CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

CITY COUNCIL

August 16, 2022
Council Chambers • 411 SW 9th Street

COUNCIL MEMBERS

George Endicott
Mayor

Jay Patrick
Council President

Krisanna Clark-Endicott
Councilor

Clifford Evelyn
Councilor

Ed Fitch
Councilor

Shannon Wedding
Councilor

Cat Zwicker
Councilor

AUGUST 16, 2022 | SPECIAL MEETING AGENDA | 6:00 PM

I. CALL TO ORDER / ESTABLISH A QUORUM

II. CONSENT AGENDA

A. Minutes of June 7, 2022, Council Meeting

B. Minutes of June 14, 2022, Council Meeting

C. Minutes of June 21, 2022, Council Workshop

D. Application for Annual Federal Aviation Administration Airport Improvement Program Grant 3-41-0052-052-2022 (AP5200): $3,289,915.

III. PRESENTATIONS

A. Guest Presentation by Republic Services: Solid Waste Collection in Redmond

IV. ACTION ITEMS

A. Resolution 2022-24: A resolution of the City of Redmond City Council, declaring a ban or temporary ban on psilocybin service centers and/or the manufacture of psilocybin products.

B. Bid award to Central Oregon Roofing for replacing the roof on the Airport Rescue and Firefighting Station: $92,150.

C. Bid award to Central Oregon Roofing for repairing the roof on an Airport-owned hangar: $74,800.

D. Bid award to Apollo Mechanical Contractors for the repair and replacement of the Airport Terminal HVAC chiller system: $107,511.

V. ADJOURN

Regular Council meetings are broadcast live on COTV11 – BendBroadband Channel 11 beginning at 6:00 p.m. on the 2nd and 4th Tuesdays of each month. Rebroadcasts are scheduled for the non-meeting Tuesdays at 6:00 p.m.

The City of Redmond encourages all citizens to participate in its programs and activities. This meeting location is accessible to people with disabilities. Requests for accommodation may include sign language interpreter service, assistive listening devices, materials in an alternate format or any other accommodation. If any accommodations are needed, please contact the ADA Coordinator at 541-504-3036 or access@redmondoregon.gov. Requests should be made as soon as possible, but at least 3 business days prior to the scheduled meeting.

The City of Redmond does not discriminate on the basis of disability status in the admission or access to, or treatment, or employment in, its programs or activities

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SPECIAL CITY COUNCIL MEETING OF THE CITY OF REDMOND WAS HELD JUNE 7, 2022, IN COUNCIL CHAMBERS.

COUNCIL MEMBERS PRESENT: **George Endicott – Clifford Evelyn – Ed Fitch – Jay Patrick – Shannon Wedding (virtually) – Cat Zwicker**

COUNCIL MEMBERS EXCUSED: **Krisanna Clark-Endicott**

STAFF PRESENT: **City Manager Keith Witcosky – City Attorney Keith Leitz – Police Captain Aaron Wells – Deputy City Manager John Roberts – IT Specialist Nam Ly – Chief Financial Officer Jason Neff – Accounting and Financial Reporting Director Brooks Slyter – Director of Communications Heather Cassaro – City Engineer Mike Caccavano – City Recorder Kelly Morse – City Engineer Jessica MacClanahan**

MEDIA PRESENT: **None**

CALL TO ORDER / ESTABLISH A QUORUM
Mayor Endicott called the meeting to order at 6:06 p.m. A quorum was established.

CONSENT AGENDA
A. Minutes of January 11, 2022, Council Meeting
B. Minutes of April 12, 2022, Council Meeting
C. Minutes of May 17, 2022, Council Meeting
D. Resolution #2022-12 – A Resolution of the City of Redmond Declaring Four Vehicles to be Surplused

Councilor Zwicker moved, seconded by Councilor Patrick, to approve the Consent Agenda, motion passed. (Clark-Endicott-absent, Endicott-yes, Evelyn-yes, Fitch-yes, Patrick-yes, Wedding-yes, Zwicker-yes)

PRESENTATIONS
A. House Bill 2001: Central Oregon Builders Association Comments Regarding Density Table

Deputy City Manager John Roberts introduced the topic, provided a brief background and discussed next steps. He noted the density table has significant implications to how development moves forward in the community then introduced Central Oregon Builders Association (COBA) Board President Deb Flagen, COBA's Vice President of Government Affairs Morgan Greenwood, and Mike Robinson from Pahlisch Homes.

Ms. Greenwood indicated COBA is supportive of the vast majority of staff's recommendations as outlined in the proposed text amendment but noted their concern with approving only those amendments associated with House Bill (HB) 2001 and making additional amendments at a later date. She opined that not only would it have impacts on staff's workplan for the upcoming year and require the Council dedicate additional time to redo the work that has already been done, but it may create missed opportunities for new developments. COBA requested the Council approve the metrics in the density table that have been highlighted in green as they appear in Exhibit A of this meeting's packet.

Ms. Flagan reviewed COBA's recommended amendments the density table:

R-3 Zone
- Adjust the minimum lot size to 6,000 square feet (sf)

R-4 Zone
- Adjust the minimum lot size to 5,000 sf
- Change interior setbacks from 5/10 feet to 5/5 feet
- Change rear setbacks from 20 feet to 10 feet

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R-5 Zone

- Adjust minimum lot size to 4,000 sf
- Adjust minimum street frontage from 40 linear feet
- Keep current rear setbacks at 5 feet

Ms. Flagan reiterated the following concerns from the Council's joint worksession with the Urban Area Planning Commission on April 5, 2022, as they relate to the state mandate and the requirements of duplexes, triplexes, and quadplexes in single-family zones:

- an increase in traffic
- stress on infrastructure
- lack of street parking
- lack of storage options due to the smaller residences
- limited options for the aging population for single-level homes
- limiting home ownership options due to attached products resulting in rental properties

Ms. Flagen provided visual scenarios to show the comparison of what is currently allowed under the development code and what could be allowed with COBA's recommendations and the HB 2001 code amendments. In response to questions from Mayor Endicott regarding five-foot side setbacks, Ms. Flagen explained that by reducing the minimum lot size, it allows a 30-foot wide product versus a 25-foot wide product.

Councilor Fitch stated he is not supportive of changing the density at this time due to the amount of detail that needs to be addressed before the July 1 deadline. He suggested leaving the density table as is and approving staff's recommendation. He concurred that sections do need clarification, but they can be done in a more deliberative way after July 1.

City Attorney Keith Leitz confirmed the Council would still have an opportunity after July 1 to make changes as proposed by COBA but noted that only meeting the minimums required by HB 2001 affects other items listed in the code. Mr. Roberts explained the Urban Area Planning Commission voted 4-2 to recommend adoption of the bare minimums as required by House Bill 2001; however, he clarified the bare minimums are not Staff's suggestions. If the Council were to approve the minimums, it would extend timelines for Staff, present a strain on capacity, and make it difficult to separate things clearly.

Councilor Patrick expressed his aversion to the State telling the City what it needs to do in terms of density. Mayor Endicott concurred but noted the City must comply with state law.

With the consensus of the Council, Mayor Endicott directed staff to proceed with what they proposed. At a later date, the Council will revisit some of the additional proposed changes.

B. Review and Discussion of Draft Updates to City Blasting Regulations. Section 18.8.00 in Public Works Standards and Specifications: Worksession #1.

Mr. Witcosky introduced the item and provided an overview of events that have taken place. City Engineer Caccavano and Fire Marshall Tom Mooney gave a presentation on the roles of the City and Redmond Fire & Rescue in the existing approval process. The purpose of the revisions are to modernize the blasting language for earthwork, pipe, manhole and drywell construction within the Public Works Standards and Specifications. Many of the details are included in state standards and the Fire Marshal permit, but there is need for more detailed language regarding the notification of nearby homes and businesses and pre- and post-inspection for nearby structures. Staff proposed using the Oregon Department of Transportation's (ODOT) standards, which are comprehensive and used statewide, then adapt them for City facilities rather than highways. Mr. Caccavano compared the draft requirements with the existing standards and the RF&R permit.

Mr. Caccavano addressed questions from the Council regarding the number of charges/explosives for a 300-foot radius, industry standards, and notifications methods for residents who are away from home for extended periods of time.

Construction and Real Estate Attorney Kevin Eike, who represents seven individual homeowners in the Dry Canyon subdivision, addressed the Council regarding alleged damage to homes on Teak Avenue after blasting occurred. He noted that potential claims may result from the investigation. Mr. Eike opined the new regulations are a step in the right direction in terms of having requirements for inspections. He also spoke to the limited number of pre-blasting inspections performed prior to the blasting. In response to questions from Mayor Endicott, Mr. Eike estimated findings from the damage investigation should be available soon.

Redmond resident Nick Porta inquired if the proposed regulations would incorporate any requirements for the City to monitor or supervise blasting as part of the overall process of obtaining a permit. He explained that under Oregon law, and that of various other states as well, blasting is viewed as an ultra-hazardous activity which should be considered when proposing regulations. Mayor Endicott replied it has not been determined if there will be a specific role for the City with regard to supervising blasting.

Ms. Greenwood requested the Council lean on the knowledge of industry experts when it considers the blasting ordinance and consider establishing a stakeholder workgroup to include these experts.

At this point in the meeting, Martha Hicks addressed the Council on safety measures for pedestrians and vehicle operators on Canal Boulevard near Yew Avenue. She explained that oftentimes traffic waiting to enter the Yew Avenue roundabout is backed up to The Greens subdivision making it difficult for vehicles to turn into the subdivision and dangerous for pedestrians due to the lack of crosswalks in that area.

Redmond residents Mark and Jackie Noble reported that on January 3 and January 4 their home sustained severe damage due to blasting from Quality Blasting. She provided the Council with pictures of the damage. Ms. Noble opined that when the blasting occurred, it felt like the entire home lifted off the foundation and slammed back down. The professional who assessed the damage said the fact he could put the square insert under the wall means the wall had moved. Ms. Noble stated Quality Blasting had no permits and no one overseeing the blasting. Mr. Noble shared that he has 34 years of experience as a civil engineer. After reviewing the proposed blasting requirements, he opined analyzing the boring soil at specific points to determine geologic formations and rock substrata consistency are critical steps that could prevent the type of damage his home sustained. He asked who will be responsible for conducting the analyses for future blasting permits and noted that if becomes a requirement of the proposed blasting procedures, the person should be a competent, reliable structural and/or geotechnical engineer. Mr. Noble provided an account of his communications with Hayden Homes and Quality Blasting claiming the Hayden Homes representative who toured his home after the damage told him none of the damage would need to be reported if he sold the house. Additionally, Mr. Noble claimed the home inspector hired by Quality Blasting to perform pre-blast inspections of the homes on Teak Avenue only took one picture of the outside of the home from the street.

Pahlisch Homes Attorney Michael Robinson shared his background in land use and indicated he would like to participate in developing a good process. He spoke to his detailed letter submitted on May 24 emphasizing the home-building community would like to collaborate on new standards.

Robert Cummings, a Geological Engineer and ODOT-approved blasting consultant with 40 years of experience, reviewed the proposed blasting standards and highlighted some of the comments he submitted in his letter for the Council's packet. He noted that refinements to the standards should be based on scientific and engineering principles and not as a reaction to one specific event that occurred. Mr. Cummings explained that houses will shake and pictures will move, but that does not mean damage has occurred because of blasting. He opined it is important to remember that human perception cannot be used as the rational basis for judging the extent or susceptibility of a structure subject to blasting. He stated pre-blast surveys are valuable and necessary but need to be done correctly, adding that the basis for the surveys, notifications, and the scope of monitoring should be completed with respect to the blasting plan or the type of blasting being done. Mr. Cummings was supportive of ODOT's standards and specifications because they tie notifications to charge weight and indirectly to the scaled distance.

Hayden Homes Regional Land Development Manager Jacob Clark stated he could address any questions from the Council regarding the letter he submitted for the packet and would like to be part of the workgroup for revisions to the blasting standards. Mr. Clark was also in support of allowing time to implement any provisions to insure they work.

