3: INTERSECTION CRITICAL CRASH RATE

Location	Intersection Type	Number of Crashes	AADT	MEV	Crash Rate	Critical Crash Rate	
Highland at 27 th	Stop	24	20,070	36.63	0.66	0.86	Under
Highland at 35 th	Signal	19	16,250	29.66	0.64	0.75	Under
Lava at 27 th	Stop	2	6,250	11.14	0.18	0.91	Under
Obsidian at 35 th	Stop	3	2,880	5.26	0.57	1.13	Under
Highland at Rimrock	Signal	32	28,530	52.07	0.61	0.82	Under

There were no reported crashes at the intersections of 35th St at Lava Ave and 35th St at Juniper within the past 5 years.

TABLE 4: INTERSECTION CRASH RATES

Location	Number of Crashes	Types of Crashes						Ped/ Bike
		Fatality	Head	Rear	Side	Turn	Other	
Highland at 27 th	24	0	0	15	0	5	4	0
Highland at 35 th	19	0	0	2	1	4	12	0
Lava at 27 th	2	0	0	0	1	0	1	0
Obsidian at 35 th	3	0	0	0	0	0	3	0
Highland at Rimrock	32	0	0	12	3	16	1	0

All intersections have crash rates lower than the critical crash rates.

A majority of crashes at the intersections of Highland at 27th and Highland at Rimrock are rear-end crashes. Rear-end crashes are not uncommon at high volume signalized intersections. Typically, the mitigation for rear-end collisions is the adjustment of the change and clearance intervals.

At the intersection of Highland at 35th, 12 of the 19 crashes were classified as “other” crashes. These crashes are the result of through vehicles on Highland Avenue and vehicles on 35th St crossing Highland on a straight-through movement. A majority of these types of crashes involved westbound traveling vehicles. There are no line-of-sight issues. Therefore, the crashes are likely due to high volume and limited gaps in traffic. The TSP identified a priority improvement project of a traffic signal or a roundabout at this location will significantly reduce or eliminate this type of crash.

There were 3 crashes reported at the intersections of Obsidian at 35th Street. All 3 crashes involved a westbound traveling vehicle and a vehicle entering from 35th St. These crashes are likely a result of obstruction/limited line of sight. The line-of-sight limitations and mitigation recommendations are discussed further in Section 9.0.

4.5 SPIS EVALUATION

ODOT uses the Safety Priority Index System (SPIS) to identify and prioritize locations for safety improvements. Roadway segments with crashes are given a SPIS score based on three years of crash data evaluating the crash frequency, crash rate, and crash severity. If a site is identified in the top 5% SPIS ranking, then a safety investigation is performed to determine the appropriate safety improvements.

Highland Avenue at Helmholtz Way has an SPIS ranking between 90%-94.99%.

Highland Avenue at Rimrock Way has an SPIS ranking of 85%-89.99% and 90%-99.99%.

5.0 INTERSECTION TRAFFIC VOLUMES

5.1 INTERSECTION COUNTS

As part of the analysis, PM peak hour turning movement counts were collected at the site accesses and study area intersections. Highland Ave at 35th, 27th, and Rimrock Avenue counts were taken in May 2023. All other intersection counts were taken in November 2023. Traffic counts were performed for the weekday peak period of 4:00 PM to 6:00 PM, with the exception of Obsidian at 35th. This intersection count was performed from 3:00 PM to 6:00 PM to verify that the peak of this area does not occur before the 4–6 PM period.

The turning movement counts illustrate that the weekday peak PM hour occurs from 4:30 to 5:30 PM. The traffic volumes are included in Appendix D.

5.2 SEASONAL ADJUSTMENT

The application of seasonal adjustment factors accounts for the fact that through volumes along State Highways fluctuate from month to month due to changes in recreational behavior, etc. The design hour traffic volumes are adjusted to reflect traffic conditions on roadways during the peak month of the year using a seasonal adjustment factor.

The seasonal adjustment was determined using the methodology outlined by ODOT's *ANALYSIS PROCEDURES MANUAL (APM)*. ODOT has an automatic traffic recorder ATR 09-021 located approximately 2.0 miles to the east. The ATR demonstrates a peak season of July with a seasonal adjustment factor of 1.12 for the May counts.

There is a significant difference in traffic volumes and roadway characteristics between the ATR location and the study intersections on Highland Avenue. Therefore, ODOT's Seasonal Trend Table was used to verify the seasonal adjustment factor. The seasonal adjustment factor for the "summer" trend is 1.16, with a peak in July, and the "commuter" trend is 1.03, with a peak in August. Therefore, the ATR is determined to be a reasonable representation of peak season volumes on Highland through the study area. The seasonal adjustment factor of 1.12 was applied to the base traffic volumes to represent peak volumes.

5.3 FUTURE YEAR BACKGROUND VOLUMES

Consistent with the traffic impact analysis criteria, the intersections were evaluated for the year of completion-year 2025 and a 5-year planning horizon-year 2030. A growth rate of 2% per year was used for this study.

5.4 IN-PROGRESS TRIPS

Vehicle trips from nearby in-progress developments are added to the background volumes. These trips are from projects that have been approved but have not been completed/occupied. The in-progress developments are:

- 15-178CP Obsidian Master Plan TIA 12-3-15
- 15-178CP Obsidian Master Plan addendum 4-20-16
- 15-178CP Obsidian Master Plan TIA addendum 10-12-16
- 20-067PLNG-SUB Summerhaven Ph2-4 TIA 6-29-20
- 20-163PLNG-SUB Lavawood TIA 9-23-20
- 20-203PLNG-SUB Ward Commons Trip Gen 9-28-20
- 21-230PLNG-SUB Feather Ridge TIA 8-6-21
- 711-15-000088-PUD Obsidian Trails TIA update 10-1-15
- TSAA- Little Texas North TIA Scoping 6-15-23
- TSAA- Nelson Farms Sub TIA 7-21-23
- TSAA-Spruce NW TIA 7-5-23
- TSAA Starview Sub TIA 9-15-23

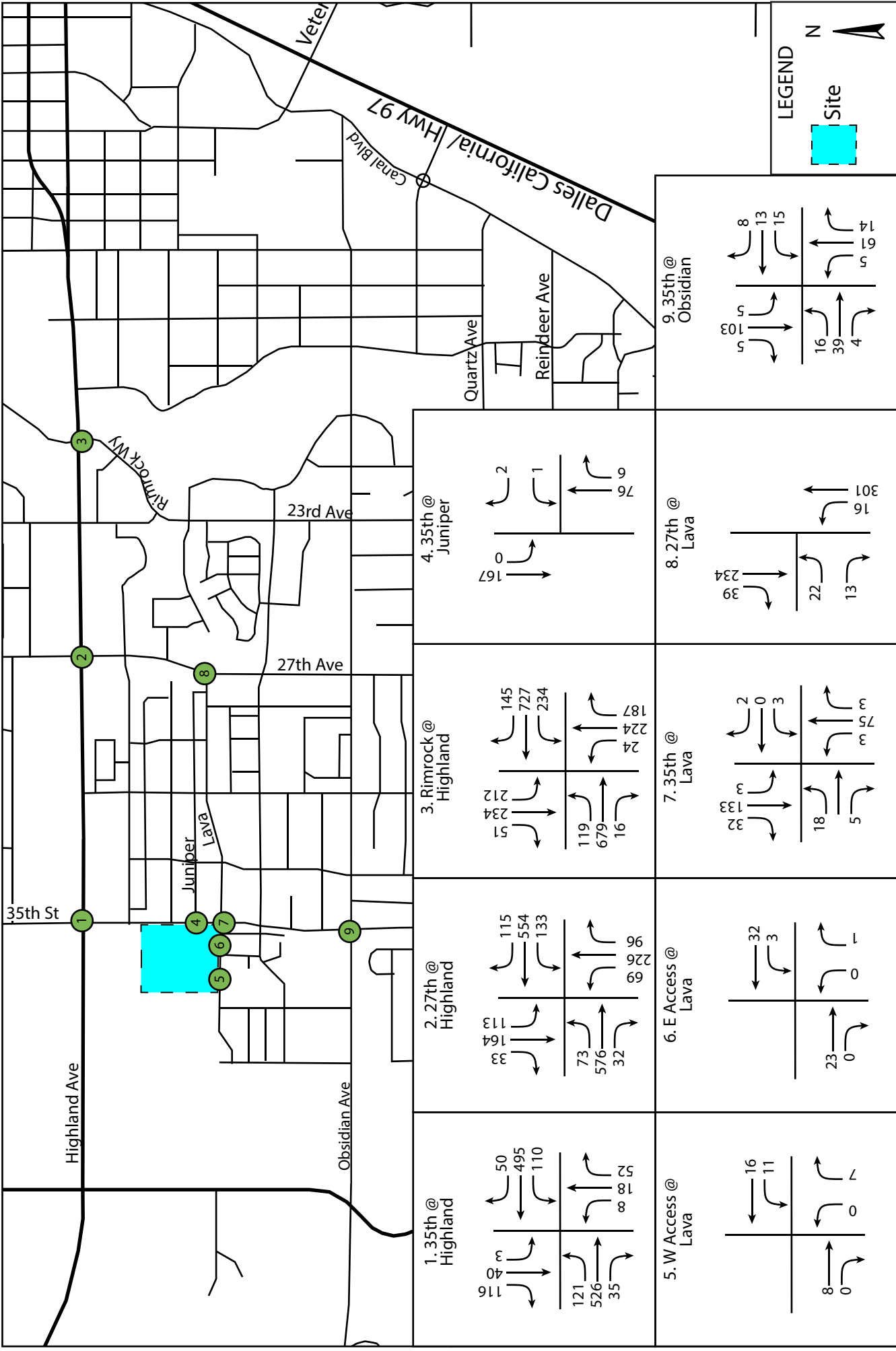
- TSAA Vollersten TIA 5-22-23

Several of the projects have had a portion of the development completed at the time of traffic counts. For these projects, the development trips were adjusted to reflect what has not currently been completed. Appendix D contains the trip distributions for these developments.

5.5 PEAK HOUR VOLUMES

The existing traffic volumes were adjusted according to the methodology described above. The development trips were added to the background volumes to represent traffic conditions with the recreation facility. The traffic volumes are illustrated in the following:

- Figure 4- 2023 PM Background
- Figure 5- 2025 PM Background
- Figure 6- 2030 PM Background
- Figure 7- 2025 PM with Development
- Figure 8- 2030 PM with Development



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Figure 4: Year 2023 Background Traffic Volumes

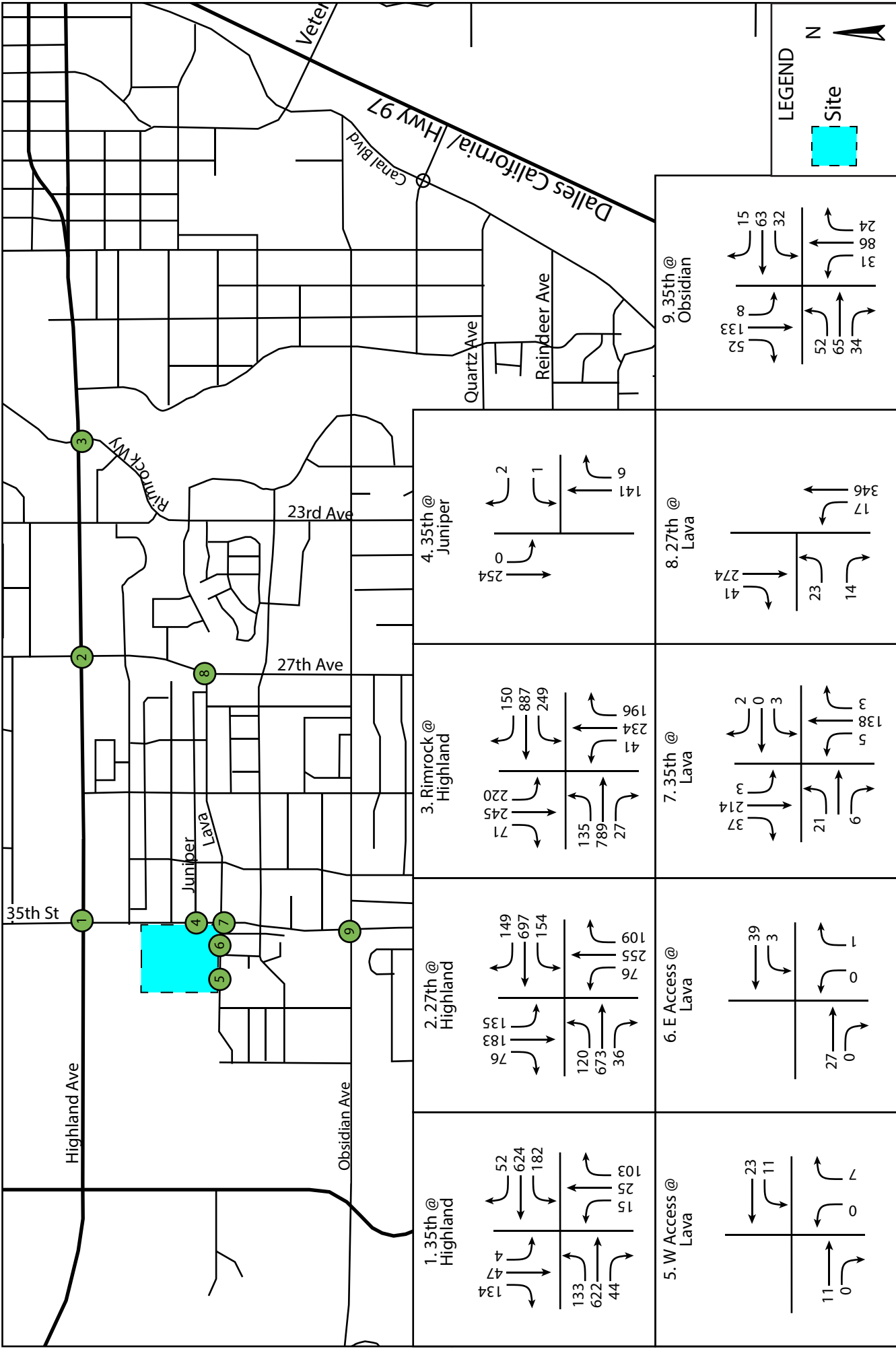
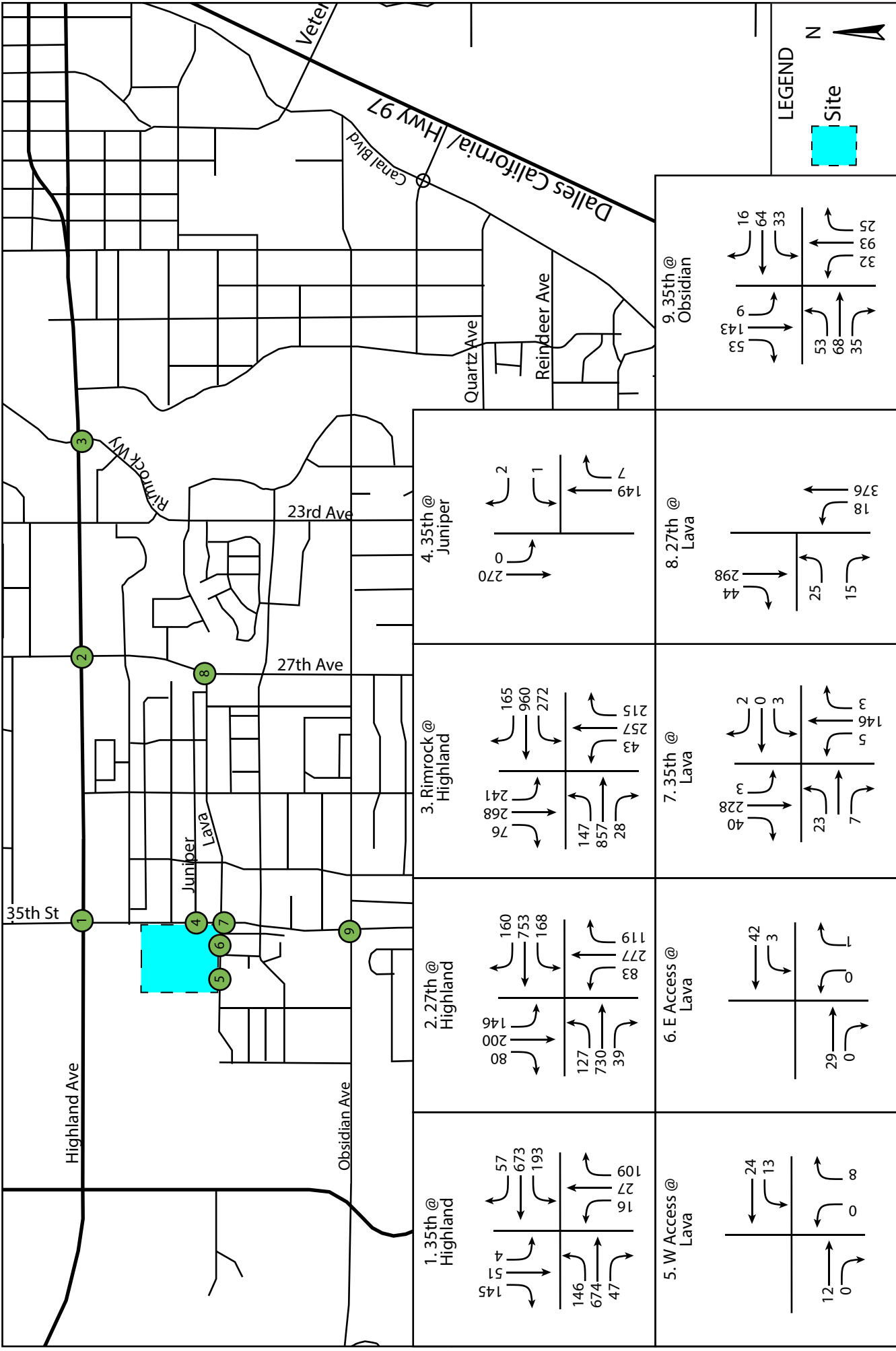
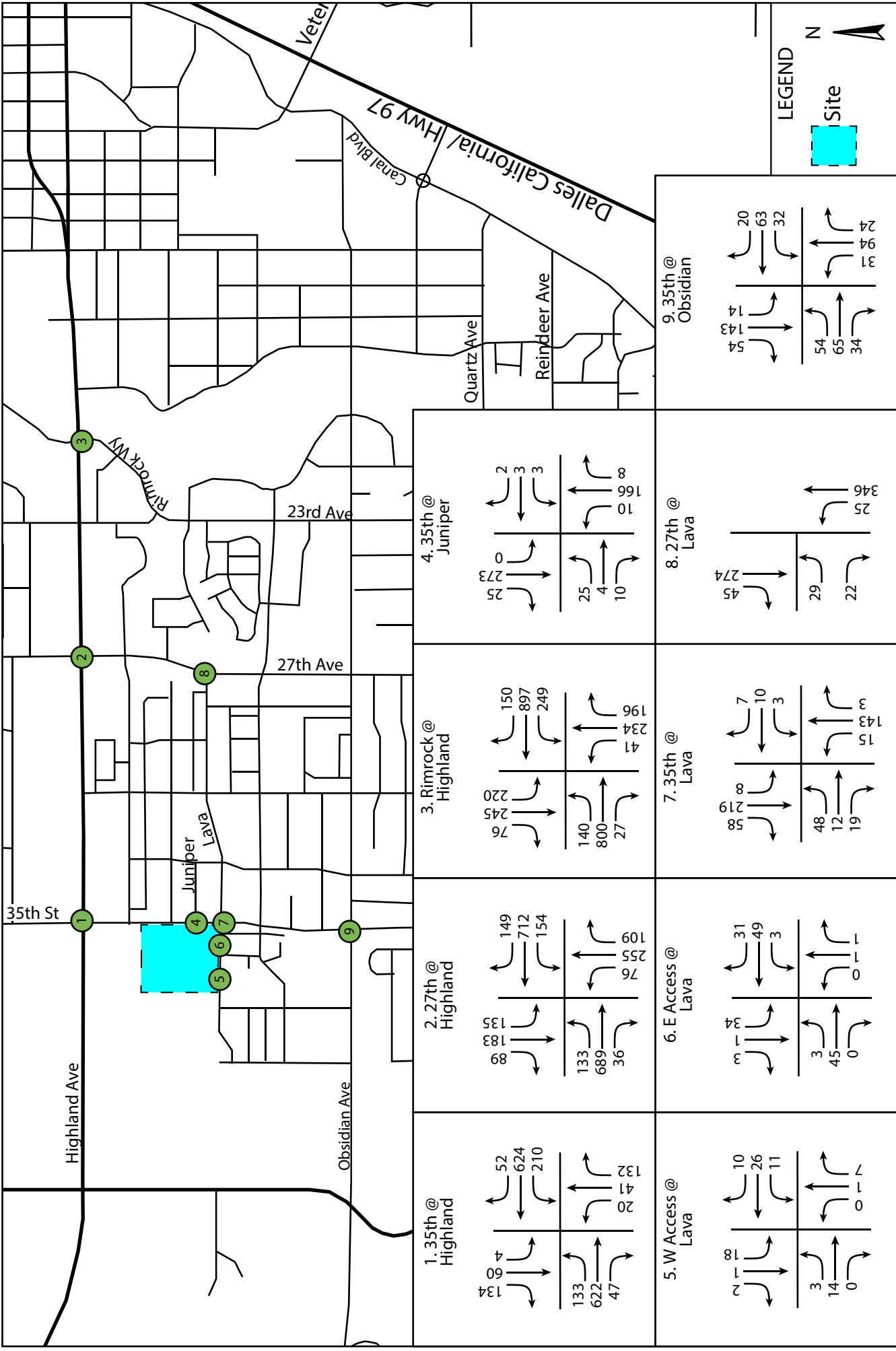


Figure 5: Year 2025 Background Traffic Volumes



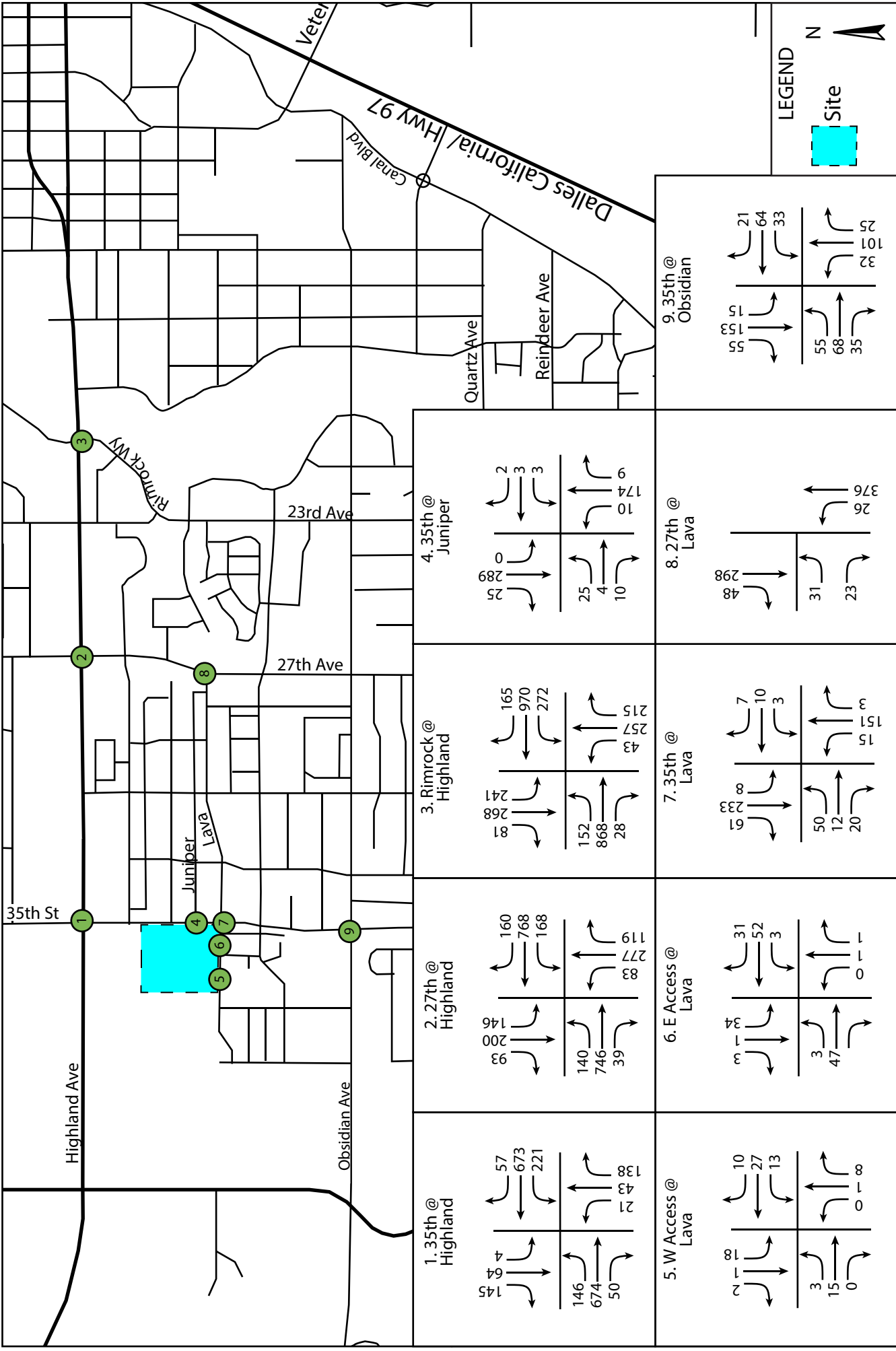
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Figure 6: Year 2030 Background Traffic Volumes



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Figure 7: Year 2025 Traffic Volumes with Development



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Figure 8: Year 2030 Traffic Volumes with Development

6.0 INTERSECTION ANALYSIS

6.1 PERFORMANCE MEASURES

The intersections are evaluated using the volume-to-capacity (v/c) ratio and level of service (LOS) standards. The volume-to-capacity ratio describes the capability of an intersection to meet volume demand based on the maximum number of vehicles that could be served in an hour. V/C is the threshold for which ODOT evaluates the operation of intersections within their jurisdiction, as defined by the Oregon Highway Plan. For signalized intersections, the v/c thresholds are defined based on roadway classification and speed. Highland Ave is a Freight Route on a Statewide Highway with a posted speed of between 35 and 45. For stop-controlled intersections, the main line has a v/c standard based on the roadway classification and posted speed, and the stop-controlled approach v/c standard is that of a district/local interest road. All intersections are within the Urban Growth Boundary, not in an MPO, and not in an STA. The v/c standards for the Highland intersections are:

- Highland Ave at 35th St: Main Line= 0.80, Stop-Approach= 0.90
- Highland Ave at 27th St: 0.80
- Highland Ave at Rimrock Way: 0.85

The second measure of performance for intersections in this analysis is based on the Highway Capacity Manual (HCM) defined level of service (LOS). LOS is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or along a roadway segment. It was developed to quantify the quality of service of transportation facilities. The City of Redmond has an LOS threshold of E for their facilities.

The LOS criteria, as defined by the Highway Capacity Manual (HCM 6) for intersections, is provided in Table 5.

TABLE 5: HCM LEVEL OF SERVICE FOR INTERSECTIONS

	Stopped Delay Per Vehicle (Seconds per Vehicle)	
	Unsignalized Intersections	Signalized Intersections
A	≤ 10.0	≤ 10
B	> 10.0 and ≤ 15.0	> 10 and ≤ 20
C	> 15.0 and ≤ 25.0	> 20 and ≤ 35
D	> 25.0 and ≤ 35.0	> 35 and ≤ 55
E	> 35.0 and ≤ 50.0	> 55 and ≤ 80
F	> 50.0	> 80

6.2 INTERSECTION OPERATION

For this study, the level of service and volume to capacity intersection analysis was completed according to the Highway Capacity Manual (HCM6) method implemented in SYNCHRO Version 10. The results are illustrated in Table 6 for the PM peak hour. Appendix E includes the Synchro outputs.

TABLE 6: INTERSECTION PERFORMANCE: WEEKDAY PM PEAK HOUR

Intersection	Mobility Standard	2023 No-Build	2025 No-Build	2025 Build	2030 No-Build	2030 Build
Highland at 35th	Mainline v/c 0.80	0.12, A	0.20, A	0.22, B	0.23, B	0.26, B
	Stopped v/c 0.90	0.53, F	1.49, F	>2.0, F	>2.0, F	>2.0, F
Highland at 27th	v/c 0.80	0.89, C	1.06, D	1.06, E	1.08, D	1.08, E
Highland at Rimrock 35th at Obsidian	v/c 0.85	0.94, C	1.05, D	1.05, E	1.10, D	1.10, E
Northbound	LOS E	B	C	C	C	C
Southbound		B	B	C	C	C
Eastbound		A	A	A	A	A
Westbound		A	A	A	A	A
27th at Lava						
Northbound	LOS E	A	A	A	A	A
Southbound		A	A	A	A	A
Eastbound		B	B	B	B	B
35th at Juniper						
Northbound	LOS E	A	A	A	A	A
Southbound		A	A	A	A	A
Eastbound		A	A	A	B	B
Westbound		A	B	B	B	B
35th at Lava						
Northbound	LOS E	A	A	A	A	A
Southbound		A	A	A	A	A
Eastbound		B	B	B	B	B
Westbound		B	B	B	B	B
Lava at East Access						
Eastbound	LOS E	A	A	A	A	A
Westbound		A	A	A	A	A
Southbound		-	-	A	-	A
Lava at West Access						
Eastbound	LOS E	A	A	A	A	A
Westbound		A	A	A	A	A
Southbound		-	-	A	-	A

Along Highland Drive, the significant increase in v/c between the year 2023 and the year 2025 conditions is due to the addition of the significant in-progress trips in the area.

All intersections on Highland Drive are currently not meeting the v/c or LOS standards. All other intersections meet the standards.

6.3 QUEUING ANALYSIS

A queuing analysis was conducted for the studied intersections. The analysis was performed using SimTraffic, a microsimulation software tool that uses the HCM-defined criteria to estimate the queuing of vehicles within the study area. The 95th percentile queuing results are illustrated in Table 7 for the PM Peak hour. All results are rounded to 25 feet to represent the total number of vehicles in the queue, as one vehicle typically occupies 25 feet of space. The SimTraffic outputs are provided in Appendix F.

TABLE 7: INTERSECTION QUEUING: WEEKDAY PM PEAK HOUR

Intersection			Available Storage (Feet)	2023 Background (Feet)		2025 Background (Feet)		2025 Build (Feet)		2030 Background (Feet)		2030 Build (Feet)	
				95 th	Average	95 th	Average	95 th	Average	95 th	Average	95 th	Average
35th at Juniper	EB	LTR	225	0	0	0	0	50	25	0	0	50	50
	WB	LTR	575	25	25	25	25	25	25	25	25	25	25
	NB	LTR	190	0	0	0	0	25	25	0	0	25	25
35TH at Highland	EB	L	300	75	25	75	50	75	50	75	50	75	50
	EB	TR	1000+	25	0	25	25	25	25	25	25	25	25
	WB	L	280	50	25	75	50	100	50	100	50	100	50
	WB	TR	700	25	25	25	25	25	25	25	25	25	25
	NB	LT	400	50	25	100	50	200	100	125	50	475	175
	NB	R	150	50	25	75	50	125	75	100	50	200	100
	SB	LT	600	75	25	100	50	200	100	125	50	225	100
	SB	R	150	75	50	100	50	125	50	100	50	150	75
Lava at East Site Access	EB	LTR	325	0	0	0	0	25	0	0	0	25	0
	WB	LTR	100	0	0	0	0	0	0	0	0	25	0
	SB	LTR	100	0	0	0	0	50	25	0	0	50	25
27TH at Highland	EB	L	375	125	50	325	125	350	175	450	225	500	275
	EB	TR	1225	375	225	550	325	575	350	1125	600	1100	600
	WB	L	330	225	100	450	275	450	250	450	250	450	250
	WB	TR	1235	425	250	1650	975	1725	1000	2000	1225	1925	1025
	NB	L	140	175	75	200	100	225	100	225	125	200	100
	NB	TR	350	350	200	950	550	1025	675	1100	750	1200	875
	SB	L	175	125	75	175	125	175	125	200	150	200	175
	SB	T	405	150	100	275	125	350	175	550	300	600	450
	SB	R	140	75	25	125	50	125	75	150	75	150	75
	EB	L	275	125	75	150	75	200	100	375	250	400	250
	EB	T	690	175	100	250	150	300	175	1550	525	1475	550

Rimrock at Highland	EB	TR	160	175	100	200	125	225	125	225	150	225	150
	WB	L	275	350	175	400	250	400	250	400	250	400	250
	WB	T	850	625	350	775	625	800	625	700	650	700	650
	WB	R	850	350	100	575	275	550	250	550	225	550	250
	NB	L	225	50	25	150	50	225	75	250	75	250	75
	NB	T	1030	300	160	375	200	700	325	825	450	725	375
	NB	R	225	200	100	250	125	325	150	325	200	350	175
	SB	L	250	300	200	325	225	300	250	300	250	275	275
	SB	T	250	500	225	675	350	700	500	700	500	725	525
	SB	R	230	150	50	175	75	250	100	228	75	200	75
Obsidian at 35th	EB	LTR	690	25	0	25	25	25	25	25	25	25	25
	WB	LTR	225	25	0	25	25	25	25	25	25	25	25
	NB	LTR	605	50	50	75	50	75	50	75	50	75	50
	SB	LTR	260	75	50	75	50	100	50	75	50	75	50
Lava at 27th	EB	LR	250	50	25	75	25	50	25	75	25	75	50
	NB	L	140	25	25	25	25	25	25	25	25	50	25
	NB	T	475	25	0	0	0	0	0	0	0	50	25
	SB	TR	360	0	0	0	0	0	0	0	0	25	0
35th at Lava	EB	LTR	750	50	25	50	25	50	50	50	25	75	50
	WB	LTR	520	25	25	25	25	50	25	25	25	50	25
	NB	LTR	340	25	25	25	25	25	25	25	25	25	25
	SB	LTR	200	25	0	25	0	25	25	25	25	25	25
Lava at West Site Access	EB	LTR	190	25	25	25	25	25	25	25	25	25	25
	WB	LTR	525	25	25	25	25	25	25	25	25	25	25
	SB	LTR	150	0	0	0	0	0	0	0	0	25	0

Along Highland Drive, the significant increase in queue length between the year 2023 and the year 2025 conditions is due to the addition of significant in-progress trips in the area. Highland Avenue is anticipated to have long queue lengths by the year 2030. This project does not significantly increase queue lengths over the background conditions.

Site Accesses:

At the site access connection to 35th Street, the exiting queue is not anticipated to extend beyond 50 feet or 2 vehicle lengths. The queue on 35th Street will not extend beyond 25 feet or 1 vehicle. The access connection does not significantly affect the operation on 35th Street. Both site access connections to Lave Avenue are not anticipated to have an exiting queue extend beyond 50 feet or 2 vehicle lengths. The queue on Lava Avenue will not extend beyond 25 feet or 1 vehicle. The access connection does not significantly affect the operation on Lave Avenue.

35th Street at Highland Avenue

The queue on 35th Street at Highland Avenue is anticipated to exceed the available storage by the year 2030 conditions. The TSP identified priority improvement project of a traffic signal or a roundabout at this location will significantly improve the queuing. The City has this intersection

included in the System Development Charge/Capital Improvement list. Therefore, no further mitigation is required by this project.

Highland Avenue at 27th Street

The 95th percentile queue on 27th Street at Highland Avenue is anticipated to exceed available storage for all approaches by the year 2030. The addition of development trips does not substantially increase the queue lengths. Therefore, no mitigation is required.

Highland Avenue at Rimrock

The 95th percentile queue on 27th Street at Highland Avenue is anticipated to exceed available storage for several movements by the year 2030. The addition of development trips does not substantially increase the queue lengths. Therefore, no mitigation is required.

7.0 TURN LANE WARRANTS

The turn lane warrant analysis was prepared following the Texas Transportation Institute (TTI) Curves and ODOT methodology outlined in the Analysis Procedures Manual (APM).

7.1 LEFT TURNS

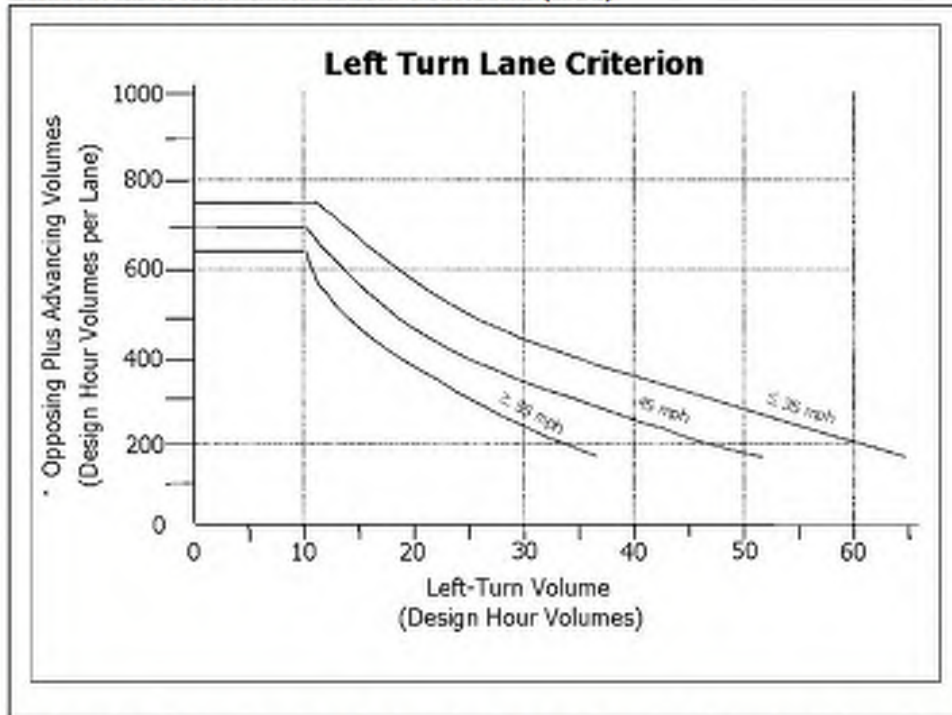
The left turn warrants are prepared for all locations where a left turn lane currently does not exist. The TTI and APM Methodology is used for mainline left turn warrants. Table 8 provides the results of the turn lane warrant. The warrants were prepared for the year 2030PM peak hour with the development in place.

TABLE 8: LEFT TURN LANE WARRANTS

Movement	Approaching	Left Turn Volume	Warrant Met
35th at Juniper Ave			
Southbound	497	0	No
Northbound	497	10	No
35th at Lava Ave			
Southbound	448	8	No
Northbound	448	15	No
East Site Access @ Lava Ave			
Westbound	130	3	No
Eastbound	130	3	No
West Site Access @ Lava Ave			
Westbound	52	3	No
Eastbound	52	13	No
35th @ Obsidian			
Westbound	200	33	No
Eastbound	200	55	No
27th @ Lava			
Northbound	Turn Lane Exists		

Left turn pockets are not warranted at any of the study area intersections.