Rickabaugh Construction Project Manager Brian Brown explained that drilling and blasting are one of the many necessary excavation methods used on their projects. He expressed concern that unnecessary guidelines will increase construction costs in Redmond, lengthen construction schedules, and overall have a higher impact on the community as a whole. He emphasized the importance of consulting with local construction professionals, who can provide education on the subject, before enacting any guidelines. He concurred a workgroup would serve as a great method of get everyone on the same page prior to making the regulations.

Jacob Hanning, the co-president of Jack Robinson & Sons, stated the company has been excavating in Central Oregon since 1947, and he has been with the company for 20 years. Drilling and blasting is a key component of the work they do to build new public infrastructure such as roads, sewer lines, water lines, dry utilities, and draining facilities, which would have substandard performance without blasting. He has reviewed the proposed blasting regulations and is confident that drilling and blasting would no longer be economically viable for most projects in Redmond.

Quality Drilling and Blasting representative Caleb Higgins read a statement from company owner Matt Higgins, which stated the safety and well-being of the residents and the growth of the community are very important to him. Mr. Higgins described the company's process for notification which includes going door-to-door every day that they plan to blast so the closest neighbors are aware. In addition, the company has trained experts who design blasts to control vibrations below the level where damage can occur. Quality Drilling and Blasting would also like to participate in the workgroup.

Quality Drilling and Blasting Foreman and Blaster Ben Rowlett explained that on a daily basis the safety of his crew and the public who are close enough to be affected by blasting, is a priority. He opined that blasting in Central Oregon is necessary due to unique rock variations. Speaking from his experience, Mr. Rowlett commented the majority of the proposed regulations would do little to make blasting safer and concurred that they would instead make infrastructure and home prices increase. He also would like to participate in a workgroup.

Ms. Flagan shared her concerns that the proposed blasting standards conflict with existing federal and state guidelines and add an arduous process that would delay construction.

Pahlisch Homes Land Acquisition and Development Director Chad Bettesworth's family has been a part of the Redmond community for 50 years, and he has worked in the development community in the area for 20 years. He expressed concerned that the proposed regulations could put homebuilders in a position where building homes in Redmond would increase costs so much that the average homebuyers could no longer afford them. He requested that Pahlisch Homes be involved in the workgroup.

Questions were addressed regarding the relativeness of distance versus the type of blasting, additional blasting options for Redmond's geological makeup, estimated increase to costs, bore hole drilling and seismograph placement.

Redmond resident Rachel Sewell opined that receiving a door hanger or a knock on the door the day of blasting does not qualify as ample notification and does not satisfy industry standards. She also disagreed that Quality Drilling and Blasting is doing everything safely for their employees and surrounding individuals She shared an example of when she was directly below 2918 Northwest Way, hiking along the rimrock during one of the blast days. When she came out of the rimrock she noticed Quality Drilling and Blasting staff were preparing to blast and had not checked to see if anyone was right below the rimrock area.

Councilor Zwicker only received one notification at her office on June 3, the day of the blast. She concurred that receiving notification the day-of blasting is not ample time for the residents to react. Mr. Higgins explained he is usually the person to notify neighborhoods and there were issues with the last batch of notifications they received from the print shop. He assured the Council this particular limited notification process is not the norm, and they are getting the notifications fixed.

Mr. Robinson also encouraged homeowners who receive blasting notifications to take pre-blast videos and pictures of their homes themselves.

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Councilor Fitch opined that the Teak Avenue situation is unusual, and he did not want to overreact to one incident over a 40-year timeframe, but added there seems to be a need for a logical sequence of regulation, like incorporating some of the ODOT standards. He was unsure why the proposed regulations would price Redmond out of the market and requested more information. Mr. Robinson clarified that ODOT's specifications are not the reason for the increased costs but rather some of the proposed Public Works standards and specifications and cited seismograph requirements as an example.

Mr. Caccavano recapped the discussion adding that if the Council has additional questions, a panel discussion can occur at the next work session. Mayor Endicott invited attendees to provide additional input to the Council.

PUBLIC HEARINGS

A. Resolution No. 2022-16 - A resolution setting fees and charges imposed by the City of Redmond.

Mayor Endicott opened the public hearing.

Chief Financial Officer Neff requested approval of Resolution #2022-16 which modifies the City's fee schedule. He explained the proposed fees were considered and incorporated into the budget that was approved by the Budget Committee on May 4, 2022. Mr. Neff reviewed the reasons for the proposed rate increases noting the City needs to keep up with its System Development Charges revenue to support growth in its infrastructure.

In response to questions from Mayor Endicott, Mr. Neff stated that some departments have done reimbursement cost studies within the last five years. Councilor Patrick expressed concern for citizens who may have difficulties paying an existing fee, let alone an increased fee. The fee increases take effect July 1, 2022.

Mayor Endicott directed Staff to continue doing rate studies so charges are reasonable. Seeing no further comments, Mayor Endicott closed the public hearing.

Councilor Patrick explained that despite concerns with rate increases, he will vote yes on the resolution but concurred with Mayor Endicott on continuing the rate studies.

Councilor Fitch moved, seconded by Councilor Evelyn, to adopt Resolution #2022-16 setting fees and charges imposed by the City of Redmond, motion passed. (Clark-Endicott-absent, Endicott-yes, Evelyn-yes, Fitch-yes, Patrick-yes, Wedding-yes, Zwicker-yes)

B. Public Hearing and Adoption of the City of Redmond Fiscal Year 2022/23 Budget: $159,132,623.

Mayor Endicott opened the public hearing.

Mr. Neff requested approval of Resolution #2022-13, which certifies the City's eligibility and election to receive state shared revenues, and Resolution #2022-14 which adopt the Fiscal Year budget as approved by the Budget Committee on May 4, 2022. He provided a brief overview of the budget process and the proposed budget. The City receives approximately $4 million in state-shared revenues from gas tax and liquor tax.

Councilor Wedding declared an actual conflict of interest because her spouse works for the City of Redmond. She recused herself from deliberations and voting.

There being no further testimony, Mayor Endicott closed the public hearing.

Councilor Fitch stated he previously recommended three items for inclusion in the budget: 1) put $300,000 into reserves for homelessness projects; 2) allocate monies for an appropriate history of Redmond; and 3) allocate monies for updating the interior of City Hall to reflect the current makeup of Redmond. He stated he does not intend to make those recommendations again tonight, because the City has an ample reserve and the Council could do a supplemental budget in the future.

Councilor Zwicker moved, seconded by Councilor Evelyn, to approve Resolution #2022-13, a resolution certifying the City's eligibility to receive state revenues and declaring the City's election to receive state revenues and funds, motion passed. (Clark-Endicott-absent, Endicott-yes, Evelyn-yes, Fitch-yes, Patrick-yes, Wedding-recused, Zwicker-yes)

Councilor Zwicker moved, seconded by Councilor Fitch, to approve Resolution #2022-14, the resolution adopting the budget, motion passed. (Clark-Endicott-absent, Endicott-yes, Evelyn-yes, Fitch-yes, Patrick-yes, Wedding-recused, Zwicker-yes)

ACTION ITEMS

A. Resolution #2022-17 – A resolution of the City of Redmond to make Budget Adjustments. (in Fiscal Year 2021/22 for Golf Course Operating Expenses & Debt Refunding)

Mr. Neff requested approval of Resolution #2022-17 which authorizes a budget adjustment for the refinancing the debt associated with the 2012 bonds. Portions of the debt were paid off resulting in a savings of $400,000 over the life of the debt and must be recognized in the budget. Mr. Neff addressed questions from the Council regarding the Kingwood Local Improvement District and Juniper Golf Course.

Councilor Fitch moved, seconded by Councilor Zwicker, to approve Resolution #2022-17 a resolution of the City of Redmond to make Budget Adjustments, motion passed. (Clark-Endicott-absent, Endicott-yes, Evelyn-yes, Fitch-yes, Patrick-yes, Wedding-yes, Zwicker-yes)

EXECUTIVE SESSION

Mayor Endicott convened the Council into Executive Session at 8:23 p.m. in accordance with ORS 192.660(2)(d) which authorizes executive sessions "to conduct deliberations with persons designated by the governing body to carry on labor negotiations" and ORS 192.660(2)(h) which authorizes executive sessions "to consult with counsel concerning the legal rights and duties of a public body with regard to current litigation or litigation likely to be filed."

Mayor Endicott closed the Executive Session portion of the meeting at 8:51 p.m.

MOTIONS AS A RESULT OF EXECUTIVE SESSION

Councilor Zwicker moved, seconded by Councilor Fitch, to authorize the City Attorney to complete the Opioid litigation settlement election and approval, and divert the City's settlement distribution to Deschutes County, motion passed. (Clark-Endicott-absent, Endicott-yes, Evelyn-yes, Fitch-yes, Patrick-yes, Wedding-yes, Zwicker-yes)

ADJOURN

There being no further business, the meeting was adjourned at 8:53 p.m.

Prepared by ABC Transcription Services and reviewed by Kelly Morse, City Recorder

APPROVED by the City Council and SIGNED by the Council President this 16th day of August 2022.

_____
Robert J. Patrick, Council President

ATTEST:

_____
Kelly Morse, City Recorder

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REGULAR CITY COUNCIL MEETING OF THE CITY OF REDMOND WAS HELD JUNE 14, 2022, IN COUNCIL CHAMBERS.

COUNCIL MEMBERS PRESENT:	**Krisanna Clark-Endicott – George Endicott – Clifford Evelyn – Ed Fitch – Jay Patrick – Shannon Wedding (virtually) – Cat Zwicker**
STAFF PRESENT:	**City Manager Keith Witcosky – City Attorney Keith Leitz – Planning Manager Kyle Roberts – City Engineer Jessica MacClanahan – Deputy City Manager John Roberts – IT Specialist Christian Armatas – Chief Financial Officer Jason Neff – Urban Renewal Program Analyst Meghan Gassner – Communications Director Heather Cassaro – City Recorder Kelly Morse – Police Lieutenant Jesse Petersen**
MEDIA PRESENT:	**None**

Mayor Endicott called the meeting to order at 6:00 p.m. A quorum was established.

Mayor Endicott stated the public hearing for the Cottages on Helmholtz has been delayed indefinitely because the applicant filed a petition in Circuit Court. Councilor Fitch asked if it the public hearing should be opened and continued to a date certain. City Attorney Keith Leitz explained Council cannot open the public hearing because once the writ is filed, the Council loses jurisdiction over the matter.

BLESSING

Pastor Mike Darby of Redmond Community Church led the blessing.

PLEDGE OF ALLEGIANCE

Councilor Evelyn led the Pledge of Allegiance.

COMMENTS FROM CITIZENS AT THE MEETING

Redmond resident Lena Berry read a letter on behalf of Kayla Boyd regarding Pride, treatment of LGBTQ members in Redmond, and the planned attack at a Pride event in Idaho. Ms. Boyd, via her letter, requested the Council make a small step toward acceptance by flying the inclusive rainbow flag for the remainder of June in honor of Pride Month. She opined it would be a gesture of acknowledgement that would mean a lot to the Pride community in Central Oregon.

Redmond resident and KPOV radio host Steve Schaffer addressed the Council regarding his observations of Council meetings over the past couple of years. He stated he is astonished at the negligent attitude regarding legitimate concerns over fireworks, opining they can quickly create expensive and unwanted problems.

CONSENT AGENDA

A. Minutes of March 8, 2022, Council Meeting

Councilor Clark-Endicott moved, seconded by Councilor Zwicker, to approve the Consent Agenda, motion passed. (Clark-Endicott-yes, Endicott-yes, Evelyn-yes, Fitch-yes, Patrick-yes, Wedding-yes Zwicker-yes)

PUBLIC HEARINGS

A. Ordinance #2022-02 – An ordinance concerning the vacation of a portion of the alley through Block 34, Townsite of Redmond.

Mayor Endicott opened the public hearing.

Mr. Leitz explained the City has not received consent from the last remaining property owner; therefore, the hearing will be closed with no motion to approve the vacation. Should the City receive consent in the future, the matter will come back to Council and the hearing will be renoticed.

Mayor Endicott closed the public hearing.

BID AWARDS / BID REJECTIONS

A. Award a construction contract to Knife River Corporation for the Odem Medo - Salmon Avenue Realignment Project (TR 1902): $1,138,751.

City Engineer Jessica MacClanahan requested the Council award the bid for the Odem Medo – Salmon Avenue Realignment Project to Knife River Corporation in the amount of $1,138,751. Three bids were received in response to a formal solicitation and after review, Knife River was deemed the lowest responsible bidder. The Engineer's estimate was $1.1 million. Ms. MacClanahan described the project and addressed questions from the Council.

Councilor Clark-Endicott moved, seconded by Councilor Evelyn, to authorize the City Manager to sign a construction contract with Knife River Corporation Northwest in the amount of $1,138,751. Motion passed. (Clark-Endicott-yes, Endicott-yes, Evelyn-yes, Fitch-yes, Patrick-yes, Wedding-yes, Zwicker-yes)

MAYOR'S COMMENTS

Mayor Endicott stated he and members of the Councilor attended the Economic Development for Central Oregon (EDCO) luncheon yesterday. He found the discussion on corporate philosophies interesting. On behalf of the Council, Mayor Endicott will be attending a meeting of the County-City coordinated houseless office pilot adding there is $1 million in state funding to support houselessness.

COUNCIL COMMENTS

A. Councilor Evelyn's Written Comments

Councilor Clark-Endicott attended the Portland Rose Festival as a Royal Rosarian. She had the opportunity to marshal the Oregon City small city float and was able to speak with those taking part in the parade. The common theme of those she spoke with was they were scared to be in a large public setting, but also excited to be involved in a community activity again.

Councilor Evelyn addressed his written comments on the wildfire situation that were included in the Council's packet. He opined the Council needs to take the advice of experts and evaluate the situation before moving forward with any Fourth of July celebrations. He explained he is just as excited as anyone about the holiday but is concerned as are the many citizens who have reached out to him.

Councilor Fitch opined the City should not fly any requested flag without having a policy in place since there could be unintended consequences. He did not want to ignore the request but emphasized there is a bigger issue than just flying a flag. The Chamber board received a presentation by St. Charles regarding their financial difficulties and their disconnect with the Redmond community. Councilor Fitch stated there is a profound need for St. Charles to be more transparent with the citizens of Redmond.

In response to Councilor Fitch's flag comments, Mayor Endicott cited Redmond Development Code Section 8.4200(7)(a) which states the following: flags of nations or an organization of nations, such as the UN, states and cities, fraternal, religious, and civic organizations are not considered signs and are exempt from the standards. Councilor Fitch opined it is a question for Mr. Leitz on whether the provision is constitutionally sound. Mayor Endicott thought there was a newer decision to that effect.

Councilor Patrick commented that when Fire Marshal Tom Mooney recently spoke to Council, he did not express any concerns about fireworks causing problems. Councilor Patrick suggested the Council write a

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communication to its citizens asking them to use caution and avoid lighting fireworks in the Dry Canyon. Perhaps multiple notices could go in the utility billing statements, in the newspaper, and be posted at entrances to the Dry Canyon.

Councilor Zwicker stated she also enjoyed the EDCO luncheon and listening to an exceptional panel of professional women in human resources. She stated the topic was culture and opined building a community culture is similar to building a corporate culture; however a community has multiple cultures which need to be integrated. She concurred that fireworks should not be allowed in the Dry Canyon, and did not feel major regulation was needed, but rather common sense.

CITY MANAGER COMMENTS

City Manager Keith Witcosky reported Staff is working with Redmond Fire & Rescue on public information opportunities through video, the City's newsletter, and the website. Staff will research signage discouraging use in the Dry Canyon. Mayor Endicott commented that the Fairgrounds Board confirmed only the professional fireworks display allowed on the fairground's property. Mr. Witcosky reported on upcoming activities in downtown including the Redmond Marathon and the Redmond Street Festival at Centennial Park. Grace and Hammer is working with businesses in their area to host a block party. Mr. Witcosky provided details regarding an Intergovernmental Agreement coming before them on June 28.

ADDITIONAL COMMENTS FROM CITIZENS AT THE MEETING

Redmond resident Trevor Johnson addressed the Council regarding Pride Month and requested the Council do more to protect the dignity of and show honor for members of the LGBT community. He added if the community wants to prosper and care about everyone, the City needs to change its ordinance to ensure everyone is recognized on the flagpole.

EXECUTIVE SESSION

Mayor Endicott convened the Council into Executive Session at 6:37 p.m. in accordance with Litigation - ORS 192.660(2)(h) authorizing executive sessions "to consult with counsel concerning the legal rights and duties of a public body with regard to current litigation or litigation likely to be filed."

Mayor Endicott closed the Executive Session portion of the meeting at 8:51 p.m.

MOTIONS AS A RESULT OF EXECUTIVE SESSION

There were no motions as a result of the executive session.

There being no further business, the meeting was adjourned at 6:54 p.m.

Prepared by ABC Transcription Services and reviewed by Kelly Morse, City Recorder

APPROVED by the City Council and SIGNED by the Council President this 16th day of August 2022.

_____
Robert J. Patrick, Council President

ATTEST:

_____
Kelly Morse, City Recorder

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SPECIAL CITY COUNCIL WORKSHOP OF THE CITY OF REDMOND WAS HELD JUNE 21, 2022, IN COUNCIL CHAMBERS.

COUNCIL MEMBERS PRESENT:	**Krisanna Clark-Endicott – George Endicott – Clifford Evelyn – Ed Fitch – Jay Patrick – Shannon Wedding – Cat Zwicker**
STAFF PRESENT:	**City Manager Keith Witcosky – City Attorney Keith Leitz – City Engineer Jessica MacClanahan – IT Manager Matt Hayes – Communications Director Heather Cassaro – Assistant to the City Recorder's Office Trish Pinkerton – Police Captain Aaron Wells**
MEDIA PRESENT:	**None**

Mayor Endicott called the meeting to order at 6:00 p.m.

CITY MANAGER AND STAFF REPORTS
A. Draft Blasting Standards and Specifications: Worksession #2

Mayor Endicott explained that the Council would be taking testimony from three panels: Teak Avenue homeowners, technical experts, and blasting/construction representatives. He stated the purpose of the workshop was to discuss the City blasting standards in Section 18.8.00 of the Public Works Standards and Specifications and to gain more knowledge on blasting. The goal after the workshop is to be able to move forward with approving new standards.

Mayor Endicott read a letter from Nick Porta on behalf of a group of Teak Avenue neighbors that stated the proposed revisions should be thoughtful, with consideration given to all variables that impact development, blasting, and safety of persons and real property. The letter also encouraged Council to review the residents' draft redline changes and comments to the proposed revisions as submitted at the June 7 Council meeting.

Teak Avenue neighbor Mark Noble addressed starter questions Staff had sent to the neighborhood, including qualifications for blasting engineers, notification requirements, and items that should be included in pre- and post-blast inspections.

Teak Avenue neighbor Jacqueline Noble requested more specificity in language on qualifications, citizen notification, safe distances, and penalties for violations of standards.

Technical panelist Bob Cummings of Call & Nicholas, emphasized the blasting standards should incorporate current scientific and engineering research and principles. He explained what happens when explosives are detonated in a rock mass and the effects experienced by structures and people, both from ground vibrations and air over-pressure. He also addressed the use of seismographs and other monitoring devices, methods to control blasts, qualifications for the blaster-in-charge, notification requirements, and pros and cons of blasting alternatives. The scaled distance formula for blast controls, which is the distance divided by the square root of the pounds per delay, directly relates to the computation of the particle velocity. He shared the opinion of many others that if a numerical standard is adopted for notification distance, pre-blast survey distance or, monitoring distance, it should be tied to the scaled distance.

Technical panelist Dr. Bill Gates of McMillen Jacobs Associates, explained his professional credentials and stated he was retained by an attorney representing Hayden Homes to review the blasting operations at the NW Teak Avenue properties. He addressed questions/comments from earlier in the meeting and offered his general conclusions from his investigation of the blasting operations in the NW Teak Avenue neighborhood. In his professional opinion the minor damage reported by residents in the area was not related to blasting operations.

Mr. Cummings addressed Council questions concerning safe blasting distances, timing between detonation of charges, and the role of blasting consultants.

Redmond Fire and Rescue Fire Marshal Tom Mooney explained there are two standards he uses when a project is submitted to him for a blasting permit: the Oregon Fire Code, which contains minimal information on blasting, and National Fire Protection Association (NFPA) 495's explosives standard. When a blasting plan comes in, he has to rely on the blasting company to provide accurate information on their experience. Fire Marshal Mooney does not have the staff or resources to be on-site at all times; however, if it is a unique blast or there are a lot of variables at play, his office will consider making a site visit.

Blasting/Construction Industry panelist Jacob Clark, Central Oregon Land Development Manager for Hayden Homes, presented costs associated with excavation, using a project that was put together at the end of 2021. The scenarios included drilling and blasting with a rock saw option and using rock hammers for the whole site. Most of the impact in cost comes from the sewer and water lines, the deeper lines on an excavation site, which means more rock to remove.

Blasting/Construction Industry panelist Matt Higgins, owner of Quality Drilling and Blasting, provided estimated costs showing how the increased amount results from the panel's understanding of proposed blasting provisions. He said developers face challenges when building in Central Oregon due to the unique rock in the area. Blasting in Central Oregon requires a special set of skills, which can cause companies, that are not used to blasting in the area, to struggle. He noted he has blasted in the area for 30 years. As part of the blasting process, Quality Drilling and Blasting uses a third-party company to inspect homes out to 300 feet. Regarding the project used as an example in the cost comparison mentioned by Mr. Clark, his company had inspections done on all of the homes. Mr. Higgins answered Council questions on timing and content of notices to neighboring properties, and use of tests blasts.

Blasting/Construction Industry panelist Chad Bettesworth, from Pahlisch Homes, shared his practical experience of being a homebuilder, especially a developer who works in multiple phases, which means they work around their customers all the time. Relative to the other work they do, blasting is probably less than half of the complaints they get for noise and vibration. Vibrations caused from other methods of rock removal, such as compactors and rock hammers, are more stressful for the community and the neighbors. Mr. Bettesworth stated that Pahlisch Homes receives more pressure when they use those methods and opined there seems to be less pain for customers when blasting is used. He asked the Council to consider using existing criteria that has been tested over time by other agencies and municipalities, such as Oregon Department of Transportation (ODOT) standards. To use industry standards that cover 90 percent of the situations seems to make practical sense. Mr. Bettesworth responded to Council questions on the use of rock hammers, notification distances, how or if scaled distance could be quantified in the code, issues with fly rock, and the use of seismographs.

City Engineer Jessica MacClanahan recapped takeaways from the discussion:

- Take a closer look at how the City defines "qualified." ODOT has a list of qualified blasting experts. Other jurisdictions sometimes have lists of qualified contractors to work on their property or rights-of-way.
- Explore ways to better clarify how and when the public is notified.
- Detail elements of a good pre-blast inspection and further clarify how that could be stated in the code.
- Look at the charge weight per delay in terms of getting the scaled distance for notifications, inspections, and potentially a monitoring plan including use of seismographs.

Mayor Endicott opened the meeting for public comment.

Jake Hanning with Jack Robinson & Sons is not a proponent of test blasting on larger projects but opined it might be considered instead of an initial geotechnical investigation as the revision suggests. While there is no opportunity to test blast on smaller projects, doing them on larger projects could verify the blasting plan to put the homeowners and City at ease.

DRAFT

Michael Robinson, an attorney with Pahlisch Homes, noted the proposed blasting standards by the City incorporate ODOT's standards in a particular section of the rules, which were included by Mr. Witcosky. The rules include nearly everything discussed: fly rock, vibration, and notices. He added that ODOT's standards are widely accepted and understood in the industry. Mr. Robinson questioned whether there is enough time to complete the revisions in time for the July 12 Council meeting, especially with the July 4th holiday approaching. He requested that the industry experts be involved in the drafting the language.