Exhibit 12-1 Left Turn Lane Criterion (TTI)



* $(\text{Advancing Volume} / \text{Number of Advancing Through Lanes}) + (\text{Opposing Volume} / \text{Number of Opposing Through Lanes})$

Opposing left turns are not counted as opposing volumes

7.2 RIGHT TURNS

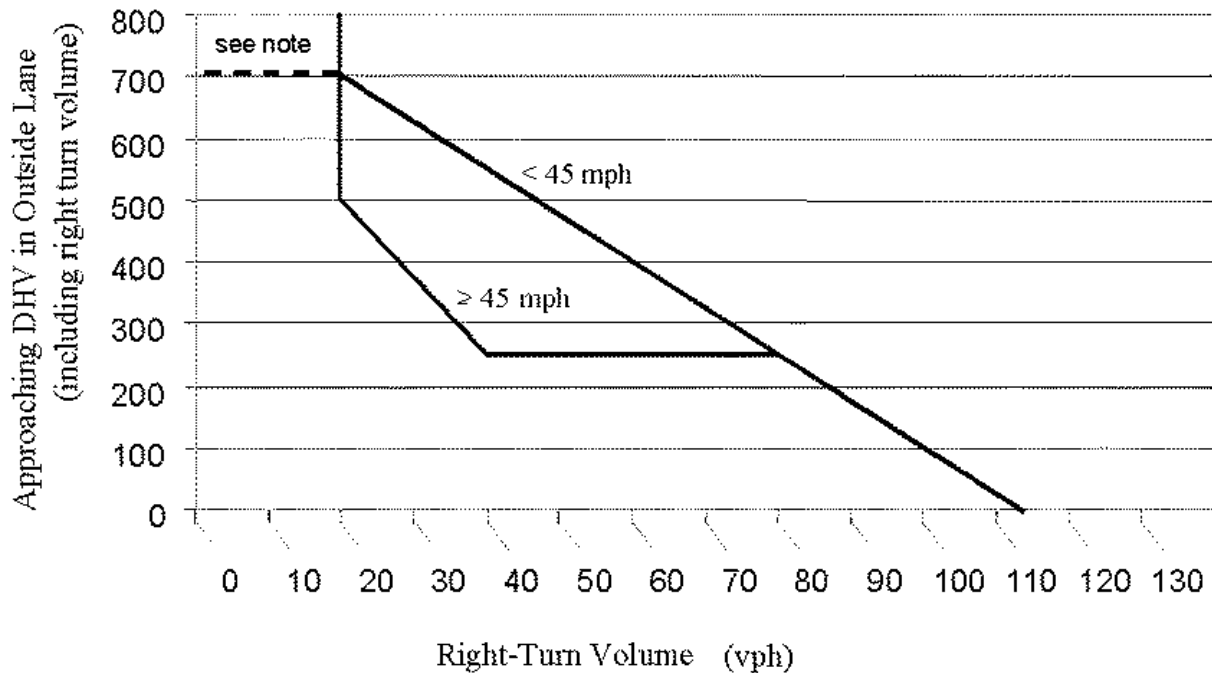
Right turn lane warrants at the sight access connections and study area intersections were prepared following the guidance within the ODOT Analysis Procedure Manual. The warrants compare the right turning volume to the overall approaching lane volume. Table 9 provides the right turn and approaching traffic volumes. The warrants were prepared for the year 2030PM peak hour with the development in place.

TABLE 9: RIGHT TURN WARRANTS VOLUMES

Movement	Approaching	Right Turn Volume	Warrant Met
35th @ Highland			
Southbound	Turn Lane Exists		
Westbound	730	57	Yes
Northbound	Turn Lane Exists		
Eastbound	725	50	Yes
35th at Juniper Ave			
Southbound	314	25	No
Westbound	8	2	No
Northbound	192	9	No
Eastbound	39	10	No
35th at Lava Ave			
Southbound	303	61	No
Westbound	21	7	No
Northbound	169	3	No
Eastbound	81	20	No
East Site Access @ Lava Ave			
Southbound	38	3	No
Westbound	87	31	No
Northbound	2	1	No
Eastbound	50	0	No
West Site Access @ Lava Ave			
Southbound	21	2	No
Westbound	50	10	No
Northbound	9	8	No
Eastbound	18	0	No
35th @ Obsidian			
Southbound	303	61	No
Westbound	118	21	No
Northbound	157	25	No
Eastbound	158	35	No
27th @ Lava			
Southbound	346	48	No
Eastbound	54	23	No

The right turn lane warrants are met for the eastbound and westbound approaches at Highland Avenue at 35th Street. Right-turn pockets should be considered with a future signal at this location.

Right Turn Lane Criterion



8.0 SIGNAL WARRANTS

All intersections meet the applicable mobility requirements, with the exception of Highland Avenue at 35th Street. A signal warrant analysis was performed for this intersection using ODOT's Preliminary Traffic Signal Warrant. This warrant was prepared for the year 2030 PM peak hour conditions with this proposed development in place. The PM peak hour has a higher overall traffic volume on all approaches. Therefore, it was the more appropriate to use. The 70% warrant was considered due to the posted speed of 45 mph. The signal warrant output is included in Appendix G. The traffic volumes for the major approaches (Highland Ave) do not meet the warrants, but the volumes on the minor street (35th Street) and minor approach (Dakota) do not meet the warrant volumes for either Case A or Case B.

9.0 SIGHT DISTANCE

The site access connections and the stop-approaches at stop-controlled intersections were evaluated to determine if there is adequate line of sight to safely make turns onto or to cross the mainline roadway. Sight Distance is not as crucial at signalized intersections since drivers can proceed with the green and do not rely on gaps in traffic to make turns.

Sight distances are classified by the stopping sight distance (SSD) for the major roadway and departure/intersection sight distance (ISD) for the minor street (controlled) approach. The standards for evaluating SSD and ISD follow the methodology in the AASHTO's *A Policy on Geometric Design of Highways and Streets* (2011).

The stopping sight distance is the length of roadway needed for a vehicle traveling at the design speed to safely stop for a stationary object in the roadway. The required sight distance allows a driver to perceive and react to an object 2 feet high on the roadway visible from a driver's eye height of 3.5 feet above the ground. The departure sight distance (ISD) is a measure of the length of visibility of the roadway given to a stopped driver on a minor road approach. The distance provides time to perceive and react to gaps in traffic. For this calculation, it is assumed that the driver's eye is 3.5 feet above the ground and that the object to be seen is 3.5 feet above the ground of the intersecting road. The driver's position is typically measured 14.5 feet from the edge of the travel way. AASHTO provides ISD lengths based on turning movements. The left turn maneuver requires a longer ISD. Therefore, the ISD for left turns is used at all locations.

Intersections and driveways should, at a minimum, meet the SSD requirements; however, it is desirable to achieve the ISD whenever possible.

Sight distance is based on the design speed or the 85th percentile travel speed of the major roadway. Table 10 provides the sight distance requirements for left turns vs the roadway speeds within the study.

TABLE 10: SIGHT DISTANCE REQUIREMENTS

Speed	SSD	ISD
25	155	280
35	250	390
45	360	500

35th Street at Site Access/Juniper Ave: 35th Street has a posted speed of 35 mph at the site access. Therefore, the SSD is 250 feet, and the ISD is 390 feet. 35th Street is a straight section of roadway with no horizontal or vertical curvature between Highland Avenue (860 feet to the north) and Lava Avenue (880 feet to the south). There are no restrictions to the SSD as a vehicle approaches the site access on 35th Street for a length greater than 250 feet.

The ISD at this location was field verified. The measurement was taken from the position of a driver at approximately 3.5 feet in height and 14.5 feet back from the edge of the sidewalk/bike lane. As depicted in the photos below, the SSD and ISD are met.



From Juniper Ave looking south. The available line of sight is beyond Lava Avenue, which is greater than 480 feet.



From Juniper Ave looking north. The available line of sight is to Highland Avenue, which is greater than 860 feet.



From Site Access to 35th looking south. The available line of sight is beyond Lava Avenue, which is greater than 480 feet.



From the Site Access to 35th looking north. The available line of sight is to Highland Avenue, which is greater than 860 feet.

Site Access at Lava Avenue: Lava Avenue has a posted speed of 25 mph. Therefore, the SSD is 155 feet, and the ISD is 280 feet.

The ISD at this location was field verified. The measurement was taken from the position of a driver at approximately 3.5 feet in height and 14.5 feet back from the edge of the sidewalk/travel way. As depicted in the photos below, the ISD is met at both access locations. As depicted in the photos below, the SSD and ISD are met.



Looking west from the east access. The available line of sight to 37th Street, which is beyond 300 feet.



Looking east from the east access. The available line of sight to 35th Street, which is sufficient



Looking west from the west access. The available line of sight is beyond 37th Street, which is beyond 300 feet.



Looking east from the east access. The available line of sight is to 35th Street, which is beyond 300 feet.

35th Street at Lava Avenue: 35th Street has a posted speed of 35 mph at Lava Avenue. Therefore, the SSD is 250 feet, and the ISD is 390 feet. 35th Street is a straight section of roadway with no horizontal or vertical curvature between Highland Avenue (1000+ feet to the north) and Metolius Avenue (380 feet to the south). There are no restrictions to the SSD as a vehicle approaches Lava Avenue on 35th Street for a length greater than 250 feet.

The ISD at this location was field verified. The measurement was taken from the position of a driver at approximately 3.5 feet in height and 14.5 feet back from the edge of the sidewalk/bike lane. As depicted in the photos below, the SSD and ISD are met.



Looking south onto 35th Street from Lava Avenue. The available line of sight is beyond Metolius, which is 380 feet.



Looking north onto 35th Street from Lava Avenue. The available line of sight is beyond Juniper, which is 480 feet.

35th Street at Obsidian Avenue: Obsidian Avenue has a posted speed of 35 mph east of 35th and 45 mph west of 35th. The posted speed of 45 mph was used for this intersection. Therefore, the SSD is 360 feet, and the ISD is 500 feet. Obsidian Avenue is a straight section of roadway with no horizontal or vertical curvature between Hemoltz Avenue (1000+ feet to the west) and 27th Street (1000+ feet to the east). There are no restrictions to the SSD as a vehicle approaches 35th Street on Obsidian Avenue for a distance of 360 or more feet. The SSD requirement is met.

The ISD for vehicles stopped on 35th Avenue at Obsidian was field verified. The measurement was taken from the position of a driver at approximately 3.5 feet in height and 14.5 feet back from the edge of the sidewalk/bike lane.

There is vegetation in the northwest corner that restricts the line of sight to the west to approximately 430 feet. This is likely an attributing factor to the crash patterns seen at this intersection. It was observed that vehicles were routinely pulling forward past the vegetation to increase the line of sight by placing the front end of the vehicle into the bike lane. It is recommended that this vegetation be removed.

On-street parking and vegetation within the northeast corner restricts the available line of sight to the east to approximately 100 feet. Again, this is likely an attributing factor to the crash patterns

seen at this intersection. It was observed that vehicles were routinely pulling forward past the vegetation and parked cars to increase the line of sight, placing the front end of the vehicle into the bike lane. It is recommended that this vegetation be removed. Additionally, it is recommended that no parking be allowed along the north side curb line within 100 feet of the curb line for 35th Avenue. This will allow a line-of-sight of approximately 275 feet, meeting the minimum requirement, which is the SSD.



Looking west onto Obsidian Avenue from 35th Street. The vegetation restricts the available line to approximately 430 feet. The standard is 500 feet.



Looking east onto Obsidian Avenue from 35th Street. The vegetation and parking restrict the available line to approximately 100 feet. The standard is 500 feet.

10.0 LOCAL STREET IMPACTS

The proposed recreation center is anticipated to add vehicle trips to the adjacent local streets of Lave Avenue and Juniper Avenue.

Juniper Avenue: The site is anticipated to add approximately 110 new daily trips to Juniper Avenue. The existing ADT is approximately 90 ADT. The total ADT after completion of the recreation center is approximately 200 ADT. The ADT is within the typical ranges for a local street.

Lava Avenue: The site is anticipated to add approximately 320 new daily trips to Lava Avenue. The existing ADT is approximately 110 ADT. The total ADT after completion of the recreation center is approximately 430 ADT. The ADT is within the typical ranges for a local street.

11.0 MITIGATION

The following provides a discussion of off-site improvements:

11.1 INTERSECTION OPERATION

The addition of development trips does not trigger the v/c or LOS to not meet the standards at the site access or the study area intersections. The intersections of Highland Avenue at 35th Street, Highland Avenue at 27th Street, and Highland Avenue at Rimrock Way currently do not meet the standards under current-day conditions.

Highland Avenue at 27th Street: This intersection currently does not meet the ODOT mobility standards during the PM peak hour. The v/c is projected at 1.06 for the year 2025 and 1.08 for the year 2030 PM peak hour conditions. The addition of development trips does not increase the v/c or LOS. As per ODOT criteria, if the v/c is not worsened, mitigation is not triggered. Therefore, no mitigation is triggered.

Highland Avenue at Rimrock Way: This intersection currently does not meet the ODOT mobility standards during the PM peak hour. The v/c is projected at 1.05 for the year 2025 and 1.10 for the year 2030 PM peak hour conditions. The addition of development trips does not increase the v/c or LOS. As per ODOT criteria, if the v/c is not worsened, mitigation is not triggered. Therefore, no mitigation is triggered.

Highland Avenue at 35th Street: The southbound approach will not meet the v/c standard in background conditions. The City TSP has identified the need for a roundabout or a traffic signal at this intersection. The City has this intersection included in the System Development Charge/Capital Improvement list. Therefore, no further proportionate share contribution or further mitigation is required by this project.

11.2 SIGHT DISTANCE

35th Street at Obsidian Avenue: There is vegetation in the northwest corner that restricts the line of sight to the west to approximately 430 feet. This is likely an attributing factor to the crash patterns seen at this intersection. It is recommended that this vegetation be removed.

On-street parking and vegetation within the northeast corner restricts the available line of sight to the east to approximately 100 feet. Again, this is likely an attributing factor to the crash patterns seen at this intersection. It is recommended that this vegetation be removed. Additionally, it is recommended that no parking be allowed along the north side curb line within 100 feet of the curb line for 35th Avenue. This will allow a line-of-sight of approximately 275 feet, meeting the minimum requirement, which is the SSD.

12.0 CONCLUSION

The traffic analysis contained within this report evaluates adjacent roadways and intersections for impacts on the surrounding system with the proposed development. The following describes the findings of the analysis.

FINDINGS

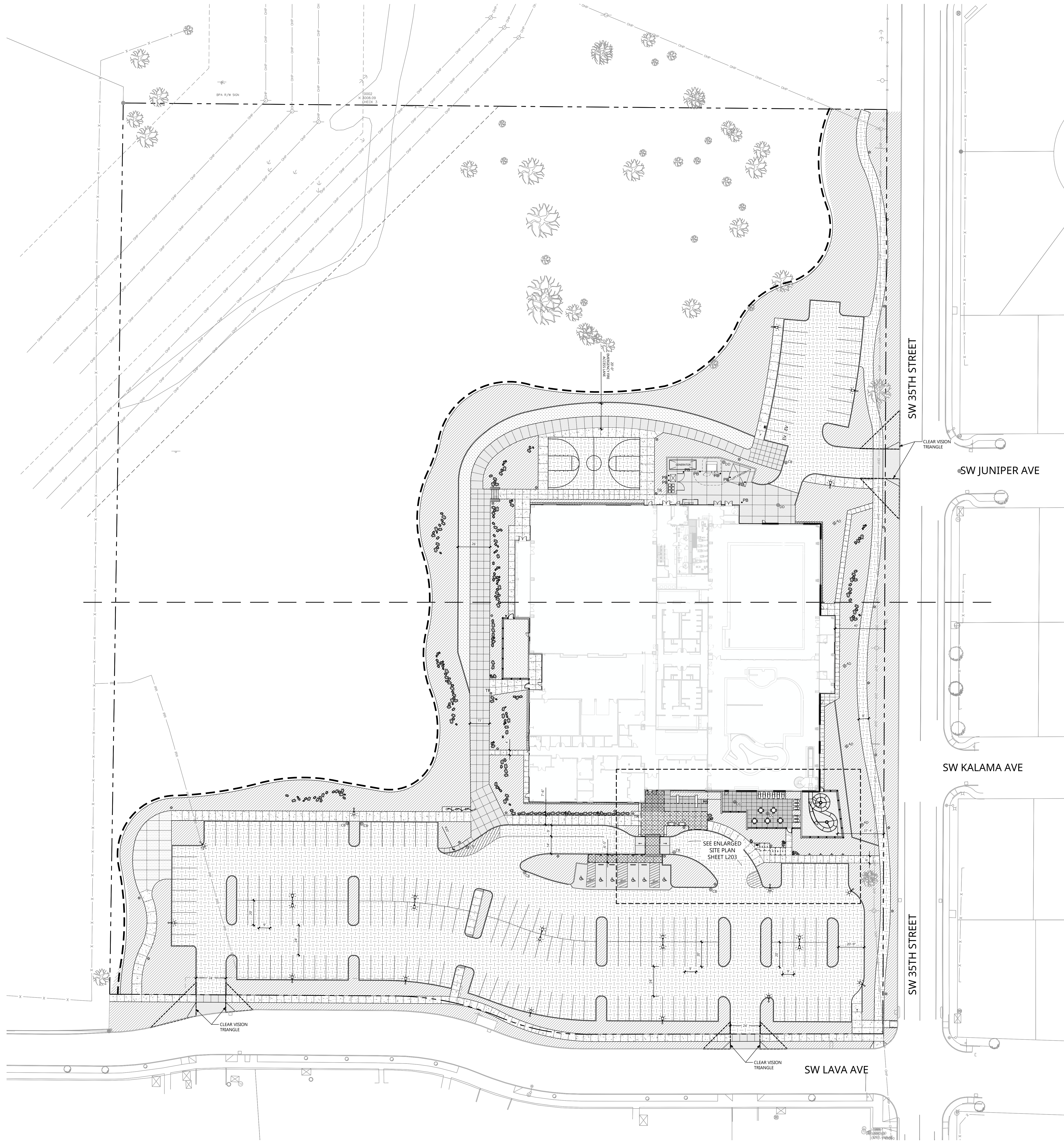
The analysis concludes the following:

- The addition of development traffic will not degrade any of the study intersections to below the acceptable mobility standards.
- The addition of development traffic will not substantially increase queuing conditions over the background conditions.
- All site driveways are projected to operate safely and efficiently.
- The addition of development traffic at the studied intersections will not perpetuate any existing crash patterns. Additionally, the existing crash data does not indicate a high crash rate or apparent pattern of crashes at the study area intersections that should be mitigated.
- The intersection of Highland Avenue at 27th Street currently does not meet the ODOT mobility standards during the PM peak hour. The v/c is projected at 1.06 for the year 2025 and 1.08 for the year 2030 PM peak hour conditions. The addition of development trips does not increase the v/c. As per ODOT criteria, if the v/c is not worsened, mitigation is not triggered. Therefore, no mitigation is required for this intersection.
- The intersection of Highland Avenue at Rimrock Way currently does not meet the ODOT mobility standards during the PM peak hour. The v/c is projected at 1.05 for the year 2025 and 1.10 for the year 2030 PM peak hour conditions. The addition of development trips does not increase the v/c. As per ODOT criteria, if the v/c is not worsened, mitigation is not triggered. Therefore, no mitigation is required for this intersection.
- At the intersection of Highland Avenue at 35th Street, the southbound approach will not meet the v/c standard in the background conditions. The City has this intersection included in the System Development Charge/Capital Improvement list. Therefore, no further proportionate share contribution or further mitigation is required by this project.
- At the intersection of 35th Street at Obsidian Avenue, there is vegetation in the northwest corner that restricts the line of sight to the west to approximately 430 feet. This is likely an attributing factor to the crash patterns seen at this intersection. It is recommended that this vegetation be removed.
- At the intersection of 35th Street at Obsidian Avenue, on-street parking and vegetation within the northeast corner restrict the available line of sight to the east to approximately 100 feet. Again, this is likely an attributing factor to the crash patterns seen at this intersection. It is recommended that this vegetation be removed. Additionally, it is recommended that no parking be allowed along the north side curb line within 100 feet of

the curb line for 35th Avenue. This will allow a line-of-sight of approximately 275 feet, meeting the minimum requirement, which is the SSD.

REDMOND REGION
RECREATION CENTER

7/11/2023 2:19:54 PM Autodesk Docs//Redmond Region Recreation Center/RRRC_ARCH_Instite Model_R22.rvt



LANDSCAPE TABULATIONS

REDMOND DEVELOPMENT CODE 8.3025

GROSS SITE AREA (GSA):	457,622 SF
BUILDING FOOTPRINT AREA (12%):	56,000 SF
HARDSCAPE AREA (06.5%):	29,992 SF
REQUIRED LANDSCAPE AREA (15%):	68,643 SF
PROPOSED LANDSCAPE AREA (16%) :	78,876 SF
TOTAL PARKING LOT AND DRIVE AISLE AREA:	80,510 SF
REQUIRED PARKING LOT LANDSCAPE (10%):	8,051 SF
PROPOSED PARKING LOT LANDSCAPE (12%):	9,474 SF
REQUIRED ADA PARKING SPACES:	06 STALLS
TOTAL REQUIRED PARKING SPACES:	187 STALLS
PROPOSED STANDARD PARKING SPACES:	177 STALLS
PROPOSED COMPACT PARKING SPACES:	14 STALLS
PROPOSED ELECTRIC CHARGING STATIONS:	02 STALLS
PROPOSED ADA PARKING SPACES:	06 STALLS
TOTAL PROPOSED PARKING SPACES:	199 STALLS

HATCH LEGEND

SYMBOL	DESCRIPTION
	STANDARD CONCRETE PAVING -See Civil
	VEHICULAR CONCRETE PAVING -See Civil
	ROCK MULCH -See Detail 4/603
	ASPHALT PAVING -See Civil
	PLANT BED
	SPECIAL CONCRETE PAVING
	REINFORCED FIRE LANE -See Detail 4/L603
	DETECTABLE PAVERS
	SYNTHETIC TURF
	LIMITS OF HYDRONIC SNOW MELT SYSTEM Coordinate with other Trades

SITE PLAN NOTES

- All survey information provided by:
HWA
62930 O.B. RILEY RD, STE. 100
BEND, OR. 97703
T: 541.389.9351
CONTACT: Patrick Cole
- Verify exact locations and routing of existing underground utilities prior to starting excavation. Repair any damage to existing pipes, utilities or related facilities at Contractor's expense in a manner approved by Owner's Representative.
- Barricade and protect trunks, limbs, roots and root zones beyond dieline of existing trees and plant materials to remain as directed by Owner's Representative. Cut no limbs or roots larger than 2" in diameter without approval of Landscape Architect. Notify Owner's Representative prior to performing any excavation within protection areas. See Preservation and Demolition Plans.
- All accessible components including, but not limited to signs, ramps, tactile warning, markings, etc. shall conform to all Oregon State Standards for parking and access for the disabled, and the City of Redmond Development Code. Obtain Owner's Representative approval prior to installing any related work.
- Verify existing elevations where new work abuts existing to remain. Notify Owner's Representative of any discrepancies.
- See Irrigation Mainline Plan for irrigation sleeve locations.
- Match existing paving pattern to new concrete paving pattern at limit of work.

REDMOND REGION
RECREATION CENTER

TECH MEMO

DATE: October 10, 2023

TO: David Pilling
City of Redmond
Engineering Development Manager

FROM: Kelly Sandow P.E.
Sandow Engineering

RE: Proposed Scope of Work- 1001 SW 35th Street

The following provides the project information and proposed Scope of Work for the proposed Community Recreation Center in Redmond.

Development Proposal

The development proposal is a new 74,000 square-foot Community Recreation Center. The community center will contain indoor recreational facilities such as a swimming pool, ball courts, locker room, event rooms, and workout areas and outdoor recreational areas such as a soccer field, pickleball courts, picnic areas, playground, and splash play area.

Access to the site will be from one access on 35th Street to a parking lot located at the northwest corner of the site and from 2 access connections to Lava Avenue to a parking lot located along the southern edge of the site. The 35th Street access is proposed as full movement and will align with Juniper Avenue. The accesses to Lava Avenue are proposed as a full movement.

Re: Scope of Work- 1001 SW 35th Street

Date: 10.10.23

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Current Site Plan

Site Information

The development site is a 10-acre parcel located at the northwest corner of SW 35th Street and SW Lava Avenue. The site is located at Tax lot 15-13-18-3100, is currently zoned R5-High Density Residential, and is vacant.

35th Street is designated as a Major Collector. There are bike lanes on both sides of 35th and sidewalks along the west side. 35th is one lane in each direction with a striped center lane and turn pockets at Highland Ave.

Lava Lane is designated as a local street. There are sidewalks along the south side and on-street parking.



Site Location

TRIP GENERATION

The development trips are estimated using the ITE Trip Generation Manuals 11th ed. The most appropriate ITE land use is 495-Recreational Community Center. Following the ITE methodology, the trips are estimated using the average rate for the ADT and the PM Peak Hour. This is due to the number of studies and the R² value. The independent value is the building's square feet. Table 1 provides the trip generation estimates for the proposed development.

TABLE 1: TRIP GENERATION

Time Period	Size (sf)	Rate	Trips	In	Out
ADT	74.0	28.82	2133	(50%) 1,066	(50%) 1,067
PM Peak Hour	74.0	2.5	185	(47%) 87	(53%) 98

The trip generation for this development will exceed 200 daily trips and 20 PM peak hour trips. A Traffic Impact Analysis is triggered.

TRIP DISTRIBUTION

The trips are distributed on the system as per the following distribution pattern. Once traffic counts are performed, the trip distribution will be further refined based on existing travel patterns where reasonable.

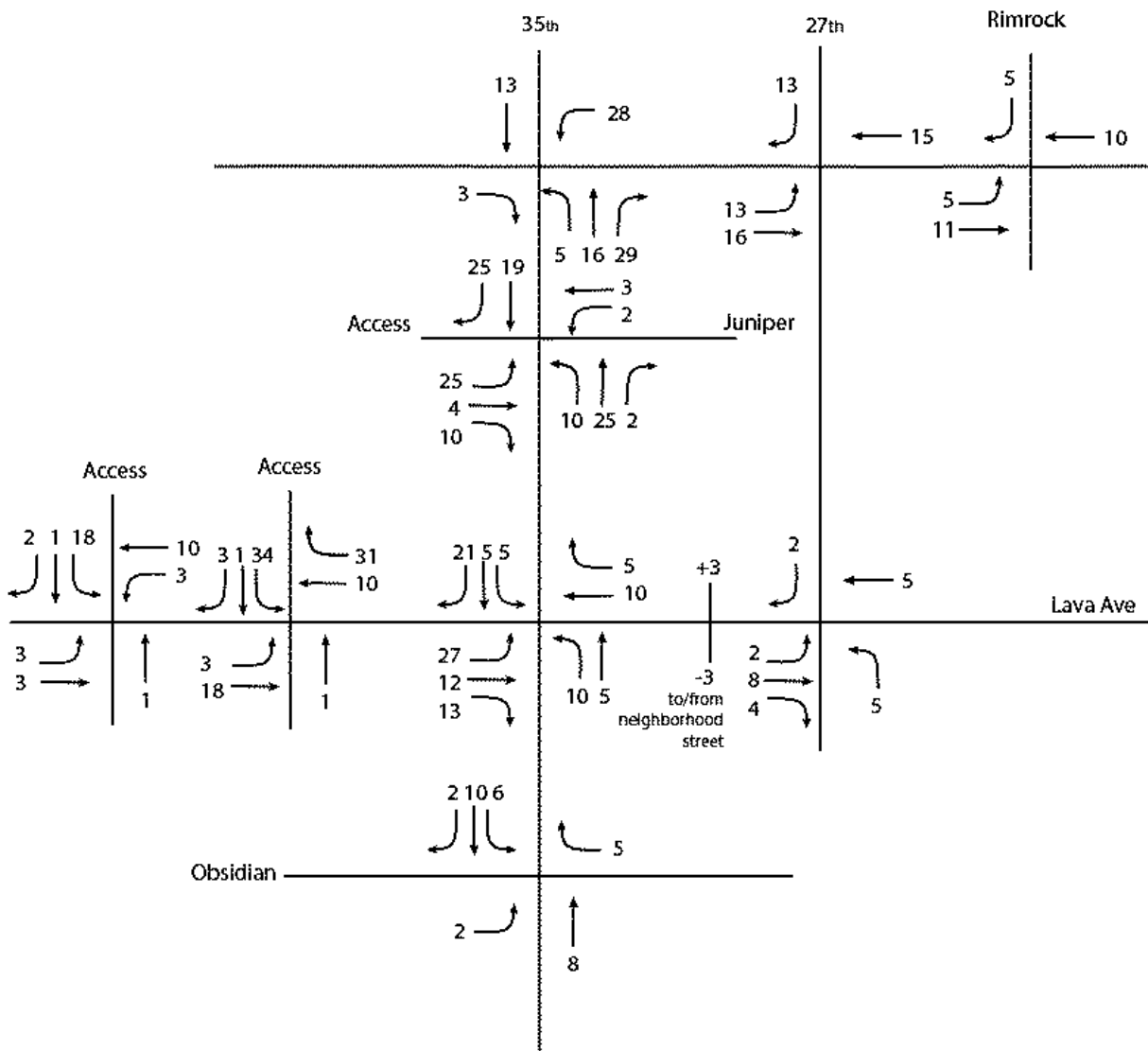
- 20% to/from south on 35th
- 40% to/from east
- 10% to/from west
- 30% to/from north of Highland Ave

STUDY AREA INTERSECTIONS

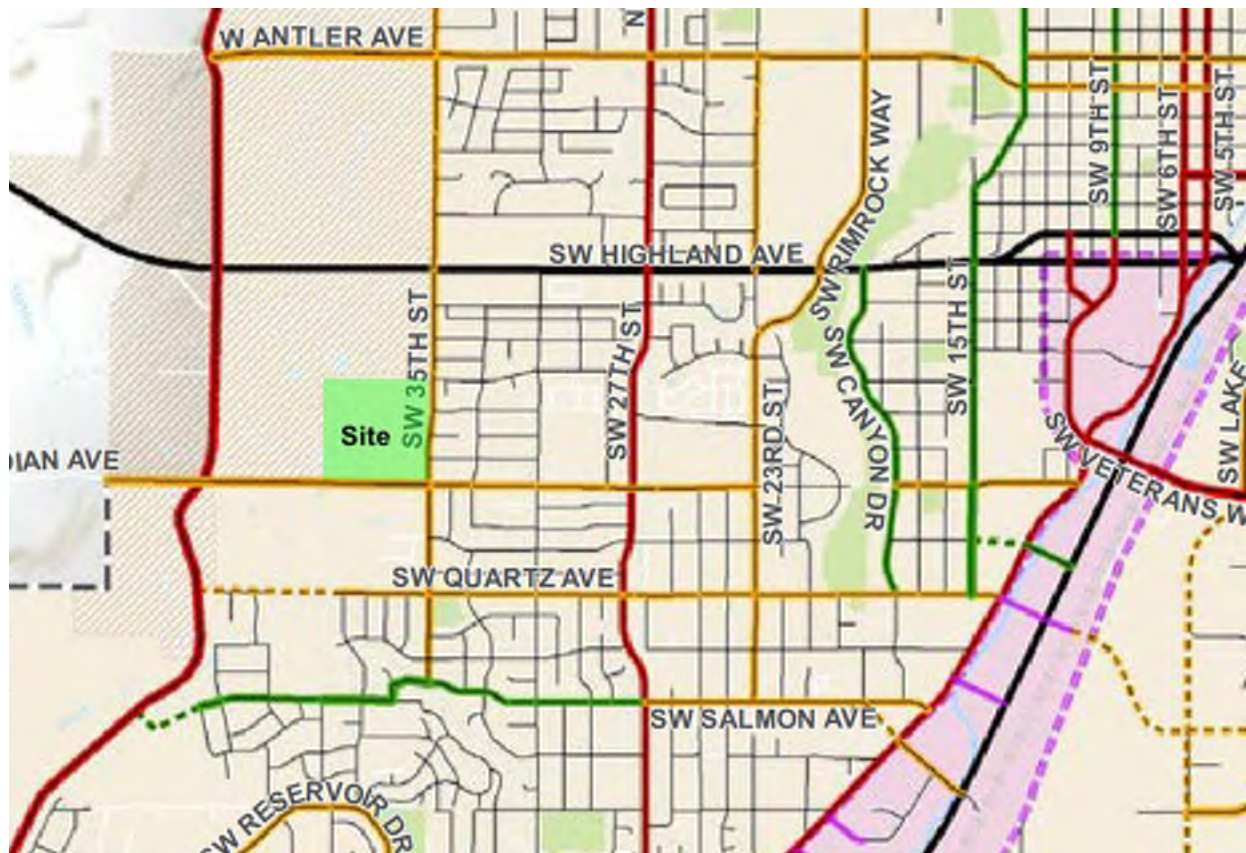
All intersections that are collector or arterial streets directly upstream or downstream of the site and any collector or arterial street intersections are to be included in the study.

- Highland Ave at 35th St
- Highland Ave at 27th St
- Highland Ave at Rimrock Way
- 35th at Access/Juniper
- 35th at Lava Ave
- 35th at Obsidian Ave
- Lava Ave at East Site Access

- Lava Ave at West Site Access
- Lava Ave at 27th St



PM Peak Hour Trip Distribution



Street Classification Map

ANALYSIS PARAMETERS

TIA Analysis

- Years
 - 2023- Existing Conditions
 - 2025- Year of Opening
 - 2030-5 year planning horizon
- PM Peak Period 4-6 PM
- Intersections to be studied:
 - Highland Ave at 35th St
 - Highland Ave at 27th St
 - Highland Ave at Rimrock Way
 - 35th at Access/Juniper
 - 35th at Lava Ave
 - 35th at Obsidian Ave

Re: Scope of Work- 1001 SW 35th Street

Date: 10.10.23

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- Lava Ave at East Site Access
 - Lava Ave at West Site Access
 - Lava Ave at 27th St
- Crash analysis
- Queuing analysis
- LOS analysis
- v/c analysis
- Signal Warrants- as needed
- Turn lane warrants- as needed
- Sight Distance

REDMOND REGION
RECREATION CENTER

CRASH DATA SUMMARY

Highland Ave @ 27th St											
YEAR	PDO	INJURY	FATAL	HEAD	REAR	SIDE	TURN	OTHER	PED	BIKE	TOTAL
2017	1	2			2		1				3
2018	3	2			4		1				5
2019	3	4			3		1	3			7
2020	1	5			3		2	1			6
2021	2	1			3						3
TOTALS:	10	14	0	0	15	0	5	4	0	0	24

CHECK
OK
OK
OK
OK
OK
OK

Highland Ave @ 35th St											
YEAR	PDO	INJURY	FATAL	HEAD	REAR	SIDE	TURN	OTHER	PED	BIKE	TOTAL
2017	3				2			1			3
2018	1	2					1	2			3
2019	3	4					2	5			7
2020	4					1	1	2			4
2021	2							2			2
TOTALS:	13	6	0	0	2	1	4	12	0	0	19

CHECK
OK
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OK
OK

Lava Ave @ 27th St											
YEAR	PDO	INJURY	FATAL	HEAD	REAR	SIDE	TURN	OTHER	PED	BIKE	TOTAL
2017											0
2018											0
2019											0
2020	2					1		1			2
2021											0
TOTALS:	2	0	0	0	0	1	0	1	0	0	2

CHECK
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OK
OK

Obsidian Ave @ 35th St											
YEAR	PDO	INJURY	FATAL	HEAD	REAR	SIDE	TURN	OTHER	PED	BIKE	TOTAL
2017	1	1						2			2
2018		4									0
2019		1						1			1
2020											0
2021											0
TOTALS:	1	2	0	0	0	0	0	3	0	0	3

CHECK
OK
OK
OK
OK
OK
OK

Highland Ave @ Rimrock Way											
YEAR	PDO	INJURY	FATAL	HEAD	REAR	SIDE	TURN	OTHER	PED	BIKE	TOTAL
2017	5	3			4	1	3				8
2018		4				1	3				4
2019	5	3			2		5	1			8
2020	2	3			3	1	1				5
2021	3	4			3		4				7
TOTALS:	15	17	0	0	12	3	16	1	0	0	32

CHECK
OK
OK
OK
OK
OK
OK

P.M. PEAK HOUR	Number of Years, n	ADT	AVG. ANNUAL MILES (MILLIONS)	AVG. YEARLY CRASHES	CRASH RATE/ MILLION MILES
2007	5	20070	7325550.000	4800000.0	0.66
TURN	N-E / E-W	2 N-S / S-W	N-E / W-E	S-W / N-S	
OTHER	E-W / N-E	S-N / E-W	W-E / S-N	N-S / W-E	
REAR	3 N-S / N-S	8 E-W / E-W	2 W-E / W-E	W-E / W-E	
	W-E / W-E				

P.M. PEAK HOUR	Number of Years, n	ADT	AVG. ANNUAL MILES (MILLIONS)	AVG. YEARLY CRASHES	CRASH RATE/ MILLION MILES
1625	5	16250	5931250.000	3800000.0	0.64
TURN	N-E / E-W	N-S / S-W	E-S / W-E / S-N	S-W / W-E	
REAR	E-W / E-W	E-W / E-W			
SIDE	E-W / E-W				
OTHER	W-E	W-E / W-E	W-E / N-S	S-N / E-W / N-S	2 S-N / E-W
	2 W-E / S-N	4 E-W / N-S			

P.M. PEAK HOUR	Number of Years, n	ADT	AVG. ANNUAL MILES (MILLIONS)	AVG. YEARLY CRASHES	CRASH RATE/ MILLION MILES
625	5	6250	2281250.000	400000.0	0.18

SIDE	W-E
OTHER	N-S / W-E

P.M. PEAK HOUR	Number of Years, n	ADT	AVG. ANNUAL MILES (MILLIONS)	AVG. YEARLY CRASHES	CRASH RATE/ MILLION MILES
288	5	2880	1051200.000	600000.0	0.57
OTHER	E-W / S-N / N-S	S-N / E-W	N-S / E-W		

P.M. PEAK HOUR	Number of Years, n	ADT	AVG. ANNUAL MILES (MILLIONS)	AVG. YEARLY CRASHES	CRASH RATE/ MILLION MILES
2853	5	28530	10413450.000	6400000.0	0.61

TURN	W-N / N-S	6 W-E / E-S	2 S-N / N-E	2 W-E / N-E	W-E / E-S / S-N
	W-E / S-W	E-W / W-N	W-E / W-S	N-S / N-N	
REAR	3 N-S / N-S	E-W / E-W / E-W	3 W-E / W-E	4 E-W / E-W	W-E / W-E / W-E
SIDE	2 S-N / N-S	W-E / W-E			
OTHER	NW-SE / NE-SW				

		# Crashes	ADT	MEV	Crash Rate	Critical Crash Rate
1 Highland Ave @ 27th St	Signal	24	20070	36.63	0.66	0.86 under
2 Highland Ave @ 35th St	Stop	19	16250	29.66	0.64	0.75 under
3 Lava Ave @ 27th St	Stop	2	6250	11.41	0.18	0.91 under
4 Obsidian Ave @ 35th St	Stop	3	2880	5.26	0.57	1.13 under
5 Highland Ave @ Rimrock Way	Signal	32	28530	52.07	0.61	0.82 under

Weighted Average

Signal	56	88.70	0.631377191
Stop	24	46.32	0.518151495

11/01/2023

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

HIGHLAND AVE and 27TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2021														
REAR-END	0	1	2	3	0	2	1	2	1	2	1	1	2	0
YEAR 2021 TOTAL	0	1	2	3	0	2	1	2	1	2	1	1	2	0
YEAR: 2020														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	1	0	0
REAR-END	0	3	0	3	0	3	0	2	1	3	0	2	0	0
TURNING MOVEMENTS	0	2	0	2	0	4	0	2	0	1	1	2	0	0
YEAR 2020 TOTAL	0	5	1	6	0	7	0	4	2	5	1	5	0	0
YEAR: 2019														
ANGLE	0	2	1	3	0	3	0	2	1	3	0	3	0	0
REAR-END	0	2	1	3	0	2	0	2	1	2	1	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	0	1	1	0	0
YEAR 2019 TOTAL	0	4	3	7	0	5	0	5	2	5	2	5	0	0
YEAR: 2018														
REAR-END	0	2	2	4	0	4	0	2	1	3	1	3	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR 2018 TOTAL	0	2	3	5	0	4	0	3	1	4	1	4	0	0
YEAR: 2017														
REAR-END	0	1	1	2	0	1	0	1	1	1	1	2	0	0

11/01/2023

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

HIGHLAND AVE and 27TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

COLLISION TYPE	FATAL CRASHES	NON -	PROPERTY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF - ROAD
		FATAL CRASHES	DAMAGE ONLY											
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR 2017 TOTAL	0	2	1	3	0	2	0	2	1	2	1	3	0	0
FINAL TOTAL	0	14	10	24	0	20	1	16	7	18	6	18	2	0

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CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and 27TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

11/01/2023

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

HIGHLAND AVE and 35TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2021														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
MISCELLANEOUS	0	0	1	1	0	0	0	1	0	1	0	0	0	0
YEAR 2021 TOTAL	0	0	2	2	0	0	0	2	0	2	0	1	0	0
YEAR: 2020														
ANGLE	0	0	2	2	0	0	0	1	1	1	1	2	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	1	0	1	0	0	1	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR 2020 TOTAL	0	0	4	4	0	0	0	3	1	3	1	3	1	0
YEAR: 2019														
ANGLE	0	2	3	5	0	3	0	5	0	5	0	5	0	1
TURNING MOVEMENTS	0	2	0	2	0	3	0	2	0	2	0	2	0	0
YEAR 2019 TOTAL	0	4	3	7	0	6	0	7	0	7	0	7	0	1
YEAR: 2018														
ANGLE	0	1	1	2	0	1	0	2	0	2	0	2	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	0	1	1	0	0
YEAR 2018 TOTAL	0	2	1	3	0	2	0	3	0	2	1	3	0	0
YEAR: 2017														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	1	0	1	0	1