Witcosky confirmed Staff's goal would be to get another draft out next week. If a draft cannot be done in a manner that is comprehensive enough and allows enough time for comments, then the date will be moved.

There being no further business, the meeting was adjourned at 8:24 p.m.

Prepared by ABC Transcription Services
Reviewed by Trish Pinkerton, Asst. to the City Recorder's Office

APPROVED by the City Council and SIGNED by the Council President this 16th day of August 2022.

_____
Robert J. Patrick, Council President

ATTEST:

_____
Kelly Morse, City Recorder

CITY OF REDMOND

CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

STAFF REPORT

DATE: August 16, 2022
TO: Redmond City Council
THROUGH: Keith Witcosky, City Manager
FROM: Zachary Bass, Airport Director
SUBJECT: Application for Annual Federal Aviation Administration Airport Improvement Program Grant 3-41-0052-052-2022 (AP5200): $3,289,915.

Addresses Council Goal:
5.B. iv. Pursue State, FAA, and other funding for development, expansion, and preservation of the airport's physical facilities.

Report in Brief:
This action requests City Council authorization for the Airport to apply for, and accept, the annual Federal Aviation Administration (FAA) entitlement grant of $3,289,915.

Background:
The Airport receives an entitlement grant from the FAA every year based on the number of passengers using the Airport. Annual grant sizes have increased as the volume of passenger traffic has grown. For Fiscal Year (FY) 2022/23, the Airport will receive $3,289,915.

The Airport proposes to use these resources to help pay for the schematic design of the upcoming terminal expansion. The grant requires a 6.25% local match of $219,328, which will come from local airport funds.

Discussion:
On April 12, 2022, City Council approved an architectural and engineering services contract to RS&H Oregon for the design of the terminal expansion project. The contract was for a not to exceed amount of $13,000,000.

This grant funding will be used to fund a portion of the project's architectural schematic design. The Airport has already completed a Terminal Area Concept Plan, Environmental Analysis, and has received FAA approval for the terminal expansion project.

Fiscal Impact:
This grant will fund $3,289,915 for the terminal design. The local match is $219,328 and is included in the FY 2022/23 budget.

Alternative Courses of Action:
1. Approve the grant application request and subsequent grant acceptance.
2. Do not approve the request
3. Request more information

Recommendation / Suggested Motion:
"I move to approve the Airport's request to submit an application to the Federal Aviation Administration for Airport Improvement Grant 3-41-0052-052-2022 and authorize the City Manager to sign the grant acceptance if awarded."

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REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

STAFF REPORT

DATE: August 16, 2022
TO: Redmond City Council
THROUGH: Keith Witcosky, City Manager
FROM: Keith Leitz, HR Director
SUBJECT: Resolution 2022-24: A resolution of the City of Redmond City Council, declaring a ban or temporary ban on psilocybin service centers and/or the manufacture of psilocybin products.

Addresses Council Goal:
7. Enhance the quality of life through adoption of programs, policies, and standards that manage growth while maintaining Redmond's small-town feel.

Report in Brief:
This item requests City Council decide whether and how to pursue restrictions on licensed psilocybin facilities within the city limits.

Background:
Psilocybin is a psychedelic drug found in certain mushrooms. Ballot Measure 109 created a state law allowing for the licensed manufacturing and supervised use of psilocybin in licensed service centers. State law provides that a city or county may adopt an resolution to be referred to voters to prohibit the establishment of licensed psilocybin product manufacturers and/or psilocybin service centers. Cities have limited time to take action if they wish to enact regulations before the Oregon Health Authority (OHA) begins issuing facility licenses.

Discussion:
The Measure 109 program for psilocybin was modeled after the state's marijuana program. As with the marijuana program, there are different types of licenses that OHA will issue under the state's psilocybin program—manufacturer (production), laboratory (testing), facilitator (server), and service center licenses (location where provided and taken).

Several options exist for the City in reaction to this new state law:
Option 1: Impose prohibitions on licensed psilocybin facilities being located within city limits, either permanently or for a limited duration.
Option 2: Impose time, place and manner restrictions on such facilities under the Development Code.
Option 3: Take no action and let the state law apply as written. Under the law, applicants for licenses must still obtain a land use compatibility statement from the city stating that the proposed facility is consistent with the local government's comprehensive plan and land use regulations.

Key Considerations / Analysis:
Option 1 - Redmond can impose prohibitions on psilocybin manufacturing and service center facilities within the city limits. A local prohibition can be permanent or for a limited duration. As with marijuana prohibitions, however, local psilocybin prohibitions must be approved by the voters during a statewide general election. Thus, if the Council wants to propose a prohibition to the voters, it must do so for this November's election or it will need to wait until the November 2024 election to do so. The deadline to refer a measure to the November 2022 ballot is August 18th.

Option 2 - Instead of a prohibition, the Council may impose time, place, and manner restrictions on such facilities. Often, such regulations are included as part of a local jurisdiction's development code, and amendments to such codes can require a somewhat lengthy process, as they typically include providing notice to the State as well as hearings before the Planning Commission and Council. Thus, time would be of the essence if the Council wishes to

pursue this option. Of note, state law already prohibits the manufacturing of psilocybin products outdoors as well as prohibits locating a service center within 1,000 feet of a school.

Modification and approval of the attached resolution would direct staff to file a ballot title for publication of notice for the purpose of submitting a ban, or temporary ban, on the establishment of psilocybin product manufacturers and/or psilocybin service centers within the City. State law also allows the electorate of Redmond to repeal the ban at any time.

Fiscal Impact:

None.

Alternative Courses of Action:

Options Summary:

Option 1A: Approve Resolution to direct a ballot title to be filed to refer a permanent ban ordinance to the voters prohibiting the establishment of psilocybin product manufacturers and/or psilocybin service centers within the City of Redmond.

Option 1B: Approve Resolution to direct a ballot title to be filed to refer a limited duration (temporary ban) moratorium ordinance to the voters prohibiting the establishment of psilocybin product manufacturers and/or psilocybin service centers within the City of Redmond.

Option 2: Enact time, place, and manner restrictions through the Development Code amendment process.

Option 3: Take no action and let the state law apply as written.

Recommendation / Suggested Motion:

Provide direction to staff on whether the Council wishes to pursue limitations on licensed psilocybin facilities; and if so, which of the possible options is preferred by the Council.

molecules MDPI

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PMID: 34063505

The Therapeutic Potential of Psilocybin

Henry Lowe,[1,2,3,4] Ngeh Toyang,[2,3] Blair Steele,[1,*] Henkel Valentine,[1] Justin Grant,[1,5] Amza Ali,[1,5] Wilfred Ngwa,[6] and Lorenzo Gordon[7]

Raffaele Capasso, Academic Editor

Abstract

The psychedelic effects of some plants and fungi have been known and deliberately exploited by humans for thousands of years. Fungi, particularly mushrooms, are the principal source of naturally occurring psychedelics. The mushroom extract, psilocybin has historically been used as a psychedelic agent for religious and spiritual ceremonies, as well as a therapeutic option for neuropsychiatric conditions. Psychedelic use was largely associated with the "hippie" counterculture movement, which, in turn, resulted in a growing, and still lingering, negative stigmatization for psychedelics. As a result, in 1970, the U.S. government rescheduled psychedelics as Schedule 1 drugs, ultimately ending scientific research on psychedelics. This prohibition on psychedelic drug research significantly delayed advances in medical knowledge on the therapeutic uses of agents such as psilocybin. A 2004 pilot study from the University of California, Los Angeles, exploring the potential of psilocybin treatment in patients with advanced-stage cancer managed to reignite interest and significantly renewed efforts in psilocybin research, heralding a new age in exploration for psychedelic therapy. Since then, significant advances have been made in characterizing the chemical properties of psilocybin as well as its therapeutic uses. This review will explore the potential of psilocybin in the treatment of neuropsychiatry-related conditions, examining recent advances as well as current research. This is not a systematic review.

Keywords: magic mushrooms, psilocybin, psychedelic, neuropharmaceuticals, neurotherapeutics, addiction, anxiety, depression, cancer, psychopharmacology

1. Introduction

The word "psychedelic" (*psyche* (i.e., the mind or soul) and *delos* (i.e., to show)) has Greek origin and was first coined by psychiatrist Humphry Osmond in 1956 [1,2], who had been conducting research on lysergic acid diethylamide (LSD) at the time. Psychedelics are a class of hallucinogenic drugs ("hallucinogens") that produce mind-altering and reality-distorting effects, known as hallucinations, once ingested. Hallucinations typically trigger delusions, emotional swings, feelings of detachment and derealization. Hallucinogens are generally classified into two main categories (1) dissociative drugs

classic serotonergic and dopaminergic hallucinogens that interact with serotonin and dopamine receptors, respectively.

Classes of classic serotonergic and dopaminergic hallucinogens include (1) Lysergamides (amides of lysergic acid)—LSD/LAD, and ergotamine, (2) Phenethylamines such as MDMA (ecstasy), MDMA-like drugs such as *p*-methoxy methamphetamine (PMMA), mescaline and mescaline-derived compounds like TMA, DOM, DOET, DOI (2,5-dimethoxy-4-iodoamphetamine), and DOC (2,5-dimethoxy-4-chloroamphetamine), and (3) **Tryptamines** such as N,N-dimethyltryptamine (DMT) and its derivatives alpha-methyltryptamine (AMT), 5-methoxy-N,N-dimethyltryptamine (5-MeO-DMT) and 5-methoxy-N,N-diisopropyltryptamine (5-MeO-DIPT), and psilocin (4-hydroxy-N,N-dimethyltryptamine also known as 4-OH-DMT) and psilocybin ([3-(2-Dimethylaminoethyl)-1*H*-indol-4-yl] dihydrogen phosphate. In addition to psilocin, other metabolites of psilocybin include; (1) 4-hydroxyindole-3-yl-acetaldehyde (4H1A), (2) 4-hydroxyindole-3-yl-acetic-acid (41-IIAA), and (3) 4-hydroxytryptophol (41-IT) [5]. On the same tangent, psilocybin, lysergic acid diethylamide, and lysergic acid amide are classified as indoleamine hallucinogens [6].

Classic psychedelic (serotonergic) drugs interact with the serotonin receptors (5-HT/5-hydroxytryptamine receptors) and their subtypes densely located within the brain [7,8,9]. These receptors mediate emotions and moods such as anxiety and aggression, cognition, sex, learning memory, appetite along with other biological, neurological and neuropsychiatric processes [8,10]. These 5-HT receptors are also located in the central and peripheral nervous systems [11,12]. Serotonin receptors are the target of multiple recreational and pharmaceutical drugs such as hallucinogens, empathogens, antipsychotics, antidepressants, antiemetics, antimigraine agents and anorectics [10]. Figure 1 shows the chemical structures of classic psychedelic drugs and the neurotransmitter serotonin.

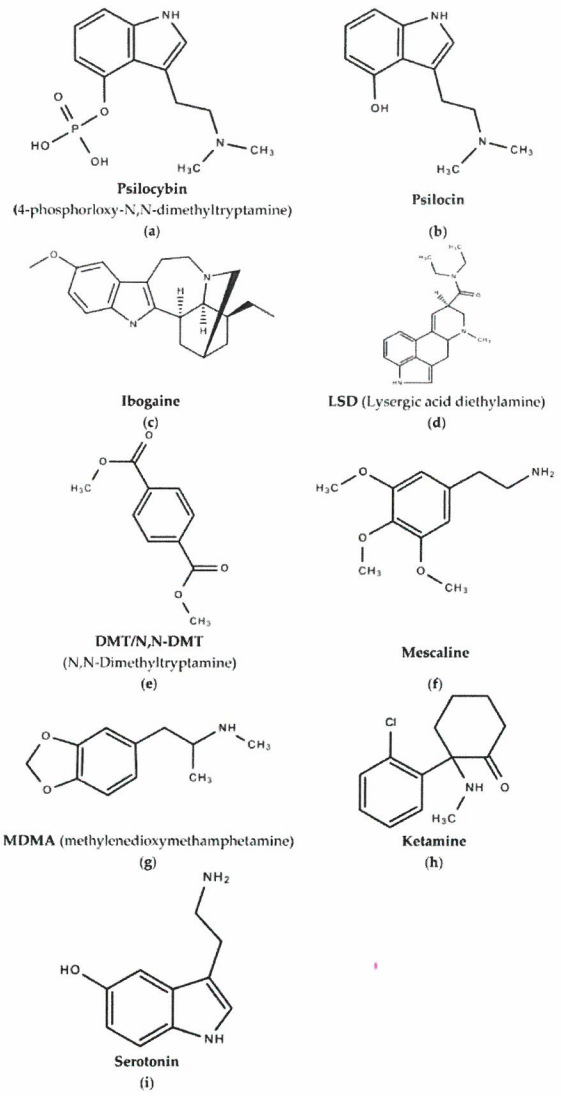


Figure 1

Chemical structures of classic serotonergic psychedelic compounds (**a**–**h**) and the neurotransmitter serotonin (**i**). These substances all utilize the 5-hydroxytryptamine$_{2A}$ receptor.