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
HIGHLAND AVE and 35TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

COLLISION TYPE	FATAL CRASHES	NON - FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF - ROAD
REAR-END	0	0	2	2	0	0	0	2	0	1	1	1	1	0
YEAR 2017 TOTAL	0	0	3	3	0	0	0	3	0	2	1	2	1	1
FINAL TOTAL	0	6	13	19	0	8	0	18	1	16	3	16	2	2

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SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	RD CHAR	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S										
INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	(MEDIAN)	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED						
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	LEGS	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	(#LANES)																		
00738	N	Y	N	N			04/12/2017	14	HIGHLAND AVE	CROSS	N	Y	CLD	FIX OBJ	01	NONE	9	STRGHT									091	10
CITY							WE		35TH ST		STOP SIGN	N	DRY	FIX	N/A	W	-E									000	00	
N							3P			05		Y	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00	
N							44 16 9.14	-121 12 33.61	001500100S00																			
01892	N	N	N	N			10/07/2017	14	HIGHLAND AVE	CROSS	N	N	CLR	S-1STOP	01	NONE	9	STRGHT										07
NO RPT							SA		35TH ST		STOP SIGN	N	DRY	REAR	N/A	E	-W									000	00	
N							1P			06		N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00	
N							44 16 9.14	-121 12 33.61	001500100S00																			
															02	NONE	9	STOP										
															N/A	E	-W									012	00	
															PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00	
01392	N	N	N	N			08/20/2018	14	HIGHLAND AVE	CROSS	N	N	CLR	ANGL-OTH	01	NONE	0	STRGHT										02
NO RPT							MO		35TH ST		STOP SIGN	N	DRY	ANGL	PRVTE	W	-E									000	00	
N							5P			04		N	DAY	INJ	MTRCYCLE			01	DRVR	INJC	23	M	OR-Y		000	000	00	
N							44 16 9.14	-121 12 33.61	001500100S00																			
															02	NONE	0	STRGHT										
															PRVTE	S	-N									015	00	
															PSNGR	CAR		01	DRVR	NONE	19	M	OR-Y		028	000	02	
01751	N	N	N	N			10/27/2018	14	HIGHLAND AVE	CROSS	N	N	CLR	ANGL-OTH	01	NONE	0	TURN-L										02
NO RPT							SA		35TH ST		STOP SIGN	N	DRY	TURN	PRVTE	N	-E									015	00	
N							6P			01		N	DLIT	INJ	PSNGR	CAR		01	DRVR	INJB	68	M	OR-Y		028	000	02	
N							44 16 9.14	-121 12 33.61	001500100S00																			
															02	NONE	0	STRGHT										
															PRVTE	E	-W									000	00	
															PSNGR	CAR		01	DRVR	NONE	64	F	OR-Y		000	000	00	
01604	N	N	N	N			10/03/2018	14	HIGHLAND AVE	CROSS	N	N	CLR	ANGL-OTH	01	NONE	9	STRGHT										02
NO RPT							WE		35TH ST		STOP SIGN	N	DRY	ANGL	N/A	W	-E									000	00	
N							10A			03		N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00	
N							44 16 9.14	-121 12 33.61	001500100S00																			
															02	NONE	9	STRGHT										
															N/A	N	-S									015	00	
															PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000	00	

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CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and 35TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and 35TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

6 - 8 of 19 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	RD CHAR	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE					
INVEST	E	A	U	I	C	O DAY	DIST	FIRST STREET	DIRECT	(MEDIAN)	TRAFFIC	RNDBT	SURF	COLL	OWNER	FROM	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE	
UNLOC?	D	C	S	V	L	K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE	
00686	N	N	N	N		04/17/2019	14	HIGHLAND AVE	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE	STRGHT										013	02	
NO RPT						WE		35TH ST	CN		STOP SIGN	N	DRY	ANGL	PRVTE	S -N									015	013	00	
N						4P			02	0		N	DAY	INJ	PSNGR CAR		01	DRVR	NONE	25	F	OR-Y		028	000		02	
N						44 16 9.14	-121 12 33.61	001500100S00																				
															02 NONE PRVTE PSNGR CAR	STRGHT E -W		01	DRVR	INJB	76	M	OR-Y		000	000	00	
															02 NONE PRVTE PSNGR CAR	STRGHT E -W		02	PSNG	INJC	65	F			000	000	00	
															03 NONE PRVTE PSNGR CAR	STOP N -S		01	DRVR	NONE	18	F	OR-Y		000	000	00	
00730	N	N	N	N		04/26/2019	14	HIGHLAND AVE	INTER	CROSS	N	N	CLR	0-1 L-TURN	01 NONE	STRGHT											02	
NO RPT						FR		35TH ST	CN		STOP SIGN	N	DRY	TURN	PRVTE	N -S									015		00	
N						8A			01	0		N	DAY	INJ	PSNGR CAR		01	DRVR	NONE	23	M	SUSP		000	000		00	
N						44 16 9.16	-121 12 33.62	001500100S00																				
															02 NONE PRVTE PSNGR CAR	TURN-L S -W		01	DRVR	INJC	27	F	OR-Y		028,004	015	00	
																										02		
01954	N	N	N	N		11/08/2019	14	HIGHLAND AVE	INTER	CROSS	N	N	CLR	0-1 L-TURN	01 NONE	TURN-L										013	08,02	
NO RPT						FR		35TH ST	CN		REG-SIGN	N	DRY	TURN	PRVTE	E -S									000		00	
N						2P			03	0		N	DAY	INJ	PSNGR CAR		01	DRVR	INJB	80	F	OR-Y		004,028	000		08,02	
N						44 16 9.14	-121 12 33.61	001500100S00																				
															02 NONE PRVTE PSNGR CAR	STRGHT W -E		01	DRVR	INJC	48	F	OR-Y		000	000	013	00
															03 NONE PRVTE PSNGR CAR	STOP S -N		01	DRVR	NONE	36	F	OR-Y		000	000	00	
																										00		
02009	N	N	N	N		11/16/2019	14	HIGHLAND AVE	INTER	CROSS	N	N	CLR	ANGL-OTH	01 NONE	STRGHT											02	
NO RPT						SA		35TH ST	CN		STOP SIGN	N	DRY	ANGL	PRVTE	S -N									015		00	
N						4P			02	0		N	DAY	INJ	PSNGR CAR		01	DRVR	NONE	51	F	OR-Y		028	000		02	
N						44 16 9.14	-121 12 33.61	001500100S00																				

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CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and 35TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

11/01/2023

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

LAVA AVE and 27TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

COLLISION TYPE	FATAL CRASHES	NON - FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF - ROAD
YEAR: 2020														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	0	0	0
SIDESWIPE - MEETING	0	0	1	1	0	0	0	1	0	0	1	0	0	1
YEAR 2020 TOTAL	0	0	2	2	0	0	0	2	0	1	1	0	0	1
FINAL TOTAL	0	0	2	2	0	0	0	2	0	1	1	0	0	1

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CITY OF REDMOND, DESCHUTES COUNTY

SER#	S	P	R	J	S	W	DATE	CLASS	CITY STREET	INT-TYPE	SPCL USE																		
INVEST	E	A	U	I	C	O	DAY	DIST	FIRST STREET	RD CHAR	(MEDIAN)	INT-REL	OFFRD	WTHR	CRASH	TRLR QTY	MOVE	A	S										
RD DPT	E	L	G	N	H	R	TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-	RNDBT	SURF	COLL	OWNER	FROM	PRTC	INJ	G	E	LICNS	PED						
UNLOC?	D	C	S	V	L	K	LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE	TO	P#	TYPE	SVRTY	E	X	RES	LOC	ERROR	ACT	EVENT	CAUSE
00662	N	N	N	N			05/18/2020	19	LAVA AVE	ALLEY		N	N	CLR	ANGL-OTH	01	NONE	9	STRGHT										02
NO RPT							MO	115	27TH ST	W	(NONE)	UNKNOWN	N	DRY	ANGL	N/A	N	-S									018		00
N							4P			08			N	DAY	PDO	PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							44 15 57.08	-121 12 2.16			(02)																		
																02	NONE	9	STRGHT										
																N/A	W	-E									000		00
																PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
00933	Y	N	N	N			07/18/2020	19	LAVA AVE	STRGHT		N	Y	CLR	PRKD MV	01	NONE	9	STRGHT									010	01,10,27
NO RPT							SA	40	27TH ST	W	(NONE)	UNKNOWN	N	DRY	SS-M	N/A	W	-E									088		00
Y							12A			06			N	DARK	PDO	PSNGR	CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							44 15 57.06	-121 12 .98			(02)																		

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CITY OF REDMOND, DESCHUTES COUNTY

11/01/2023

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

OBSIDIAN AVE and 35TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

COLLISION TYPE	FATAL CRASHES	NON - FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF - ROAD
YEAR: 2019														
ANGLE	0	1	0	1	0	3	0	1	0	1	0	1	0	0
YEAR 2019 TOTAL	0	1	0	1	0	3	0	1	0	1	0	1	0	0
YEAR: 2017														
ANGLE	0	1	1	2	0	1	0	2	0	2	0	2	0	0
YEAR 2017 TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0	0
FINAL TOTAL	0	2	1	3	0	4	0	3	0	3	0	3	0	0

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CITY OF REDMOND, DESCHUTES COUNTY

OBSIDIAN AVE and 35TH ST, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

11/01/2023

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

HIGHLAND AVE and RIMROCK WAY, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2021														
REAR-END	0	2	1	3	0	2	0	3	0	3	0	0	3	0
TURNING MOVEMENTS	0	2	2	4	0	3	0	4	0	2	2	4	0	0
YEAR 2021 TOTAL	0	4	3	7	0	5	0	7	0	5	2	4	3	0
YEAR: 2020														
REAR-END	0	3	0	3	0	6	0	1	2	1	2	2	0	0
SIDESWIPE - MEETING	0	0	1	1	0	0	0	1	0	1	0	0	1	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR 2020 TOTAL	0	3	2	5	0	6	0	3	2	3	2	3	1	0
YEAR: 2019														
ANGLE	0	0	1	1	0	0	0	0	1	1	0	0	0	0
REAR-END	0	0	2	2	0	0	0	1	1	2	0	1	0	0
TURNING MOVEMENTS	0	3	2	5	0	3	1	5	0	5	0	5	0	0
YEAR 2019 TOTAL	0	3	5	8	0	3	1	6	2	8	0	6	0	0
YEAR: 2018														
SIDESWIPE - MEETING	0	1	0	1	0	1	0	0	1	1	0	0	0	0
TURNING MOVEMENTS	0	3	0	3	0	4	0	3	0	1	2	3	0	0
YEAR 2018 TOTAL	0	4	0	4	0	5	0	3	1	2	2	3	0	0
YEAR: 2017														
REAR-END	0	3	1	4	0	5	0	3	1	3	1	1	3	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	0	1	1	0	0	1	0

11/01/2023

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

HIGHLAND AVE and RIMROCK WAY, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

COLLISION TYPE	FATAL CRASHES	NON -	PROPERTY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF - ROAD
		FATAL CRASHES	DAMAGE ONLY											
TURNING MOVEMENTS	0	0	3	3	0	0	0	2	1	1	2	0	1	0
YEAR 2017 TOTAL	0	3	5	8	0	5	0	5	3	5	3	1	5	0
FINAL TOTAL	0	17	15	32	0	24	1	24	8	23	9	17	9	0

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CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and RIMROCK WAY, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and RIMROCK WAY, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and RIMROCK WAY, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and RIMROCK WAY, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

18 - 21 of 32 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	RD CHAR	INT-TYPE	INT-REL	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		</
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CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and RIMROCK WAY, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and RIMROCK WAY, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

22 - 25 of 32 Crash records shown.

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	RD CHAR	INT-TYPE	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE	
INVEST	E	A	U	I	C	O DAY	DIST	FIRST STREET	DIRECT	(MEDIAN)	RNDBT	SURF	COLL	TRLR QTY	FROM	G	E	LICNS					
RD DPT	E	L	G	N	H	R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-			OWNER	TO	P#	TYPE	SVRTY					
UNLOC?	D	C	S	V	L	K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V# TYPE								
00508	N	N	N	N		04/01/2020	17	RIMROCK WAY	STRGHT		Y	N	CLR	O-STRGHT	01 NONE 9	STRGHT							
NONE						WE	100	HIGHLAND AVE	N	(NONE)	L-GRN-SIG	N	DRY	SS-M	N/A	S -N				088		00	
N						4P			08			N	DAY	PDO	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK	
N						44 16 11.08	-121 11 28.49			(02)					02 NONE 9 N/A PSNGR CAR	STOP N -S		01	DRVR	NONE	00	Unk	UNK
00357	Y	N	N	N	Y	02/24/2018	17	RIMROCK WAY	STRGHT		N	N	CLR	O-STRGHT	01 NONE 0	STRGHT					124		
NO RPT						SA	500	HIGHLAND AVE	N	(NONE)	UNKNOWN	N	ICE	SS-M	PRVTE	S -N				000	124	00	
Y						10A			08			N	DAY	INJ	PSNGR CAR		01	DRVR	NONE	70	F	OR-Y	
N						44 16 14.64	-121 11 25.31			(02)					02 NONE 0 PRVTE PSNGR CAR	STRGHT N -S		01	DRVR	INJB	64	F	OR-Y OR<25
01233	N	N	N	N	Y	07/17/2019	14	HIGHLAND AVE	STRGHT		N	N	CLR	S-1STOP	01 NONE 9	STRGHT							
NO RPT						WE		RIMROCK WAY	E	(NONE)	UNKNOWN	N	DRY	REAR	N/A	E -W				000		00	
N						5P			06			N	DAY	PDO	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK	
N						44 16 9.56	-121 11 24.03	001500100S00		(03)					02 NONE 9 N/A PSNGR CAR	STOP E -W		01	DRVR	NONE	00	Unk	UNK
00143	Y	N	N	N		01/17/2020	14	HIGHLAND AVE	STRGHT		N	N	RAIN	S-1STOP	01 NONE	STRGHT							
NONE						FR		RIMROCK WAY	E	(NONE)	UNKNOWN	N	WET	REAR	PRVTE	E -W				001		00	
N						5P			04			N	DLIT	INJ	PSNGR CAR		01	DRVR	NONE	23	M	OTH-Y	
N						44 16 9.48	-121 11 26.8	001500100S00		(03)					02 NONE PRVTE PSNGR CAR	STOP E -W		01	DRVR	INJC	17	M	OR-Y OR<25
															02 NONE PRVTE PSNGR CAR	STOP E -W		02	PSNG	INJC	15	M	
01579	N	N	N	N		02/02/2021	14	HIGHLAND AVE	STRGHT		Y	N	CLR	S-1STOP	01 NONE 0	STRGHT							
NONE						TU		RIMROCK WAY	E	(NONE)	TRF SIGNAL	N	DRY	REAR	PRVTE	E -W				006		00	
N						12P			05			N	DAY	INJ	PSNGR CAR		01	DRVR	NONE	42	M	OR-Y	
N						44 16 9.44	-121 11 27.7	001500100S00		(03)										026	000	29	

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CITY OF REDMOND, DESCHUTES COUNTY

HIGHLAND AVE and RIMROCK WAY, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

SER#	P	R	J	S	W	DATE	CLASS	CITY STREET	RD CHAR	INT-TYPE	OFFRD	WTHR	CRASH	SPCL USE	MOVE	A	S	PED	ERROR	ACT	EVENT	CAUSE					
INVEST	E	A	U	I	C	O DAY	DIST	FIRST STREET	DIRECT	(MEDIAN)	RNDBT	SURF	COLL	TRLR QTY	FROM	G	E	LICNS	LOC								
RD DPT	E	L	G	N	H	R TIME	FROM	SECOND STREET	DIRECT	LEGS	TRAF-			OWNER	TO	P#	TYPE	SVRTY	E	X	RES	LOC					
UNLOC?	D	C	S	V	L	K LAT	LONG	LRS	LOCTN	(#LANES)	CONTL	DRVWY	LIGHT	SVRTY	V#	TYPE											
															02 NONE 0	STOP											
															PRVTE	E -W											
															PSNGR CAR		01	DRVR	INJC	77	M	OR-Y		000	000	00	
00976	N	N	N	N		05/22/2017	14	HIGHLAND AVE	STRGHT		Y	N	CLR	S-1STOP	01 NONE 0	STRGHT										29	
NONE						MO		RIMROCK WAY	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E								000	00		
N						9A			08			N	DAY	INJ	PSNGR CAR			01	DRVR	NONE	30	M	OR-Y		026	000	29
N						44 16 9.39	-121 11 30.54	001500100S00		(03)								02 NONE 0	STOP								
															PRVTE	W -E			01	DRVR	INJC	36	F	OR-Y		000	000
															PSNGR CAR											00	
02012	N	N	N	N		10/24/2017	14	HIGHLAND AVE	STRGHT		Y	N	CLR	S-1STOP	01 NONE 0	STRGHT									013	29	
NONE						TU		RIMROCK WAY	W	(NONE)	UNKNOWN	N	DRY	REAR	PRVTE	W -E								000	00		
N						11A			03			N	DAY	INJ	PSNGR CAR			01	DRVR	NONE	72	F	OR-Y		026	000	29
N						44 16 9.37	-121 11 31.81	001500100S00		(02)								02 NONE 0	STOP								
															PRVTE	W -E			01	DRVR	INJC	18	F	OR-Y		000	011 013
															PSNGR CAR											00	
																		03 NONE 0	STOP								
															UNKN	W -E			01	DRVR	NONE	00	Unk	UNK		022	00
															UNKNOWN									000	000	00	
00060	N	N	N	N	N	01/07/2017	14	HIGHLAND AVE	STRGHT		Y	N	CLR	S-1TURN	01 NONE 9	STRGHT										08,13	
CITY						SA		RIMROCK WAY	W	(NONE)	R-GRN-SIG	N	ICE	TURN	N/A	W -E								000	00		
N						7P			03			N	DLIT	PDO	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00
N						44 16 9.41	-121 11 29.26	001500100S00		(02)								02 NONE 9	TURN-R								
															N/A	W -S			01	DRVR	NONE	00	Unk	UNK		000	00
															PSNGR CAR									000	000	00	
00140	N	N	N	N		01/15/2017	14	HIGHLAND AVE	STRGHT		Y	N	CLR	S-1STOP	01 NONE 9	STRGHT									124	13	
NONE						SU		RIMROCK WAY	W	(NONE)	UNKNOWN	N	ICE	SS-0	N/A	W -E								000	00		
N						10A			03			N	DAY	PDO	PSNGR CAR			01	DRVR	NONE	00	Unk	UNK		000	000	00
N						44 16 9.4	-121 11 29.9	001500100S00		(03)								02 NONE 9	STOP								
															N/A	W -E			01	DRVR	NONE	00	Unk	UNK		011	00
															PSNGR CAR									000	000	00	

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CITY OF REDMOND, DESCHUTES COUNTY

URBAN NON-SYSTEM CRASH LISTING
HIGHLAND AVE and RIMROCK WAY, City of Redmond, Deschutes County, 01/01/2017 to 12/31/2021

REDMOND REGION
RECREATION CENTER

Intersection: 1: 35th @ Lava				City: Redmond																				
Counter: Sandow Engineering				Date: Wednesday, November 1, 2023																				
Total of All Vehicles																								
Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians				
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB	
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
16:00	16:15	5	38	0	43	1	1	0	2	2	22	0	24	0	0	6	6	75	0	0	0	0		
16:15	16:30	5	28	1	34	0	0	0	0	1	32	1	34	1	0	3	4	72	0	0	0	0		
16:30	16:45	8	29	0	37	0	0	2	2	1	16	3	20	4	0	4	8	67	0	0	0	1		
16:45	17:00	8	34	0	42	0	0	0	0	2	27	0	29	0	0	5	5	76	0	0	0	0		
17:00	17:15	7	28	2	37	0	0	0	0	0	12	0	12	0	0	4	4	53	0	0	0	0		
17:15	17:30	9	42	1	52	2	0	1	3	0	20	0	20	1	0	5	6	81	0	0	0	0		
17:30	17:45	4	33	2	39	0	0	1	1	2	28	0	30	0	0	6	6	76	0	0	2	0		
17:45	18:00	7	27	1	35	0	0	1	1	0	24	6	30	0	0	3	3	69	0	0	0	0		
Count Period Total		53	259	7		3	1	5		8	181	10		6	0	36		569		0	0	2	1	
PM Peak Hour Count Summary																								
Peak Volumes	Southbound				Approach 168	Westbound			Approach 5	Northbound			Approach 81	Eastbound			Approach 23	277			Pedestrians			
	Right	Thru	Left	Right		Thru	Left	Right		Thru	Left	Right		Thru	Left	SB					WB	NB	EB	
	32	133	3	2		0	3	3		75	3	5		0	18	0					0	0	1	
	0.89	0.79	0.38	0.25		0.00	0.38	0.42		0.38	0.69	0.25		0.70	0.31	0.00					0.90	0.72	0.85	
PHF	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0									
Trucks	0	1	0	1	0	0	0	1	0	0	1	0	0	0	0									
% Trucks	0%	1%	0%	50%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%									

Seasonally Adjusted Peak Hour					263								
					168	↓	↑	95					
					Southbound								
					19.05%	79.17%	1.79%	%					
					R ←	T ↓	L →	PED					
					32	133	3	0					
58	35	Eastbound	%	Ped	1	1: 35th @ Lava							
	← →		78.26%	L →	18								
			0.00%	T →	0								
	23		21.74%	R ↓	5								
					2	↑	R	40.00%	Westbound	5	11		
					0	←	T	0.00%		← →			
					3	↓	L	60.00%		6			
					0	Ped		0%					
					0	3	75	3					
					Ped	L ←	T ↑	R →					
					%	3.7%	92.6%	3.7%					
					Northbound								
					141	↓	↑	81					
					222								
									277				

SAF

Adjustment Factor

1.000

Pedestrians and Cars

1.1	1.2
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Time Period	Southbound					Westbound					Northbound					Eastbound					15 Minute Volume	Hourly Volume
	Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left			
3:00 PM																					0	
3:15 PM																					0	
3:30 PM																					0	
3:45 PM																					0	0
4:00 PM		5	38				1	1				2	21						6		74	74
4:15 PM		5	28	1								1	29	1			1		3		69	143
4:30 PM		8	29						2			1	16	3		1	4		4		67	210
4:45 PM		8	34									2	26						5		75	285
5:00 PM		7	28	2									12						4		53	264
5:15 PM		9	41	1			1		1				20				1		5		79	274
5:30 PM		4	33	2					1		1	2	28						6		76	283
5:45 PM		7	27	1					1				24	6					3		69	277
Total	0	53	258	7		0	2	1	5	0	1	8	176	10	0	1	6	0	36	0		
Peak Hour	0	32	132	3	0	0	1	0	3	0	0	3	74	3	0	1	5	0	18	0	274	217

Time P

Time Period	Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left			
3:00 PM																	0	
3:15 PM																	0	
3:30 PM																	0	
3:45 PM																	0	0
4:00 PM										1							3	3
4:15 PM										3							0	3
4:30 PM																	0	3
4:45 PM										1							1	4
5:00 PM																	0	1
5:15 PM		1			1												2	3
5:30 PM																	0	3
5:45 PM																	0	2
Total	0	1	0		1	0	0		0	5	0		0	0	0			
Peak Hour	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	3	6

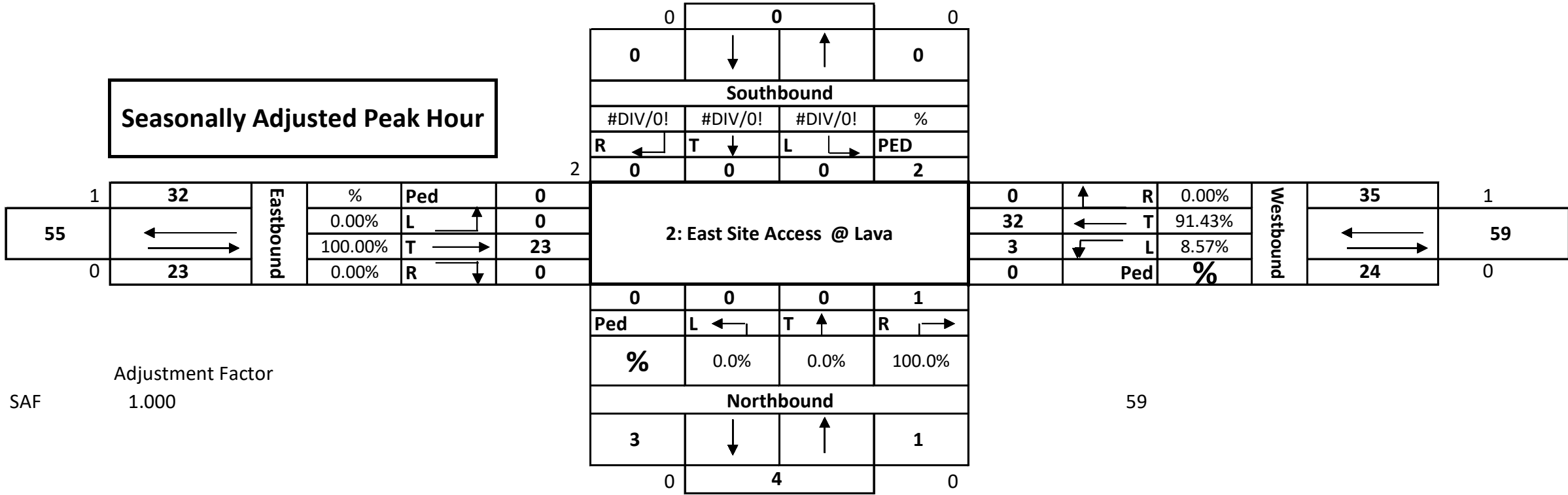
Time

[illegible]

Time Period

[illegible]

Intersection: 2: East Site Access @ Lava				City: Redmond																			
Counter: Sandow Engineering				Date: Wednesday, November 1, 2023																			
Total of All Vehicles																							
Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians			
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
16:00	16:15	0	0	0	0	0	6	0	6	1	0	0	1	0	5	0	5	12	0	0			
16:15	16:30	0	0	0	0	0	6	0	6	0	0	0	0	1	4	0	5	11	0	0			
16:30	16:45	0	0	0	0	0	11	0	11	0	0	0	0	0	8	0	8	19	0	0			
16:45	17:00	0	0	0	0	0	6	2	8	0	0	0	0	0	5	0	5	13	55	0			
17:00	17:15	0	0	0	0	0	6	0	6	1	0	0	1	0	3	0	3	10	53	0			
17:15	17:30	0	0	0	0	0	9	1	10	0	0	0	0	0	7	0	7	17	59	2			
17:30	17:45	0	0	0	0	0	4	0	4	0	0	0	0	0	5	0	5	9	49	0			
17:45	18:00	0	0	0	0	0	13	0	13	0	1	0	1	0	2	0	2	16	52	0			
Count Period Total		0	0	0		0	61	3		2	1	0		1	39	0		107		2			
PM Peak Hour Count Summary																							
Peak Volumes		Southbound			Approach	Westbound			Approach	Northbound			Approach	Eastbound			Approach			Pedestrians			
		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left				SB	WB	NB	EB
		0	0	0	0	0	32	3	35	1	0	0	1	0	23	0	23	59		2	0	0	0
		PHF	0.00	0.00	0.00	0.00	0.00	0.73	0.38	0.80	0.25	0.00	0.00	0.25	0.00	0.72	0.00	0.72	0.78				
Trucks	0	0	0		0	0	0		0	0	0		0	1	0								
% Trucks	0%	0%	0%		0%	0%	0%		0%	0%	0%		0%	4%	0%								



0

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32

3

0

R

←

↓

Ped

0%

0.00%

91.43%

8.57%

Westbound

35

←→

24

1

59

0

SAF

Adjustment Factor

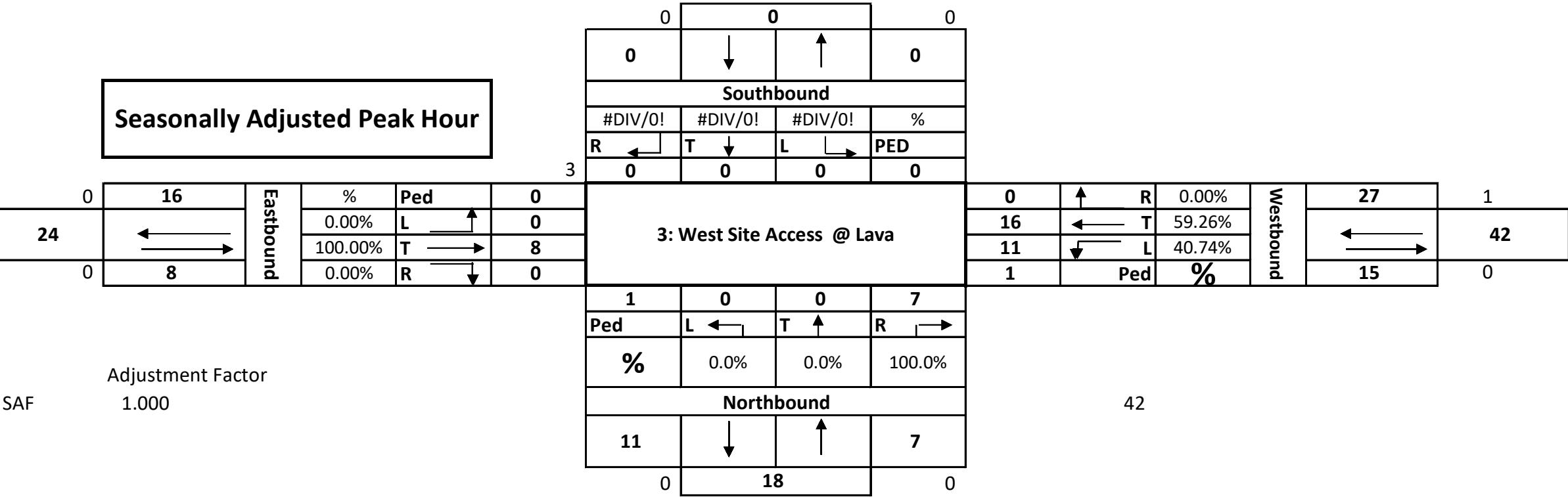
1.000

59

Pedestrians and Cars

Time Period

Intersection: 3: West Site Access @ Lava										City: Redmond														
Counter: Sandow Engineering										Date: Wednesday, November 1, 2023														
Total of All Vehicles																								
Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians				
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB	
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
16:00	16:15	0	0	0	0	0	3	3	6	1	0	0	1	0	3	0	3	10	0	0	0			
16:15	16:30	0	0	0	0	0	2	1	3	1	1	0	2	0	2	0	2	7	0	0	0			
16:30	16:45	0	0	0	0	0	4	2	6	2	0	0	2	0	3	0	3	11	0	0	1			
16:45	17:00	0	0	0	0	0	4	2	6	4	0	0	4	0	2	0	2	12	0	1	0			
17:00	17:15	0	0	0	0	0	1	4	5	0	0	0	0	0	1	0	1	6	0	0	0			
17:15	17:30	0	0	0	0	0	7	3	10	1	0	0	1	0	2	0	2	13	0	0	0			
17:30	17:45	0	0	0	0	0	1	1	2	1	0	0	1	0	3	0	3	6	0	0	0			
17:45	18:00	0	0	0	0	0	3	3	6	0	0	0	0	0	1	0	1	7	0	0	0			
Count Period Total		0	0	0		0	25	19		10	1	0		0	17	0		72		0	1			
PM Peak Hour Count Summary																								
Peak Volumes		Southbound			Approach	Westbound			Approach	Northbound			Approach	Eastbound			Approach	42		Pedestrians				
		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left				SB	WB	NB	EB	
		0	0	0	0	0	16	11	27	7	0	0	7	0	8	0	8			0	0	1	1	0
		PHF	0.00	0.00	0.00	0.00	0.00	0.57	0.69	0.68	0.44	0.00	0.00	0.44	0.00	0.67	0.00			0.67	0.81			
Trucks	0	0	0		0	0	0		0	0	0		0	0	0									
% Trucks	0%	0%	0%		0%	0%	0%		0%	0%	0%		0%	0%	0%									



0

0

0

0

Southbound

#DIV/0!

#DIV/0!

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R

T

L

PED

0

0

0

0

1

0

0

7

Ped

L

T

R

←

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→

%

0.0%

0.0%

100.0%

Northbound

11

↓

↑

7

0

18

0

SAF

Adjustment Factor

1.000

42

3: West Site Access @ Lava

Pedestrians and Cars

Time Period	Southbound					Westbound					Northbound					Eastbound					15 Minute Volume	Hourly Volume
	Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left			
3:00 PM																					0	
3:15 PM																					0	
3:30 PM																					0	
3:45 PM																					0	0
4:00 PM								3	3			1						3			10	10
4:15 PM								2	1			1						2			6	16
4:30 PM								4	2		1	2						3			11	27
4:45 PM						1		4	2			4						2			12	39
5:00 PM								1	4									1			6	35
5:15 PM								7	3			1						2			13	42
5:30 PM								1	1			1						3			6	37
5:45 PM								3	3									1			7	32
Total	0	0	0	0		1	0	25	19		1	10	0	0		0	0	17	0			
Peak Hour	0	0	0	0	0	1	0	16	11	0	1	7	0	0	0	0	0	8	0	0	42	26

Trucks

Time Period	Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left			
3:00 PM																	0	
3:15 PM																	0	
3:30 PM																	0	
3:45 PM																	0	0
4:00 PM																	0	0
4:15 PM										1							1	1
4:30 PM																	0	1
4:45 PM																	0	1
5:00 PM																	0	1
5:15 PM																	0	0
5:30 PM																	0	0
5:45 PM																	0	0
Total	0	0	0		0	0	0		0	1	0		0	0	0			
Peak Hour	0	0	0		0	0	0		0	0	0	0		0	0		0	1

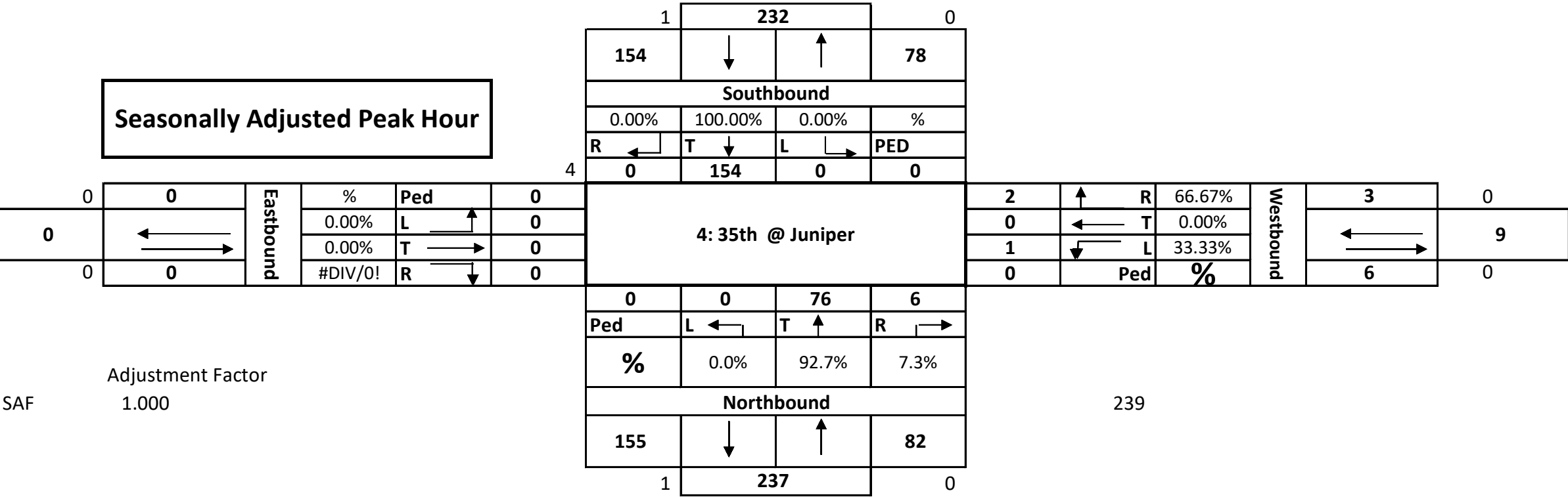
Bikes

Time Period	Southbound				Westbound				Northbound				Eastbound			SB	WB	NB	EB
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left				
3:00 PM																0	0	0	0
3:15 PM																0	0	0	0
3:30 PM																0	0	0	0
3:45 PM																0	0	0	0
4:00 PM																0	0	0	0
4:15 PM																0	0	0	0
4:30 PM																0	0	0	0
4:45 PM																0	0	0	0
5:00 PM																0	0	0	0
5:15 PM																0	0	0	0
5:30 PM																0	0	0	0
5:45 PM																0	0	0	0
Total	0	0	0		0	0	0		0	0	0		0	0	0				
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrians

Time Period	Left				Left				Left				Left							
			0			0			0	0				0	0					
3:15 PM		0	0			0			0	0				0	0		0	0	0	0
3:30 PM		0	0			0				0					0		0	0	0	0
3:45 PM			0		0	0				0					0		0	0	0	0
4:00 PM			0			0			0	0			0		0		0	0	0	0
4:15 PM			0			0		0							0		0	0	0	0
4:30 PM			0			0			0	0				0	0		0	0	0	0
4:45 PM			0			0			0	0			0		0		0	0	0	0
5:00 PM			0			0				0				0	0		0	0	0	0
5:15 PM			0			0				0				0	0		0	0	0	0
5:30 PM			0			0									0		0	0	0	0
5:45 PM			0			0									0		0	0	0	0
Total	0	0	0		0	0		0	0				0	0	0		0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0		0		0	0	0	0	0	0	0	0

Intersection: 4: 35th @ Juniper				City: Redmond																							
Counter: Sandow Engineering				Date: Wednesday, November 1, 2023																							
Total of All Vehicles																											
Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians							
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB				
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
16:00	16:15	0	41	2	43	0	0	0	0	1	25	0	26	0	0	0	0	69	0	0							
16:15	16:30	0	34	0	34	0	0	1	1	1	34	0	35	0	0	0	0	70	0	0							
16:30	16:45	0	33	0	33	0	0	1	1	1	20	0	21	0	0	0	0	55	0	0							
16:45	17:00	0	38	0	38	0	0	0	0	3	27	0	30	0	0	0	0	68	262	0							
17:00	17:15	0	36	0	36	0	0	0	0	0	13	0	13	0	0	0	0	49	242	0							
17:15	17:30	0	47	0	47	2	0	0	2	2	16	0	18	0	0	0	0	67	239	0							
17:30	17:45	0	39	0	39	1	0	2	3	0	33	0	33	0	0	0	0	75	259	1							
17:45	18:00	0	34	0	34	0	0	0	0	2	24	0	26	0	0	0	0	60	251	0							
Count Period Total		0	302	2		3	0	4		10	192	0		0	0	0		513		1							
PM Peak Hour Count Summary																											
Peak Volumes		Southbound				Westbound				Northbound				Eastbound				Approach			Pedestrians						
		Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach				SB	WB	NB	EB			
		0	154	0		2	0	1		3	6	76		0	82	0					0	0	0	0	0	0	0
		0.00	0.82	0.00		0.25	0.00	0.25		0.38	0.50	0.70		0.00	0.68	0.00					0.00	0.00	0.00	0.88			
PHF		0	0	0		0	0	0		0	3	0		0	0	0											
Trucks		0	0	0		0	0	0		0	4	0		0	0	0											
% Trucks		0%	0%	0%		0%	0%	0%		0%	4%	0%		0%	0%	0%											



SAF

Adjustment Factor

1.000

239

4: 35th @ Juniper

Pedestrians and Cars

Time Period	Southbound					Westbound					Northbound					Eastbound					15 Minute Volume	Hourly Volume
	Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left			
3:00 PM																					0	
3:15 PM																					0	
3:30 PM																					0	
3:45 PM																					0	0
4:00 PM			41	2								1	25								69	69
4:15 PM			34						1			1	34								70	139
4:30 PM			33						1			1	19								54	193
4:45 PM			38									3	26								67	260
5:00 PM			36										13								49	240
5:15 PM			47				2					2	15								66	236
5:30 PM			38				1		2				33								74	256
5:45 PM			34									2	24								60	249
Total	0	0	301	2		0	3	0	4		0	10	189	0		0	0	0	0			
Peak Hour	0	0	154	0	0	0	2	0	1	0	0	6	73	0	0	0	0	0	0	0	236	208

Trucks

Time Period	Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left			
3:00 PM																	0	
3:15 PM																	0	
3:30 PM																	0	
3:45 PM																	0	0
4:00 PM																	0	0
4:15 PM																	0	0
4:30 PM										1							1	1
4:45 PM										1							1	2
5:00 PM																	0	2
5:15 PM										1							1	3
5:30 PM																	0	2
5:45 PM																	0	1
Total	0	0	0		0	0	0		0	3	0		0	0	0			
Peak Hour	0	0	0		0	0	0		0	3	0		0	0	0		0	0

Bikes

Time Period	Southbound				Westbound				Northbound				Eastbound			SB	WB	NB	EB
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left				
3:00 PM																0	0	0	0
3:15 PM																0	0	0	0
3:30 PM																0	0	0	0
3:45 PM																0	0	0	0
4:00 PM																0	0	0	0
4:15 PM																0	0	0	0
4:30 PM																0	0	0	0
4:45 PM																0	0	0	0
5:00 PM																0	0	0	0
5:15 PM																0	0	0	0
5:30 PM		1														1	0	0	0
5:45 PM																0	0	0	0
Total	0	1	0		0	0	0		0	0	0		0	0	0				
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrians

Time Period	Left				Left				Left				Left							
			0				0			0	0			0	0					
3:15 PM		0	0				0			0	0			0	0	0	0	0	0	0
3:30 PM		0	0				0			0	0			0	0	0	0	0	0	0
3:45 PM			0		0		0			0	0			0	0	0	0	0	0	0
4:00 PM			0				0			0	0		0		0	0	0	0	0	0
4:15 PM			0				0		0		0			0	0	0	0	0	0	0
4:30 PM			0				0			0	0			0	0	0	0	0	0	0
4:45 PM			0				0			0	0		0		0	0	0	0	0	0
5:00 PM			0				0			0	0			0	0	0	0	0	0	0
5:15 PM			0				0			0	0			0	0	0	0	0	0	0
5:30 PM			0				0				0			0	0	0	0	0	0	0
5:45 PM			0				0				0			0	0	0	0	0	0	0
Total	0	0	0		0	0	0		0	0			0	0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0

Intersection: 5: 27th @ Lava				City: Redmond																					
Counter: Sandow Engineering				Date: Wednesday, November 1, 2023																					
Total of All Vehicles																									
Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians					
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB		
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0		
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0		
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0		
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0		
16:00	16:15	12	61	0	73	0	0	0	0	0	80	6	86	1	0	5	6	165		0	0	0	0		
16:15	16:30	10	53	0	63	0	0	0	0	0	69	4	73	4	0	6	10	146		2	0	0	0		
16:30	16:45	7	63	0	70	0	0	0	0	0	72	5	77	3	0	3	6	153		1	0	0	1		
16:45	17:00	9	63	0	72	0	0	0	0	0	73	3	76	3	0	6	9	157	621	0	0	0	0		
17:00	17:15	12	56	0	68	0	0	0	0	0	80	6	86	3	0	4	7	161	617	0	0	0	0		
17:15	17:30	11	52	0	63	0	0	0	0	0	76	2	78	4	0	9	13	154	625	0	0	0	0		
17:30	17:45	9	40	0	49	0	0	0	0	0	0	6	6	0	0	0	0	55	527	0	0	0	0		
17:45	18:00	5	37	0	42	0	0	0	0	0	59	7	66	1	0	5	6	114	484	0	0	0	0		
Count Period Total		75	425	0		0	0	0		0	509	39		19	0	38		1105		3	0	0	1		
PM Peak Hour Count Summary																									
Peak Volumes		Southbound				Westbound				Northbound				Eastbound				Approach			Pedestrians				
		Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach				SB	WB	NB	EB	
		39	234	0	273	0	0	0	0	0	301	16	317	13	0	22	35				625	1	0	0	1
		0.81	0.93	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.67	0.92	0.81	0.00	0.61				0.67	0.97			
PHF		0	6	0		0	0	0		0	4	1		1	0	1									
% Trucks		0%	3%	0%		0%	0%	0%		0%	1%	6%		8%	0%	5%									

Seasonally Adjusted Peak Hour										5				625									
90	0	55	Eastbound	%	Ped	1	5: 27th @ Lava				0	↑	R	#DIV/0!	Westbound	0	0						
	←→	62.86%		L	↑	22					0	←	T	#DIV/0!									
		0.00%		T	→	0					0	↓	L	#DIV/0!									
	0	35		37.14%	R	↓					13	0	Ped	%		0	0						

Pedestrians and Cars

Time Period

Time Period	Southbound					Westbound					Northbound					Eastbound					15 Minute Volume	Hourly Volume
	Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left			
3:00 PM																					0	
3:15 PM																					0	
3:30 PM																					0	
3:45 PM																					0	0
4:00 PM		12	61									80	6				1		5		165	165
4:15 PM		8	52									67	3				4		6		140	305
4:30 PM		7	58									72	5			1	3		3		148	453
4:45 PM		9	62									71	3				3		6		154	607
5:00 PM		12	56									80	6				2		3		159	601
5:15 PM		11	51									74	2				4		9		151	612
5:30 PM		9	38										6								53	517
5:45 PM		5	37										7				1		5		113	476
Total	0	73	415	0		0	0	0	0		0	0	502	38		1	18	0	37			
Peak Hour	0	39	227	0	0	0	0	0	0	0	0	0	297	16	0	1	12	0	21	0	612	470

Time P

Time Period	Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left			
3:00 PM																	0	
3:15 PM																	0	
3:30 PM																	0	
3:45 PM																	0	0
4:00 PM																	0	0
4:15 PM		1							2	1							4	4
4:30 PM		4															4	8
4:45 PM		1							2								3	11
5:00 PM													1		1		2	13
5:15 PM		1							2								3	12
5:30 PM		2															2	10
5:45 PM									1								1	8
Total	0	9	0		0	0	0		0	7	1		1	0	1			
Peak Hour	0	6	0		0	0	0		0	4	1		1	0	1		4	4

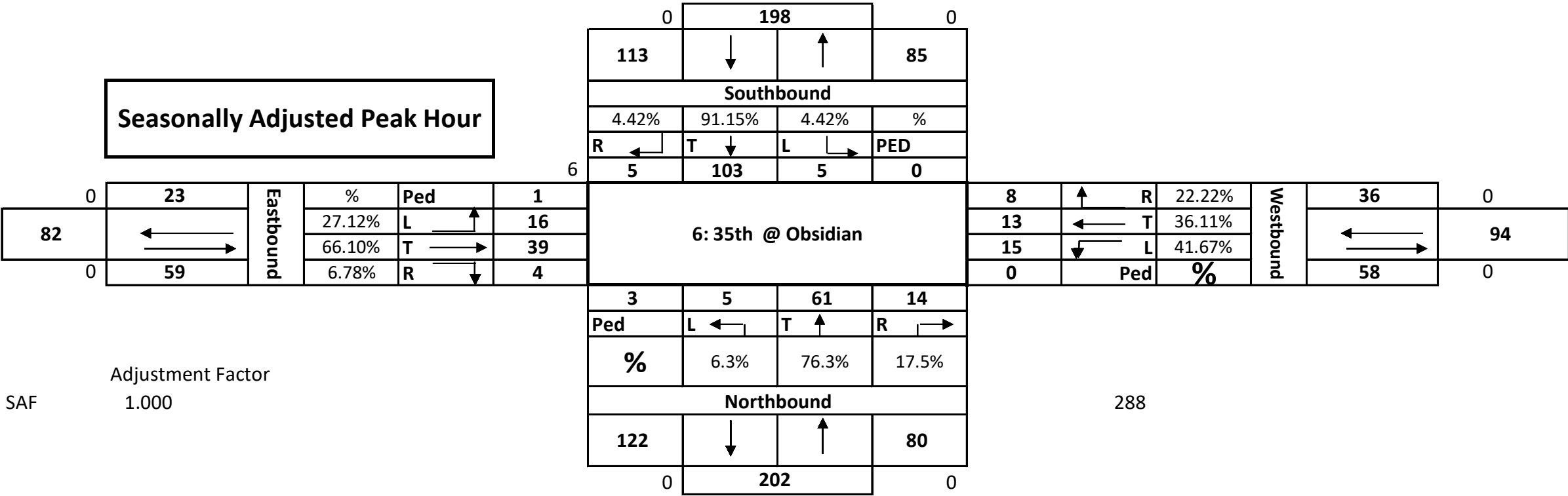
Time 1

[illegible]

Time Period

[illegible]

Intersection: 6: 35th @ Obsidian				City: Redmond																				
Counter: Sandow Engineering				Date: Wednesday, November 1, 2023																				
Total of All Vehicles																								
Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians				
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB	
15:00	15:15	0	15	1	16	1	4	2	7	2	12	0	14	0	2	3	5	42	237	2	2	2	1	
15:15	15:30	1	24	1	26	1	7	3	11	1	21	0	22	2	11	3	16	75		0	1	0	0	
15:30	15:45	0	18	3	21	3	3	0	6	4	17	3	24	1	6	4	11	62		0	0	0	0	
15:45	16:00	1	17	3	21	1	4	2	7	3	15	1	19	1	8	2	11	58		0	1	1	0	
16:00	16:15	1	23	1	25	3	9	2	14	2	19	2	23	1	7	4	12	74		269	0	0	0	0
16:15	16:30	4	22	4	30	1	2	8	11	2	16	0	18	2	6	9	17	76		270	1	0	0	0
16:30	16:45	2	23	1	26	4	1	3	8	2	13	0	15	0	15	2	17	66		274	0	0	0	0
16:45	17:00	0	25	2	27	0	2	4	6	1	19	0	20	1	10	5	16	69		285	0	0	1	0
17:00	17:15	3	25	2	30	4	4	2	10	6	10	2	18	2	11	3	16	74	285	0	0	0	1	
17:15	17:30	0	30	0	30	0	6	6	12	5	19	3	27	1	3	6	10	79	288	0	0	2	0	
17:30	17:45	2	16	0	18	2	6	2	10	2	24	0	26	0	10	2	12	66	288	1	0	0	1	
17:45	18:00	3	14	2	19	2	4	8	14	3	14	0	17	1	6	7	14	64	283	0	0	0	0	
Count Period Total		17	252	20		22	52	42		33	199	11		12	95	50		805		4	4	6	3	
PM Peak Hour Count Summary																								
Peak Volumes		Southbound				Westbound				Northbound				Eastbound				288		Pedestrians				
		Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach	Right	Thru	Left	Approach			SB	WB	NB	EB	
		5	103	5	113	8	13	15	36	14	61	5	80	4	39	16	59			0	0	3	1	
		PHF	0.42	0.86	0.63	0.94	0.50	0.54	0.63	0.75	0.58	0.80	0.42	0.74	0.50	0.65	0.67			0.87	0.91			
Trucks		0	2	0		1	0	0		0	0	1		0	0	0								
% Trucks		0%	2%	0%		13%	0%	0%		0%	0%	20%		0%	0%	0%								



Pedestrians and Cars

Total	3	17	248	19		4	21	52	42		6	32	199	10		3	12	95	50					
Peak Hour	0	5	101	5	0	0	7	13	15	0	3	14	61	4	0	1	4	39	16	0	284	771		

Time Period	Southbound	Westbound	Northbound	Eastbound	15 Minute	Hourly
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4:30 PM	0	1	0		1	0	0		0	0	0						2	5
4:45 PM	0	0	0		0	0	0		0	0	0						0	4
5:00 PM	0	0	0		0	0	0		0	0	1						1	5
5:15 PM	0	1	0		0	0	0		0	0	0						1	4
5:30 PM	0	0	0		0	0	0		0	0	0						0	2
5:45 PM	0	0	0		0	0	0		0	0	0						0	2
Total	0	3	1		1	0	0		1	0	1		0	0	0			
Peak Hour	0	2	0	0	1	0	0	0	0	0	1	0	0	0	0	0	4	5

Time Period	Southbound	Westbound	Northbound	Eastbound	SR	WR	NR	ER
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Time Period

4:15 PM			0				0		0	0				0	0	0	0	0
4:30 PM			0				0							0	0	0	0	0
4:45 PM			0				0		0			0		0	0	0	0	0
5:00 PM			0				0							0	0	0	0	0
5:15 PM			0				0							0	0	0	0	0
5:30 PM			0				0			0				0	0	0	0	0
5:45 PM			0				0			0				0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0
Peak Hour	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0

Intersection: 7: Highland Ave @ 27th										City: Redmond													
Counter: Fergus & Associates										Date: Thursday, May 4, 2023													
Total of All Vehicles																							
Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians			
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
16:00	16:15	18	47	25	90	28	124	19	171	19	34	11	64	8	142	20	170	495		2	0	0	0
16:15	16:30	16	33	25	74	27	126	18	171	21	49	14	84	8	122	12	142	471		0	0	0	0
16:30	16:45	20	24	27	71	35	110	21	166	13	55	7	75	3	138	14	155	467		2	0	0	0
16:45	17:00	3	38	36	77	22	94	23	139	20	59	16	95	13	132	13	158	469	1902	0	0	0	1
17:00	17:15	4	40	18	62	28	109	37	174	29	39	19	87	6	115	15	136	459	1866	0	0	0	0
17:15	17:30	2	42	18	62	16	121	36	173	22	46	19	87	6	121	22	149	471	1866	0	0	0	0
17:30	17:45	5	23	22	50	15	110	38	163	24	33	9	66	5	139	12	156	435	1834	0	0	0	0
17:45	18:00	9	19	28	56	21	100	19	140	21	42	9	72	1	109	13	123	391	1756	0	0	0	1
Count Period Total		77	266	199		192	894	211		169	357	104		50	1018	121		3658		4	0	0	2
PM Peak Hour Count Summary																							
Peak Volumes		Southbound			Approach	Westbound			Approach	Northbound			Approach	Eastbound			Approach			Pedestrians			
		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left				SB	WB	NB	EB
		29	144	99	272	101	434	117	652	84	199	61	344	28	506	64	598	1866		2	0	0	1
PHF		0.36	0.86	0.69	0.88	0.72	0.90	0.79	0.94	0.72	0.84	0.80	0.91	0.54	0.92	0.73	0.95	0.99					
Trucks		0	1	0		0	7	0		0	0	0		0	4	0							
% Trucks		0%	1%	0%		0%	2%	0%		0%	0%	0%		0%	1%	0%							

Seasonally Adjusted Peak Hour										7										2124												
1277		0		596		Eastbound			% Ped		1		7: Highland Ave @ 27th						0		724		0									
				←→			10.70% L		↑ 73		310								↓		414											
							84.62% T		→ 576		10.66% R								←		164		52.94% T		↓		36.40% L		→		PED	
							4.68% R		→ 32		33								113		2											
		0		681																												
																				115		↑ R		15.49%		Westbound		742		0		
																		494		← T		66.56%		←→				1526				
																		133		↘ L		17.94%										
																		0		Ped		0%		784				0				

Pedestrians and Cars

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Time Period	Southbound					Westbound					Northbound					Eastbound					15 Minute Volume	Hourly Volume
	Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left			
3:00 PM																					0	
3:15 PM																					0	
3:30 PM																					0	
3:45 PM																					0	0
4:00 PM	2	18	47	25			28	122	19		19	34	11				8	139	20		490	490
4:15 PM	0	16	33	25			27	126	18		21	49	14				8	120	12		469	959
4:30 PM	2	20	24	27			35	107	21		13	55	7				3	137	14		463	1422
4:45 PM		3	38	36			22	92	23		20	59	16			1	13	130	13		465	1887
5:00 PM		4	40	18			28	109	37		29	39	19				6	114	15		458	1855
5:15 PM		2	41	18			16	119	36		22	46	19				6	121	22		468	1854
5:30 PM		5	23	22			15	110	38			24	33	9			5	139	12		435	1826
5:45 PM		9	19	28			21	99	19			21	42	9		1	1	108	13		389	1750
Total	4	77	265	199		0	192	884	211		0	169	357	104		2	50	1008	121			
Peak Hour	2	29	143	99	0	0	101	427	117	0	0	84	199	61	0	1	28	502	64	0	1854	1449

41

Time Period	Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left			
3:00 PM																	0	
3:15 PM																	0	
3:30 PM																	0	
3:45 PM																	0	0
4:00 PM						2								3			5	5
4:15 PM						0								2			2	7
4:30 PM						3								1			4	11
4:45 PM						2								2			4	15
5:00 PM						0								1			1	11
5:15 PM		1				2								0			3	12
5:30 PM						0								0			0	8
5:45 PM						1								1			2	6
Total	0	1	0		0	10	0		0	0	0		0	10	0			
Peak Hour	0	1	0	0	0	7	0	0	0	0	0	0	0	4	0	0	12	12

11

[illegible]

Time Period

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[illegible]

Intersection: 8: Highland Ave @ 35th					City: Redmond																					
Counter: Fergus & Associates					Date: Tuesday, May 9, 2023																					
Total of All Vehicles																										
Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians						
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB			
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
16:00	16:15	25	2	0	27	3	121	32	156	13	4	6	23	4	110	23	137	343	0	0						
16:15	16:30	26	9	1	36	2	133	16	151	10	2	1	13	3	123	27	153	353	0	0						
16:30	16:45	22	6	1	29	13	122	24	159	11	5	1	17	6	118	20	144	349	1	0						
16:45	17:00	34	6	1	41	11	117	16	144	9	3	2	14	6	125	25	156	355	0	0						
17:00	17:15	20	8	1	29	11	124	25	160	13	4	2	19	6	118	26	150	358	0	0						
17:15	17:30	26	15	0	41	9	116	32	157	13	4	2	19	13	101	35	149	366	0	0						
17:30	17:45	18	7	1	26	8	102	20	130	11	2	4	17	6	112	33	151	324	0	0						
17:45	18:00	8	7	4	19	0	113	23	136	11	4	3	18	0	99	25	124	297	0	0						
Count Period Total		179	60	9		57	948	188		91	28	21		44	906	214		2745		1						
PM Peak Hour Count Summary																										
Peak Volumes	Southbound				Approach	Westbound			Approach	Northbound			Approach	Eastbound			Approach			Pedestrians						
	Right	Thru	Left	Right		Thru	Left	Right		Thru	Left	Right		Thru	Left	SB				WB	NB	EB				
	102	35	3	44		479	97	620		46	16	7		69	31	462				106	599	1428	1	0	0	0
	PHF	0.75	0.58	0.75		0.85	0.85	0.97		0.76	0.97	0.88		0.80	0.88	0.91				0.60	0.92	0.76	0.96	0.98		
Trucks	0	0	0			0	5	0			0	0	1			0	7	1								
% Trucks	0%	0%	0%			0%	1%	0%			0%	0%	14%			0%	2%	1%								

Seasonally Adjusted Peak Hour					03480							
					159	↓	↑	189				
					Southbound							
					72.86%	25.00%	2.14%	%				
					R ←	T ↓	L →	PED				
					116	40	3	1				
					8: Highland Ave @ 35th							
					50	↑	R	7.10%				
					545	←	T	77.26%				
					110	↓	L	15.65%				
					0	Ped	%					
					Westbound							
					706							
					←				1287			
					582							
					0	8	18	52				
					Ped	L ←	T ↑	R →				
					%	10.1%	23.2%	66.7%				
					Northbound							
					185	↓	↑	79				
					0	264		0				

Pedestrians and Cars

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Time Period	Southbound					Westbound					Northbound					Eastbound					15 Minute Volume	Hourly Volume
	Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left			
3:00 PM																					0	
3:15 PM																					0	
3:30 PM																					0	
3:45 PM																					0	0
4:00 PM		25	2	0			3	121	32			13	4	5			4	107	23		339	339
4:15 PM		26	9	1			2	133	16			10	2	1			3	122	27		352	691
4:30 PM		22	5	1			13	122	24			11	5	1			6	116	20		346	1037
4:45 PM		34	6	1			11	115	16			9	3	2			6	122	25		350	1387
5:00 PM		20	8	1			11	124	25			13	4	2			6	117	26		357	1405
5:15 PM		26	15	0			9	113	32			13	4	2			13	100	34		361	1414
5:30 PM		18	7	1			8	101	20			11	2	4			6	111	33		322	1390
5:45 PM		8	7	4				113	23			11	4	3				97	25		295	1335
Total	0	179	59	9		0	57	942	188		0	91	28	20		0	44	892	213			
Peak Hour	0	102	34	3	0	0	44	474	97	0	0	46	16	7	0	0	31	455	105	0	1414	1030

41

Time Period	Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left			
3:00 PM																	0	
3:15 PM																	0	
3:30 PM																	0	
3:45 PM																	0	0
4:00 PM						0					1			3			4	4
4:15 PM						0								1			1	5
4:30 PM						0								2			2	7
4:45 PM						2								3			5	12
5:00 PM						0								1			1	9
5:15 PM						3								1	1		5	13
5:30 PM						1								1	0		2	13
5:45 PM														2	0		2	10
Total	0	0	0		0	6	0		0	0	1		0	14	1			
Peak Hour	0	0	0		0	5	0		0	0	1		0	7	1		5	9

11

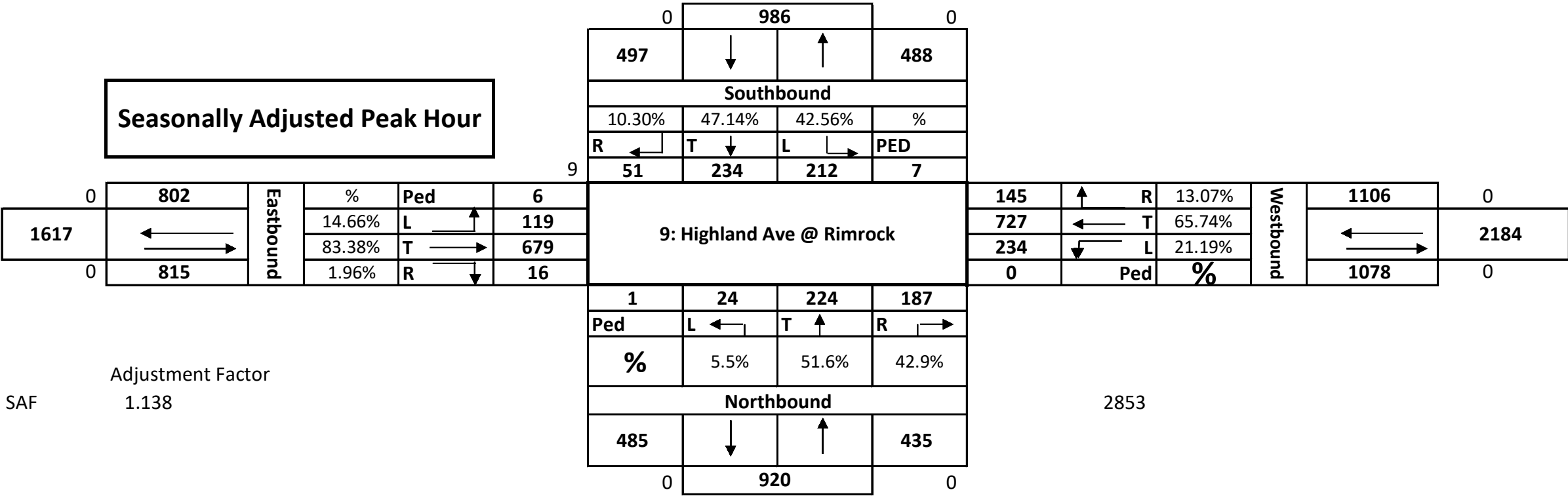
[illegible]

Time Period

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[illegible]

Intersection: 9: Highland Ave @ Rimrock										City: Redmond													
Counter: Fergus & Associates										Date: Thursday, May 11, 2023													
Total of All Vehicles																							
Time Period		Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume	Pedestrians			
		Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total	Right	Thru	Left	Approach Total			SB	WB	NB	EB
15:00	15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
15:15	15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
15:30	15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
15:45	16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
16:00	16:15	17	43	25	85	23	158	60	241	44	43	10	97	1	164	23	188	611		5	0	4	0
16:15	16:30	9	34	25	68	44	152	56	252	16	33	7	56	4	160	23	187	563		4	0	0	6
16:30	16:45	5	63	45	113	33	154	42	229	41	46	10	97	2	143	20	165	604		4	0	0	1
16:45	17:00	15	50	46	111	31	146	37	214	42	49	0	91	4	164	23	191	607	2385	0	0	0	0
17:00	17:15	16	35	52	103	43	156	60	259	37	59	6	102	4	145	34	183	647	2421	0	0	1	0
17:15	17:30	9	58	43	110	20	183	67	270	44	43	5	92	4	145	28	177	649	2507	3	0	0	4
17:30	17:45	12	55	43	110	33	141	37	211	26	46	6	78	5	130	25	160	559	2462	0	0	0	1
17:45	18:00	10	46	44	100	28	145	40	213	35	51	5	91	3	159	29	191	595	2450	0	0	0	3
Count Period Total		93	384	323		255	1235	399		285	370	49		27	1210	205		4835		16	0	5	15
PM Peak Hour Count Summary																							
Peak Volumes		Southbound			Approach	Westbound			Approach	Northbound			Approach	Eastbound			Approach			Pedestrians			
		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left				SB	WB	NB	EB
		45	206	186		437	127	639		206	972	164		197	21	382				14	597	105	716
PHF		0.70	0.82	0.89	0.97	0.74	0.87	0.77	0.90	0.93	0.83	0.53	0.94	0.88	0.91	0.77	0.94	0.97					
Trucks		1	1	0		0	4	0		0	0	0		0	3	0							
% Trucks		2%	0%	0%		0%	1%	0%		0%	0%	0%		0%	1%	0%							



Pedestrians and Cars

Time Period	Southbound					Westbound					Northbound					Eastbound					15 Minute Volume	Hourly Volume
	Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left		Peds	Right	Thru	Left			
3:00 PM																					0	
3:15 PM																					0	
3:30 PM																					0	
3:45 PM																					0	0
4:00 PM	5	17	43	25			23	158	60		4	44	43	10		0	1	161	23		608	608
4:15 PM	4	9	34	25			44	151	56		0	16	33	7		6	4	160	23		562	1170
4:30 PM	4	5	62	45			33	154	42		0	41	46	10		1	2	142	20		602	1772
4:45 PM	0	15	50	46			31	145	37		0	42	49	0		0	4	162	23		604	2376
5:00 PM	0	16	35	52			43	154	60		1	37	59	6		0	4	145	34		645	2413
5:15 PM	3	8	58	43			20	182	67		0	44	43	5		4	4	145	28		647	2498
5:30 PM		12	55	43			33	140	37		0	26	46	6		1	4	129	25		556	2452
5:45 PM		10	45	44			28	144	40		0	35	51	5		3	3	158	29		592	2440
Total	16	92	382	323		0	255	1228	399		5	285	370	49		15	26	1202	205			
Peak Hour	7	44	205	186	0	0	127	635	206	0	1	164	197	21	0	5	14	594	105	0	2498	1778

Time Period	Southbound				Westbound				Northbound				Eastbound				15 Minute Volume	Hourly Volume
	Right	Thru	Left		Right	Thru	Left		Right	Thru	Left		Right	Thru	Left			
3:00 PM																	0	
3:15 PM																	0	
3:30 PM																	0	
3:45 PM																	0	0
4:00 PM		0				0								3			3	3
4:15 PM		0				1								0			1	4
4:30 PM		1				0								1			2	6
4:45 PM						1								2			3	9
5:00 PM						2								0			2	8
5:15 PM	1					1								0			2	9
5:30 PM						1							1	1			3	10
5:45 PM		1				1								1			3	10
Total	1	2	0		0	7	0		0	0	0		1	8	0			
Peak Hour	1	1	0	0	0	4	0	0	0	0	0	0	0	3	0	0	9	7

[illegible][illegible]

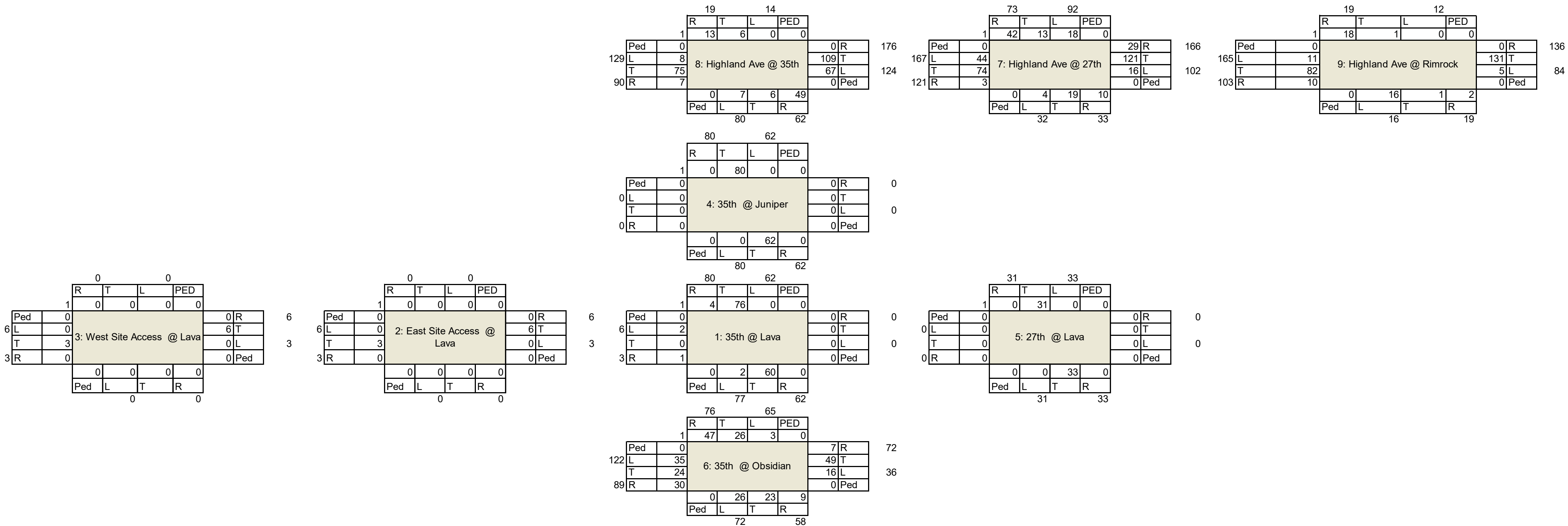
Global Peak Hour

Intersections										
	1: 35th @ Lava	2: East Site Access @ Lava	3: West Site Access @ Lava	4: 35th @ Juniper	5: 27th @ Lava	6: 35th @ Obsidian	7: Highland Ave @ 27th	8: Highland Ave @ 35th	9: Highland Ave @ Rimrock	
Time Period	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Volume	Total
3:00 PM 4:00 PM	-	-	-	-	-	237	-	-	-	237
3:15 PM 4:15 PM	-	-	-	-	-	269	-	-	-	269
3:30 PM 4:30 PM	-	-	-	-	-	270	-	-	-	270
3:45 PM 4:45 PM	-	-	-	-	-	274	-	-	-	274
4:00 PM 5:00 PM	290	55	40	262	621	285	1,902	1,400	2,385	7240
4:15 PM 5:15 PM	268	53	36	242	617	285	1,866	1,415	2,421	7203
4:30 PM 5:30 PM	277	59	42	239	625	288	1,866	1,428	2,507	7331
4:45 PM 5:45 PM	286	49	37	259	527	288	1,834	1,403	2,462	7145
5:00 PM 6:00 PM	279	52	32	251	484	283	1,756	1,345	2,450	6932
	290	59	42	262	625	288	1902	1428	2507	7331

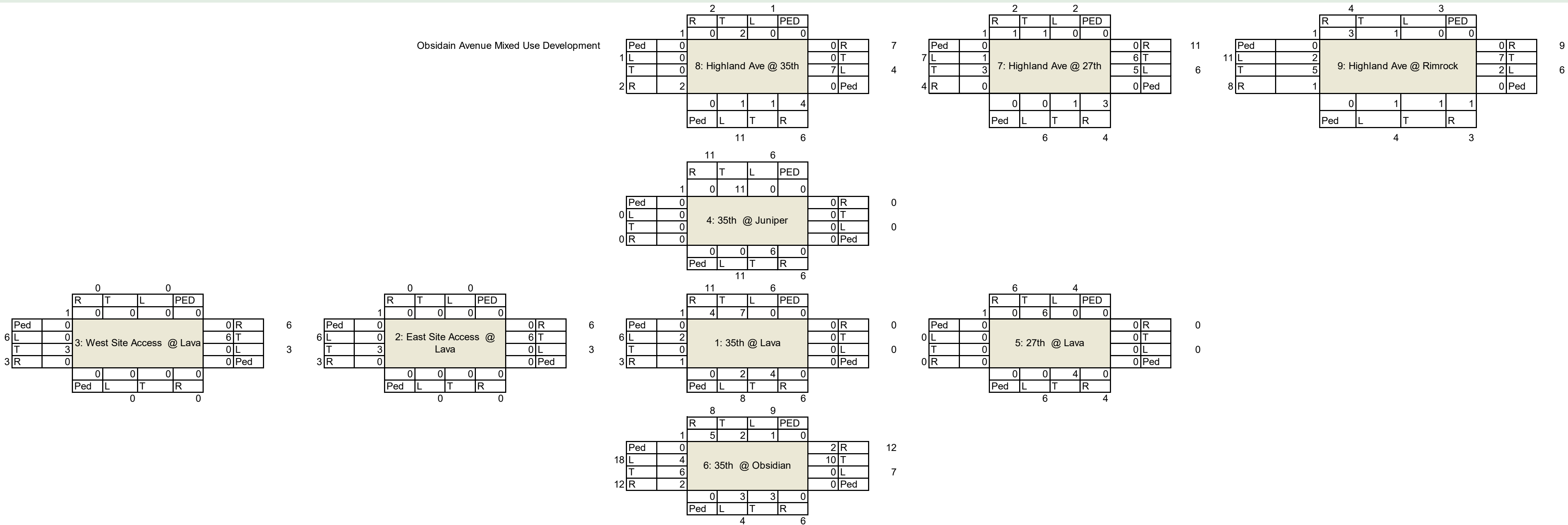
Peak Hour 4:30 PM
4:45 PM
5:00 PM
5:15 PM

Pipeline Trips

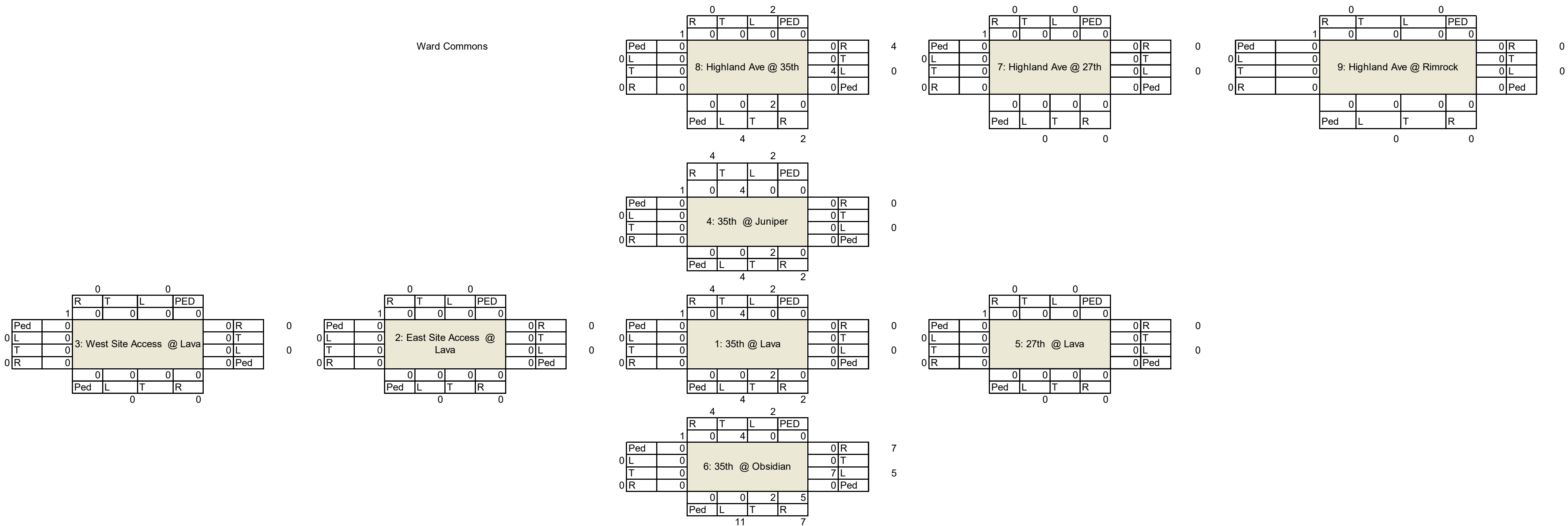
Total

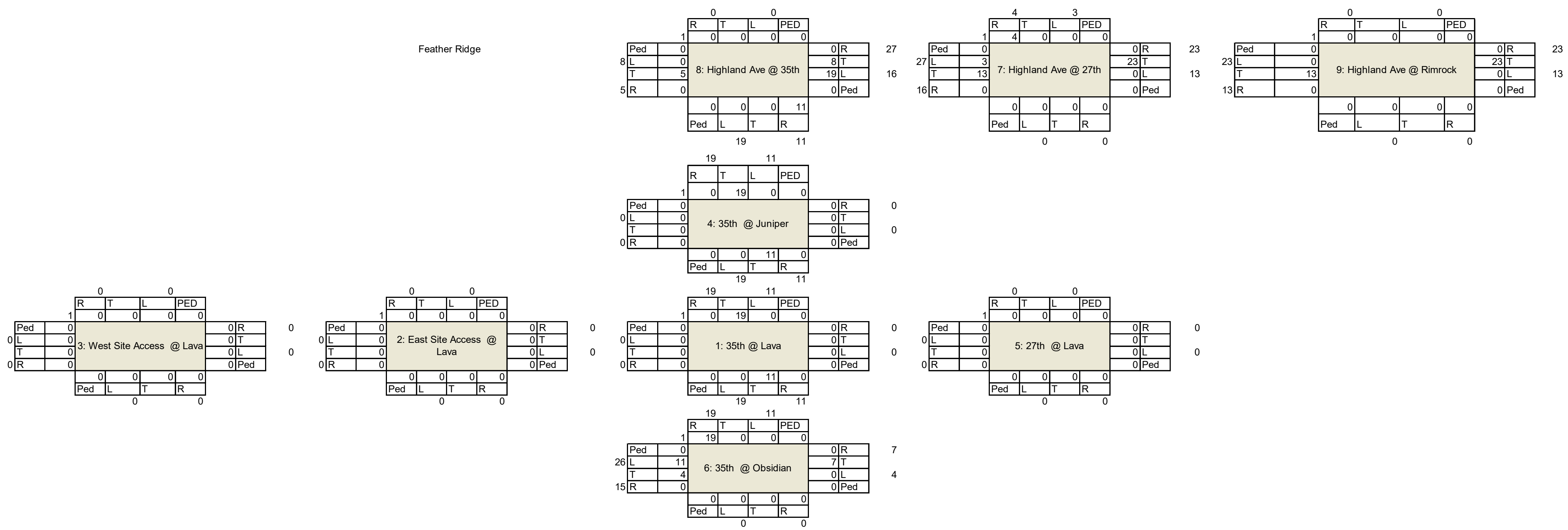
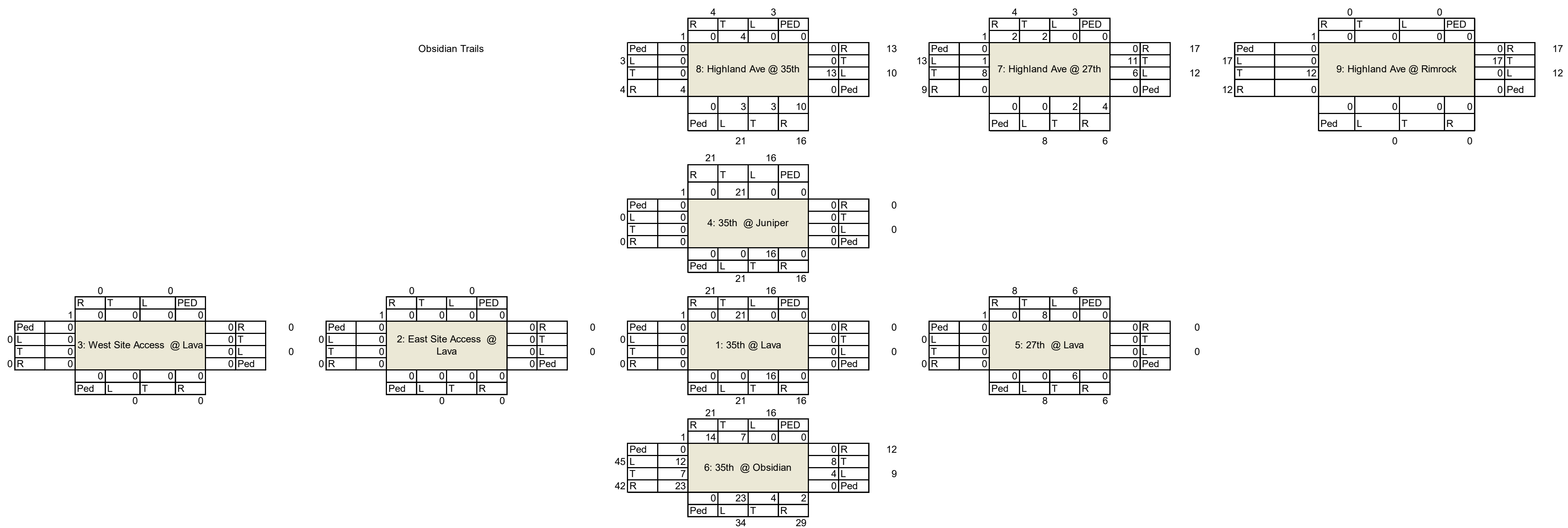
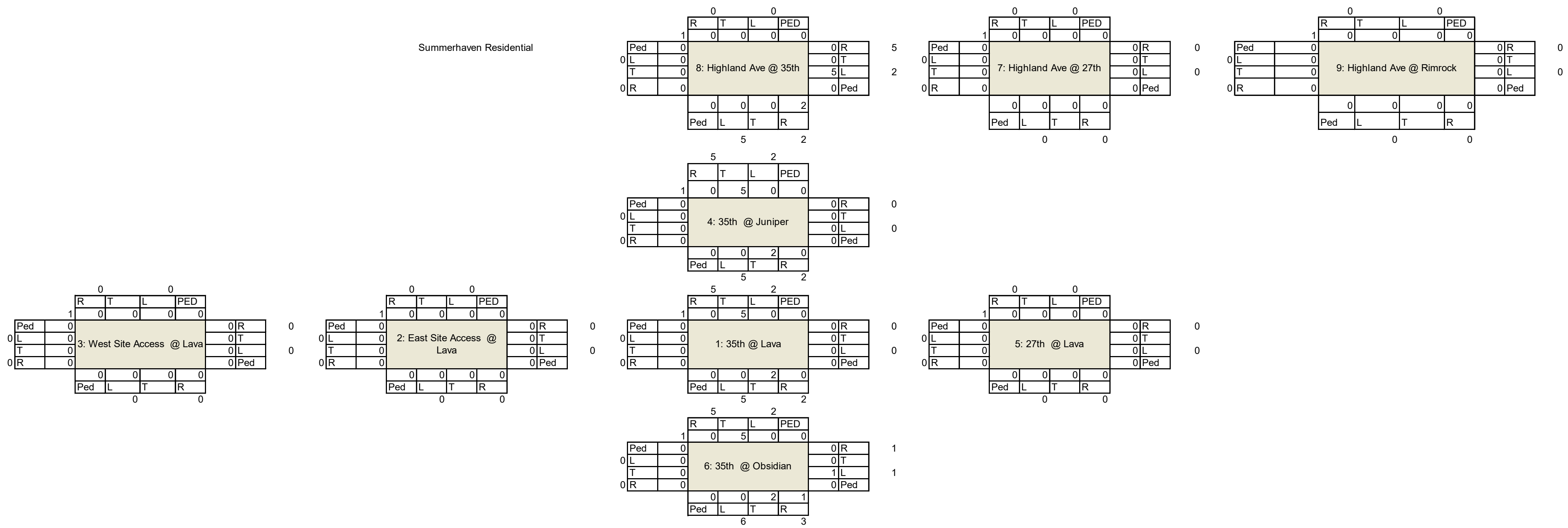