Of all psychedelic drugs, psilocybin is reported to have the most favorable safety profile [13]. Despite the lack of studies investigating the comparative efficacies of psilocybin and psychedelic drugs for the treatment of mood and anxiety disorders, the vast evidence-based data that exist for psilocybin alone suggest that psilocybin may be the most efficacious psychedelic drug for treating such disorders.

In a 2017 Global Drug Survey, it is estimated that approximately 20.6% of people worldwide who used drugs of any type, selectively used magic mushrooms within their lifetime up to that year [14]. This review will focus on psilocybin, the main psychoactive component of magic mushrooms (psilocybin-producing mushrooms), that has been utilized for thousands of years in mushroom-worshiping ceremonies in old-world cultures [15,16]. In addition to the known recreational, spiritual, and religious uses of magic mushrooms, there is significant medicinal value, as evidenced by anecdotal reports and scientific studies. Table 1 below lists the diseased states in which psilocybin-assisted therapy is being explored.

Table 1

The potential therapeutic window of psilocybin-assisted therapy, that is, diseased states in which psilocybin-assisted therapy is being explored.

	Diseased State/Condition	Reference
1.	Alcohol dependence	[23,24,25]
2.	Stimulant dependence	[25]
3.	Cocaine addiction	[26,27]

4.	Tobacco addiction	[25,28,29,30]
5.	Nicotine addiction	[26,29]
6.	Opioid addiction	[25]
7.	Cannabis dependence	[25]
8.	Anxiety disorders such as:	[26]
	i. Post-traumatic stress disorder (PTSD),	[26]
	ii. Generalized anxiety disorder (GAD),	[31,32]
	iii. Obsessive–compulsive disorder (OCD)	[33,34,35,36,37]
	iv. Advanced-stage cancer-related anxiety	[26]
	v. Psychological distress associated with existential crisis of terminal disease	[26,38]
	vi. Adjustment disorder with anxiety	
9.	Cancer-related depression	[33,34,35,36,37,39]
10.	Treatment-resistant depression	[40,41,42,43,44]
11.	Major Depressive Disorder	[45]
12.	Severe existential depression	[26,33,36]
13.	Suicidality (ideation and actual attempts)	[13,46]
14.	Cluster ("suicide") headaches	[6,47]
15.	Chronic pain	[48,49,50]
16.	Intractable phantom pain	[51]
17.	Demoralization	[52]
18.	Demoralization in older, long-term AIDS survivor men (OLTAS)	[53]
19.	Dysfunctional social cognition	[54]
20.	Maladaptive narcissism	[55]
21.	Borderline Personality Disorder (BPD)	[56,57]
22.	Narcissistic Personality Disorder (NPD)	[58,59,60]
23.	Epilepsy	[61]

Mental health and substance-use disorders such as depression, anxiety-related disorders, bipolar disorder, autism, psychoses such as schizophrenia, and substance-dependence disorders are of significant global burden [17,18]. Up to 2020, it is estimated that 1 billion people may be affected by a mental health or substance disorder [19]. Anxiety-related disorders were the most burdensome mental health disorders in 2018, affecting an estimated 284 million people [20], while depression, the second-most common—affected an estimated 264 million people globally the same year [19,20]. Additionally, in 2018, alcohol-use disorder affected an estimated 107 million people globally, while drug use disorder (excluding alcohol) affected 71 million people globally [20]. Suicidality, which also correlates to mental health, is also of global burden. Statistics show that an estimated 800,000 people commit suicide annually [21]. With the COVID-19 pandemic, risk factors for mental health and substance-use disorders are expected to be exacerbated, with evidence of increased rates of anxiety, depression and distress [22].

delic-assisted psychotherapies, particularly psilocybin-assisted psychotherapies, may alleviate some of the challenges that face conventional psychiatric medicine.

In addition to having the potential to treat mood and anxiety disorders, psilocybin has also demonstrated analgesic effects as evidenced by numerous clinical studies on the treatment of cluster ("suicide") headaches [6,47], intractable phantom-limb pain (PLP) [51], and chronic pain [48]. One possible mechanism of action of this analgesic property is via interaction with nociceptive and antinociceptive pathways [48]. In some cases, psilocybin was comparable to or more efficacious than traditional medications such as opioid analgesics [6,50].

A study by Nkadimeng and colleagues report dose-dependent analgesic, antioxidant, and anti-inflammatory properties of a certain *Psilocybe natalensis* species of magic mushroom [49]. Lipopolysaccharide (LPS)-stimulated macrophage cells were treated with three different 24-h extracts (hot water, cold water and ethanol) of *Psilocybe natalensis* mushrooms [49]. Antioxidant effects of *Psilocybe natalensis* mushrooms were confirmed when all three extracts inhibited lipopolysaccharide-induced nitric oxide [49]. Anti-inflammatory effects of *Psilocybe natalensis* mushrooms were confirmed upon the inhibition of prostaglandin E_2, and interleukin 1β cytokine [49].

1.1. History

Despite thousands of years of psychedelic use in religion and recreation, the earliest known written record of magic mushroom use in the *Florentine Codex* (a manuscript of ethno-graphical research of Mesoamerica, particularly of Mexico and the Aztecs, compiled between 1529 and 1579 [10,15,63,65]

Classic psychedelic compounds like psilocybin, mescaline (isolated from the peyote cactus in 1897 by Arthur Heffter) [66] and dimethyltryptamine have been used in religious ceremonies in indigenous societies in South and Central America for centuries [66,67,68,69,70,71].

Modern and rigorous scientific study of psychedelics began in 1938 when Albert Hoffman of Sandoz Laboratories (Basel, Switzerland) discovered/synthesized lysergic acid diethylamide (LAD/LSD)—translated from the German word "Lysergsäurediethylamid") [2,65,71]. This may be considered the birth of molecular psychiatry [72] and the beginning of the "first psychedelic renaissance". On record, this may also be the first discovery of an ergot alkaloid derivative with medical value. During this period of early clinical research on psychedelics, LSD was the most studied psychedelic [2].

Nine years later, in 1947, Sandoz began marketing and distributing LSD as a psychiatric drug for the treatment of neurosis [73], alcoholism [74,75,76,77,78,79,80,81], criminal behaviour [82,83,84], schizophrenia [85,86,87,88,89], and sexual perversions [90]. LSD-25 was also used to treat autism [91,92], and verbal behaviour [93].

In 1957, Hofmann received a sample of dried *Psilocybe mexicana* mushrooms from a mycologist in Huautla de Jiménez in Oaxaca, Mexico [65]. This could be considered the beginning of the "second psychedelic renaissance". To identify and convince himself of the mushroom's bioactivity, Hoffman used paper chromatography to separate the various components of whole extracts of mushrooms,

tallized and called psilocybin [65,94]. Hofmann and colleagues subsequently elucidated the structure and synthesis of psilocybin in 1958 [5,94,95,96] and a minor component of the extract, psilocin, a dephosphorylated form of psilocybin [65]. In the 1960s, Sandoz Pharmaceuticals (Basel, Switzerland) distributed Indocybin™, a psychotherapeutic drug, in pill form, containing 2 mg psilocybin [65]. This period also saw experimental therapeutics with psilocybin as a probe for brain function [2], psilocybin for recidivism [97] and with psilocybin as an entheogen in religious people (divinity students) [98].

From the 1960s and 1970s, recreational use of psychedelics became central to the "hippie", counterculture in the United States, and this ultimately fueled the United States Drug Enforcement Agency to prohibit psychotropic substances such as LSD, DMT (*N*,*N*-Dimethyltryptamine), Psilocybin and Mescaline, and label them as Schedule 1 drugs under the Controlled Substances Act 1970 (USA). As a result of this historical association with the highly sensationalized "hippie", counterculture at the time, there has been lingering stigmatization of such substances, which has, in turn, hindered scientific research and innovation in psychedelic therapeutics [13], until recently.

1.2. Transition to Modern-Day Clinical Studies

Traditionally, the pharmaceutical industry, in reflection of societal understanding and governmental acceptance, rejected psychedelic research for a long time. Only recently has psychedelic research slowly made its reintroduction back into the paradigm of modern science and many clinical studies confirm the potential of psilocybin-assisted therapy as a promising adjunct to psychotherapy [15,99].

Early clinical studies with hallucinogens report the use of LSD-25 to treat the typical intractable behaviour seen in early infantile autism and childhood schizophrenia [88,91,100]. By the 1960s, over 40,000 individuals took part in psychedelic research studies, albeit with less rigorous clinical standards [101].

In 2004, University of California, Los Angeles (UCLA) researchers began clinical trials on psilocybin for the treatment of pain, anxiety and depression in patients with advanced-stage cancer. This may be considered the "third psychedelic renaissance". A 2006 publication from the John Hopkins University heralded a new age for psychedelic research, reigniting worldwide interest [102]. This led to the formation of the psychedelic research unit, and eventually, the Center for Psychedelic and Conscious Research (John Hopkins University) in 2006, which has since published over eighty peer-reviewed articles on psychedelic research [103]. In September of 2020, the John Hopkins University built the Center for Psychedelic and Consciousness research, the first of its kind. To date, over 27,000 scientific articles have been published on psychedelic drugs, with over 1000 particularly on psilocybin [103]. Currently, psilocybin is the most studied psychedelic [2,13].

Amidst this renewed interest in psychedelic research, pharmaceutical interest has also increased. In 2018 Compass Pathways Ltd. (London, UK) received U.S. Food and Drug Administration (USFDA) approval of "breakthrough therapy" status for a psilocybin treatment they developed for treatment-resistant depression [104]. In the same year, the USFDA also approved SPRAVATO®, a ketamine analog

[105]. In 2019, Usona Institute received USFDA "breakthrough therapy" status for a psilocybin treatment for major depressive disorder (MDD) [106].

Refer to Figure 2 for the historical timeline of psychedelic drugs and Figure 3a–m for examples of magic mushrooms (psilocybin-producing mushrooms). Over 100 species of mushrooms of the genus *Psilocybe* produce psilocybin [2,107].