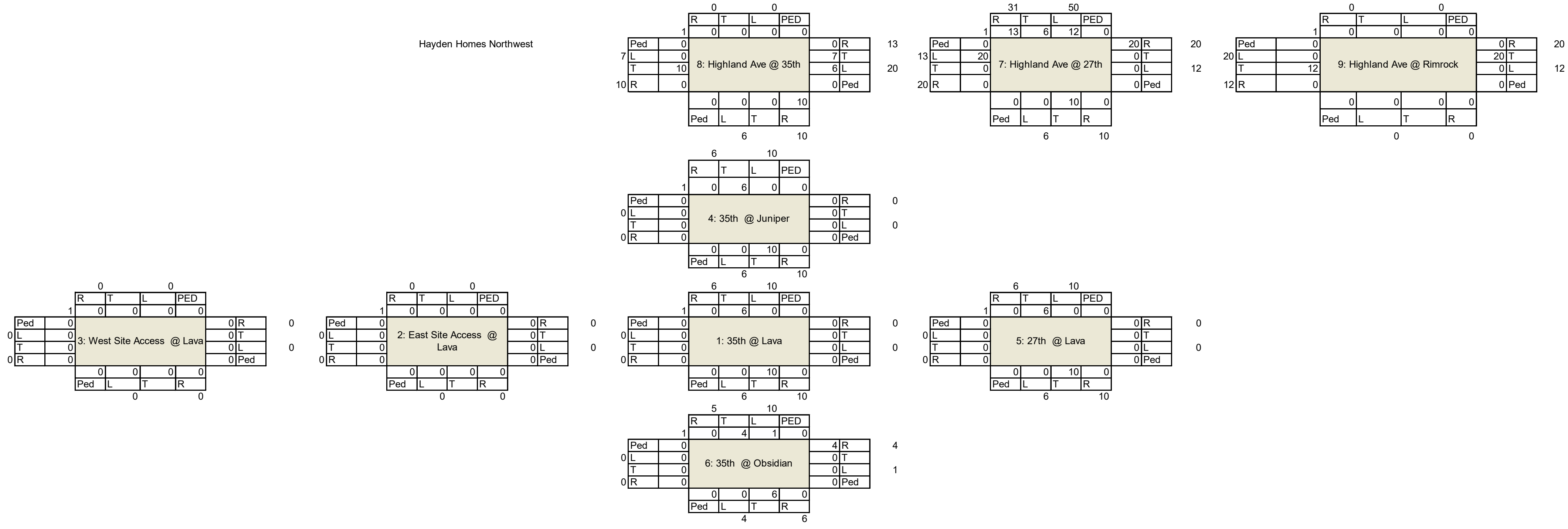
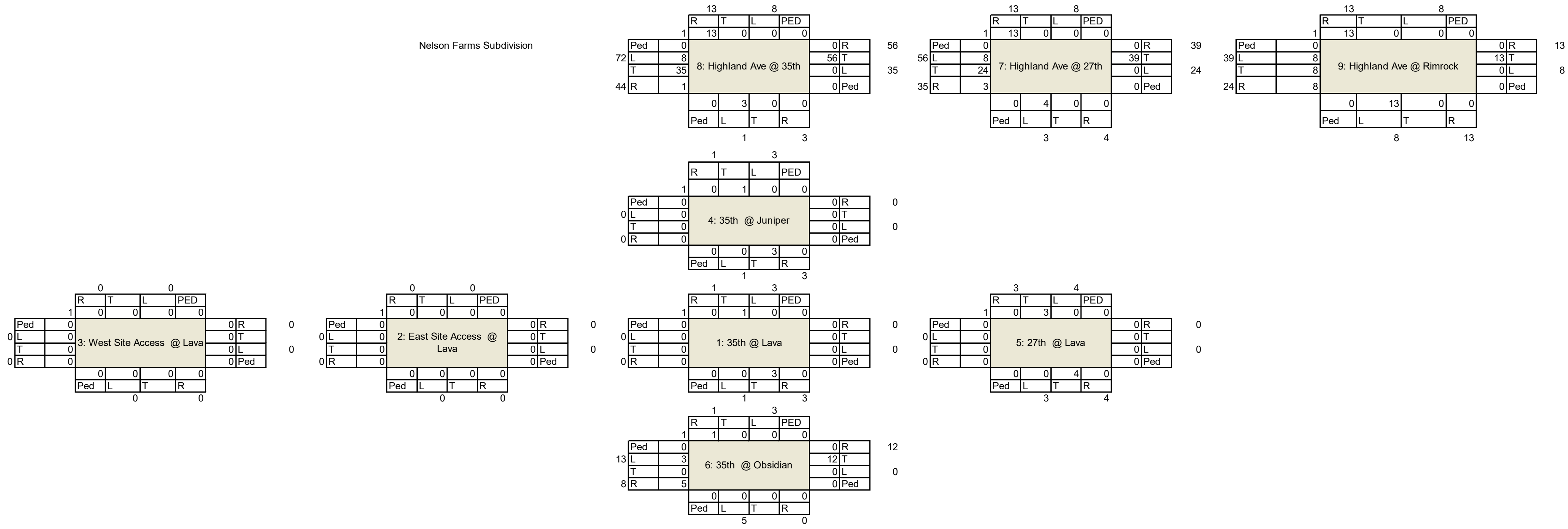
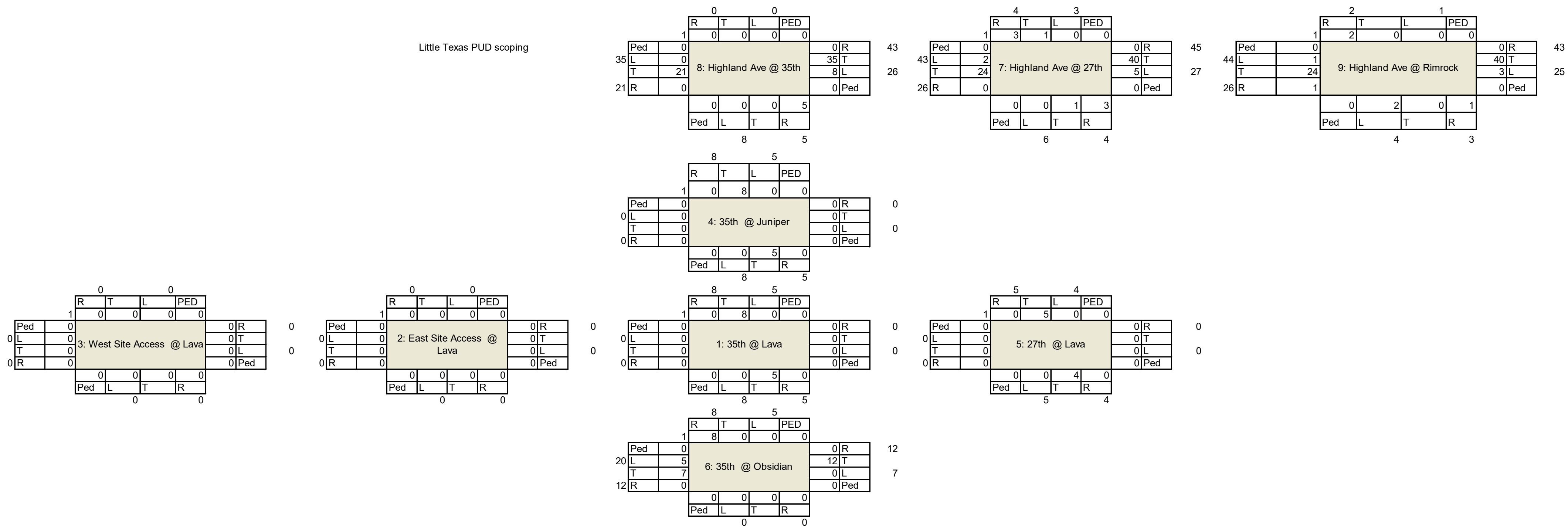
Obsidian Avenue Mixed Use Development



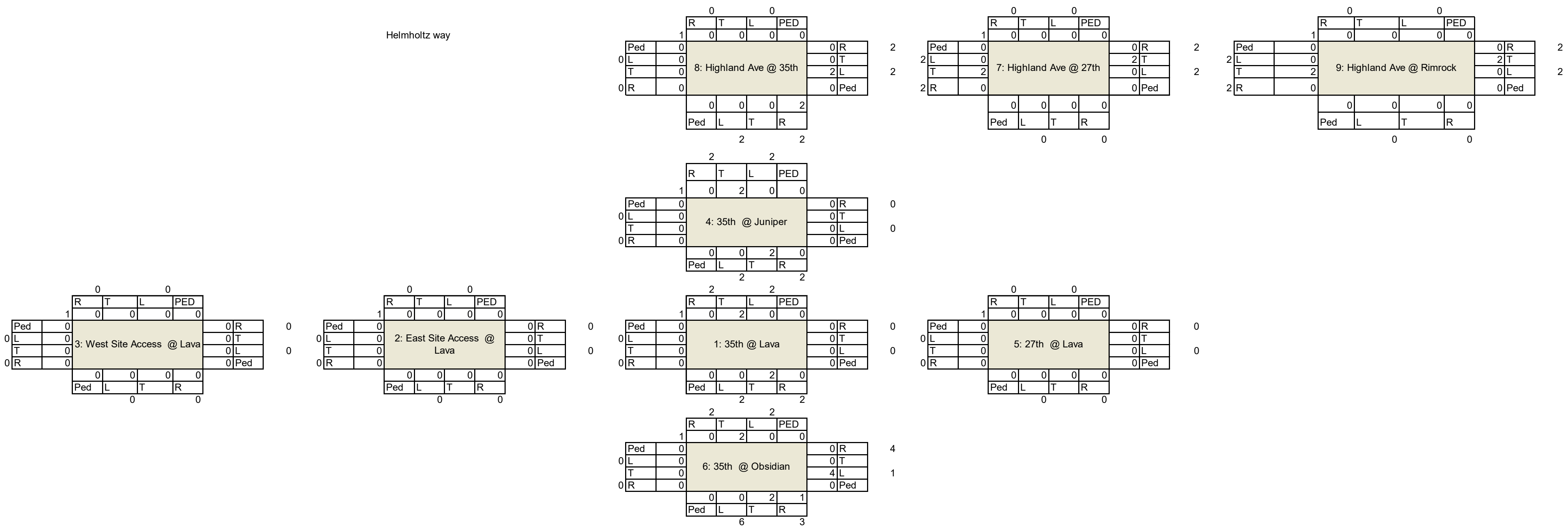
Ward Commons



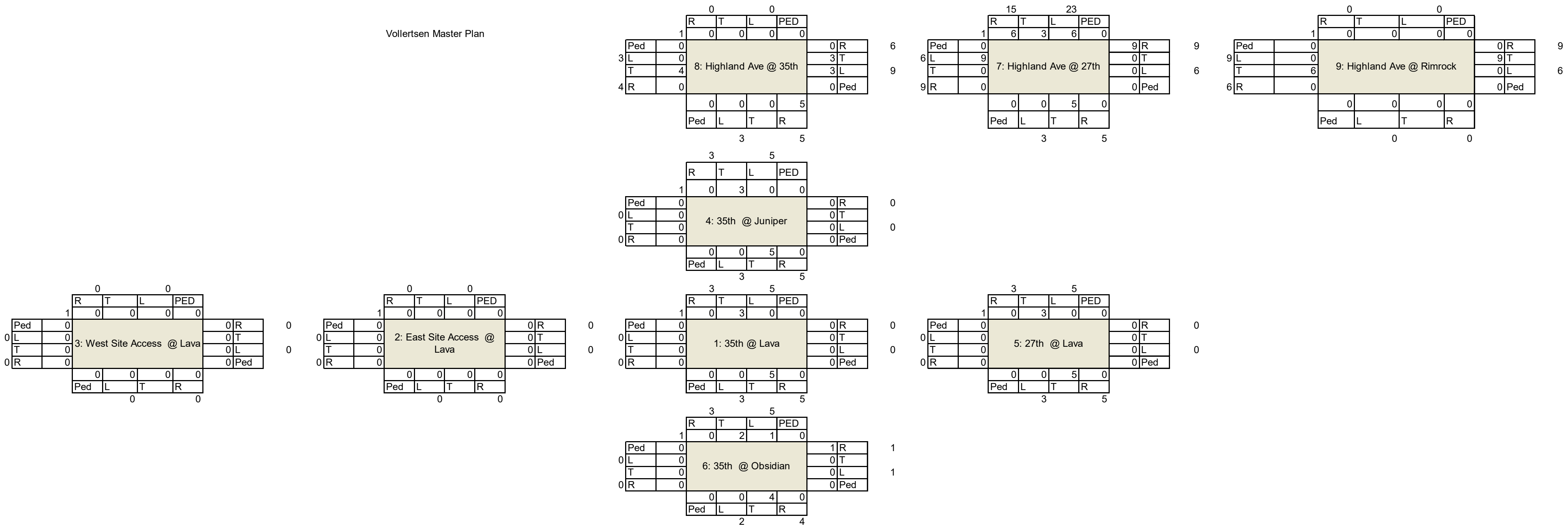




Helmholtz way



Vollertsen Master Plan



REDMOND REGION
RECREATION CENTER

PM Peak Hour

2023 Background								los	C
Phase	Adj flow	Sat Flow							
1 SBL	88	1284	0.069 Prot	1,2	0.264	0.264	Critical	v/c	0.89
	26	383	0.068 Perm	5,6	0.137				
2 NBT	325	1661	0.196	5,5	0.084				
3 WBL	110	1367	0.080 Prot	1,1	0.136				
	24	300	0.080 Perm	5pr,1pm	0.109				
4 EBT	614	1720	0.357	1pr,5pm	0.111				
5 NBL	31	750	0.041 Prot	3,4	0.437				
	39	917	0.043 Perm	7,8	0.449				
6 SBT	166	1736	0.096	7,7	0.088				
7 EBL	64	1434	0.045 Prot	3,3	0.160				
	10	233	0.043 Perm	7pr,3pm	0.125				
8 WBT	676	1671	0.405	3pr,7pm	0.123	0.449			
					Critical Pairs	0.713			

2025 Background								los	D
Phase	Adj flow	Sat Flow							
1 SBL	116	1417	0.082 Prot	1,2	0.303	0.303	Critical	v/c	1.06
	20	250	0.080 Perm	5,6	0.153				
2 NBT	368	1661	0.222	5,5	0.092				
3 WBL	133	1417	0.094 Prot	1,1	0.162				
	23	250	0.092 Perm	5pr,1pm	0.126				
4 EBT	716	1721	0.416	1pr,5pm	0.128				
5 NBL	37	800	0.046 Prot	3,4	0.510				
	40	867	0.046 Perm	7,8	0.585				
6 SBT	185	1736	0.107	7,7	0.141				
7 EBL	113	1550	0.073 Prot	3,3	0.186				
	8	117	0.068 Perm	7pr,3pm	0.165				
8 WBT	855	1670	0.512	3pr,7pm	0.162	0.585			
					Critical Pairs	0.888			

2025 Build								los	D
Phase	Adj flow	Sat Flow							
1 SBL	117	1434	0.082 Prot	1,2	0.303	0.303	Critical	v/c	1.06
	19	233	0.082 Perm	5,6	0.153				
2 NBT	368	1661	0.222	5,5	0.092				
3 WBL	133	1417	0.094 Prot	1,1	0.163				
	23	250	0.092 Perm	5pr,1pm	0.128				
4 EBT	732	1721	0.425	1pr,5pm	0.127				
5 NBL	38	817	0.047 Prot	3,4	0.519				
	39	850	0.046 Perm	7,8	0.601				
6 SBT	185	1736	0.107	7,7	0.158				
7 EBL	125	1550	0.081 Prot	3,3	0.186				
	9	117	0.077 Perm	7pr,3pm	0.173				
8 WBT	870	1671	0.521	3pr,7pm	0.171	0.601			
					Critical Pairs	0.904			

2030 Background								los	E
Phase	Adj flow	Sat Flow							
1 SBL	129	1467	0.088 Prot	1,2	0.329	0.329	Critical	v/c	1.08
	18	200	0.090 Perm	5,6	0.167				
2 NBT	400	1660	0.241	5,5	0.101				
3 WBL	148	1450	0.102 Prot	1,1	0.178				
	22	217	0.101 Perm	5pr,1pm	0.140				
4 EBT	776	1721	0.451	1pr,5pm	0.138				
5 NBL	47	934	0.050 Prot	3,4	0.553				
	37	733	0.050 Perm	7,8	0.629				
6 SBT	202	1736	0.116	7,7	0.157				
7 EBL	120	1567	0.077 Prot	3,3	0.203				
	8	100	0.080 Perm	7pr,3pm	0.178				
8 WBT	923	1670	0.553	3pr,7pm	0.182	0.629			
					Critical Pairs	0.958			

2030 Build								los	E
Phase	Adj flow	Sat Flow							
1 SBL	129	1467	0.088 Prot	1,2	0.329	0.329	Critical	v/c	1.08
	18	200	0.090 Perm	5,6	0.167				
2 NBT	400	1660	0.241	5,5	0.101				
3 WBL	150	1467	0.102 Prot	1,1	0.178				
	20	200	0.100 Perm	5pr,1pm	0.140				
4 EBT	793	1721	0.461	1pr,5pm	0.138				
5 NBL	47	934	0.050 Prot	3,4	0.563				
	37	734	0.050 Perm	7,8	0.630				
6 SBT	202	1736	0.116	7,7	0.169				
7 EBL	134	1584	0.085 Prot	3,3	0.202				
	7	83	0.084 Perm	7pr,3pm	0.185				
8 WBT	938	1721	0.545	3pr,7pm	0.187	0.630			
					Critical Pairs	0.959			

HCM 6th TWSC
2: 35th & Juniper Ave

11/10/2023

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	1	0	2	0	76	6	0	167	0
Future Vol, veh/h	0	0	0	1	0	2	0	76	6	0	167	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	0	0
Mvmt Flow	0	0	0	1	0	2	0	86	7	0	190	0
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	281	283	190	280	280	90	190	0	0	93	0	0
Stage 1	190	190	-	90	90	-	-	-	-	-	-	-
Stage 2	91	93	-	190	190	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	675	629	857	676	632	973	1396	-	-	1514	-	-
Stage 1	816	747	-	922	824	-	-	-	-	-	-	-
Stage 2	921	822	-	816	747	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	674	629	857	676	632	973	1396	-	-	1514	-	-
Mov Cap-2 Maneuver	674	629	-	676	632	-	-	-	-	-	-	-
Stage 1	816	747	-	922	824	-	-	-	-	-	-	-
Stage 2	919	822	-	816	747	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0		9.3			0			0			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1396	-	-	-	849	1514	-	-				
HCM Lane V/C Ratio	-	-	-	-	0.004	-	-	-				
HCM Control Delay (s)	0	-	-	0	9.3	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile O(veh)	0	-	-	-	0	0	-	-				

HCM 6th TWSC
3: 35th & Highland

11/10/2023

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	121	526	35	110	495	50	8	18	52	3	40	116
Future Vol, veh/h	121	526	35	110	495	50	8	18	52	3	40	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	280	-	-	-	-	150	-	-	220
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	1	0	14	0	0	0	2	1
Mvmt Flow	123	537	36	112	505	51	8	18	53	3	41	118
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	556	0	0	573	0	0	1635	1581	555	1592	1574	531
Stage 1	-	-	-	-	-	-	801	801	-	755	755	-
Stage 2	-	-	-	-	-	-	834	780	-	837	819	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.24	6.5	6.2	7.1	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.24	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.24	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.626	4	3.3	3.5	4.018	3.309
Pot Cap-1 Maneuver	1025	-	-	1010	-	-	76	110	535	88	110	550
Stage 1	-	-	-	-	-	-	361	400	-	404	417	-
Stage 2	-	-	-	-	-	-	346	409	-	364	389	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1025	-	-	1010	-	-	32	86	535	56	86	550
Mov Cap-2 Maneuver	-	-	-	-	-	-	32	86	-	56	86	-
Stage 1	-	-	-	-	-	-	318	352	-	356	371	-
Stage 2	-	-	-	-	-	-	215	364	-	273	342	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			1.5			46.4			33.8		
HCM LOS							E			D		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	57	535	1025	-	-	1010	-	-	83	550		
HCM Lane V/C Ratio	0.465	0.099	0.12	-	-	0.111	-	-	0.529	0.215		
HCM Control Delay (s)	114.3	12.5	9	-	-	9	-	-	89.2	13.3		
HCM Lane LOS	F	B	A	-	-	A	-	-	F	B		
HCM 95th %tile Q(veh)	1.8	0.3	0.4	-	-	0.4	-	-	2.3	0.8		

HCM 6th TWSC
7: Lava & East Site Access

11/10/2023

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	23	0	3	32	0	0	1	0	0	0	0
Future Vol, veh/h	0	23	0	3	32	0	0	1	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	29	0	4	41	0	0	1	0	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	41	0	0	29	0	0	78	78	29	79	78	41
Stage 1	-	-	-	-	-	-	29	29	-	49	49	-
Stage 2	-	-	-	-	-	-	49	49	-	30	29	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1581	-	-	1597	-	-	916	816	1052	914	816	1036
Stage 1	-	-	-	-	-	-	993	875	-	969	858	-
Stage 2	-	-	-	-	-	-	969	858	-	992	875	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1581	-	-	1597	-	-	914	814	1052	911	814	1036
Mov Cap-2 Maneuver	-	-	-	-	-	-	914	814	-	911	814	-
Stage 1	-	-	-	-	-	-	993	875	-	969	855	-
Stage 2	-	-	-	-	-	-	966	855	-	991	875	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.6			9.4			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	814	1581	-	-	1597	-	-	-				
HCM Lane V/C Ratio	0.002	-	-	-	0.002	-	-	-				
HCM Control Delay (s)	9.4	0	-	-	7.3	0	-	0				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile O(veh)	0	0	-	-	0	-	-	-				

HCM Signalized Intersection Capacity Analysis

8: 27th St & Highland

11/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	576	32	133	554	115	69	226	96	113	164	33
Future Volume (vph)	73	576	32	133	554	115	69	226	96	113	164	33
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.8	3.8		3.8	3.8		3.1	3.1		3.1	3.1	3.1
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1662	1720		1662	1677		1662	1672		1662	1733	1488
Flt Permitted	0.14	1.00		0.18	1.00		0.55	1.00		0.23	1.00	1.00
Satd. Flow (perm)	240	1720		316	1677		969	1672		396	1733	1488
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	74	582	32	134	560	116	70	228	97	114	166	33
RTOR Reduction (vph)	0	2	0	0	8	0	0	17	0	0	0	25
Lane Group Flow (vph)	74	612	0	134	668	0	70	308	0	114	166	8
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	38.9	33.9		39.9	34.4		22.6	17.1		23.6	17.6	17.6
Effective Green, g (s)	41.7	35.3		42.7	35.8		25.4	18.5		26.4	19.0	19.0
Actuated g/C Ratio	0.51	0.43		0.52	0.44		0.31	0.23		0.32	0.23	0.23
Clearance Time (s)	5.2	5.2		5.2	5.2		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.0		2.5	4.0		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	233	741		278	733		358	377		242	402	345
v/s Ratio Prot	0.02	0.36		c0.04	c0.40		0.02	c0.18		c0.04	0.10	
v/s Ratio Perm	0.14			0.21			0.04			0.11		0.01
v/c Ratio	0.32	0.83		0.48	0.91		0.20	0.82		0.47	0.41	0.02
Uniform Delay, d1	14.1	20.6		13.4	21.6		20.4	30.1		21.1	26.7	24.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	7.8		1.0	15.8		0.2	12.5		1.1	0.5	0.0
Delay (s)	14.6	28.4		14.4	37.4		20.6	42.6		22.1	27.2	24.3
Level of Service	B	C		B	D		C	D		C	C	C
Approach Delay (s)		26.9			33.6			38.7			25.1	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			31.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			81.9			Sum of lost time (s)			13.8			
Intersection Capacity Utilization			83.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: 27th St & Highland

11/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	576	32	133	554	115	69	226	96	113	164	33
Future Volume (veh/h)	73	576	32	133	554	115	69	226	96	113	164	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1750	1736	1750	1750	1723	1750	1750	1750	1750	1750	1736	1750
Adj Flow Rate, veh/h	74	582	32	134	560	116	70	228	97	114	166	33
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	0	0	2	0	0	0	0	0	1	0
Cap, veh/h	251	703	39	320	631	131	403	268	114	278	442	378
Arrive On Green	0.06	0.43	0.41	0.08	0.46	0.44	0.06	0.23	0.21	0.09	0.25	0.25
Sat Flow, veh/h	1667	1631	90	1667	1384	287	1667	1165	496	1667	1736	1483
Grp Volume(v), veh/h	74	0	614	134	0	676	70	0	325	114	166	33
Grp Sat Flow(s),veh/h/ln	1667	0	1720	1667	0	1671	1667	0	1661	1667	1736	1483
Q Serve(g_s), s	1.9	0.0	25.6	3.4	0.0	30.0	2.5	0.0	15.2	4.0	6.4	1.4
Cycle Q Clear(g_c), s	1.9	0.0	25.6	3.4	0.0	30.0	2.5	0.0	15.2	4.0	6.4	1.4
Prop In Lane	1.00		0.05	1.00		0.17	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	251	0	742	320	0	762	403	0	382	278	442	378
V/C Ratio(X)	0.29	0.00	0.83	0.42	0.00	0.89	0.17	0.00	0.85	0.41	0.38	0.09
Avail Cap(c_a), veh/h	345	0	811	373	0	788	504	0	387	338	442	378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	0.0	20.4	15.2	0.0	20.3	21.3	0.0	30.1	21.5	24.9	23.0
Incr Delay (d2), s/veh	0.5	0.0	7.1	0.6	0.0	12.1	0.2	0.0	15.8	0.7	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	10.3	1.1	0.0	12.4	1.0	0.0	7.5	1.5	2.6	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	0.0	27.5	15.9	0.0	32.3	21.5	0.0	45.9	22.2	25.3	23.1
LnGrp LOS	B	A	C	B	A	C	C	A	D	C	C	C
Approach Vol, veh/h	688			810			395			313		
Approach Delay, s/veh	26.4			29.6			41.6			23.9		
Approach LOS	C			C			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	21.7	10.4	38.8	8.1	23.7	8.4	40.8				
Change Period (Y+Rc), s	4.5	4.5	5.2	5.2	4.5	4.5	5.2	5.2				
Max Green Setting (Gmax), s	8.5	17.5	7.8	36.8	8.5	17.5	7.8	36.8				
Max Q Clear Time (g_c+I1), s	6.0	17.2	5.4	27.6	4.5	8.4	3.9	32.0				
Green Ext Time (p_c), s	0.1	0.0	0.1	5.9	0.1	0.5	0.0	3.6				
Intersection Summary												
HCM 6th Ctrl Delay			29.9									
HCM 6th LOS			C									
Notes												

HCM Signalized Intersection Capacity Analysis

13: Rimrock & Highland

11/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	679	16	234	727	145	24	225	187	212	234	51
Future Volume (vph)	119	679	16	234	727	145	24	225	187	212	234	51
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1662	3282		1662	1733	1488	1662	1750	1488	1662	1750	1488
Flt Permitted	0.11	1.00		0.25	1.00	1.00	0.60	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	198	3282		429	1733	1488	1053	1750	1488	509	1750	1488
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	123	700	16	241	749	149	25	232	193	219	241	53
RTOR Reduction (vph)	0	2	0	0	0	82	0	0	158	0	0	40
Lane Group Flow (vph)	123	714	0	241	749	67	25	232	35	219	241	13
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	41.2	34.9		50.2	39.4	39.4	18.4	15.7	15.7	28.9	21.7	21.7
Effective Green, g (s)	42.2	35.4		50.7	39.9	39.9	19.4	16.2	16.2	29.4	22.2	22.2
Actuated g/C Ratio	0.48	0.40		0.58	0.45	0.45	0.22	0.18	0.18	0.33	0.25	0.25
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	207	1318		405	784	673	253	321	273	290	440	374
v/s Ratio Prot	0.05	0.22		c0.08	c0.43		0.00	0.13		c0.08	0.14	
v/s Ratio Perm	0.24			0.27		0.05	0.02		0.02	c0.17		0.01
v/c Ratio	0.59	0.54		0.60	0.96	0.10	0.10	0.72	0.13	0.76	0.55	0.04
Uniform Delay, d1	17.5	20.1		11.0	23.2	13.8	27.2	33.8	30.1	23.3	28.6	24.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	0.6		2.0	21.9	0.1	0.1	7.3	0.2	10.2	1.1	0.0
Delay (s)	21.3	20.7		13.0	45.1	13.9	27.3	41.2	30.2	33.5	29.7	24.9
Level of Service	C	C		B	D	B	C	D	C	C	C	C
Approach Delay (s)		20.8			34.2			35.7			30.8	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay			30.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			88.1			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			87.6%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

13: Rimrock & Highland

11/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	679	16	234	727	145	24	225	187	212	234	51
Future Volume (veh/h)	119	679	16	234	727	145	24	225	187	212	234	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1750	1736	1750	1750	1736	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	123	700	16	241	749	149	25	232	193	219	241	53
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	249	1441	33	479	831	710	259	279	237	292	418	354
Arrive On Green	0.07	0.44	0.43	0.11	0.48	0.48	0.03	0.16	0.16	0.11	0.24	0.24
Sat Flow, veh/h	1667	3297	75	1667	1736	1483	1667	1750	1483	1667	1750	1483
Grp Volume(v), veh/h	123	350	366	241	749	149	25	232	193	219	241	53
Grp Sat Flow(s),veh/h/ln	1667	1650	1723	1667	1736	1483	1667	1750	1483	1667	1750	1483
Q Serve(g_s), s	3.4	12.9	12.9	6.3	33.5	4.9	1.1	10.9	10.7	9.0	10.3	2.4
Cycle Q Clear(g_c), s	3.4	12.9	12.9	6.3	33.5	4.9	1.1	10.9	10.7	9.0	10.3	2.4
Prop In Lane	1.00		0.04	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	249	721	753	479	831	710	259	279	237	292	418	354
V/C Ratio(X)	0.49	0.49	0.49	0.50	0.90	0.21	0.10	0.83	0.81	0.75	0.58	0.15
Avail Cap(c_a), veh/h	314	721	753	593	860	735	391	289	245	292	418	354
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	17.1	17.1	11.2	20.3	12.8	28.6	34.5	34.4	26.0	28.5	25.5
Incr Delay (d2), s/veh	1.1	0.7	0.7	0.6	12.6	0.2	0.1	17.2	17.8	9.8	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	4.7	4.9	2.1	15.0	1.6	0.4	5.8	4.9	4.2	4.3	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.0	17.8	17.8	11.9	32.9	13.0	28.7	51.7	52.2	35.8	30.1	25.6
LnGrp LOS	B	B	B	B	C	B	C	D	D	D	C	C
Approach Vol, veh/h	839		1139				450			513		
Approach Delay, s/veh	17.9		25.8				50.6			32.1		
Approach LOS	B		C				D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	17.5	13.2	41.1	6.3	24.3	9.7	44.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	13.5	14.5	35.5	8.5	13.5	8.5	41.5				
Max Q Clear Time (g_c+I1), s	11.0	12.9	8.3	14.9	3.1	12.3	5.4	35.5				
Green Ext Time (p_c), s	0.0	0.1	0.5	9.9	0.0	0.2	0.1	4.6				
Intersection Summary												
HCM 6th Ctrl Delay	28.5											
HCM 6th LOS	C											
Notes												

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	39	4	15	13	8	5	61	14	5	103	5
Future Vol, veh/h	16	39	4	15	13	8	5	61	14	5	103	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	13	20	0	0	0	2	0
Mvmt Flow	18	43	4	16	14	9	5	67	15	5	113	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	23	0	0	47	0	0	191	136	45	173	134	19
Stage 1	-	-	-	-	-	-	81	81	-	51	51	-
Stage 2	-	-	-	-	-	-	110	55	-	122	83	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.68	4	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1605	-	-	1573	-	-	731	759	1031	794	757	1065
Stage 1	-	-	-	-	-	-	885	832	-	967	852	-
Stage 2	-	-	-	-	-	-	853	853	-	887	826	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1605	-	-	1573	-	-	632	742	1031	716	740	1065
Mov Cap-2 Maneuver	-	-	-	-	-	-	632	742	-	716	740	-
Stage 1	-	-	-	-	-	-	874	822	-	955	843	-
Stage 2	-	-	-	-	-	-	727	844	-	793	816	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2			3			10.3			10.8		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	771	1605	-	-	1573	-	-	749				
HCM Lane V/C Ratio	0.114	0.011	-	-	0.01	-	-	0.166				
HCM Control Delay (s)	10.3	7.3	0	-	7.3	0	-	10.8				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile O(veh)	0.4	0	-	-	0	-	-	0.6				

HCM 6th TWSC
18: Lava Ave & 27th St

11/10/2023

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	13	16	301	234	39
Future Vol, veh/h	22	13	16	301	234	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	124	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	8	6	1	3	0
Mvmt Flow	23	13	16	310	241	40

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	603	261	281
Stage 1	261	-	-
Stage 2	342	-	-
Critical Hdwy	6.45	6.28	4.16
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.372	2.254
Pot Cap-1 Maneuver	457	763	1259
Stage 1	776	-	-
Stage 2	713	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	451	763	1259
Mov Cap-2 Maneuver	451	-	-
Stage 1	766	-	-
Stage 2	713	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1259	-	532	-	-
HCM Lane V/C Ratio	0.013	-	0.068	-	-
HCM Control Delay (s)	7.9	-	12.3	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

HCM 6th TWSC
20: 35th /35th & Lava Ave

11/10/2023

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	18	0	5	3	0	2	3	75	3	3	133	32
Future Vol, veh/h	18	0	5	3	0	2	3	75	3	3	133	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	50	0	1	0	0	1	0
Mvmt Flow	21	0	6	4	0	2	4	88	4	4	156	38

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	282	283	175	284	300	90	194	0	0	92	0	0
Stage 1	183	183	-	98	98	-	-	-	-	-	-	-
Stage 2	99	100	-	186	202	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.7	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.75	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	674	629	874	672	616	851	1391	-	-	1515	-	-
Stage 1	823	752	-	913	818	-	-	-	-	-	-	-
Stage 2	912	816	-	820	738	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	669	625	874	665	612	851	1391	-	-	1515	-	-
Mov Cap-2 Maneuver	669	625	-	665	612	-	-	-	-	-	-	-
Stage 1	821	750	-	910	816	-	-	-	-	-	-	-
Stage 2	907	814	-	812	736	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.3		10		0.3		0.1	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1391	-	-	705 729	1515	-	-
HCM Lane V/C Ratio	0.003	-	-	0.038 0.008	0.002	-	-
HCM Control Delay (s)	7.6	0	-	10.3 10	7.4	0	-
HCM Lane LOS	A	A	-	B B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1 0	0	-	-

HCM 6th TWSC
22: Lava & West Site Access

11/10/2023

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	8	0	11	16	0	0	0	7	0	0	0
Future Vol, veh/h	0	8	0	11	16	0	0	0	7	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	10	0	14	20	0	0	0	9	0	0	0
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	16	10	1	11	6	5	1	0	0	9	0	0
Stage 1	1	1	-	5	5	-	-	-	-	-	-	-
Stage 2	15	9	-	6	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	1004	889	1090	1012	893	1084	1635	-	-	1624	-	-
Stage 1	1027	899	-	1022	896	-	-	-	-	-	-	-
Stage 2	1010	892	-	1021	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	987	889	1090	1004	893	1084	1635	-	-	1624	-	-
Mov Cap-2 Maneuver	987	889	-	1004	893	-	-	-	-	-	-	-
Stage 1	1027	899	-	1022	896	-	-	-	-	-	-	-
Stage 2	988	892	-	1010	899	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.1		9			0			0			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1635	-	-	889	935	1624	-	-				
HCM Lane V/C Ratio	-	-	-	0.011	0.036	-	-	-				
HCM Control Delay (s)	0	-	-	9.1	9	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile O(veh)	0	-	-	0	0.1	0	-	-				