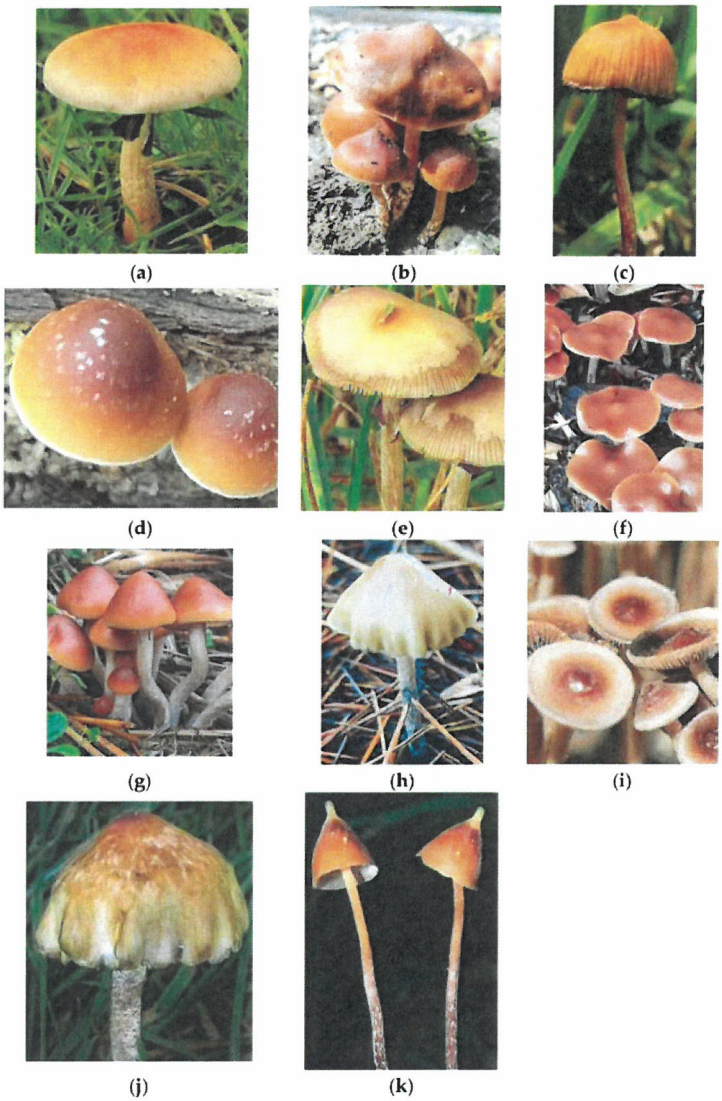


Figure 3

Examples of Magic mushrooms (psilocybin-producing mushrooms). (**a**) *Psilocybe cubensis* (Earle) Singer a.k.a *Stropharia cubensis* [131]. (**b**) *Psilocybe caerulescens* Murrill (a.k.a. Landslide Mushrooms, Derrumbes) [132]. (**c**) *Psilocybe mexicana* R. Heim (a.k.a. Teonanacatl, Pajaritos) [133]. (**d**) *Psilocybe caerulipes* (Peck) Sacc. (a.k.a Blue Foot Mushroom) [134]. (**e**) *Psilocybe stuntzii* Guzmán and J. Ott (a.k.a. Blue Ringer Mushroom, Stuntz's Blue Legs) [135]. (**f**) *Psilocybe cyanescens* Wakef. (a.k.a. Wavy Caps) [136]. (**g**) *Psilocybe azurescens* Stamets and Gartz (a.k.a Flying Saucer Mushrooms)' [137]. (**h**) *Psilocybe pelliculosa* (A.H. Sm.) Singer and A.H. Sm. [138]. (**i**) *Psilocybe tampanensis* Guzmán and Pollock (a.k.a Magic Truffles, Philosopher's Stone [139]. (**j**) *Psilocybe baeocystis* Singer and A.H. Sm. [140]. (**k**) *Psilocybe Hoogshagenii R. Heim nom. inval.* (a.k.a. Little Birds of the Woods) [141].

6000-7000 years ago	Thousands of years of religious use of magic mushrooms by Old-World cultures (mushroom-worshipping ceremonies).
1579	Earliest known record of magic mushroom use in the *Florentine Codex* (a manuscript of ethnographical research of Mesoamerica, particularly of Mexico and the Aztecs, compiled between 1529 and 1579.
1897	Isolation of Mescaline from the Peyote cactus by Arthur Heffter.
1922	PCP synthesized.
1938	Beginning of the "First Psychedelic Renaissance". Scientist Albert Hoffman of Sandoz Laboratories (Basel, Switzerland) synthesizes Lysergic Acid Diethylamide (LSD).
1943	Albert Hoffman takes LSD for the first time & discovers its psychedelic effects.
1947	First LSD studies humans. Sandoz begins marketing and distributing LSD as a psychiatric drug for the treatment of alcoholism and neurosis. This halted in 1965.
1952	Dr. Charles Savage publishes the first study on the use of LSD to treat depression.
1957	Dr. Gordon Wasson publishes article on Magic Mushrooms in Life magazine.
1958	Albert Hoffman and colleagues elucidate the structure and synthesis of Psilocybin from a sample of dried *Psilocybe mexicana* mushrooms from Huautla de Jiménez (Oaxaca, Mexico).
1960-1970	- "Second Psychedelic Renaissance" - Ketamine synthesized (1962) - The U.S. government approves Peyote as a religious sacrament in the Native American Church of America. - Growing association of psychedelics to "hippie" counter culture. Growing negative stigmatization of psychedelics. - Distribution of INDOCYBIN®, a psycho-therapeutic drug, by Sandoz Pharmaceuticals (Basel, Switzerland). - First study conducted on the effects of psychedelic drugs on schizophrenics (Spring Grove Experiment 1963-1976).
1970	Prohibition of Hallucinogens (Schedule 1 classification)
2004	- Beginning of the "Third Psychedelic Renaissance". - UCLA researchers begin clinical trials on psilocybin for the treatment of pain, anxiety and depression in patients with advanced-stage cancer.
2006	Researchers at John's Hopkins begin phenomenological studies on psilocybin use.
2012	First psilocybin function magnetic resonance neuro-imaging (fMRI) study.
2018	- Compass Pathways Ltd (London, United Kingdom) receives FDA approval of "breakthrough therapy" status in 2018 for a psilocybin treatment they developed for treatment-resistant depression. - FDA approval of SPRAVATO®, a ketamine analog developed by Johnson and Johnson for use in patients suffering from treatment-resistant depression.
2019	- Usona Institute receives FDA "breakthrough therapy" status for a psilocybin treatment for major depressive disorder (MDD)
2020-present	- John's Hopkins University builds the Center for Psychedelic & Consciousness research, the first of its kind (September 2020). - The Icahn School of Medicine at Mount Sinai launches The Center for Psychedelic Psychotherapy and Trauma Research (January 2021).

Figure 2

Historical timeline of psychedelic substances.

The John Hopkins Psychedelic Research Unit claims recognition for being the first to research psilocybin since the 1970s [108]. Between 2015 and 2020, nearly 550 grants have been awarded to research institutes engaged in psychedelic research [109]. In modern-day research, the majority of classic psychedelic neurotherapeutics research is focused on psilocybin's potential in mood and anxiety disorders such as cancer-related psychiatric distress [2]. Table 2 below lists major institutes and organizations involved in psychedelic research.

Table 2

Major institutes and organizations involved in psilocybin research.

	Institute or Organization	Study/Clinical Trials	References to Psilocybin Studies.
1.	Center for Psychedelic and Consciousness Research (John Hopkins University, USA) Founded in 2019.	i. Psilocybin can occasion mystical experiences having substantial and sustained personal meaning and spiritual significance. ii. Survey of subjective "God encounter experiences": Comparisons among naturally occurring experiences and those occasioned by the classic psychedelics; psilocybin, LSD, ayahuasca, or DMT iii. Effects of psilocybin-assisted therapy for major depressive disorder: A randomized clinical trial. iv. Psilocybin acutely alters the functional connectivity of the claustrum with brain networks that support perception, memory, and attention. v. Subjective features of the psilocybin experience that may account for its self-administration by humans: a double-blind comparison of psilocybin and dextromethorphan. vi. Optimal dosing for psilocybin pharmacotherapy: Considering weight-adjusted and fixed dosing approaches	[45,103,108,110,111,112,113,114,115]

2. Examples of Psilocybin Producing Mushrooms

Psilocybin is produced by many species of mushrooms that are distributed globally [5]. These include countries such as the USA, S.E. Asia, Europe Mexico and Central America [15,16,65]. The *Psilocybe cubensis* mushroom is the most widespread species of the Psilocybe genus [15,16,63].

Psilocybin may be synthesized in a number of ways. Figure 4 is one example of how psilocybin may be converted from L-tryptophan. In humans, psilocybin is rapidly dephosphorylated to psilocin (4-hydroxy-*N,N*-dimethyltryptamine) by alkaline phosphatase in the liver [65,142] and nonspecific esterase in the intestinal mucosa [143]. In rodents, psilocybin is completely converted to psilocin before it enters systemic circulation [5] (Figure 5). It is psilocin that is the main pharmacologically active substance in magic mushrooms, not psilocybin [5,144], despite the common conception that it is psilocybin that produces the psychotomimetic effects. Psilocybin is considered a prodrug to psilocin [145].

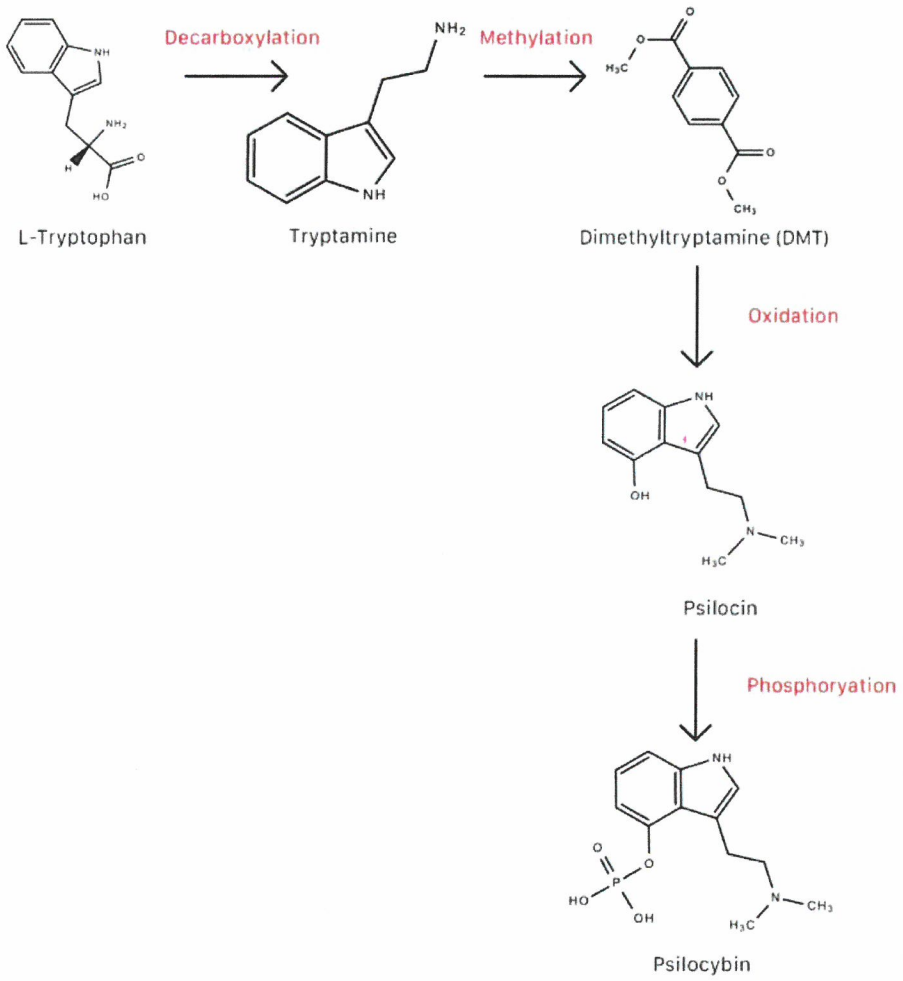


Figure 4

Conversion of L-tryptophan to psilocybin.

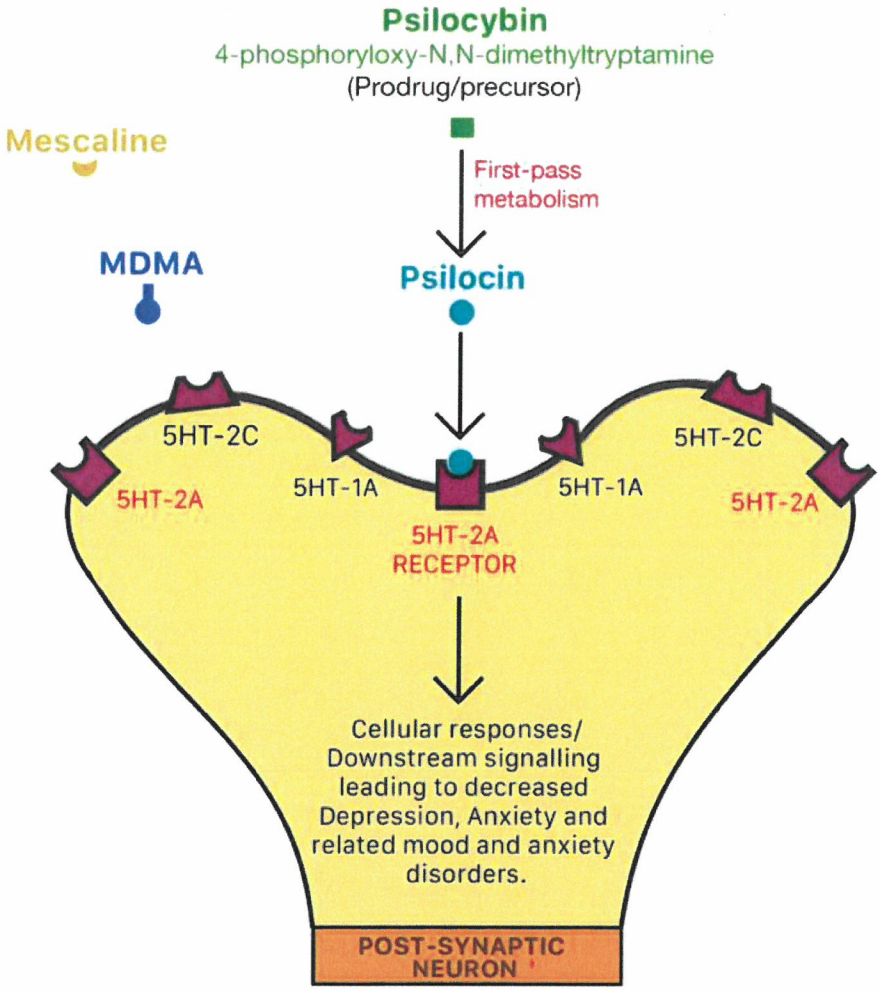


Figure 5

Mechanism of action of psilocin. Psilocybin binds with high affinity to 5-HT_{2A} [5]. 5-HT serotonin receptors are densely located in areas of the brain that are responsible for the mediation of mood and anxiety disorders such as the pre-frontal cortex. Molecular mechanisms of action have not yet been elucidated.

3.1. Production of Synthetic Psilocybin

As a result of the increased need for psilocybin in recent years, due to renewed research focus, the market demands have to be met through synthetic psilocybin production [146]. Even though there is interest in the extraction of psilocybin from naturally growing or cultivated mushrooms, the psilocybin yield obtained (0.1–0.2% of dry weight) is not economically viable for drug research and development, and such may be limited to just recreational uses [143]. The observed variations in batches of psilocybin extracted from different sources further complicate the dependence on psilocybin directly extracted from mushrooms [146].

Most of the psilocybin that is produced synthetically is done through a complicated and expensive chemical synthesis as described by Nichols and Frescas in 1999 [147]. Although this method was an improvement from the initial method discovered by Hoffman and colleagues in 1958 [94], the final step focused on the psilocin phosphorylation to produce psilocybin, as well as the stereoselective

the yield of semi-pure psilocybin to 75% (compared to 20% as was initially reported by Hoffman and colleagues in 1959) [149,150]. Despite yield increase, this method has proven expensive given the requirement for 4-hydroxyindole as the starting substrate, which is expensive and may result in high production costs [146].

The bioengineering of psilocybin has also been explored, which successfully can significantly reduce chemical synthetic costs through the production of psilocybin from cheaper start-up materials such as glucose. Following the elucidation of the biosynthetic pathway for the production of psilocybin in *P. Cubensis* in 2017 [151], bioengineering has led to the production of psilocybin in the filamentous fungi *Aspergillus nidulans,* with yields of up to 1.16 g/L [152]. Other methodologies have since been developed with an increased titer of 1.16 g/L, relying on the in vivo bioconversion of substrates 4-hydroxyindole, serine and methionine by *Escherichia coli* (*E. coli*) [153]. This method is currently not scalable as it relies on expensive startup substrates which can be used to produce psilocybin in cheaper chemical synthesis methodologies. A methodology for de novo production of psilocybin and tryptamine derivatives in *Saccharomyces cerevisiae,* utilizing knowledge of the psilocybin biosynthetic pathway elucidated in *P. cubensis* [154]. The pathway is supplemented with a novel cytochrome P450 reductase enzyme resulting in improved yields of 627 ± 140 mg/L of psilocybin and 580 ± 276 mg/L of psilocyn [154].

The production of psilocybin and psilocyn from *S. cerevisiae* is a significant achievement in developing cheaper psilocybin synthesis methodologies. Given the extensive use of *S. cerevisiae* industrially, as well as limited tryptophan derivatives produce, *S. cerevisiae* use for psilocybin production can significantly improve consistency in titer as well as optimize downstream processing [155].

Continuous research is needed nonetheless for the optimization of psilocybin synthesis. Given the upward trend in psilocybin research in recent years, the industry can only further benefit from optimized synthesis methodologies.

3.2. Mechanism of Action of Psilocybin

Psilocin reacts agonistically with serotonin (5-hydroxytryptamine) type 2A (5-HT_{2A}) receptors to produce a "mystical-like" hallucinatory effect [5,99] (Figure 5) due to induced frontal hyper-frontality [5], which in turn mediates its anti-depressant and anti-anxiety effects [15,68]. One possible anti-depressant mechanism of action of psilocybin is via deactivation or normalization of the hyperactivity of the medial prefrontal cortex (mPFC) [156,157,158]. During depression, the mPFC is typically hyperactive [159].

Anti-depressant properties of psilocybin are mediated via modulation of the prefrontal and limbic brain regions, with the inclusion of the amygdala [160]. The amygdala plays an essential role in perception and emotion-processing networks [158]. In cases of depression, an individual typically loses responsiveness to emotional stimuli [44]. On the same tangent, it is also suggested that the hyperfrontal metabolic pattern produced after psilocybin administration and 5-HT_{2A} receptor activation is comparable to metabolic patterns produced in acute psychotic episodes in chronic schizophrenics [65].

type, but with low affinity to the 5-HT_{1A} serotonergic receptor subtype [5]. The interaction of psilocybin and psilocin with 5-HT_{2A} receptors to produce psychotomimetic effects has been confirmed in experiments with ketanserin, a 5-HT_{2A} antagonist that attenuates the effects of psilocybin [5,72]. In addition to interaction with 5-HT_{2A} receptors, it is also suggested that the psychopharmacological action of psilocybin may also be mediated by non-5HT2 receptors [7,143,158]. Psilocybin and psilocin also interact with the 5-HT_{1D} and 5-HT_{2C} receptor subtypes [5].

Psilocybin is reported to result in significant changes in brain dynamics and functional connectivity (FC) between areas of the brain [160,161,162,163]. Psilocybin-induced alteration in brain connectivity involves the disintegration of associative networks and integration of sensory function networks [65]. It is suggested that this dissociation may mediate the subjective effects of psilocybin use and a state of unconstrained cognition [65]. On the same tangent, a possible mechanism of action behind psilocybin's psychotomimetic effects are via interactions with feedback loops between the cortex and thalamus [5]. Psilocybin administration produces general cortical activation [65]. This is confirmed by increased levels of the cerebral metabolic rate of glucose (CMRglu) in the prefrontal cortex, anterior cingulate, temporal cortex, and putamen [63]. This increase is positively correlated with hallucinatory "ego dissolution" [65]. The metabolic rate of glucose (MRGlu) also increased in distinct right-hemispheric frontotemporal cortical regions [118].

Serotonin 5-HT_{2A} receptors are distributed in multiple areas of the brain that play a role in psychosis and psychotic symptoms, such as the cerebral cortex (prefrontal cortex) and periphery [72], striatum, ventral tegmental area, and thalamus [164].

In addition to the presence of serotonergic cell bodies, dopaminergic cell bodies are also distributed in the VTA [165], an area of the brain that plays a role in reward-processed, and regulation of emotion and cognitive behaviours [166]. Although the neuropharmacological mechanisms of action of psilocybin are not definitively elucidated, there is evidence that, in addition to interaction with the serotonergic system, psilocybin also seems to interact, though not directly, with the mesolimbic dopaminergic pathway that plays a significant role in the brain's reward system [165]. This proposed indirect mechanism of action is suggested by psilocybin's low addictive/abuse potential [165]. On the same tangent, it has also been hypothesized that there is a positive correlation between depression and dopamine deficiency in the mesolimbic pathways [167].

It is also hypothesized that schizophrenia (and possibly other mood and anxiety disorders) is characterized by dysregulation/disbalance of serotonin and dopamine [168]. In acute psychoses, one study even concludes that 5-HT_{2A} and 5-HT_{1A} serotonergic receptors play an important role in the modulation of striatal dopamine release. This suggests that psilocybin may have significant potential in the treatment of schizophrenia and possibly other psychiatric disorders [168]. In another study, psilocybin was indirectly responsible for an increase in endogenous dopamine via a decrease in 11C-raclopride binding potential bilaterally in the caudate nucleus (19%) and putamen (20%) [169].

A 2021 study by Grandjean and colleagues investigated the effects of psilocybin on functional connectivity (FC) across the entire brain region in mice [170]. One possible mechanism of action by which psilocybin produces anti-depressant effects is via interaction with/alteration of the default-mode net-

crease) of FC between 5-HT-associated networks and cortical areas [170]. This study confirms the interaction of psilocybin with the mesolimbic dopaminergic pathway to produce neural and psychological effects [170]. Data presented in another murine study suggest that psilocin, an active metabolite of psilocybin, has been shown to increase the concentrations of both extracellular dopamine and 5-HT in the mesoaccumbens and/or mesocortical pathway [172]. This presents yet another possible mechanism of anti-depressant action of psilocybin/psilocin, that is, the ability to increase dopamine, a neurotransmitter that is responsible for the regulation of emotions and even an individual's physical well-being [173]. On the same tangent, concentrations of both extracellular dopamine and 5-HT in the ventral tegmental area (VTA) were not affected [172]. This further suggests that, in addition to the ventral tegmental area (VTA), the brain's reward circuity may also be influenced by other regions of the brain.

5-HT_{2A} activation and subsequent activation of postsynaptic α-amino-٣-hydroxy-٥-methyl-٤-isoxazole propionic acid (AMPA) receptors by psilocybin is associated with increased glutamate concentration. Glutamate is responsible for normal, healthy brain functioning [174].

Psilocybin treatment, in some cases with psychological support, also resulted in increased responsiveness to positive emotional stimuli in the right amygdala [44,175] and decreased/normalization of responsiveness to negative or neutral emotional stimuli [112,158,176,177,178,179]. Psilocybin was also shown to attenuate amygdala activation in response to threat-related visual stimuli [177] and reduced threat-induced modulation of the primary visual cortex by the amygdala [177]. The amygdala modulates the primary visual cortex via top-down connectivity [177].

In contrast, other selective serotonin reuptake inhibitors (SSRIs) may produce anti-depressant effects by attenuating the hyper-responsiveness of the amygdala to fearful emotional stimuli, thereby inhibiting negative emotions [44]. Hyperactivity of the amygdala to fearful emotional stimuli is typically characteristic of depression [180]. SSRIs mitigate this hyperactivity to emotional stimuli [180] whereas psilocybin is suggested to increase amygdala activation to positive emotional stimuli [180,181]. In another study, psilocybin treatment also reduced anhedonia [182].

Barrett and colleagues also suggest that psilocybin may even influence brain plasticity as confirmed by the persisting positive effect and increased amygdala response to positive emotional stimuli up to one month post psilocybin treatment [112].

Unlike indoleamine LSD and other hallucinogens that that bind to dopamine D2 receptors to produce the typical dopaminergic "psychotic" experiences, psilocybin and psilocin have no affinity for dopamine D2 receptors [5,99,183], despite the existence of a functional interaction between the serotoninergic and central dopaminergic systems [5]. This functional interaction between the serotoninergic and central dopaminergic systems has been demonstrated in experiments with haloperidol, a D2 receptor antagonist that attenuates the psychotomimetic effects of psilocybin [5].