HCM 6th TWSC
2: 35th & Juniper Ave

11/10/2023

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	1	0	2	0	141	6	0	254	0
Future Vol, veh/h	0	0	0	1	0	2	0	141	6	0	254	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	0	0
Mvmt Flow	0	0	0	1	0	2	0	160	7	0	289	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	454	456	289	453	453	164	289	0	0	167	0	0
Stage 1	289	289	-	164	164	-	-	-	-	-	-	-
Stage 2	165	167	-	289	289	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	520	504	755	520	506	886	1284	-	-	1423	-	-
Stage 1	723	677	-	843	766	-	-	-	-	-	-	-
Stage 2	842	764	-	723	677	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	518	504	755	520	506	886	1284	-	-	1423	-	-
Mov Cap-2 Maneuver	518	504	-	520	506	-	-	-	-	-	-	-
Stage 1	723	677	-	843	766	-	-	-	-	-	-	-
Stage 2	840	764	-	723	677	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		10		0		0	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1284	-	-	-	718	1423	-
HCM Lane V/C Ratio	-	-	-	-	0.005	-	-
HCM Control Delay (s)	0	-	-	0	10	0	-
HCM Lane LOS	A	-	-	A	B	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-

HCM 6th TWSC
3: 35th & Highland

11/10/2023

Intersection														
Int Delay, s/veh	15.5													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Vol, veh/h	133	622	44	182	624	52	15	25	103	4	47	134		
Future Vol, veh/h	133	622	44	182	624	52	15	25	103	4	47	134		
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0		
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop		
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None		
Storage Length	300	-	-	280	-	-	-	-	150	-	-	220		
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-		
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-		
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98		
Heavy Vehicles, %	0	0	0	0	1	0	14	0	0	0	2	1		
Mvmt Flow	136	635	45	186	637	53	15	26	105	4	48	137		
Major/Minor	Major1			Major2			Minor1			Minor2				
Conflicting Flow All	690	0	0	680	0	0	2058	1992	658	2031	1988	664		
Stage 1	-	-	-	-	-	-	930	930	-	1036	1036	-		
Stage 2	-	-	-	-	-	-	1128	1062	-	995	952	-		
Critical Hdwy	4.1	-	-	4.1	-	-	7.24	6.5	6.2	7.1	6.52	6.21		
Critical Hdwy Stg 1	-	-	-	-	-	-	6.24	5.5	-	6.1	5.52	-		
Critical Hdwy Stg 2	-	-	-	-	-	-	6.24	5.5	-	6.1	5.52	-		
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.626	4	3.3	3.5	4.018	3.309		
Pot Cap-1 Maneuver	914	-	-	922	-	-	38	61	468	43	61	462		
Stage 1	-	-	-	-	-	-	305	349	-	282	309	-		
Stage 2	-	-	-	-	-	-	235	303	-	297	338	-		
Platoon blocked, %		-	-		-	-								
Mov Cap-1 Maneuver	914	-	-	922	-	-	-	41	468	13	~ 41	462		
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	41	-	13	~ 41	-		
Stage 1	-	-	-	-	-	-	260	297	-	240	247	-		
Stage 2	-	-	-	-	-	-	106	242	-	179	288	-		
Approach	EB			WB			NB			SB				
HCM Control Delay, s	1.6			2.1						149.9				
HCM LOS							-			F				
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2				
Capacity (veh/h)	-		468	914	-	-	922	-	-	35	462			
HCM Lane V/C Ratio	-		0.225	0.148	-	-	0.201	-	-	1.487	0.296			
HCM Control Delay (s)	-		14.9	9.6	-	-	9.9	-	-	\$ 501.7	16			
HCM Lane LOS	-		B	A	-	-	A	-	-	F	C			
HCM 95th %tile Q(veh)	-		0.9	0.5	-	-	0.8	-	-	5.6	1.2			
Notes														
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon														

HCM 6th TWSC
7: Lava & East Site Access

11/10/2023

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	27	0	3	39	0	0	1	0	0	0	0
Future Vol, veh/h	0	27	0	3	39	0	0	1	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	35	0	4	50	0	0	1	0	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	50	0	0	35	0	0	93	93	35	94	93	50
Stage 1	-	-	-	-	-	-	35	35	-	58	58	-
Stage 2	-	-	-	-	-	-	58	58	-	36	35	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1570	-	-	1589	-	-	895	801	1044	894	801	1024
Stage 1	-	-	-	-	-	-	986	870	-	959	851	-
Stage 2	-	-	-	-	-	-	959	851	-	985	870	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1570	-	-	1589	-	-	893	799	1044	890	799	1024
Mov Cap-2 Maneuver	-	-	-	-	-	-	893	799	-	890	799	-
Stage 1	-	-	-	-	-	-	986	870	-	959	848	-
Stage 2	-	-	-	-	-	-	956	848	-	984	870	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			9.5			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	799	1570	-	-	1589	-	-	-				
HCM Lane V/C Ratio	0.002	-	-	-	0.002	-	-	-				
HCM Control Delay (s)	9.5	0	-	-	7.3	0	-	0				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile O(veh)	0	0	-	-	0	-	-	-				

HCM Signalized Intersection Capacity Analysis

8: 27th St & Highland

11/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	673	36	154	697	149	76	255	109	135	183	76
Future Volume (vph)	120	673	36	154	697	149	76	255	109	135	183	76
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.8	3.8		3.8	3.8		3.1	3.1		3.1	3.1	3.1
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1662	1720		1662	1676		1662	1672		1662	1733	1488
Flt Permitted	0.07	1.00		0.15	1.00		0.52	1.00		0.15	1.00	1.00
Satd. Flow (perm)	131	1720		255	1676		902	1672		268	1733	1488
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	121	680	36	156	704	151	77	258	110	136	185	77
RTOR Reduction (vph)	0	2	0	0	7	0	0	14	0	0	0	59
Lane Group Flow (vph)	121	714	0	156	848	0	77	354	0	136	185	18
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	59.7	52.2		59.9	52.3		29.4	22.9		33.0	24.7	24.7
Effective Green, g (s)	62.5	53.6		62.7	53.7		32.2	24.3		35.8	26.1	26.1
Actuated g/C Ratio	0.57	0.49		0.57	0.49		0.29	0.22		0.32	0.24	0.24
Clearance Time (s)	5.2	5.2		5.2	5.2		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.0		2.5	4.0		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	197	835		259	815		317	368		209	409	351
v/s Ratio Prot	c0.05	0.42		0.05	c0.51		0.02	c0.21		c0.06	0.11	
v/s Ratio Perm	0.30			0.29			0.05			0.15		0.01
v/c Ratio	0.61	0.86		0.60	1.04		0.24	0.96		0.65	0.45	0.05
Uniform Delay, d1	22.6	25.0		18.1	28.4		29.2	42.6		29.6	36.0	32.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.8	8.9		3.3	42.5		0.3	36.8		6.3	0.6	0.0
Delay (s)	27.4	33.9		21.4	70.8		29.4	79.3		36.0	36.6	32.6
Level of Service	C	C		C	E		C	E		D	D	C
Approach Delay (s)		32.9			63.2			70.7			35.6	
Approach LOS		C			E			E			D	
Intersection Summary												
HCM 2000 Control Delay		50.9			HCM 2000 Level of Service			D				
HCM 2000 Volume to Capacity ratio		0.94										
Actuated Cycle Length (s)		110.4			Sum of lost time (s)			13.8				
Intersection Capacity Utilization		100.1%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: 27th St & Highland

11/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	673	36	154	697	149	76	255	109	135	183	76
Future Volume (veh/h)	120	673	36	154	697	149	76	255	109	135	183	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1750	1736	1750	1750	1723	1750	1750	1750	1750	1750	1736	1750
Adj Flow Rate, veh/h	121	680	36	156	704	151	77	258	110	136	185	77
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	0	0	2	0	0	0	0	0	1	0
Cap, veh/h	176	796	42	285	684	147	348	254	108	217	429	366
Arrive On Green	0.07	0.49	0.47	0.08	0.50	0.48	0.06	0.22	0.21	0.09	0.25	0.25
Sat Flow, veh/h	1667	1634	87	1667	1375	295	1667	1164	496	1667	1736	1483
Grp Volume(v), veh/h	121	0	716	156	0	855	77	0	368	136	185	77
Grp Sat Flow(s),veh/h/ln	1667	0	1721	1667	0	1670	1667	0	1661	1667	1736	1483
Q Serve(g_s), s	3.8	0.0	39.4	4.9	0.0	53.6	3.8	0.0	23.5	6.4	9.7	4.4
Cycle Q Clear(g_c), s	3.8	0.0	39.4	4.9	0.0	53.6	3.8	0.0	23.5	6.4	9.7	4.4
Prop In Lane	1.00		0.05	1.00		0.18	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	176	0	838	285	0	831	348	0	362	217	429	366
V/C Ratio(X)	0.69	0.00	0.85	0.55	0.00	1.03	0.22	0.00	1.02	0.63	0.43	0.21
Avail Cap(c_a), veh/h	209	0	857	300	0	831	398	0	362	220	429	366
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	24.3	20.4	0.0	27.2	29.5	0.0	42.3	29.6	34.2	32.2
Incr Delay (d2), s/veh	6.2	0.0	8.6	1.5	0.0	38.8	0.2	0.0	51.2	4.8	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	16.5	1.7	0.0	28.0	1.5	0.0	14.6	2.8	4.1	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.6	0.0	32.9	21.9	0.0	65.9	29.7	0.0	93.5	34.4	34.7	32.4
LnGrp LOS	C	A	C	C	A	F	C	A	F	C	C	C
Approach Vol, veh/h	837		1011				445		398			
Approach Delay, s/veh	32.6		59.1				82.5		34.2			
Approach LOS	C		E				F		C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	26.6	12.0	56.2	9.7	29.7	10.9	57.4				
Change Period (Y+Rc), s	4.5	4.5	5.2	5.2	4.5	4.5	5.2	5.2				
Max Green Setting (Gmax), s	8.5	22.1	7.8	52.2	8.5	22.1	7.8	52.2				
Max Q Clear Time (g_c+I1), s	8.4	25.5	6.9	41.4	5.8	11.7	5.8	55.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	7.7	0.0	0.8	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	51.0											
HCM 6th LOS	D											
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM Signalized Intersection Capacity Analysis

13: Rimrock & Highland

11/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	789	27	249	887	150	41	234	196	220	245	71
Future Volume (vph)	135	789	27	249	887	150	41	234	196	220	245	71
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1662	3277		1662	1733	1488	1662	1750	1488	1662	1750	1488
Flt Permitted	0.08	1.00		0.23	1.00	1.00	0.41	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	146	3277		396	1733	1488	716	1750	1488	389	1750	1488
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	139	813	28	257	914	155	42	241	202	227	253	73
RTOR Reduction (vph)	0	2	0	0	0	77	0	0	169	0	0	58
Lane Group Flow (vph)	139	839	0	257	914	78	42	241	33	227	253	15
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	55.6	47.4		62.0	50.6	50.6	20.7	16.1	16.1	28.5	20.0	20.0
Effective Green, g (s)	56.6	47.9		63.0	51.1	51.1	21.7	16.6	16.6	29.5	20.5	20.5
Actuated g/C Ratio	0.56	0.47		0.62	0.50	0.50	0.21	0.16	0.16	0.29	0.20	0.20
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	211	1548		394	873	749	200	286	243	226	353	300
v/s Ratio Prot	0.06	0.26		c0.08	c0.53		0.01	0.14		c0.09	0.14	
v/s Ratio Perm	0.31			0.33		0.05	0.03		0.02	c0.20		0.01
v/c Ratio	0.66	0.54		0.65	1.05	0.10	0.21	0.84	0.14	1.00	0.72	0.05
Uniform Delay, d1	21.1	19.0		11.0	25.2	13.2	32.3	41.1	36.3	33.1	37.7	32.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.5	0.5		3.4	43.5	0.1	0.4	19.4	0.2	61.0	6.3	0.0
Delay (s)	27.6	19.5		14.5	68.6	13.3	32.7	60.5	36.5	94.1	44.1	32.6
Level of Service	C	B		B	E	B	C	E	D	F	D	C
Approach Delay (s)		20.6			51.7			48.1			63.1	
Approach LOS		C			D			D			E	
Intersection Summary												
HCM 2000 Control Delay			43.9									HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			101.4									Sum of lost time (s) 16.0
Intersection Capacity Utilization			98.7%									ICU Level of Service F
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

13: Rimrock & Highland

11/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	789	27	249	887	150	41	234	196	220	245	71
Future Volume (veh/h)	135	789	27	249	887	150	41	234	196	220	245	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1750	1736	1750	1750	1736	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	139	813	28	257	914	155	42	241	202	227	253	73
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	184	1589	55	455	911	778	214	268	227	245	371	314
Arrive On Green	0.07	0.49	0.48	0.10	0.52	0.52	0.03	0.15	0.15	0.09	0.21	0.21
Sat Flow, veh/h	1667	3254	112	1667	1736	1483	1667	1750	1483	1667	1750	1483
Grp Volume(v), veh/h	139	412	429	257	914	155	42	241	202	227	253	73
Grp Sat Flow(s),veh/h/ln	1667	1650	1716	1667	1736	1483	1667	1750	1483	1667	1750	1483
Q Serve(g_s), s	4.0	16.6	16.6	7.0	51.1	5.4	2.0	13.2	13.0	9.0	13.0	4.0
Cycle Q Clear(g_c), s	4.0	16.6	16.6	7.0	51.1	5.4	2.0	13.2	13.0	9.0	13.0	4.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	184	805	838	455	911	778	214	268	227	245	371	314
V/C Ratio(X)	0.76	0.51	0.51	0.56	1.00	0.20	0.20	0.90	0.89	0.93	0.68	0.23
Avail Cap(c_a), veh/h	228	805	838	542	911	778	312	268	227	245	371	314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	17.0	17.0	11.7	23.2	12.3	33.3	40.5	40.5	34.1	35.4	31.8
Incr Delay (d2), s/veh	9.7	0.8	0.7	0.8	30.7	0.2	0.3	30.2	31.9	38.0	4.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	6.1	6.3	2.4	26.5	1.7	0.8	7.8	6.6	3.9	5.9	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	17.8	17.7	12.5	53.8	12.5	33.7	70.7	72.4	72.1	40.1	32.1
LnGrp LOS	C	B	B	B	F	B	C	E	E	E	D	C
Approach Vol, veh/h	980		1326				485		553			
Approach Delay, s/veh	19.7		41.0				68.2		52.2			
Approach LOS	B		D				E		D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	18.9	13.9	51.6	7.3	24.6	10.4	55.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	14.4	14.5	44.6	8.5	14.4	8.5	50.6				
Max Q Clear Time (g_c+I1), s	11.0	15.2	9.0	18.6	4.0	15.0	6.0	53.1				
Green Ext Time (p_c), s	0.0	0.0	0.5	13.5	0.0	0.0	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	40.6											
HCM 6th LOS	D											
Notes												

Intersection												
Int Delay, s/veh	9.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	52	65	34	32	63	15	31	86	24	8	133	52
Future Vol, veh/h	52	65	34	32	63	15	31	86	24	8	133	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	13	20	0	0	0	2	0
Mvmt Flow	57	71	37	35	69	16	34	95	26	9	146	57
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	85	0	0	108	0	0	453	359	90	411	369	77
Stage 1	-	-	-	-	-	-	204	204	-	147	147	-
Stage 2	-	-	-	-	-	-	249	155	-	264	222	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.68	4	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1524	-	-	1495	-	-	488	571	973	555	560	990
Stage 1	-	-	-	-	-	-	758	737	-	860	775	-
Stage 2	-	-	-	-	-	-	717	773	-	746	720	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1524	-	-	1495	-	-	344	534	973	445	524	990
Mov Cap-2 Maneuver	-	-	-	-	-	-	344	534	-	445	524	-
Stage 1	-	-	-	-	-	-	728	708	-	826	756	-
Stage 2	-	-	-	-	-	-	531	754	-	604	691	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.6			2.2			15.1			14.4		
HCM LOS							C			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	511	1524	-	-	1495	-	-	595				
HCM Lane V/C Ratio	0.303	0.037	-	-	0.024	-	-	0.356				
HCM Control Delay (s)	15.1	7.5	0	-	7.5	0	-	14.4				
HCM Lane LOS	C	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	1.3	0.1	-	-	0.1	-	-	1.6				

HCM 6th TWSC
18: Lava Ave & 27th St

11/10/2023

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	14	17	346	274	41
Future Vol, veh/h	23	14	17	346	274	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	124	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	8	6	1	3	0
Mvmt Flow	24	14	18	357	282	42

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	696	303	324
Stage 1	303	-	-
Stage 2	393	-	-
Critical Hdwy	6.45	6.28	4.16
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.372	2.254
Pot Cap-1 Maneuver	403	723	1214
Stage 1	742	-	-
Stage 2	676	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	397	723	1214
Mov Cap-2 Maneuver	397	-	-
Stage 1	731	-	-
Stage 2	676	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1214	-	479	-	-
HCM Lane V/C Ratio	0.014	-	0.08	-	-
HCM Control Delay (s)	8	-	13.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

HCM 6th TWSC
20: 35th /35th & Lava Ave

11/10/2023

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	0	6	3	0	2	5	138	3	3	214	37
Future Vol, veh/h	21	0	6	3	0	2	5	138	3	3	214	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	50	0	1	0	0	1	0
Mvmt Flow	25	0	7	4	0	2	6	162	4	4	252	44

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	459	460	274	462	480	164	296	0	0	166	0	0
Stage 1	282	282	-	176	176	-	-	-	-	-	-	-
Stage 2	177	178	-	286	304	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.7	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.75	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	516	501	770	513	488	770	1277	-	-	1424	-	-
Stage 1	729	681	-	831	757	-	-	-	-	-	-	-
Stage 2	829	756	-	726	667	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	511	497	770	505	484	770	1277	-	-	1424	-	-
Mov Cap-2 Maneuver	511	497	-	505	484	-	-	-	-	-	-	-
Stage 1	725	679	-	827	753	-	-	-	-	-	-	-
Stage 2	822	752	-	717	665	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.9		11.2		0.3		0.1	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1277	-	-	552	586	1424	-
HCM Lane V/C Ratio	0.005	-	-	0.058	0.01	0.002	-
HCM Control Delay (s)	7.8	0	-	11.9	11.2	7.5	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-

HCM 6th TWSC
22: Lava & West Site Access

11/10/2023

Intersection												
Int Delay, s/veh	7.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	11	0	11	23	0	0	0	7	0	0	0
Future Vol, veh/h	0	11	0	11	23	0	0	0	7	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	14	0	14	28	0	0	0	9	0	0	0
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	20	10	1	13	6	5	1	0	0	9	0	0
Stage 1	1	1	-	5	5	-	-	-	-	-	-	-
Stage 2	19	9	-	8	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	998	889	1090	1009	893	1084	1635	-	-	1624	-	-
Stage 1	1027	899	-	1022	896	-	-	-	-	-	-	-
Stage 2	1005	892	-	1019	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	974	889	1090	997	893	1084	1635	-	-	1624	-	-
Mov Cap-2 Maneuver	974	889	-	997	893	-	-	-	-	-	-	-
Stage 1	1027	899	-	1022	896	-	-	-	-	-	-	-
Stage 2	973	892	-	1004	899	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.1		9.1			0			0			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1635	-	-	889	924	1624	-	-				
HCM Lane V/C Ratio	-	-	-	0.015	0.045	-	-	-				
HCM Control Delay (s)	0	-	-	9.1	9.1	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile O(veh)	0	-	-	0	0.1	0	-	-				

HCM 6th TWSC
2: 35th & Juniper Ave

11/09/2023

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	1	0	2	0	149	7	0	270	0
Future Vol, veh/h	0	0	0	1	0	2	0	149	7	0	270	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	0	0
Mvmt Flow	0	0	0	1	0	2	0	169	8	0	307	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	481	484	307	480	480	173	307	0	0	177	0	0
Stage 1	307	307	-	173	173	-	-	-	-	-	-	-
Stage 2	174	177	-	307	307	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	499	486	738	499	488	876	1265	-	-	1411	-	-
Stage 1	707	665	-	834	760	-	-	-	-	-	-	-
Stage 2	833	756	-	707	665	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	498	486	738	499	488	876	1265	-	-	1411	-	-
Mov Cap-2 Maneuver	498	486	-	499	488	-	-	-	-	-	-	-
Stage 1	707	665	-	834	760	-	-	-	-	-	-	-
Stage 2	831	756	-	707	665	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0		10.2		0		0					
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1265	-	-	-	700	1411	-	-				
HCM Lane V/C Ratio	-	-	-	-	0.005	-	-	-				
HCM Control Delay (s)	0	-	-	0	10.2	0	-	-				
HCM Lane LOS	A	-	-	A	B	A	-	-				
HCM 95th %tile O(veh)	0	-	-	-	0	0	-	-				

HCM 6th TWSC
3: 35th & Highland

11/09/2023

Intersection												
Int Delay, s/veh	28.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	674	47	193	673	57	16	27	109	4	51	145
Future Vol, veh/h	146	674	47	193	673	57	16	27	109	4	51	145
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	280	-	-	-	-	150	-	-	220
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	1	0	14	0	0	0	2	1
Mvmt Flow	149	688	48	197	687	58	16	28	111	4	52	148
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	745	0	0	736	0	0	2220	2149	712	2190	2144	716
Stage 1	-	-	-	-	-	-	1010	1010	-	1110	1110	-
Stage 2	-	-	-	-	-	-	1210	1139	-	1080	1034	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.24	6.5	6.2	7.1	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.24	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.24	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.626	4	3.3	3.5	4.018	3.309
Pot Cap-1 Maneuver	872	-	-	879	-	-	29	49	436	33	~ 49	432
Stage 1	-	-	-	-	-	-	275	320	-	256	285	-
Stage 2	-	-	-	-	-	-	211	278	-	267	309	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	872	-	-	879	-	-	-	32	436	5	~ 32	432
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	32	-	5	~ 32	-
Stage 1	-	-	-	-	-	-	228	265	-	212	221	-
Stage 2	-	-	-	-	-	-	82	216	-	148	256	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			2.1						291		
HCM LOS							-			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	-		436	872	-	-	879	-	-	23	432	
HCM Lane V/C Ratio	-		0.255	0.171	-	-	0.224	-	-	2.44	0.342	
HCM Control Delay (s)	-		16.1	10	-	-	10.3	-	\$	1011.7	17.6	
HCM Lane LOS	-		C	A	-	-	B	-	-	F	C	
HCM 95th %tile Q(veh)	-		1	0.6	-	-	0.9	-	-	7.1	1.5	
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 6th TWSC
7: Lava & East Site Access

11/09/2023

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	29	0	3	42	0	0	1	0	0	0	0
Future Vol, veh/h	0	29	0	3	42	0	0	1	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	37	0	4	54	0	0	1	0	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	54	0	0	37	0	0	99	99	37	100	99	54
Stage 1	-	-	-	-	-	-	37	37	-	62	62	-
Stage 2	-	-	-	-	-	-	62	62	-	38	37	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1564	-	-	1587	-	-	888	795	1041	886	795	1019
Stage 1	-	-	-	-	-	-	984	868	-	954	847	-
Stage 2	-	-	-	-	-	-	954	847	-	982	868	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1564	-	-	1587	-	-	886	793	1041	882	793	1019
Mov Cap-2 Maneuver	-	-	-	-	-	-	886	793	-	882	793	-
Stage 1	-	-	-	-	-	-	984	868	-	954	844	-
Stage 2	-	-	-	-	-	-	951	844	-	981	868	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			9.5			0		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	793	1564	-	-	1587	-	-	-				
HCM Lane V/C Ratio	0.002	-	-	-	0.002	-	-	-				
HCM Control Delay (s)	9.5	0	-	-	7.3	0	-	0				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile O(veh)	0	0	-	-	0	-	-	-				

HCM Signalized Intersection Capacity Analysis

8: 27th St & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	730	39	168	753	160	83	277	119	146	200	80
Future Volume (vph)	127	730	39	168	753	160	83	277	119	146	200	80
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.8	3.8		3.8	3.8		3.1	3.1		3.1	3.1	3.1
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1662	1720		1662	1676		1662	1671		1662	1733	1488
Flt Permitted	0.06	1.00		0.13	1.00		0.44	1.00		0.12	1.00	1.00
Satd. Flow (perm)	96	1720		222	1676		769	1671		210	1733	1488
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	128	737	39	170	761	162	84	280	120	147	202	81
RTOR Reduction (vph)	0	1	0	0	6	0	0	11	0	0	0	62
Lane Group Flow (vph)	128	775	0	170	917	0	84	389	0	147	202	19
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	79.0	71.2		82.2	72.8		39.6	31.5		40.4	31.9	31.9
Effective Green, g (s)	81.8	72.6		85.0	74.2		42.4	32.9		43.2	33.3	33.3
Actuated g/C Ratio	0.58	0.52		0.61	0.53		0.30	0.23		0.31	0.24	0.24
Clearance Time (s)	5.2	5.2		5.2	5.2		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.0		2.5	4.0		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	159	891		245	888		293	392		167	412	353
v/s Ratio Prot	c0.05	0.45		c0.05	c0.55		0.02	c0.23		c0.06	0.12	
v/s Ratio Perm	0.42			0.37			0.07			0.21		0.01
v/c Ratio	0.81	0.87		0.69	1.03		0.29	0.99		0.88	0.49	0.05
Uniform Delay, d1	38.4	29.5		23.6	32.9		36.2	53.4		39.8	46.0	41.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	24.2	9.3		7.6	39.0		0.4	43.4		37.5	0.7	0.0
Delay (s)	62.6	38.9		31.2	71.9		36.6	96.8		77.4	46.7	41.2
Level of Service	E	D		C	E		D	F		E	D	D
Approach Delay (s)		42.2			65.6			86.4			56.2	
Approach LOS		D			E			F			E	
Intersection Summary												
HCM 2000 Control Delay			60.4			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				13.8		
Intersection Capacity Utilization			107.0%			ICU Level of Service				G		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: 27th St & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	730	39	168	753	160	83	277	119	146	200	80
Future Volume (veh/h)	127	730	39	168	753	160	83	277	119	146	200	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1750	1736	1750	1750	1723	1750	1750	1750	1750	1750	1736	1750
Adj Flow Rate, veh/h	128	737	39	170	761	162	84	280	120	147	202	81
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	0	0	2	0	0	0	0	0	1	0
Cap, veh/h	161	858	45	264	730	155	314	273	117	169	427	365
Arrive On Green	0.07	0.53	0.52	0.07	0.53	0.52	0.06	0.23	0.22	0.07	0.25	0.25
Sat Flow, veh/h	1667	1634	86	1667	1377	293	1667	1162	498	1667	1736	1483
Grp Volume(v), veh/h	128	0	776	170	0	923	84	0	400	147	202	81
Grp Sat Flow(s),veh/h/ln	1667	0	1721	1667	0	1670	1667	0	1660	1667	1736	1483
Q Serve(g_s), s	6.2	0.0	54.6	6.4	0.0	74.2	5.2	0.0	32.9	9.4	13.9	6.1
Cycle Q Clear(g_c), s	6.2	0.0	54.6	6.4	0.0	74.2	5.2	0.0	32.9	9.4	13.9	6.1
Prop In Lane	1.00		0.05	1.00		0.18	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	161	0	904	264	0	885	314	0	390	169	427	365
V/C Ratio(X)	0.80	0.00	0.86	0.64	0.00	1.04	0.27	0.00	1.03	0.87	0.47	0.22
Avail Cap(c_a), veh/h	161	0	904	280	0	885	332	0	390	169	427	365
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	0.0	28.8	26.8	0.0	33.0	37.2	0.0	53.8	40.7	45.1	42.1
Incr Delay (d2), s/veh	22.8	0.0	8.6	4.1	0.0	42.0	0.3	0.0	52.1	34.5	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	23.2	2.9	0.0	38.1	2.2	0.0	19.3	5.4	6.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	0.0	37.4	30.8	0.0	75.0	37.6	0.0	105.9	75.2	45.7	42.3
LnGrp LOS	E	A	D	C	A	F	D	A	F	E	D	D
Approach Vol, veh/h	904		1093				484				430	
Approach Delay, s/veh	40.9		68.2				94.0				55.1	
Approach LOS	D		E				F				E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	36.0	13.7	77.3	11.5	37.5	13.0	78.0				
Change Period (Y+Rc), s	4.5	4.5	5.2	5.2	4.5	4.5	5.2	5.2				
Max Green Setting (Gmax), s	8.5	31.5	9.8	70.8	8.5	31.5	7.8	72.8				
Max Q Clear Time (g_c+I1), s	11.4	34.9	8.4	56.6	7.2	15.9	8.2	76.2				
Green Ext Time (p_c), s	0.0	0.0	0.1	10.3	0.0	1.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			62.1									
HCM 6th LOS			E									
Notes												

HCM Signalized Intersection Capacity Analysis

13: Rimrock & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	857	28	272	960	165	43	257	215	241	268	76
Future Volume (vph)	147	857	28	272	960	165	43	257	215	241	268	76
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1662	3277		1662	1733	1488	1662	1750	1488	1662	1750	1488
Flt Permitted	0.06	1.00		0.21	1.00	1.00	0.37	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	107	3277		359	1733	1488	650	1750	1488	290	1750	1488
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	152	884	29	280	990	170	44	265	222	248	276	78
RTOR Reduction (vph)	0	2	0	0	0	77	0	0	188	0	0	62
Lane Group Flow (vph)	152	911	0	280	990	93	44	265	34	248	276	16
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	73.4	64.9		84.3	71.3	71.3	25.8	19.6	19.6	37.6	26.9	26.9
Effective Green, g (s)	74.4	65.4		84.8	71.8	71.8	26.8	20.1	20.1	38.1	27.4	27.4
Actuated g/C Ratio	0.57	0.50		0.65	0.55	0.55	0.20	0.15	0.15	0.29	0.21	0.21
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	167	1637		385	950	816	184	268	228	231	366	311
v/s Ratio Prot	c0.06	0.28		0.09	c0.57		0.01	0.15		c0.11	0.16	
v/s Ratio Perm	0.45			0.38		0.06	0.04		0.02	c0.20		0.01
v/c Ratio	0.91	0.56		0.73	1.04	0.11	0.24	0.99	0.15	1.07	0.75	0.05
Uniform Delay, d1	38.4	22.7		14.2	29.6	14.2	42.7	55.3	48.0	40.9	48.6	41.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	44.5	0.5		6.3	40.8	0.1	0.5	51.3	0.2	80.1	8.1	0.1
Delay (s)	82.9	23.2		20.5	70.3	14.3	43.2	106.6	48.2	121.0	56.7	41.4
Level of Service	F	C		C	E	B	D	F	D	F	E	D
Approach Delay (s)		31.7			54.0			76.9			81.2	
Approach LOS		C			D			E			F	
Intersection Summary												
HCM 2000 Control Delay			55.3			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			130.9			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			106.2%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 13: Rimrock & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	857	28	272	960	165	43	257	215	241	268	76
Future Volume (veh/h)	147	857	28	272	960	165	43	257	215	241	268	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1750	1736	1750	1750	1736	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	152	884	29	280	990	170	44	265	222	248	276	78
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	171	1704	56	434	959	819	191	258	219	235	388	328
Arrive On Green	0.07	0.52	0.52	0.10	0.55	0.55	0.03	0.15	0.15	0.11	0.22	0.22
Sat Flow, veh/h	1667	3260	107	1667	1736	1483	1667	1750	1483	1667	1750	1483
Grp Volume(v), veh/h	152	447	466	280	990	170	44	265	222	248	276	78
Grp Sat Flow(s),veh/h/ln	1667	1650	1717	1667	1736	1483	1667	1750	1483	1667	1750	1483
Q Serve(g_s), s	7.4	23.1	23.1	9.6	71.8	7.5	2.9	19.2	19.2	14.0	19.0	5.6
Cycle Q Clear(g_c), s	7.4	23.1	23.1	9.6	71.8	7.5	2.9	19.2	19.2	14.0	19.0	5.6
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	863	898	434	959	819	191	258	219	235	388	328
V/C Ratio(X)	0.89	0.52	0.52	0.64	1.03	0.21	0.23	1.03	1.01	1.06	0.71	0.24
Avail Cap(c_a), veh/h	171	863	898	552	959	819	250	258	219	235	388	328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	20.3	20.3	14.7	29.1	14.7	45.1	55.4	55.4	43.4	46.8	41.6
Incr Delay (d2), s/veh	38.9	0.7	0.7	1.3	37.7	0.2	0.5	62.7	64.3	74.2	5.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	8.9	9.2	3.5	38.0	2.5	1.2	12.9	11.0	11.2	8.8	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.0	21.1	21.0	16.0	66.8	14.9	45.5	118.1	119.7	117.7	52.5	41.9
LnGrp LOS	E	C	C	B	F	B	D	F	F	F	D	D
Approach Vol, veh/h	1065			1440			531			602		
Approach Delay, s/veh	29.2			50.8			112.8			77.9		
Approach LOS	C			D			F			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	23.2	16.8	72.0	8.4	32.8	13.0	75.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	13.5	18.7	21.5	58.3	8.5	23.7	8.5	71.3				
Max Q Clear Time (g_c+I1), s	16.0	21.2	11.6	25.1	4.9	21.0	9.4	73.8				
Green Ext Time (p_c), s	0.0	0.0	0.8	17.0	0.0	0.4	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			58.0									
HCM 6th LOS			E									
Notes												

Intersection												
Int Delay, s/veh	9.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	53	68	35	33	64	16	32	93	25	9	143	53
Future Vol, veh/h	53	68	35	33	64	16	32	93	25	9	143	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	13	20	0	0	0	2	0
Mvmt Flow	58	75	38	36	70	18	35	102	27	10	157	58
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	88	0	0	113	0	0	469	370	94	426	380	79
Stage 1	-	-	-	-	-	-	210	210	-	151	151	-
Stage 2	-	-	-	-	-	-	259	160	-	275	229	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.68	4	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1520	-	-	1489	-	-	476	563	968	542	552	987
Stage 1	-	-	-	-	-	-	753	732	-	856	772	-
Stage 2	-	-	-	-	-	-	708	769	-	736	715	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1520	-	-	1489	-	-	326	526	968	427	516	987
Mov Cap-2 Maneuver	-	-	-	-	-	-	326	526	-	427	516	-
Stage 1	-	-	-	-	-	-	722	702	-	821	753	-
Stage 2	-	-	-	-	-	-	514	750	-	586	686	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.5			2.2			15.7			15		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	499	1520	-	-	1489	-	-	583				
HCM Lane V/C Ratio	0.33	0.038	-	-	0.024	-	-	0.386				
HCM Control Delay (s)	15.7	7.5	0	-	7.5	0	-	15				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile O(veh)	1.4	0.1	-	-	0.1	-	-	1.8				

HCM 6th TWSC
18: Lava Ave & 27th St

11/09/2023

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	15	18	376	298	44
Future Vol, veh/h	25	15	18	376	298	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	124	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	8	6	1	3	0
Mvmt Flow	26	15	19	388	307	45

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	756	330	352
Stage 1	330	-	-
Stage 2	426	-	-
Critical Hdwy	6.45	6.28	4.16
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.372	2.254
Pot Cap-1 Maneuver	372	698	1185
Stage 1	722	-	-
Stage 2	652	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	366	698	1185
Mov Cap-2 Maneuver	366	-	-
Stage 1	710	-	-
Stage 2	652	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1185	-	445	-	-
HCM Lane V/C Ratio	0.016	-	0.093	-	-
HCM Control Delay (s)	8.1	-	13.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

HCM 6th TWSC
20: 35th /35th & Lava Ave

11/09/2023

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	23	0	7	3	0	2	5	146	3	3	228	40
Future Vol, veh/h	23	0	7	3	0	2	5	146	3	3	228	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	50	0	1	0	0	1	0
Mvmt Flow	27	0	8	4	0	2	6	172	4	4	268	47
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	487	488	292	490	509	174	315	0	0	176	0	0
Stage 1	300	300	-	186	186	-	-	-	-	-	-	-
Stage 2	187	188	-	304	323	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.7	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.75	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	494	483	752	492	470	759	1257	-	-	1412	-	-
Stage 1	713	669	-	820	750	-	-	-	-	-	-	-
Stage 2	819	748	-	710	654	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	490	479	752	484	466	759	1257	-	-	1412	-	-
Mov Cap-2 Maneuver	490	479	-	484	466	-	-	-	-	-	-	-
Stage 1	709	667	-	816	746	-	-	-	-	-	-	-
Stage 2	812	744	-	700	652	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.2		11.4		0.3		0.1					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1257	-	-	533	566	1412	-	-				
HCM Lane V/C Ratio	0.005	-	-	0.066	0.01	0.002	-	-				
HCM Control Delay (s)	7.9	0	-	12.2	11.4	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

HCM 6th TWSC
22: Lava & West Site Access

11/09/2023

Intersection												
Int Delay, s/veh	7.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	12	0	13	24	0	0	0	8	0	0	0
Future Vol, veh/h	0	12	0	13	24	0	0	0	8	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	15	0	16	30	0	0	0	10	0	0	0
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	21	11	1	14	6	5	1	0	0	10	0	0
Stage 1	1	1	-	5	5	-	-	-	-	-	-	-
Stage 2	20	10	-	9	1	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	997	888	1090	1007	893	1084	1635	-	-	1623	-	-
Stage 1	1027	899	-	1022	896	-	-	-	-	-	-	-
Stage 2	1004	891	-	1017	899	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	972	888	1090	994	893	1084	1635	-	-	1623	-	-
Mov Cap-2 Maneuver	972	888	-	994	893	-	-	-	-	-	-	-
Stage 1	1027	899	-	1022	896	-	-	-	-	-	-	-
Stage 2	971	891	-	1000	899	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.1		9.1			0			0			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1635	-	-	888	926	1623	-	-				
HCM Lane V/C Ratio	-	-	-	0.017	0.049	-	-	-				
HCM Control Delay (s)	0	-	-	9.1	9.1	0	-	-				
HCM Lane LOS	A	-	-	A	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-				

HCM 6th TWSC
2: 35th & Juniper Ave

11/09/2023

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	4	10	3	3	2	10	166	8	0	273	25
Future Vol, veh/h	25	4	10	3	3	2	10	166	8	0	273	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	0	0
Mvmt Flow	28	5	11	3	3	2	11	189	9	0	310	28
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	542	544	324	548	554	194	338	0	0	198	0	0
Stage 1	324	324	-	216	216	-	-	-	-	-	-	-
Stage 2	218	220	-	332	338	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	454	449	722	450	443	853	1232	-	-	1387	-	-
Stage 1	692	653	-	791	728	-	-	-	-	-	-	-
Stage 2	789	725	-	686	644	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	447	445	722	436	439	853	1232	-	-	1387	-	-
Mov Cap-2 Maneuver	447	445	-	436	439	-	-	-	-	-	-	-
Stage 1	685	653	-	783	721	-	-	-	-	-	-	-
Stage 2	775	718	-	671	644	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	13		12.4			0.4			0			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1232	-	-	495	498	1387	-	-				
HCM Lane V/C Ratio	0.009	-	-	0.09	0.018	-	-	-				
HCM Control Delay (s)	7.9	0	-	13	12.4	0	-	-				
HCM Lane LOS	A	A	-	B	B	A	-	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0.1	0	-	-				

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			↰	↱		↰	↱
Traffic Vol, veh/h	133	622	47	210	624	52	20	41	132	4	60	134
Future Vol, veh/h	133	622	47	210	624	52	20	41	132	4	60	134
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	280	-	-	-	-	150	-	-	220
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	1	0	14	0	0	0	2	1
Mvmt Flow	136	635	48	214	637	53	20	42	135	4	61	137
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	690	0	0	683	0	0	2122	2049	659	2112	2047	664
Stage 1	-	-	-	-	-	-	931	931	-	1092	1092	-
Stage 2	-	-	-	-	-	-	1191	1118	-	1020	955	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.24	6.5	6.2	7.1	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.24	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.24	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.626	4	3.3	3.5	4.018	3.309
Pot Cap-1 Maneuver	914	-	-	919	-	-	34	56	467	38	~ 56	462
Stage 1	-	-	-	-	-	-	305	348	-	262	291	-
Stage 2	-	-	-	-	-	-	216	285	-	288	337	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	914	-	-	919	-	-	-	~ 37	467	-	~ 37	462
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 37	-	-	~ 37	-
Stage 1	-	-	-	-	-	-	260	296	-	223	223	-
Stage 2	-	-	-	-	-	-	85	219	-	150	287	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			2.4								
HCM LOS							-			-		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	-	467	914	-	-	919	-	-	-	-	462	
HCM Lane V/C Ratio	-	0.288	0.148	-	-	0.233	-	-	-	-	0.296	
HCM Control Delay (s)	-	15.8	9.6	-	-	10.1	-	-	-	-	16	
HCM Lane LOS	-	C	A	-	-	B	-	-	-	-	C	
HCM 95th %tile Q(veh)	-	1.2	0.5	-	-	0.9	-	-	-	-	1.2	
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 6th TWSC
7: Lava & East Site Access

11/09/2023

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	45	0	3	49	31	0	1	0	34	1	3
Future Vol, veh/h	3	45	0	3	49	31	0	1	0	34	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	58	0	4	63	40	0	1	0	44	1	4
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	103	0	0	58	0	0	160	177	58	158	157	83
Stage 1	-	-	-	-	-	-	66	66	-	91	91	-
Stage 2	-	-	-	-	-	-	94	111	-	67	66	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1502	-	-	1559	-	-	810	720	1014	813	739	982
Stage 1	-	-	-	-	-	-	950	844	-	921	823	-
Stage 2	-	-	-	-	-	-	918	807	-	948	844	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1502	-	-	1559	-	-	802	716	1014	808	735	982
Mov Cap-2 Maneuver	-	-	-	-	-	-	802	716	-	808	735	-
Stage 1	-	-	-	-	-	-	947	841	-	918	821	-
Stage 2	-	-	-	-	-	-	910	805	-	944	841	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.3			10			9.7		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	716	1502	-	-	1559	-	-	817				
HCM Lane V/C Ratio	0.002	0.003	-	-	0.002	-	-	0.06				
HCM Control Delay (s)	10	7.4	0	-	7.3	0	-	9.7				
HCM Lane LOS	B	A	A	-	A	A	-	A				
HCM 95th %tile O(veh)	0	0	-	-	0	-	-	0.2				

HCM Signalized Intersection Capacity Analysis

8: 27th St & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	689	36	154	712	149	76	255	109	135	183	89
Future Volume (vph)	133	689	36	154	712	149	76	255	109	135	183	89
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.8	3.8		3.8	3.8		3.1	3.1		3.1	3.1	3.1
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1662	1721		1662	1677		1662	1672		1662	1733	1488
Flt Permitted	0.07	1.00		0.15	1.00		0.51	1.00		0.14	1.00	1.00
Satd. Flow (perm)	116	1721		256	1677		885	1672		245	1733	1488
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	134	696	36	156	719	151	77	258	110	136	185	90
RTOR Reduction (vph)	0	1	0	0	6	0	0	12	0	0	0	69
Lane Group Flow (vph)	134	731	0	156	864	0	77	356	0	136	185	21
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	67.0	59.2		68.2	59.8		32.0	25.4		35.6	27.2	27.2
Effective Green, g (s)	69.8	60.6		71.0	61.2		34.8	26.8		38.4	28.6	28.6
Actuated g/C Ratio	0.58	0.50		0.59	0.51		0.29	0.22		0.32	0.24	0.24
Clearance Time (s)	5.2	5.2		5.2	5.2		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.0		2.5	4.0		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	184	863		264	849		306	370		192	410	352
v/s Ratio Prot	c0.06	0.42		0.05	c0.52		0.02	c0.21		c0.06	0.11	
v/s Ratio Perm	0.37			0.30			0.06			0.17		0.01
v/c Ratio	0.73	0.85		0.59	1.02		0.25	0.96		0.71	0.45	0.06
Uniform Delay, d1	28.8	26.1		19.1	29.8		32.2	46.5		33.0	39.4	35.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.6	8.0		2.9	35.3		0.3	36.4		10.5	0.6	0.1
Delay (s)	41.4	34.1		22.1	65.1		32.6	82.9		43.6	40.0	35.7
Level of Service	D	C		C	E		C	F		D	D	D
Approach Delay (s)		35.2			58.5			74.2			40.2	
Approach LOS		D			E			E			D	
Intersection Summary												
HCM 2000 Control Delay		51.0			HCM 2000 Level of Service			D				
HCM 2000 Volume to Capacity ratio		0.95										
Actuated Cycle Length (s)		120.8			Sum of lost time (s)			13.8				
Intersection Capacity Utilization		101.7%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

8: 27th St & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	689	36	154	712	149	76	255	109	135	183	89
Future Volume (veh/h)	133	689	36	154	712	149	76	255	109	135	183	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1750	1736	1750	1750	1723	1750	1750	1750	1750	1750	1736	1750
Adj Flow Rate, veh/h	134	696	36	156	719	151	77	258	110	136	185	90
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	0	0	2	0	0	0	0	0	1	0
Cap, veh/h	177	838	43	291	709	149	329	253	108	199	418	357
Arrive On Green	0.07	0.51	0.50	0.07	0.51	0.50	0.06	0.22	0.21	0.08	0.24	0.24
Sat Flow, veh/h	1667	1636	85	1667	1381	290	1667	1164	496	1667	1736	1483
Grp Volume(v), veh/h	134	0	732	156	0	870	77	0	368	136	185	90
Grp Sat Flow(s),veh/h/ln	1667	0	1721	1667	0	1671	1667	0	1661	1667	1736	1483
Q Serve(g_s), s	5.0	0.0	43.1	5.1	0.0	61.2	4.2	0.0	25.9	7.3	10.8	5.8
Cycle Q Clear(g_c), s	5.0	0.0	43.1	5.1	0.0	61.2	4.2	0.0	25.9	7.3	10.8	5.8
Prop In Lane	1.00		0.05	1.00		0.17	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	177	0	881	291	0	858	329	0	361	199	418	357
V/C Ratio(X)	0.76	0.00	0.83	0.54	0.00	1.01	0.23	0.00	1.02	0.68	0.44	0.25
Avail Cap(c_a), veh/h	189	0	881	314	0	858	367	0	361	199	418	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	24.7	21.3	0.0	29.1	32.9	0.0	46.8	33.7	38.4	36.6
Incr Delay (d2), s/veh	14.3	0.0	7.0	1.1	0.0	34.2	0.3	0.0	52.4	8.6	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	17.8	1.8	0.0	30.3	1.7	0.0	15.8	3.4	4.6	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	0.0	31.8	22.4	0.0	63.3	33.2	0.0	99.2	42.3	39.0	36.8
LnGrp LOS	D	A	C	C	A	F	C	A	F	D	D	D
Approach Vol, veh/h	866		1026				445		411			
Approach Delay, s/veh	33.7		57.1				87.8		39.6			
Approach LOS	C		E				F		D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	29.0	12.4	64.8	10.2	31.8	12.1	65.0				
Change Period (Y+Rc), s	4.5	4.5	5.2	5.2	4.5	4.5	5.2	5.2				
Max Green Setting (Gmax), s	8.5	24.5	8.8	58.8	8.5	24.5	7.8	59.8				
Max Q Clear Time (g_c+I1), s	9.3	27.9	7.1	45.1	6.2	12.8	7.0	63.2				
Green Ext Time (p_c), s	0.0	0.0	0.1	9.6	0.0	0.9	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			52.1									
HCM 6th LOS			D									
Notes												

HCM Signalized Intersection Capacity Analysis

13: Rimrock & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	800	27	249	897	150	41	234	196	220	245	76
Future Volume (vph)	140	800	27	249	897	150	41	234	196	220	245	76
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1662	3277		1662	1733	1488	1662	1750	1488	1662	1750	1488
Flt Permitted	0.07	1.00		0.23	1.00	1.00	0.38	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	126	3277		404	1733	1488	661	1750	1488	379	1750	1488
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	144	825	28	257	925	155	42	241	202	227	253	78
RTOR Reduction (vph)	0	2	0	0	0	73	0	0	169	0	0	63
Lane Group Flow (vph)	144	851	0	257	925	82	42	241	33	227	253	15
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	63.5	55.1		70.5	58.6	58.6	22.4	17.7	17.7	30.0	21.5	21.5
Effective Green, g (s)	64.5	55.6		71.5	59.1	59.1	23.4	18.2	18.2	31.0	22.0	22.0
Actuated g/C Ratio	0.58	0.50		0.64	0.53	0.53	0.21	0.16	0.16	0.28	0.20	0.20
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	196	1638		400	921	790	185	286	243	209	346	294
v/s Ratio Prot	0.06	0.26		c0.07	c0.53		0.01	0.14		c0.09	0.14	
v/s Ratio Perm	0.37			0.34		0.06	0.04		0.02	c0.21		0.01
v/c Ratio	0.73	0.52		0.64	1.00	0.10	0.23	0.84	0.14	1.09	0.73	0.05
Uniform Delay, d1	26.1	18.8		11.0	26.1	12.9	35.8	45.1	39.8	37.1	41.8	36.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.6	0.4		3.1	30.7	0.1	0.5	19.4	0.2	87.1	7.3	0.1
Delay (s)	38.7	19.2		14.1	56.8	13.0	36.2	64.5	40.0	124.2	49.1	36.2
Level of Service	D	B		B	E	B	D	E	D	F	D	D
Approach Delay (s)		22.0			43.5			51.8			77.9	
Approach LOS		C			D			D			E	
Intersection Summary												
HCM 2000 Control Delay			44.0		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			111.2		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			99.6%		ICU Level of Service					F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

13: Rimrock & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	800	27	249	897	150	41	234	196	220	245	76
Future Volume (veh/h)	140	800	27	249	897	150	41	234	196	220	245	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1750	1736	1750	1750	1736	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	144	825	28	257	925	155	42	241	202	227	253	78
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	188	1673	57	456	950	811	201	276	234	228	364	309
Arrive On Green	0.06	0.51	0.51	0.10	0.55	0.55	0.03	0.16	0.16	0.08	0.21	0.21
Sat Flow, veh/h	1667	3256	110	1667	1736	1483	1667	1750	1483	1667	1750	1483
Grp Volume(v), veh/h	144	418	435	257	925	155	42	241	202	227	253	78
Grp Sat Flow(s),veh/h/ln	1667	1650	1716	1667	1736	1483	1667	1750	1483	1667	1750	1483
Q Serve(g_s), s	4.3	17.8	17.8	7.4	55.6	5.7	2.3	14.5	14.3	9.0	14.4	4.7
Cycle Q Clear(g_c), s	4.3	17.8	17.8	7.4	55.6	5.7	2.3	14.5	14.3	9.0	14.4	4.7
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	848	882	456	950	811	201	276	234	228	364	309
V/C Ratio(X)	0.76	0.49	0.49	0.56	0.97	0.19	0.21	0.87	0.86	0.99	0.69	0.25
Avail Cap(c_a), veh/h	222	848	882	544	951	812	285	276	234	228	364	309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	17.0	17.1	11.8	23.7	12.3	36.6	44.3	44.2	39.3	39.5	35.6
Incr Delay (d2), s/veh	11.4	0.6	0.6	0.8	23.0	0.2	0.4	24.6	26.2	57.7	5.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	6.5	6.8	2.6	26.8	1.8	0.9	8.1	6.9	5.6	6.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	17.7	17.7	12.6	46.7	12.5	36.9	68.9	70.5	97.0	44.7	36.0
LnGrp LOS	D	B	B	B	D	B	D	E	E	F	D	D
Approach Vol, veh/h	997		1337				485		558			
Approach Delay, s/veh	20.3		36.2				66.8		64.8			
Approach LOS	C		D				E		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	21.0	14.4	59.4	7.6	26.4	10.8	62.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	8.5	16.5	15.5	51.5	8.5	16.5	8.5	58.5				
Max Q Clear Time (g_c+I1), s	11.0	16.5	9.4	19.8	4.3	16.4	6.3	57.6				
Green Ext Time (p_c), s	0.0	0.0	0.5	15.3	0.0	0.0	0.1	0.8				
Intersection Summary												
HCM 6th Ctrl Delay	40.6											
HCM 6th LOS	D											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	9.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	54	65	34	32	63	20	31	94	24	14	143	54
Future Vol, veh/h	54	65	34	32	63	20	31	94	24	14	143	54
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	13	20	0	0	0	2	0
Mvmt Flow	59	71	37	35	69	22	34	103	26	15	157	59
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	91	0	0	108	0	0	466	369	90	422	376	80
Stage 1	-	-	-	-	-	-	208	208	-	150	150	-
Stage 2	-	-	-	-	-	-	258	161	-	272	226	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.68	4	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1517	-	-	1495	-	-	478	563	973	546	555	986
Stage 1	-	-	-	-	-	-	755	734	-	857	773	-
Stage 2	-	-	-	-	-	-	709	769	-	738	717	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1517	-	-	1495	-	-	327	526	973	429	518	986
Mov Cap-2 Maneuver	-	-	-	-	-	-	327	526	-	429	518	-
Stage 1	-	-	-	-	-	-	723	703	-	821	754	-
Stage 2	-	-	-	-	-	-	514	750	-	587	687	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.6			2.1			15.7			15.3		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	500	1517	-	-	1495	-	-	581				
HCM Lane V/C Ratio	0.327	0.039	-	-	0.024	-	-	0.399				
HCM Control Delay (s)	15.7	7.5	0	-	7.5	0	-	15.3				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile O(veh)	1.4	0.1	-	-	0.1	-	-	1.9				

HCM 6th TWSC
18: Lava Ave & 27th St

11/09/2023

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	22	25	346	274	45
Future Vol, veh/h	29	22	25	346	274	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	124	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	8	6	1	3	0
Mvmt Flow	30	23	26	357	282	46

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	714	305	328
Stage 1	305	-	-
Stage 2	409	-	-
Critical Hdwy	6.45	6.28	4.16
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.372	2.254
Pot Cap-1 Maneuver	393	721	1209
Stage 1	741	-	-
Stage 2	664	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	384	721	1209
Mov Cap-2 Maneuver	384	-	-
Stage 1	725	-	-
Stage 2	664	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1209	-	481	-	-
HCM Lane V/C Ratio	0.021	-	0.109	-	-
HCM Control Delay (s)	8	-	13.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

HCM 6th TWSC
20: 35th /35th & Lava Ave

11/09/2023

Intersection

Int Delay, s/veh 2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	48	12	19	3	10	7	15	143	3	8	219	58
Future Vol, veh/h	48	12	19	3	10	7	15	143	3	8	219	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	50	0	1	0	0	1	0
Mvmt Flow	56	14	22	4	12	8	18	168	4	9	258	68

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	526	518	292	534	550	170	326	0	0	172	0	0
Stage 1	310	310	-	206	206	-	-	-	-	-	-	-
Stage 2	216	208	-	328	344	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.7	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.75	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	466	465	752	460	446	763	1245	-	-	1417	-	-
Stage 1	705	663	-	801	735	-	-	-	-	-	-	-
Stage 2	791	734	-	689	640	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	443	454	752	428	435	763	1245	-	-	1417	-	-
Mov Cap-2 Maneuver	443	454	-	428	435	-	-	-	-	-	-	-
Stage 1	694	658	-	788	723	-	-	-	-	-	-	-
Stage 2	757	722	-	649	635	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14		12.4		0.7		0.2	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1245	-	-	494 511	1417	-	-
HCM Lane V/C Ratio	0.014	-	-	0.188 0.046	0.007	-	-
HCM Control Delay (s)	7.9	0	-	14 12.4	7.6	0	-
HCM Lane LOS	A	A	-	B B	A A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.7 0.1	0	-	-

HCM 6th TWSC
22: Lava & West Site Access

11/09/2023

Intersection												
Int Delay, s/veh	7.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	14	0	11	26	10	0	1	7	18	1	2
Future Vol, veh/h	3	14	0	11	26	10	0	1	7	18	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	17	0	14	32	12	0	1	9	22	1	2
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	74	56	2	61	53	6	3	0	0	10	0	0
Stage 1	46	46	-	6	6	-	-	-	-	-	-	-
Stage 2	28	10	-	55	47	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	921	839	1088	939	842	1083	1632	-	-	1623	-	-
Stage 1	973	861	-	1021	895	-	-	-	-	-	-	-
Stage 2	994	891	-	962	860	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	874	827	1088	915	830	1083	1632	-	-	1623	-	-
Mov Cap-2 Maneuver	874	827	-	915	830	-	-	-	-	-	-	-
Stage 1	973	849	-	1021	895	-	-	-	-	-	-	-
Stage 2	947	891	-	929	848	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.4		9.3			0			6.2			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1632	-	-	835	894	1623	-	-				
HCM Lane V/C Ratio	-	-	-	0.025	0.065	0.014	-	-				
HCM Control Delay (s)	0	-	-	9.4	9.3	7.2	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-				

HCM 6th TWSC
2: 35th & Juniper Ave

11/09/2023

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	4	10	3	3	2	10	174	9	0	289	25
Future Vol, veh/h	25	4	10	3	3	2	10	174	9	0	289	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	0	0
Mvmt Flow	28	5	11	3	3	2	11	198	10	0	328	28
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	570	572	342	575	581	203	356	0	0	208	0	0
Stage 1	342	342	-	225	225	-	-	-	-	-	-	-
Stage 2	228	230	-	350	356	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	435	433	705	432	428	843	1214	-	-	1375	-	-
Stage 1	677	642	-	782	721	-	-	-	-	-	-	-
Stage 2	779	718	-	671	633	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	428	429	705	418	424	843	1214	-	-	1375	-	-
Mov Cap-2 Maneuver	428	429	-	418	424	-	-	-	-	-	-	-
Stage 1	670	642	-	774	714	-	-	-	-	-	-	-
Stage 2	765	711	-	656	633	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	13.3		12.6		0.4		0					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1214	-	-	476	481	1375	-	-				
HCM Lane V/C Ratio	0.009	-	-	0.093	0.019	-	-	-				
HCM Control Delay (s)	8	0	-	13.3	12.6	0	-	-				
HCM Lane LOS	A	A	-	B	B	A	-	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0.1	0	-	-				

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	674	50	221	673	57	21	43	138	4	64	145
Future Vol, veh/h	146	674	50	221	673	57	21	43	138	4	64	145
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	-	280	-	-	-	-	150	-	-	220
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	1	0	14	0	0	0	2	1
Mvmt Flow	149	688	51	226	687	58	21	44	141	4	65	148
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	745	0	0	739	0	0	2287	2209	714	2272	2205	716
Stage 1	-	-	-	-	-	-	1012	1012	-	1168	1168	-
Stage 2	-	-	-	-	-	-	1275	1197	-	1104	1037	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.24	6.5	6.2	7.1	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.24	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.24	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.626	4	3.3	3.5	4.018	3.309
Pot Cap-1 Maneuver	872	-	-	876	-	-	26	45	435	29	~ 44	432
Stage 1	-	-	-	-	-	-	274	319	-	238	267	-
Stage 2	-	-	-	-	-	-	193	261	-	258	308	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	872	-	-	876	-	-	-	~ 28	435	-	~ 27	432
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 28	-	-	~ 27	-
Stage 1	-	-	-	-	-	-	227	264	-	197	198	-
Stage 2	-	-	-	-	-	-	63	194	-	121	255	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			2.4								
HCM LOS							-			-		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	-	435	872	-	-	876	-	-	-	-	432	
HCM Lane V/C Ratio	-	0.324	0.171	-	-	0.257	-	-	-	-	0.342	
HCM Control Delay (s)	-	17.2	10	-	-	10.5	-	-	-	-	17.6	
HCM Lane LOS	-	C	A	-	-	B	-	-	-	-	C	
HCM 95th %tile Q(veh)	-	1.4	0.6	-	-	1	-	-	-	-	1.5	
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM 6th TWSC
7: Lava & East Site Access

11/09/2023

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	47	0	3	52	31	0	1	0	34	1	3
Future Vol, veh/h	3	47	0	3	52	31	0	1	0	34	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	0	4	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	60	0	4	67	40	0	1	0	44	1	4
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	107	0	0	60	0	0	166	183	60	164	163	87
Stage 1	-	-	-	-	-	-	68	68	-	95	95	-
Stage 2	-	-	-	-	-	-	98	115	-	69	68	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1497	-	-	1556	-	-	803	715	1011	805	733	977
Stage 1	-	-	-	-	-	-	947	842	-	917	820	-
Stage 2	-	-	-	-	-	-	913	804	-	946	842	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1497	-	-	1556	-	-	795	711	1011	800	729	977
Mov Cap-2 Maneuver	-	-	-	-	-	-	795	711	-	800	729	-
Stage 1	-	-	-	-	-	-	944	839	-	914	818	-
Stage 2	-	-	-	-	-	-	905	802	-	942	839	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.3			10.1			9.7		
HCM LOS							B			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	711	1497	-	-	1556	-	-	810				
HCM Lane V/C Ratio	0.002	0.003	-	-	0.002	-	-	0.06				
HCM Control Delay (s)	10.1	7.4	0	-	7.3	0	-	9.7				
HCM Lane LOS	B	A	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2				

HCM Signalized Intersection Capacity Analysis

8: 27th St & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	746	39	168	768	160	83	277	119	146	200	93
Future Volume (vph)	140	746	39	168	768	160	83	277	119	146	200	93
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	3.8	3.8		3.8	3.8		3.1	3.1		3.1	3.1	3.1
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1662	1721		1662	1677		1662	1671		1662	1733	1488
Flt Permitted	0.05	1.00		0.12	1.00		0.44	1.00		0.12	1.00	1.00
Satd. Flow (perm)	95	1721		217	1677		763	1671		213	1733	1488
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	141	754	39	170	776	162	84	280	120	147	202	94
RTOR Reduction (vph)	0	1	0	0	5	0	0	11	0	0	0	72
Lane Group Flow (vph)	141	792	0	170	933	0	84	389	0	147	202	22
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	80.1	72.3		81.9	73.2		39.2	31.1		40.0	31.5	31.5
Effective Green, g (s)	82.9	73.7		84.7	74.6		42.0	32.5		42.8	32.9	32.9
Actuated g/C Ratio	0.59	0.53		0.61	0.53		0.30	0.23		0.31	0.23	0.23
Clearance Time (s)	5.2	5.2		5.2	5.2		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.0		2.5	4.0		2.5	2.5		2.5	2.5	2.5
Lane Grp Cap (vph)	159	905		235	893		289	387		167	407	349
v/s Ratio Prot	c0.06	0.46		0.05	c0.56		0.02	c0.23		c0.06	0.12	
v/s Ratio Perm	0.47			0.38			0.07			0.21		0.01
v/c Ratio	0.89	0.87		0.72	1.04		0.29	1.01		0.88	0.50	0.06
Uniform Delay, d1	41.8	29.1		24.0	32.7		36.5	53.8		40.1	46.4	41.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	40.0	9.7		9.9	42.4		0.4	47.2		37.5	0.7	0.1
Delay (s)	81.7	38.8		33.9	75.1		36.9	101.0		77.7	47.1	41.6
Level of Service	F	D		C	E		D	F		E	D	D
Approach Delay (s)		45.3			68.8			89.8			56.1	
Approach LOS		D			E			F			E	
Intersection Summary												
HCM 2000 Control Delay			62.9			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)				13.8		
Intersection Capacity Utilization			108.7%			ICU Level of Service				G		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary 8: 27th St & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	746	39	168	768	160	83	277	119	146	200	93
Future Volume (veh/h)	140	746	39	168	768	160	83	277	119	146	200	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1750	1736	1750	1750	1723	1750	1750	1750	1750	1750	1736	1750
Adj Flow Rate, veh/h	141	754	39	170	776	162	84	280	120	147	202	94
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	0	0	2	0	0	0	0	0	1	0
Cap, veh/h	161	865	45	255	737	154	309	270	116	169	422	360
Arrive On Green	0.07	0.53	0.52	0.07	0.53	0.52	0.06	0.23	0.22	0.07	0.24	0.24
Sat Flow, veh/h	1667	1636	85	1667	1382	289	1667	1162	498	1667	1736	1483
Grp Volume(v), veh/h	141	0	793	170	0	938	84	0	400	147	202	94
Grp Sat Flow(s),veh/h/ln	1667	0	1721	1667	0	1671	1667	0	1660	1667	1736	1483
Q Serve(g_s), s	7.4	0.0	56.4	6.4	0.0	74.6	5.3	0.0	32.5	9.4	14.0	7.2
Cycle Q Clear(g_c), s	7.4	0.0	56.4	6.4	0.0	74.6	5.3	0.0	32.5	9.4	14.0	7.2
Prop In Lane	1.00		0.05	1.00		0.17	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	161	0	910	255	0	890	309	0	385	169	422	360
V/C Ratio(X)	0.88	0.00	0.87	0.67	0.00	1.05	0.27	0.00	1.04	0.87	0.48	0.26
Avail Cap(c_a), veh/h	161	0	910	260	0	890	327	0	385	169	422	360
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	28.9	27.6	0.0	32.8	37.5	0.0	54.0	40.9	45.4	42.8
Incr Delay (d2), s/veh	37.4	0.0	9.5	5.6	0.0	45.3	0.3	0.0	56.0	34.5	0.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	0.0	24.1	3.1	0.0	39.1	2.2	0.0	19.4	5.5	6.1	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.9	0.0	38.4	33.2	0.0	78.1	37.9	0.0	109.9	75.4	46.0	43.1
LnGrp LOS	E	A	D	C	A	F	D	A	F	E	D	D
Approach Vol, veh/h	934		1108				484		443			
Approach Delay, s/veh	44.6		71.2				97.4		55.2			
Approach LOS	D		E				F		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	35.6	13.6	77.8	11.5	37.1	13.0	78.4				
Change Period (Y+Rc), s	4.5	4.5	5.2	5.2	4.5	4.5	5.2	5.2				
Max Green Setting (Gmax), s	8.5	31.1	8.8	72.2	8.5	31.1	7.8	73.2				
Max Q Clear Time (g_c+I1), s	11.4	34.5	8.4	58.4	7.3	16.0	9.4	76.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	10.3	0.0	1.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	64.7											
HCM 6th LOS	E											
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM Signalized Intersection Capacity Analysis

13: Rimrock & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	868	28	272	970	165	43	257	215	241	268	81
Future Volume (vph)	152	868	28	272	970	165	43	257	215	241	268	81
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1662	3278		1662	1733	1488	1662	1750	1488	1662	1750	1488
Flt Permitted	0.06	1.00		0.20	1.00	1.00	0.35	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	107	3278		353	1733	1488	613	1750	1488	281	1750	1488
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	157	895	29	280	1000	170	44	265	222	248	276	84
RTOR Reduction (vph)	0	1	0	0	0	76	0	0	187	0	0	67
Lane Group Flow (vph)	157	923	0	280	1000	94	44	265	35	248	276	17
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Actuated Green, G (s)	73.6	65.1		84.5	71.5	71.5	26.6	20.4	20.4	37.4	26.7	26.7
Effective Green, g (s)	74.6	65.6		85.0	72.0	72.0	27.6	20.9	20.9	37.9	27.2	27.2
Actuated g/C Ratio	0.57	0.50		0.65	0.55	0.55	0.21	0.16	0.16	0.29	0.21	0.21
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.5	4.0		2.5	4.0	4.0	2.5	2.5	2.5	2.5	2.5	2.5
Lane Grp Cap (vph)	167	1642		383	953	818	182	279	237	218	363	309
v/s Ratio Prot	c0.06	0.28		0.09	c0.58		0.01	0.15		c0.11	0.16	
v/s Ratio Perm	0.47			0.39		0.06	0.04		0.02	c0.22		0.01
v/c Ratio	0.94	0.56		0.73	1.05	0.11	0.24	0.95	0.15	1.14	0.76	0.06
Uniform Delay, d1	39.3	22.7		14.3	29.5	14.1	42.2	54.5	47.3	40.9	48.8	41.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	52.1	0.5		6.6	43.0	0.1	0.5	39.9	0.2	103.0	8.7	0.1
Delay (s)	91.4	23.2		20.9	72.4	14.2	42.7	94.4	47.6	143.9	57.5	41.6
Level of Service	F	C		C	E	B	D	F	D	F	E	D
Approach Delay (s)		33.1			55.6			70.5			90.5	
Approach LOS		C			E			E			F	
Intersection Summary												
HCM 2000 Control Delay			56.9			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.09									
Actuated Cycle Length (s)			130.9			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			107.1%			ICU Level of Service				G		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary

13: Rimrock & Highland

11/09/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	868	28	272	970	165	43	257	215	241	268	81
Future Volume (veh/h)	152	868	28	272	970	165	43	257	215	241	268	81
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1750	1736	1750	1750	1736	1750	1750	1750	1750	1750	1750	1750
Adj Flow Rate, veh/h	157	895	29	280	1000	170	44	265	222	248	276	84
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	171	1711	55	431	962	821	188	269	228	225	385	326
Arrive On Green	0.07	0.52	0.52	0.10	0.55	0.55	0.03	0.15	0.15	0.10	0.22	0.22
Sat Flow, veh/h	1667	3261	106	1667	1736	1483	1667	1750	1483	1667	1750	1483
Grp Volume(v), veh/h	157	453	471	280	1000	170	44	265	222	248	276	84
Grp Sat Flow(s),veh/h/ln	1667	1650	1717	1667	1736	1483	1667	1750	1483	1667	1750	1483
Q Serve(g_s), s	7.8	23.4	23.4	9.5	72.0	7.5	2.9	19.6	19.4	13.0	19.0	6.1
Cycle Q Clear(g_c), s	7.8	23.4	23.4	9.5	72.0	7.5	2.9	19.6	19.4	13.0	19.0	6.1
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	865	901	431	962	821	188	269	228	225	385	326
V/C Ratio(X)	0.92	0.52	0.52	0.65	1.04	0.21	0.23	0.98	0.97	1.10	0.72	0.26
Avail Cap(c_a), veh/h	171	865	901	549	962	821	248	269	228	225	385	326
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	20.2	20.3	14.8	29.0	14.6	44.5	54.8	54.7	43.9	46.9	41.9
Incr Delay (d2), s/veh	45.9	0.8	0.7	1.4	39.9	0.2	0.5	50.3	51.7	90.6	5.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	9.0	9.3	3.5	38.7	2.5	1.2	12.3	10.4	7.1	8.8	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.8	21.0	21.0	16.1	68.9	14.8	45.0	105.1	106.4	134.5	52.9	42.2
LnGrp LOS	F	C	C	B	F	B	D	F	F	F	D	D
Approach Vol, veh/h	1081		1450				531		608			
Approach Delay, s/veh	30.4		52.4				100.7		84.7			
Approach LOS	C		D				F		F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.0	24.0	16.8	72.2	8.4	32.6	13.0	76.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	12.5	19.5	21.5	58.5	8.5	23.5	8.5	71.5				
Max Q Clear Time (g_c+I1), s	15.0	21.6	11.5	25.4	4.9	21.0	9.8	74.0				
Green Ext Time (p_c), s	0.0	0.0	0.8	17.2	0.0	0.4	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	58.2											
HCM 6th LOS	E											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection												
Int Delay, s/veh	10.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	55	68	35	33	64	21	32	101	25	15	153	55
Future Vol, veh/h	55	68	35	33	64	21	32	101	25	15	153	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	13	20	0	0	0	2	0
Mvmt Flow	60	75	38	36	70	23	35	111	27	16	168	60
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	93	0	0	113	0	0	482	379	94	437	387	82
Stage 1	-	-	-	-	-	-	214	214	-	154	154	-
Stage 2	-	-	-	-	-	-	268	165	-	283	233	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.3	6.5	6.2	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.3	5.5	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.3	5.5	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.68	4	3.3	3.5	4.018	3.3
Pot Cap-1 Maneuver	1514	-	-	1489	-	-	466	556	968	533	547	983
Stage 1	-	-	-	-	-	-	749	729	-	853	770	-
Stage 2	-	-	-	-	-	-	700	766	-	728	712	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1514	-	-	1489	-	-	310	519	968	411	510	983
Mov Cap-2 Maneuver	-	-	-	-	-	-	310	519	-	411	510	-
Stage 1	-	-	-	-	-	-	718	698	-	817	750	-
Stage 2	-	-	-	-	-	-	496	746	-	570	682	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.6			2.1			16.4			16.1		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	488	1514	-	-	1489	-	-	568				
HCM Lane V/C Ratio	0.356	0.04	-	-	0.024	-	-	0.431				
HCM Control Delay (s)	16.4	7.5	0	-	7.5	0	-	16.1				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile O(veh)	1.6	0.1	-	-	0.1	-	-	2.2				

HCM 6th TWSC
18: Lava Ave & 27th St

11/09/2023

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	31	23	26	376	298	48
Future Vol, veh/h	31	23	26	376	298	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	124	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	8	6	1	3	0
Mvmt Flow	32	24	27	388	307	49

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	774	332	356
Stage 1	332	-	-
Stage 2	442	-	-
Critical Hdwy	6.45	6.28	4.16
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.372	2.254
Pot Cap-1 Maneuver	363	696	1181
Stage 1	720	-	-
Stage 2	641	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	355	696	1181
Mov Cap-2 Maneuver	355	-	-
Stage 1	703	-	-
Stage 2	641	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.1	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1181	-	449	-	-
HCM Lane V/C Ratio	0.023	-	0.124	-	-
HCM Control Delay (s)	8.1	-	14.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

HCM 6th TWSC
20: 35th /35th & Lava Ave

11/09/2023

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	50	12	20	3	10	7	15	151	3	8	233	61
Future Vol, veh/h	50	12	20	3	10	7	15	151	3	8	233	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	50	0	1	0	0	1	0
Mvmt Flow	59	14	24	4	12	8	18	178	4	9	274	72
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	554	546	310	563	580	180	346	0	0	182	0	0
Stage 1	328	328	-	216	216	-	-	-	-	-	-	-
Stage 2	226	218	-	347	364	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.7	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.75	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	446	448	735	440	428	753	1224	-	-	1405	-	-
Stage 1	689	651	-	791	728	-	-	-	-	-	-	-
Stage 2	781	726	-	673	627	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	424	437	735	408	418	753	1224	-	-	1405	-	-
Mov Cap-2 Maneuver	424	437	-	408	418	-	-	-	-	-	-	-
Stage 1	678	646	-	778	716	-	-	-	-	-	-	-
Stage 2	748	714	-	632	622	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	14.5		12.7			0.7			0.2			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1224	-	-	475	493	1405	-	-				
HCM Lane V/C Ratio	0.014	-	-	0.203	0.048	0.007	-	-				
HCM Control Delay (s)	8	0	-	14.5	12.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.8	0.1	0	-	-				

HCM 6th TWSC
22: Lava & West Site Access

11/09/2023

Intersection												
Int Delay, s/veh	7.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	15	0	13	27	10	0	1	8	18	1	2
Future Vol, veh/h	3	15	0	13	27	10	0	1	8	18	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	19	0	16	33	12	0	1	10	22	1	2
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	75	57	2	62	53	6	3	0	0	11	0	0
Stage 1	46	46	-	6	6	-	-	-	-	-	-	-
Stage 2	29	11	-	56	47	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	920	838	1088	938	842	1083	1632	-	-	1621	-	-
Stage 1	973	861	-	1021	895	-	-	-	-	-	-	-
Stage 2	993	890	-	961	860	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	872	826	1088	912	830	1083	1632	-	-	1621	-	-
Mov Cap-2 Maneuver	872	826	-	912	830	-	-	-	-	-	-	-
Stage 1	973	849	-	1021	895	-	-	-	-	-	-	-
Stage 2	945	890	-	927	848	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	9.4		9.3			0			6.2			
HCM LOS	A		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1632	-	-	833	893	1621	-	-				
HCM Lane V/C Ratio	-	-	-	0.027	0.069	0.014	-	-				
HCM Control Delay (s)	0	-	-	9.4	9.3	7.3	0	-				
HCM Lane LOS	A	-	-	A	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-				

REDMOND REGION
RECREATION CENTER

Queuing and Blocking Report
2023 Background Pm

11/09/2023

Intersection: 2: 35th & Juniper Ave , Interval #1

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	19
Average Queue (ft)	4
95th Queue (ft)	22
Link Distance (ft)	379
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: 35th & Juniper Ave , Interval #2

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	30
Average Queue (ft)	2
95th Queue (ft)	13
Link Distance (ft)	379
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: 35th & Juniper Ave , All Intervals

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	30
Average Queue (ft)	2
95th Queue (ft)	16
Link Distance (ft)	379
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: 35th & Highland , Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	52	6	52	5	44	38	64	55
Average Queue (ft)	28	1	28	1	19	25	32	34
95th Queue (ft)	57	10	57	8	47	45	70	59
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280		150		220	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: 35th & Highland , Interval #2

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	64	2	56	9	65	55	52	82
Average Queue (ft)	28	0	23	1	22	25	28	39
95th Queue (ft)	54	2	50	6	53	47	54	64
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280		150		220	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: 35th & Highland , All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	64	8	65	14	65	56	65	82
Average Queue (ft)	28	0	24	1	21	25	29	37
95th Queue (ft)	55	5	52	7	52	47	59	63
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280		150		220	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 7: Lava & East Site Access , Interval #1

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 7: Lava & East Site Access , Interval #2

Movement

NB

Directions Served LTR
Maximum Queue (ft) 18
Average Queue (ft) 1
95th Queue (ft) 10
Link Distance (ft) 344
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 7: Lava & East Site Access , All Intervals

Movement

NB

Directions Served LTR
Maximum Queue (ft) 18
Average Queue (ft) 1
95th Queue (ft) 9
Link Distance (ft) 344
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

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Intersection: 8: 27th St & Highland , Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	72	377	246	407	142	275	129	175	39
Average Queue (ft)	39	223	97	265	70	183	65	94	21
95th Queue (ft)	79	371	245	481	166	298	128	189	49
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)		1		7		27	0	3	
Queuing Penalty (veh)		1		10		19	0	4	

Intersection: 8: 27th St & Highland , Interval #2

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	198	354	250	410	165	363	129	166	76
Average Queue (ft)	38	205	83	233	78	203	62	80	24
95th Queue (ft)	124	349	210	385	176	348	113	137	66
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)		1		3		29	1	1	0
Queuing Penalty (veh)		1		4		20	2	1	0

Intersection: 8: 27th St & Highland , All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	199	390	299	458	165	372	144	208	76
Average Queue (ft)	38	210	87	241	76	199	63	84	23
95th Queue (ft)	116	355	219	412	174	337	117	153	62
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)		1		4		29	1	1	0
Queuing Penalty (veh)		1		5		20	2	2	0

Intersection: 13: Rimrock & Highland , Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	135	141	152	292	531	278	46	222	135	238	417	142
Average Queue (ft)	74	98	92	169	377	117	20	141	67	185	221	50
95th Queue (ft)	147	154	164	335	645	387	52	236	149	307	470	164
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)	2					2						
Queuing Penalty (veh)	0					0						
Storage Bay Dist (ft)	290	150		270	390		275	225		234	245	
Storage Blk Time (%)	1		1	0	16	0	2		0	25	1	
Queuing Penalty (veh)	4		2	0	63	0	4		0	74	2	

Intersection: 13: Rimrock & Highland , Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB										
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R										
Maximum Queue (ft)	115	201	170	295	600	415	46	313	250	247	422	143										
Average Queue (ft)	61	96	87	157	342	85	14	170	85	188	220	39										
95th Queue (ft)	109	168	158	334	598	311	38	297	215	299	502	142										
Link Distance (ft)	2044				638		911				515											
Upstream Blk Time (%)					3				9													
Queuing Penalty (veh)					0				0													
Storage Bay Dist (ft)	290		150		270		390		275		225		234	245								
Storage Blk Time (%)			1		0		0		13		0		9		0	26		1	0			
Queuing Penalty (veh)			5		1		0		50		0		19		0		74		3		0	

Intersection: 13: Rimrock & Highland , All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	144	201	172	295	655	415	59	313	250	259	475	187
Average Queue (ft)	64	97	88	160	351	93	16	163	81	188	220	42
95th Queue (ft)	120	165	160	335	611	331	42	285	202	301	495	148
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)	3					7						
Queuing Penalty (veh)	0					0						
Storage Bay Dist (ft)	290	150		270	390		275	225		234	245	
Storage Blk Time (%)	1		0	0	14	0	7		0	26	1	0
Queuing Penalty (veh)	4		2	0	53	0	15		0	74	3	0

Intersection: 17: Obsidian & 35th , Interval #1

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	5	35	60
Average Queue (ft)	1	31	36
95th Queue (ft)	8	40	60
Link Distance (ft)	638	522	1272
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Obsidian & 35th , Interval #2

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	6	57	63
Average Queue (ft)	0	32	35
95th Queue (ft)	5	49	56
Link Distance (ft)	931	522	1272
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Obsidian & 35th , All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	5	6	62	71
Average Queue (ft)	0	0	32	35
95th Queue (ft)	4	4	47	57
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 18: Lava Ave & 27th St, Interval #1

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	40	12
Average Queue (ft)	23	3
95th Queue (ft)	44	19
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		124
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Lava Ave & 27th St, Interval #2

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	52	29	4
Average Queue (ft)	25	5	0
95th Queue (ft)	52	23	4
Link Distance (ft)	2417		1201
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		124	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 18: Lava Ave & 27th St, All Intervals

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	56	29	4
Average Queue (ft)	24	4	0
95th Queue (ft)	50	22	3
Link Distance (ft)	2417		1201
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		124	
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Intersection: 20: 35th /35th & Lava Ave, Interval #1

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	31	22	11
Average Queue (ft)	18	4	2
95th Queue (ft)	43	19	14
Link Distance (ft)	122	2417	1272
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: 35th /35th & Lava Ave, Interval #2

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	31	34	5
Average Queue (ft)	16	3	0
95th Queue (ft)	41	19	5
Link Distance (ft)	122	2417	386
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: 35th /35th & Lava Ave, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	34	11	5
Average Queue (ft)	16	3	1	0
95th Queue (ft)	41	19	7	4
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Intersection: 22: Lava & West Site Access, Interval #1

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	31
Average Queue (ft)	10	17
95th Queue (ft)	33	42
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 22: Lava & West Site Access, Interval #2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	31
Average Queue (ft)	8	18
95th Queue (ft)	30	43
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 22: Lava & West Site Access, All Intervals

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	31
Average Queue (ft)	8	18
95th Queue (ft)	30	43
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty, Interval #1: 184

Network wide Queuing Penalty, Interval #2: 180

Network wide Queuing Penalty, All Intervals: 181

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Intersection: 2: 35th & Juniper Ave , Interval #1

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	6
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	379
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: 35th & Juniper Ave , Interval #2

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	35
Average Queue (ft)	4
95th Queue (ft)	21
Link Distance (ft)	379
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: 35th & Juniper Ave , All Intervals

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	35
Average Queue (ft)	3
95th Queue (ft)	19
Link Distance (ft)	379
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 3: 35th & Highland , Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	55	12	82	3	71	58	60	84
Average Queue (ft)	32	2	40	1	35	39	35	50
95th Queue (ft)	63	13	85	5	72	69	66	88
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280		150		220	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: 35th & Highland , Interval #2

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	70	16	78	10	95	98	118	84
Average Queue (ft)	33	1	38	1	39	41	48	45
95th Queue (ft)	61	8	69	6	83	76	97	76
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280		150		220	
Storage Blk Time (%)					0			
Queuing Penalty (veh)					0			

Intersection: 3: 35th & Highland , All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	73	24	86	10	95	98	118	96
Average Queue (ft)	32	1	39	1	38	41	45	46
95th Queue (ft)	62	9	73	6	81	74	91	80
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280		150		220	
Storage Blk Time (%)					0			
Queuing Penalty (veh)					0			

Intersection: 7: Lava & East Site Access , Interval #1

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	6
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	344
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Lava & East Site Access , Interval #2

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	6
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	344
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Lava & East Site Access , All Intervals

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	12
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	344
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 8: 27th St & Highland , Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	295	494	340	702	154	573	157	206	87
Average Queue (ft)	128	332	254	573	83	407	111	128	43
95th Queue (ft)	321	637	441	915	188	708	178	216	101
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)		11		35		65	10	6	
Queuing Penalty (veh)		13		55		50	26	12	

Intersection: 8: 27th St & Highland , Interval #2

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	342	524	340	1498	165	767	165	358	168
Average Queue (ft)	118	306	269	1097	97	584	104	129	47
95th Queue (ft)	311	487	455	1718	202	983	173	268	119
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)								0	
Queuing Penalty (veh)								0	
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)	0	5	0	48		71	12	5	0
Queuing Penalty (veh)	0	6	0	74		54	30	11	0

Intersection: 8: 27th St & Highland , All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	400	606	340	1498	165	767	165	358	168
Average Queue (ft)	121	313	265	971	94	542	106	129	46
95th Queue (ft)	314	530	452	1648	199	939	174	258	115
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)								0	
Queuing Penalty (veh)								0	
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)	0	7	0	45		70	11	5	0
Queuing Penalty (veh)	0	8	0	69		53	29	11	0

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Intersection: 13: Rimrock & Highland , Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	115	250	174	294	669	415	151	317	184	230	339	100
Average Queue (ft)	72	145	127	217	614	231	48	213	117	180	211	42
95th Queue (ft)	122	244	196	392	784	544	179	408	266	302	440	114
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)				31						5		
Queuing Penalty (veh)				0						0		
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)		5	1	0	34	0		17	0	27	0	
Queuing Penalty (veh)		27	7	2	140	1		42	0	86	0	

Intersection: 13: Rimrock & Highland , Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	175	296	175	295	670	415	156	349	249	259	530	270
Average Queue (ft)	80	135	116	241	632	281	31	192	105	230	391	60
95th Queue (ft)	142	237	189	386	772	578	110	338	246	312	690	186
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)				33						45		
Queuing Penalty (veh)				0						0		
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)		4	2	0	34	0	0	11	0	61	3	0
Queuing Penalty (veh)		22	12	3	135	1	0	27	0	190	10	0

Intersection: 13: Rimrock & Highland , All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	175	296	175	295	678	415	206	375	249	259	530	270
Average Queue (ft)	79	137	118	235	627	269	35	197	108	218	348	56
95th Queue (ft)	138	239	191	389	776	572	130	357	251	318	658	172
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)				33						35		
Queuing Penalty (veh)				0						0		
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)		4	2	0	34	0	0	13	0	52	3	0
Queuing Penalty (veh)		23	10	2	136	1	0	31	0	164	8	0

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Intersection: 17: Obsidian & 35th , Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	22	12	72	75
Average Queue (ft)	5	2	45	47
95th Queue (ft)	21	13	72	76
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: Obsidian & 35th , Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	37	33	84	78
Average Queue (ft)	5	4	43	44
95th Queue (ft)	24	22	71	69
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: Obsidian & 35th , All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	37	33	94	79
Average Queue (ft)	5	4	44	45
95th Queue (ft)	23	20	71	71
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
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11/10/2023

Intersection: 18: Lava Ave & 27th St, Interval #1

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	49	19
Average Queue (ft)	24	4
95th Queue (ft)	58	20
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		124
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Lava Ave & 27th St, Interval #2

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	72	30
Average Queue (ft)	26	3
95th Queue (ft)	59	18
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		124
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Lava Ave & 27th St, All Intervals

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	73	30
Average Queue (ft)	25	3
95th Queue (ft)	59	18
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		124
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
2025 Background Pm

11/10/2023

Intersection: 20: 35th /35th & Lava Ave, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	9	11	6
Average Queue (ft)	18	1	2	1
95th Queue (ft)	43	10	13	9
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: 35th /35th & Lava Ave, Interval #2

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	41	27	21
Average Queue (ft)	18	4	1
95th Queue (ft)	44	20	12
Link Distance (ft)	122	2417	1272
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 20: 35th /35th & Lava Ave, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	41	27	26	6
Average Queue (ft)	18	4	1	0
95th Queue (ft)	44	18	12	4
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report

2025 Background Pm

11/10/2023

Intersection: 22: Lava & West Site Access, Interval #1

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	30	31
Average Queue (ft)	7	19
95th Queue (ft)	28	44
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 22: Lava & West Site Access, Interval #2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	31
Average Queue (ft)	9	21
95th Queue (ft)	31	44
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 22: Lava & West Site Access, All Intervals

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	31
Average Queue (ft)	8	21
95th Queue (ft)	30	44
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty, Interval #1: 461

Network wide Queuing Penalty, Interval #2: 576

Network wide Queuing Penalty, All Intervals: 547

Queuing and Blocking Report
2030 Background Pm

11/10/2023

Intersection: 2: 35th & Juniper Ave , Interval #1

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	12
Average Queue (ft)	2
95th Queue (ft)	14
Link Distance (ft)	379
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: 35th & Juniper Ave , Interval #2

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	31
Average Queue (ft)	2
95th Queue (ft)	14
Link Distance (ft)	379
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: 35th & Juniper Ave , All Intervals

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	31
Average Queue (ft)	2
95th Queue (ft)	14
Link Distance (ft)	379
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report
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11/10/2023

Intersection: 3: 35th & Highland , Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	64	8	91	9	77	77	81	78
Average Queue (ft)	37	2	50	1	37	46	41	49
95th Queue (ft)	66	9	91	11	82	79	84	84
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280		150		220	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: 35th & Highland , Interval #2

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	83	11	97	16	137	99	129	129
Average Queue (ft)	37	1	45	1	53	44	57	55
95th Queue (ft)	69	7	84	9	125	93	124	100
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280		150		220	
Storage Blk Time (%)					3	0		
Queuing Penalty (veh)					4	0		

Intersection: 3: 35th & Highland , All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	83	14	99	22	137	107	133	129
Average Queue (ft)	37	1	46	1	49	45	53	53
95th Queue (ft)	68	8	86	9	117	90	117	97
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280		150		220	
Storage Blk Time (%)					2	0		
Queuing Penalty (veh)					3	0		

Intersection: 7: Lava & East Site Access , Interval #1

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 7: Lava & East Site Access , Interval #2

Movement

NB

Directions Served LTR
Maximum Queue (ft) 18
Average Queue (ft) 1
95th Queue (ft) 10
Link Distance (ft) 344
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 7: Lava & East Site Access , All Intervals

Movement

NB

Directions Served LTR
Maximum Queue (ft) 18
Average Queue (ft) 1
95th Queue (ft) 9
Link Distance (ft) 344
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Queuing and Blocking Report
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Intersection: 8: 27th St & Highland , Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	344	577	340	971	164	818	152	263	170
Average Queue (ft)	138	434	210	785	97	603	106	158	60
95th Queue (ft)	336	764	420	1187	209	995	170	288	150
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)		15	0	44		69	11	13	0
Queuing Penalty (veh)		19	0	75		58	31	29	0

Intersection: 8: 27th St & Highland , Interval #2

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	403	1126	340	1834	165	980	165	490	168
Average Queue (ft)	230	607	245	1362	116	786	147	327	58
95th Queue (ft)	477	1188	442	2089	210	1071	199	584	151
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)				0				29	
Queuing Penalty (veh)				1				0	
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)	0	28	3	47	0	77	60	15	0
Queuing Penalty (veh)	0	36	26	78	2	64	167	33	0

Intersection: 8: 27th St & Highland , All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	403	1126	340	1834	165	980	165	490	170
Average Queue (ft)	208	565	237	1222	111	742	137	286	58
95th Queue (ft)	453	1111	438	2001	211	1082	199	548	151
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)				0				21	
Queuing Penalty (veh)				0				0	
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)	0	25	2	46	0	75	48	14	0
Queuing Penalty (veh)	0	32	19	77	1	63	133	32	0

Queuing and Blocking Report

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Intersection: 13: Rimrock & Highland , Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	264	351	174	294	664	415	206	480	218	258	468	153
Average Queue (ft)	208	219	142	249	650	252	52	328	175	244	444	49
95th Queue (ft)	318	391	210	390	700	563	182	583	319	300	700	166
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)				31						58		
Queuing Penalty (veh)				0						0		
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)	8	9	5	0	32	0		34	0	74	0	
Queuing Penalty (veh)	77	56	29	0	145	1		89	1	261	0	

Intersection: 13: Rimrock & Highland , Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	314	1525	175	295	688	415	299	758	250	259	530	270
Average Queue (ft)	262	613	136	232	654	220	72	479	207	256	496	86
95th Queue (ft)	367	1729	218	384	691	536	242	860	339	272	658	240
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)	1			35			8			69		
Queuing Penalty (veh)	6			0			0			0		
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)	35	11	7	0	34	0		52	1	76	9	0
Queuing Penalty (veh)	303	63	37	2	149	1		132	4	258	27	0

Intersection: 13: Rimrock & Highland , All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	314	1525	175	295	688	415	299	761	250	259	530	270
Average Queue (ft)	249	518	137	236	653	227	68	442	199	253	483	77
95th Queue (ft)	362	1533	216	386	694	543	229	813	336	285	676	225
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)	0			34			6			66		
Queuing Penalty (veh)	5			0			0			0		
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)	28	10	6	0	34	0		47	1	75	6	0
Queuing Penalty (veh)	246	61	35	2	148	1		121	3	259	20	0

Zone Summary

Zone wide Queuing Penalty, Interval #1: 873

Zone wide Queuing Penalty, Interval #2: 1389

Zone wide Queuing Penalty, All Intervals: 1260

Queuing and Blocking Report
2030 Background Pm

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Intersection: 17: Obsidian & 35th , Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	26	38	90	76
Average Queue (ft)	6	7	54	50
95th Queue (ft)	24	31	97	79
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: Obsidian & 35th , Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	36	34	78	78
Average Queue (ft)	6	5	39	45
95th Queue (ft)	26	22	62	72
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: Obsidian & 35th , All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	36	42	95	83
Average Queue (ft)	6	5	43	46
95th Queue (ft)	26	25	73	74
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
2030 Background Pm

11/10/2023

Intersection: 18: Lava Ave & 27th St, Interval #1

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	49	28
Average Queue (ft)	28	7
95th Queue (ft)	55	29
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		124
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Lava Ave & 27th St, Interval #2

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	54	31
Average Queue (ft)	29	6
95th Queue (ft)	56	25
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		124
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Lava Ave & 27th St, All Intervals

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	60	35
Average Queue (ft)	29	6
95th Queue (ft)	56	26
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		124
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
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Intersection: 20: 35th /35th & Lava Ave, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	32	5	6
Average Queue (ft)	23	7	1	1
95th Queue (ft)	45	29	8	9
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: 35th /35th & Lava Ave, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	22	17	11
Average Queue (ft)	18	3	1	1
95th Queue (ft)	43	14	11	8
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: 35th /35th & Lava Ave, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	32	17	12
Average Queue (ft)	19	4	1	1
95th Queue (ft)	44	19	10	9
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
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Intersection: 22: Lava & West Site Access, Interval #1

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	31
Average Queue (ft)	15	26
95th Queue (ft)	40	45
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 22: Lava & West Site Access, Interval #2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	36
Average Queue (ft)	9	20
95th Queue (ft)	31	45
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 22: Lava & West Site Access, All Intervals

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	36
Average Queue (ft)	10	21
95th Queue (ft)	34	45
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty, Interval #1: 868
Network wide Queuing Penalty, Interval #2: 1362
Network wide Queuing Penalty, All Intervals: 1238

Queuing and Blocking Report
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Intersection: 2: 35th & Juniper Ave , Interval #1

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	35	25	24
Average Queue (ft)	27	5	3
95th Queue (ft)	46	24	19
Link Distance (ft)	356	379	386
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: 35th & Juniper Ave , Interval #2

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	53	31	24
Average Queue (ft)	23	6	2
95th Queue (ft)	48	26	16
Link Distance (ft)	356	379	386
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: 35th & Juniper Ave , All Intervals

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	53	31	30
Average Queue (ft)	24	6	3
95th Queue (ft)	48	26	17
Link Distance (ft)	356	379	386
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

2025 Build Pm

11/09/2023

Intersection: 3: 35th & Highland , Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	64	8	87	5	118	106	160	116
Average Queue (ft)	33	1	51	1	68	53	89	55
95th Queue (ft)	70	8	93	5	127	97	200	117
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280			150		220
Storage Blk Time (%)					0	0	1	
Queuing Penalty (veh)					0	0	1	

Intersection: 3: 35th & Highland , Interval #2

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	95	19	101	10	222	132	176	153
Average Queue (ft)	34	2	50	1	86	62	80	53
95th Queue (ft)	73	10	92	6	217	136	179	122
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280			150		220
Storage Blk Time (%)					10	0	2	0
Queuing Penalty (veh)					13	0	3	0

Intersection: 3: 35th & Highland , All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	95	19	105	12	229	154	207	158
Average Queue (ft)	34	1	50	1	81	60	82	54
95th Queue (ft)	72	10	92	6	200	128	184	121
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280			150		220
Storage Blk Time (%)					8	0	2	0
Queuing Penalty (veh)					10	0	2	0

Intersection: 7: Lava & East Site Access , Interval #1

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	6	45
Average Queue (ft)	1	25
95th Queue (ft)	9	51
Link Distance (ft)	344	225
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Lava & East Site Access , Interval #2

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	6	25	31
Average Queue (ft)	0	1	21
95th Queue (ft)	5	12	44
Link Distance (ft)	586	344	225
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Lava & East Site Access , All Intervals

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	6	25	45
Average Queue (ft)	0	1	22
95th Queue (ft)	4	11	46
Link Distance (ft)	586	344	225
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
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Intersection: 8: 27th St & Highland , Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	363	529	339	766	164	548	144	241	124
Average Queue (ft)	150	316	218	527	93	403	91	136	58
95th Queue (ft)	337	471	422	872	197	671	156	272	140
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)		5		29		64	11	7	0
Queuing Penalty (veh)		7		45		49	29	16	0

Intersection: 8: 27th St & Highland , Interval #2

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	402	604	340	1447	165	921	164	308	155
Average Queue (ft)	157	356	243	1063	107	743	116	169	56
95th Queue (ft)	357	581	444	1830	207	988	184	371	125
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)				0				3	
Queuing Penalty (veh)				1				0	
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)	0	8	2	45	0	79	26	5	0
Queuing Penalty (veh)	0	10	20	68	2	60	69	12	1

Intersection: 8: 27th St & Highland , All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	402	624	340	1447	165	921	164	354	157
Average Queue (ft)	156	347	237	934	104	661	110	161	56
95th Queue (ft)	352	559	440	1720	205	1008	179	350	129
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)				0				2	
Queuing Penalty (veh)				1				0	
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)	0	7	2	41	0	75	22	6	0
Queuing Penalty (veh)	0	9	15	62	1	57	59	13	1

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Intersection: 13: Rimrock & Highland , Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	159	268	175	294	664	415	58	298	145	254	466	152
Average Queue (ft)	84	165	126	260	586	228	29	190	89	224	344	63
95th Queue (ft)	149	293	208	367	785	546	63	367	214	308	647	191
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)				22						36		
Queuing Penalty (veh)				0						0		
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)		9	4	0	28	0		11	0	57		
Queuing Penalty (veh)		50	24	0	116	1		27	0	187		

Intersection: 13: Rimrock & Highland , Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	288	318	175	295	673	415	299	705	250	259	530	270
Average Queue (ft)	106	156	128	234	613	246	72	362	163	258	529	85
95th Queue (ft)	213	283	205	389	784	555	241	760	321	260	541	249
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)				27			5			88		
Queuing Penalty (veh)				0			0			0		
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)		6	3	0	31	0	0	36	0	95	5	0
Queuing Penalty (veh)		34	18	5	122	1	0	85	1	302	15	0

Intersection: 13: Rimrock & Highland , All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	288	322	175	295	680	415	299	705	250	259	530	270
Average Queue (ft)	101	158	127	240	606	242	62	320	145	250	484	80
95th Queue (ft)	200	285	205	386	785	553	213	698	305	298	682	237
Link Distance (ft)	2044			638			911			515		
Upstream Blk Time (%)				25			4			75		
Queuing Penalty (veh)				0			0			0		
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)		7	4	0	30	0	0	30	0	85	4	0
Queuing Penalty (veh)		38	20	4	120	1	0	70	1	273	11	0

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Intersection: 17: Obsidian & 35th , Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	30	11	77	83
Average Queue (ft)	8	2	47	50
95th Queue (ft)	32	15	76	84
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: Obsidian & 35th , Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	32	29	93	100
Average Queue (ft)	4	3	43	48
95th Queue (ft)	22	17	74	80
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: Obsidian & 35th , All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	36	29	97	102
Average Queue (ft)	5	3	44	48
95th Queue (ft)	25	17	75	81
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Intersection: 18: Lava Ave & 27th St, Interval #1

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	40	38
Average Queue (ft)	28	8
95th Queue (ft)	50	33
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	124	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Lava Ave & 27th St, Interval #2

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	63	30
Average Queue (ft)	30	5
95th Queue (ft)	56	22
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	124	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Lava Ave & 27th St, All Intervals

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	63	38
Average Queue (ft)	29	6
95th Queue (ft)	54	25
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	124	
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 20: 35th /35th & Lava Ave, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	36	20	10
Average Queue (ft)	32	14	5	1
95th Queue (ft)	56	39	29	16
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: 35th /35th & Lava Ave, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	54	53	37	11
Average Queue (ft)	31	12	4	1
95th Queue (ft)	50	39	22	7
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: 35th /35th & Lava Ave, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	54	55	46	22
Average Queue (ft)	31	13	4	1
95th Queue (ft)	52	39	24	10
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Intersection: 22: Lava & West Site Access, Interval #1

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	36
Average Queue (ft)	18	26
95th Queue (ft)	42	47
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 22: Lava & West Site Access, Interval #2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	45
Average Queue (ft)	13	23
95th Queue (ft)	38	47
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 22: Lava & West Site Access, All Intervals

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	50
Average Queue (ft)	14	24
95th Queue (ft)	39	48
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty, Interval #1: 554

Network wide Queuing Penalty, Interval #2: 841

Network wide Queuing Penalty, All Intervals: 769

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Intersection: 2: 35th & Juniper Ave , Interval #1

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	39	25	16
Average Queue (ft)	23	10	5
95th Queue (ft)	46	33	26
Link Distance (ft)	356	379	386
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: 35th & Juniper Ave , Interval #2

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	44	31	29
Average Queue (ft)	23	6	3
95th Queue (ft)	46	26	18
Link Distance (ft)	356	379	386
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: 35th & Juniper Ave , All Intervals

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	52	31	33
Average Queue (ft)	23	7	3
95th Queue (ft)	46	28	20
Link Distance (ft)	356	379	386
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: 35th & Highland , Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	80	9	114	12	277	135	157	121
Average Queue (ft)	37	2	60	2	154	78	96	73
95th Queue (ft)	74	11	109	12	431	170	204	168
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	300		280			150		220
Storage Blk Time (%)					20	1	4	0
Queuing Penalty (veh)					28	1	7	0

Intersection: 3: 35th & Highland , Interval #2

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	93	18	124	20	406	155	223	163
Average Queue (ft)	37	2	51	1	177	84	103	60
95th Queue (ft)	73	13	97	9	487	183	222	131
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)							1	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)	300		280			150		220
Storage Blk Time (%)					25	1	3	0
Queuing Penalty (veh)					34	1	4	0

Intersection: 3: 35th & Highland , All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	93	19	129	20	424	175	244	193
Average Queue (ft)	37	2	53	2	171	83	101	63
95th Queue (ft)	73	12	100	10	475	180	218	141
Link Distance (ft)		1052		2524	802		411	
Upstream Blk Time (%)							1	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)	300		280			150		220
Storage Blk Time (%)					24	1	3	0
Queuing Penalty (veh)					33	1	5	0

Intersection: 7: Lava & East Site Access , Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	6	6	6	40
Average Queue (ft)	1	1	1	27
95th Queue (ft)	9	10	9	48
Link Distance (ft)	586	122	344	225
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Lava & East Site Access , Interval #2

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	6	18	35
Average Queue (ft)	0	1	21
95th Queue (ft)	5	9	44
Link Distance (ft)	586	344	225
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Lava & East Site Access , All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	12	6	18	45
Average Queue (ft)	0	0	1	22
95th Queue (ft)	6	5	9	46
Link Distance (ft)	586	122	344	225
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Intersection: 8: 27th St & Highland , Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	387	742	339	795	165	816	155	374	150
Average Queue (ft)	233	517	226	651	111	661	139	277	72
95th Queue (ft)	421	850	422	877	213	1078	200	516	172
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)								16	
Queuing Penalty (veh)								0	
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)		21	0	36		72	48	11	0
Queuing Penalty (veh)		30	0	61		60	141	26	0

Intersection: 8: 27th St & Highland , Interval #2

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	402	1244	340	1435	165	1183	165	488	166
Average Queue (ft)	290	836	258	883	100	970	156	414	52
95th Queue (ft)	511	1566	447	1528	209	1304	198	621	144
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)						3		69	
Queuing Penalty (veh)						11		0	
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)	20	25	12	36		77	85	11	0
Queuing Penalty (veh)	157	35	109	60		64	247	27	0

Intersection: 8: 27th St & Highland , All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	T	R
Maximum Queue (ft)	403	1244	340	1435	165	1183	165	488	169
Average Queue (ft)	276	759	250	827	103	895	152	381	57
95th Queue (ft)	493	1453	442	1423	210	1313	200	617	152
Link Distance (ft)		2524		2044		1201		463	
Upstream Blk Time (%)						2		55	
Queuing Penalty (veh)						9		0	
Storage Bay Dist (ft)	378		315		140		140		145
Storage Blk Time (%)	15	24	9	36		76	75	11	0
Queuing Penalty (veh)	118	34	82	60		63	220	27	0

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Intersection: 13: Rimrock & Highland , Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	284	535	174	294	663	415	151	435	250	258	530	203
Average Queue (ft)	222	287	138	243	652	204	51	269	150	252	424	72
95th Queue (ft)	364	662	213	380	681	506	178	499	304	279	639	201
Link Distance (ft)		2044			638			911			515	
Upstream Blk Time (%)					30						30	
Queuing Penalty (veh)					0						0	
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)	17	10	7	0	31	0		20	0	70	3	0
Queuing Penalty (veh)	158	62	43	0	139	1		54	1	253	9	0

Intersection: 13: Rimrock & Highland , Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	315	1336	175	295	678	415	253	712	250	259	530	239
Average Queue (ft)	271	881	148	240	651	233	80	358	156	258	530	61
95th Queue (ft)	400	1880	218	382	700	544	249	770	308	270	530	190
Link Distance (ft)		2044			638			911			515	
Upstream Blk Time (%)		0			32			3			82	
Queuing Penalty (veh)		2			0			0			0	
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)	48	16	10	3	30	0		29	1	86	5	
Queuing Penalty (veh)	424	95	57	38	131	1		75	3	298	16	

Intersection: 13: Rimrock & Highland , All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	315	1336	175	295	678	415	253	732	250	259	530	270
Average Queue (ft)	259	738	146	241	651	226	73	337	154	256	504	64
95th Queue (ft)	396	1721	217	381	696	535	234	718	307	274	634	193
Link Distance (ft)		2044			638			911			515	
Upstream Blk Time (%)		0			32			2			69	
Queuing Penalty (veh)		1			0			0			0	
Storage Bay Dist (ft)	290		150	270		390	275		225	234		245
Storage Blk Time (%)	40	14	9	3	30	0	0	27	1	82	4	0
Queuing Penalty (veh)	357	87	54	29	133	1	0	69	2	287	14	0

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Intersection: 17: Obsidian & 35th , Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	21	34	80	73
Average Queue (ft)	5	6	48	46
95th Queue (ft)	21	32	78	76
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: Obsidian & 35th , Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	37	86	89
Average Queue (ft)	6	4	43	47
95th Queue (ft)	26	22	70	77
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: Obsidian & 35th , All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	32	47	92	98
Average Queue (ft)	6	5	44	47
95th Queue (ft)	25	25	72	76
Link Distance (ft)	638	931	522	1272
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
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Intersection: 18: Lava Ave & 27th St, Interval #1

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	77	34
Average Queue (ft)	38	8
95th Queue (ft)	75	32
Link Distance (ft)	2417	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		124
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: Lava Ave & 27th St, Interval #2

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	71	53	40	11
Average Queue (ft)	32	8	8	0
95th Queue (ft)	65	34	49	9
Link Distance (ft)	2417		466	1201
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		124		
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Intersection: 18: Lava Ave & 27th St, All Intervals

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	89	53	40	11
Average Queue (ft)	34	8	6	0
95th Queue (ft)	68	33	42	8
Link Distance (ft)	2417		466	1201
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		124		
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Queuing and Blocking Report
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Intersection: 20: 35th /35th & Lava Ave, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	59	54	16	12
Average Queue (ft)	42	17	3	2
95th Queue (ft)	67	55	20	13
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: 35th /35th & Lava Ave, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	59	57	22	11
Average Queue (ft)	32	14	1	1
95th Queue (ft)	50	41	12	8
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: 35th /35th & Lava Ave, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	64	67	27	17
Average Queue (ft)	35	14	2	1
95th Queue (ft)	56	45	14	9
Link Distance (ft)	122	2417	1272	386
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report

2030 Build Pm

11/10/2023

Intersection: 22: Lava & West Site Access, Interval #1

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	31	31	6
Average Queue (ft)	24	26	1
95th Queue (ft)	44	45	9
Link Distance (ft)	189	586	260
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 22: Lava & West Site Access, Interval #2

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	31	40
Average Queue (ft)	13	24
95th Queue (ft)	38	46
Link Distance (ft)	189	586
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 22: Lava & West Site Access, All Intervals

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	31	40	6
Average Queue (ft)	16	24	0
95th Queue (ft)	40	46	4
Link Distance (ft)	189	586	260
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty, Interval #1: 1072

Network wide Queuing Penalty, Interval #2: 1889

Network wide Queuing Penalty, All Intervals: 1685

REDMOND REGION
RECREATION CENTER

Major Street:	Highland Ave
Minor Street:	35th Street
Project Name:	RAPR
City/County:	Redmond
Analysis Year:	2030
Alternative:	PM Peak hour
Meet 70% Warrants?:	Yes
	70%

Major

Approach Lanes: 1

Minor

Approach Lanes: 1

Major

Approach Volumes (vph): 1821

Minor

Approach Volume (vph): 202

Right Turn Volume (vph): 138

Capacity of Shared/Exclusive Right Turn Lane¹: 435

Right Turn Discount: 370

Right Turn Volume included in Warrant: 0

Minor Approach Volume in Warrant: 64

Major Approach K factor: 10

Minor Approach K factor: 10

¹ Capacity obtained from unsignalized intersection analysis

For guidance on preliminary signal warrant analysis, refer to the Analysis Procedures Manual.

Last Updated: January 2018

Oregon Department of Transportation Transportation Development Branch Transportation Planning Analysis Unit					
Preliminary Traffic Signal Warrant Analysis¹					
Major Street: Highland Ave			Minor Street: 35th Street		
Project: RAPR			City/County: Redmond		
Year: 2030			Alternative: PM Peak hour		
Preliminary Signal Warrant Volumes					
Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants		Percent of standard warrants	
		100	70	100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250
	100 percent of standard warrants				
X	70 percent of standard warrants ²				
Preliminary Signal Warrant Calculation					
	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	6200	18210	N
	Minor	1	1850	640	
Case B	Major	1	9300	18210	N
	Minor	1	950	640	
Analyst and Date:			Reviewer and Date:		

¹ Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. When preliminary signal warrants are met, project analysts need to coordinate with Region Traffic to initiate the traffic signal engineering investigation as outlined in the Traffic Manual. Before a signal can be installed, the engineering investigation must be conducted or reviewed by the Region Traffic Manager who will forward signal recommendations to headquarters. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

² Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.



After Recording Return To:
City of Redmond
411 SW 9th Street
Redmond, OR 97756

Deschutes County Official Records **2023-30826**
D-ANXCON
 Stn=2 AS **12/15/2023 12:32 PM**
 \$30.00 \$11.00 \$10.00 \$61.00 \$6.00 **\$118.00**

I, Steve Dennison, County Clerk for Deschutes County, Oregon,
 certify that the instrument identified herein was recorded in the
 Official Records.

Steve Dennison - County Clerk

ANNEXATION AGREEMENT

This Annexation Agreement is made and entered into this 14th day of December, 2023, by and between the City of Redmond, Oregon, an Oregon municipal corporation (hereinafter "City") and Redmond Area Park and Recreation District (RAPRD) (hereinafter "Owner").

RECITALS

WHEREAS, Owner is the record owner of the property legally described on Exhibit A attached hereto and incorporated herein (hereinafter referred to as the "Property"); and

WHEREAS, the Property is within the City's Urban Growth Boundary and is proposed to be annexed to the City; and

WHEREAS, Owner desires to have the Property annexed to the City; and

WHEREAS, Owner has submitted a petition for annexation and provided the City with all required consents for annexation; and

WHEREAS, the City is willing to annex the Property on the terms and conditions, and subject to the provisions, of this Agreement; and

WHEREAS, the City will initiate zoning upon the successful annexation of said property by resolution to the City, and

AGREEMENT

NOW, THEREFORE, in consideration of the representations, promises and mutual covenants contained herein, the City and Owner agree as follows:

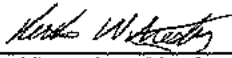
1. **RECITALS**: The foregoing recitals are incorporated herein as is fully set forth in this Section.
2. **ANNEXATION**:
 - a. City agrees it will initiate a resolution annexing the Property into the City once all required consents and a signed Annexation Agreement have been received by the City, and an approved master plan with proposed zone amendment has been achieved, and all City requirements have been met. This agreement is void if the Property is not annexed to the City within two years after the effective date of this Agreement.
 - b. Owner may terminate this Agreement by serving written notice to the City. The notice must be received by the City at least 60 days prior to the public hearings for council consideration of the annexation. If the City receives such notice, this Agreement terminates as of the effective date of the notice. After the annexation resolution is adopted by the City, this Agreement may only be terminated or amended by written consent of Owner and City.

3. **COMPREHENSIVE PLAN/ZONING:** Prior to development, the Owner is required to receive master plan approval for the property in compliance with the Redmond Comprehensive Plan 2040, Redmond Development Code, and Engineering Department requirements. The master plan will identify Comprehensive Plan and Zoning designations, subject to City Council review and approval. Upon adoption of the master plan, successful annexation, and a Comprehensive Plan Map/Zone Map adoption, the City will apply the Comprehensive Plan and Zoning designations identified in the Master Plan.
4. **DEVELOPMENT:** Owner agrees as follows:
 - a. Owner shall waive and shall not assert any claim against the City that may now exist or that may accrue through the date of annexation of the Property arising out of any land use regulation or under Measure 37 (ORS 197.352), Measure 49, and Measure 56 (ORS 227.186).
 - b. Owner agrees any development of the property will comply with the applicable approved West Redmond Area Plan and master plan for the property, except as modified consistent with City requirements.
 - c. Owner agrees to incorporate and apply the City's Great Neighborhood Principles as found in the Redmond Comprehensive Plan 2040 and Redmond Development Code. The City shall determine the applicability of the Great Neighborhood Principles to the subject property as necessary. All development must comply with federal, state and city regulations.
 - d. Owner agrees that it will, without any cost to the City, dedicate the necessary rights-of-way or easements for all planned improvements identified in the City's Public Facilities Plan or adopted master plans.
 - e. Owner agrees that it will install all Engineering requirements conforming to City of Redmond Standards and Specifications, Public Facility Plans, and Master Plan documents.
 - f. Owner shall install a multi-use separated path adjacent to SW 35th Street and in the northwest corner of the property per Transportation System Plan requirements (Facility ID B17 and B47), unless otherwise required to conform with the West Redmond Area Plan or as determined by the City Engineer.
 - g. Owner agrees that sewer capacity is unavailable at the existing property frontages, unless otherwise determined by the City Engineer. The owner must discharge sewer to an approved location north of SW 35th Street and SW Highland Avenue, unless otherwise approved by the City Engineer.
 - h. Owner shall remove all ground water rights from Property unless partial use is otherwise approved by the Redmond City Council. If required, Owner is directed to remove water rights via sale or transfer to the City. Removal shall occur prior to the platting of the first phase of development.
 - i. Owner agrees to not remonstrate against the formation of a local improvement district or reimbursement district created for funding public improvements that will serve the Property. This waiver applies to the Property until all utility service and all required infrastructure that will service or benefit the Property is completed and accepted by City. If the property is developed in phases, the waiver may be removed on a phase-by-phase basis if all utility service and all required infrastructure that will service or benefit the Property is completed and accepted by City.

5. **AMENDMENT:** This Agreement and any exhibits attached hereto may be amended only by the mutual written consent of both parties.
6. **SEVERABILITY:** If any provision, covenant or portion of this Agreement or its application to any person, entity, property or portion of property is held invalid, or if any ordinance or resolution adopted pursuant to this Agreement or its application to any person, entity, property or portion of property is held invalid, such invalidity shall not affect the application or validity of any other provisions, covenants or portions of this Agreement or other ordinances or resolutions passed pursuant hereto, and to that end, all provisions, covenants, and portions of this Agreement and of the ordinances and resolutions adopted pursuant hereto are declared to be severable.
7. **NO WAIVER OF RIGHT TO ENFORCE AGREEMENT:** Failure of any party to this Agreement to insist upon the strict and prompt performance of the terms, covenants, agreements and conditions herein contained, or any of them, upon any other party imposed, shall not constitute or be construed as a waiver or relinquishment of any party's right thereafter to enforce any such term, covenant, agreement or condition, but the same shall continue in full force and effect.
8. **ENTIRE AGREEMENT:** This Agreement supersedes all prior agreements, negotiations and exhibits and is a full integration of the entire agreement of the parties relating to the subject matter hereof. The parties shall have no obligations other than specifically stated in this Agreement except those of general applicability.
9. **SURVIVAL:** The provisions contained in this Agreement shall survive the annexation of the property and shall not be merged or expunged by the annexation of the property or any part thereof to the City.
10. **SUCCESSORS AND ASSIGNS:** This Agreement shall run with the land described on Exhibit A and inure to the benefit of, and be binding upon, the successors in title of the Owners and their respective successors, grantees, lessees, and assigns, and upon successor corporate authorities of the City and successor municipalities.
11. **TERM OF AGREEMENT:** This Agreement shall be binding upon the parties and their respective successors and assigns for twenty (20) years, commencing as of the date of this Agreement
12. **ENFORCEMENT:** Owner agrees that if it fails to perform as required under this Agreement, the City Council may, at the Council's option, de-annex and that Owner will not object or oppose such de-annexation in any manner or any forum.
13. **ATTORNEY FEES:** In any proceeding to enforce, apply or interpret this Agreement, each party shall bear its own attorneys' fees and costs.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the date first above written.

CITY



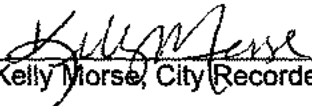
Keith Witcosky, City Manager

OWNER



Katie Hammer, Executive Director,
Redmond Area Parks and Recreation District

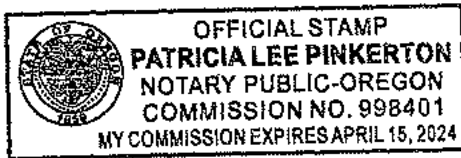
ATTEST:



Kelly Morse, City Recorder

STATE OF OREGON)
) ss.
County of Deschutes)

Keith Witcosky, City Manager, on behalf of the City of Redmond, who acknowledged that he had authority to sign on behalf of the City of Redmond and this instrument to be the City's voluntary act and deed, acknowledged this instrument before me this 14th day of December 2023.




Notary Public for Oregon

STATE OF OREGON)
) ss.
County of Deschutes)

This instrument was acknowledged before me this 14th day of December 2023, by Redmond Area Parks and Recreation District (RAPRD), by Ratie Hammer, its Executive Director, who acknowledged this instrument to be his/her voluntary act and deed.



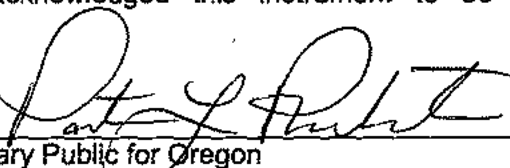

Notary Public for Oregon

Exhibit "A"

TAX LOT 151318000310

LEGAL DESCRIPTION: Real property in the County of Deschutes, State of Oregon, described as follows:

A portion of Parcel 1 of PARTITION PLAT NO. 1996-40, located in the Southeast Quarter (SE1/4) of Section 18, Township 15 South, Range 13, East of the Willamette Meridian, Deschutes County, Oregon, more particularly described as follows:

Commencing at the Northeast corner of Parcel 1 of PARTITION PLAT NO. 1996-40, the initial point as well as the point of beginning; thence South 00°18'50" West along the East line of said Parcel 1 and the East line of the Southeast Quarter (SE 1/4) of said Section 18, 750.54 feet to a 2.5" brass cap at the South 1/16th corner; thence South 00°18'42" East along said East lines, 230.91; thence North 89°32'22" West, 242.58 feet; thence North 00°18'42" East, 171.16 feet; thence North 89°32'22" West, 263.49 feet to the West boundary of said Parcel 1; thence North 03°44'24" West along said boundary, 60.16 feet; thence North 89°32'22" West along said boundary, 116.42 feet; thence North 00°57'14" East along said boundary, 751.25 feet; thence South 89°27'11" East along the North boundary of said Parcel 618.35 feet to the true point of beginning.

NOTE: This legal description was created prior to January 1, 2008.