A study by Carhart-Harris investigated the effects of psilocybin on cerebral blood flow (CBF), and blood-oxygen-level-dependent (BOLD) resting-state functional connectivity (RSFC) via functional magnetic resonance imaging (fMRI) [171]. Post psilocybin treatment, authors reported decreased

dial prefrontal cortex-bilateral interior lateral parietal cortex, and decreased RSFC in the parahippocampal–prefrontal cortex [171]. Alteration of the default mode network is characteristic of mood and anxiety disorders [185] and another possible mechanism of action by which psilocybin produces anti-depressant effects is via interaction with the DMN [171], via disruption of functional connectivity between the medial temporal lobe (MTL) and the DMN [186].

Another fMRI study [181] reports a decreased functional connectivity between the amygdala and the ventromedial prefrontal cortex (vmPFC) in response to fearful and neutral (but not happy) faces after psilocybin treatment. The ventromedial prefrontal cortex (vmPFC) is responsible for emotional processing, action, cognitive behaviour and goal-orientation, and demonstrates top-down inhibitory control on the amygdala [181]. It is suggested then that psilocybin treating, which decreases functional connectivity between amygdala and the ventromedial prefrontal cortex (vmPFC) in response to fearful and neutral (but not happy) faces, also decreases the top-down inhibitory control that the vmPFC has on the amygdala, and ultimately results in increased amygdala activity [181]. In medication-naïve individuals, decreased functional connectivity between the amygdala and the left rostral prefrontal cortex (left rPFC) is characteristic of major depressive disorder [187].

Also characteristic of depression and schizophrenia is an alteration of serotonergic signalling [188]. Thus, drugs that target serotonergic receptors in the prefront cortex may be of clinical importance [188].

3.3. Effects of Magic Mushrooms

The effects of magic mushrooms are dependent on the species of mushroom (and ultimately the concentration of active metabolites in a given species), an individual's mindset an individual's body type (particularly weight, metabolism) and an individual's level of tolerance. Psilocybin's acute psychedelic effects typically become detectable approximately 30–60 min after low to moderate (2–10 g) dosing [41]. Another study reports a range of 3–5 mg p.o. to produce sympathomimetic effects, but not hallucinogenic effects [142]. Hallucinogenic effects are produced within a range of 8–25 mg within 70–90 min [142]. It has been demonstrated that equimolar amounts of psilocybin and psilocin produce similar psychotropic effects in humans [5,189].

Perceptible psychological effects of psilocin correlate with plasma levels between 4 ng/mL and 6 ng/mL [142]. Hasler and colleagues estimate the bioavailability of psilocin to 52.7% (after 10–20 mg psilocybin ingestion) [142]. After a rapid increase in plasma levels of psilocybin, followed by a plateau for approximately an hour, psilocybin levels wane significantly until barely detectable after 6 h [142].

Subjective effects may last between 3 and 6 h [5], after which effects subside to negligible levels [41]. The effects of psilocybin may be classified into four categories: (1) Perceptual, (2) Cognitive, (3) Emotional and (4) Ego Dissolution [99]. More simply, the effects of psilocybin use may be divided into psychic and somatic effects [5] (Table 3).

Table 3

Psychic vs. somatic effects of psilocybin.

Psychic Effects in Humans and Animals (in Medium Dose (12–20 mg p.o.)	Somatic Effects in Humans (Barely Noticeable/Secondary Pharmacological Effects) [5]
1. Stimulation of affect/affective activation [5], 2. Hypnagogic experience [5], 3. Dreams [5], 4. Enhanced ability for introspection [5], 5. Mystical-type experience, which predicted the success of the therapy and likelihood of persisting positive benefits [9,15], 6. Illusions [5], 7. Synaesthesia [5], and 8. Alterations of thought and time sense [5],	At 8–12 mg p.o., i.m.; 1. Mydriasis [189], 2. Accelerated heart frequency [189], 3. Slowed heart frequency [189], 4. Hypotension [189], 5. Hypertension [189], 6. Nausea [189], 7. Increased reflex tendineae [189], 8. Decreased reflex tendineae [189], 9. Dysmetria [189], and 10. Tremors [189] At 0.11 mg/kg p.o, similar effects were observed in another study [190]. At 1.5 mg increased to 25 mg p.o. in three doses per day, for 21 consecutive days, another study reported no significant aberrations in the parameters above [191].

In clinical studies, the clinical outcome, and acute and long-term subjective effects of psilocybin administration are measured using questionnaires such as the Subjective experience (5D-ASC) [72], the Beck Depression Inventory (BDI) [72], the Profile of Mood States (POMS) [69], the State-Train Anxiety Inventory (STAI) [72], the Mystical Experience Questionnaire [72], and the Quick Inventory of Depressive Symptoms (QIDS) [72]. Table 4 lists additional acute and long-term, subjective effects of psilocybin administration. Table 5 lists participants' first-hand experiences and subjective perspectives during and after psilocybin in a 2016 phenomenological study conducted by Zamaria and colleagues [15].

Table 4

Additional acute and long-term subjective effects of psilocybin administration.

	Effect	Reference
1.	Positive changes in personality and increased altruism. This may, in turn, have wider benefits to society and the global environment.	[192,193,194,195,196]
2.	Enhanced feelings of connectedness	[192]
3.	Enhanced-nature relatedness	[40,192]
4.	Pro-environmental behaviour	[192,197]
5.	Decreased violent and criminal behaviour	[198,199,200]
6.	Reduced suicidal ideation	[13,192,200]
7.	Protection against suicidality and psychological distress (lifetime psilocybin-use)	[13]
8.	Tempered politically authoritarian views	[40,192]
9.	Increase in personality domain of openness	[192,201,202]
10.	Ego dissolution. Reduction of egotistical attitudes, narcissism and induces greater prosocial behaviour.	[65,192,203]
11.	Sustained/persisting improvement in attitudes and behaviour.One study reports substantial decreases in depressive and anxious symptoms persisting up to 6 months after a single active treatment. In another study, participants report positive persisting effects in areas of mood, behaviour, and attitudes after up to 14 months after psilocybin therapy.	[2,15,204]
12.	Improved psychological flexibility and feelings of personal meaningfulness, and subsequent improved psychological outlook. Ability to reframe how a patient views their medical conditions, themselves, their lives and relationships with others.	[192]
13.	Increase in one's subjective sense of wellbeing.	[121,158]
14.	Quantum change (meaningful personal transformations)	[192,203]
15.	Enhancement of "meaning responses"	[192]
16.	Increased meditation depth	[205]
17.	Increased incidence of positive self-dissolution	[205]

Table 5

A phenomenological study of participant's experience and subjective perspective during and after psilocybin use report the following first-hand accounts [15].

1.	- Transcendental experience - "Mystical" - "Divine" - "Otherworldly experience" - "Felt like I saw God" - "Deep spiritual experience" - "Connection to something spiritual" - "Connection and spirituality with God" - "Continuity and oneness with God" - "Bliss, heaven, nirvana" - "Mystical and transcendental experience akin to a deep or profound state of meditation or an egoless state" - "Amazement"	[15]
2.	Changes in outlook - "Major shift in attention and perspective of the world" - "Notable and intense change in perspective of the world" - "Noticeable intricacies in environment" - "Clarity" - "Inspiration for behavioral change" - "Reduction in being too concerned about things, in general. Not neglectful, but hopeful". - "Acceptance of concern with aging and death".	[15]
3.	- Unity consciousness and ego dissolution - "Perception of life as a deeper, richer experience" - "Greater connection to nature, to other people, and to all living things" - "At one with the universe and all of existence" - "Every particle of existence felt like an extension of myself" - "Increased "connectedness" and "acceptance"" - "Feeling of being able to explore oneself more with others" - "Intense, beautiful feeling of love and joy and gratitude for everything"	[15,196]
4.	Peace and Happiness - "Incredible, profound calmness and stillness" - "Happiness and contentment" - "Persistent happiness and joy"	[15]

3.4. The Possible Entourage Effect Phenomena in Magic Mushrooms

The phenomenon of the entourage effect suggests that the sum of the contributing parts of a botanical or biological system produce a greater, synergistic effect in comparison to the effect of each individual part when presented alone. The entourage effect is mostly associated with *Cannabis sativa* L.

compound/tryptamine derivative in magic mushrooms, other tryptamine derivatives such as psilocin [206], baeocystin [207], norbaeocystin [207], norpsilocin [207] (Figure 6) and the beta-carbolines such as harmane and harmol [208], may also enhance the effects of psilocybin and the efficacy of psilocybin treatment [208,209]. Thus, it is likely that these hallucinogenic compounds may work in tandem to produce a synergistic effect [208,210,211,212,213].

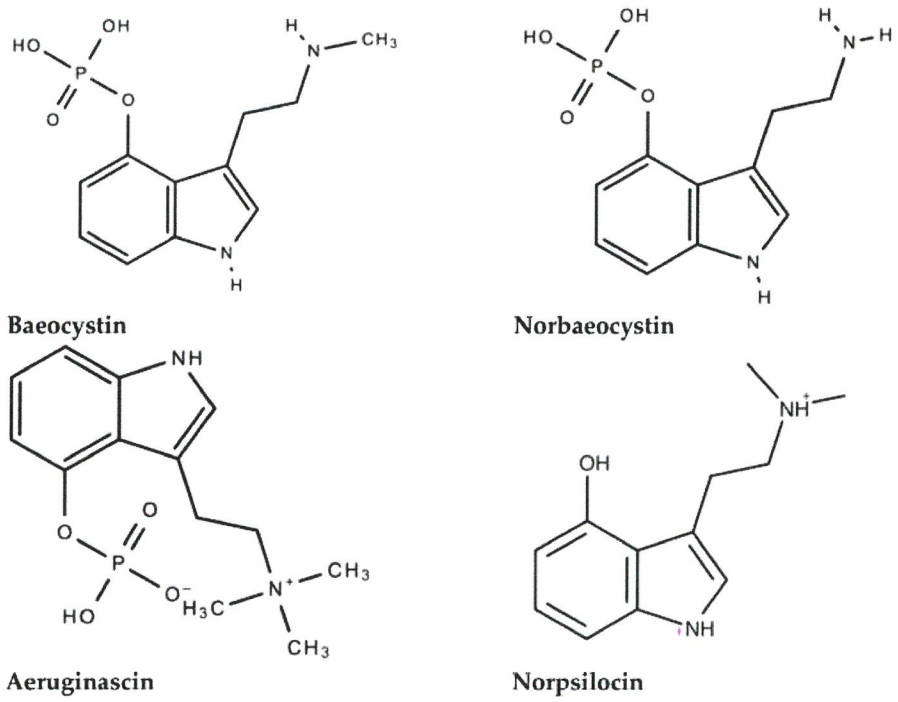


Figure 6

Chemical structures of recently discovered tryptamine derivates that may contribute/enhance the effects of psilocybin and psilocybin-assisted therapy.

It should be noted that the ingestion of magic mushrooms, with multiple compounds present, will likely produce a different effect to the ingestion of a single, isolated compound, like pure psilocybin [208]. This is due to a difference between the pharmacology of whole magic mushrooms and a single, isolated pure compound [208]. This also suggests a synergism of multiple compounds in the mushroom.

In a marble-burying behavior study in mice that mimics anxiety and obsessive–compulsive disorder (OCD), Matsushima and colleagues report the findings that, at the same dose of 0.1 to 1.0 g/kg, a *psilocybe argentipes* mushroom extract was more effective than pure psilocybin alone at reducing marble-burying behaviour without affecting overall locomotion [213]. This too suggests the probable synergistic involvement of multiple bioactive active compounds in the mushroom extract [213].

nium analogue of psilocybin, is also produced in addition to psilocybin and baeocystin [214,215]. Aeruginascin demonstrates a high affinity for the 5-HT_{1A}, 5-HT_{2A}, and 5-HT_{2B} serotonin receptors [216] in producing euphoria-based hallucinogenic effects and, likely modulate the pharmacological action of psilocybin and the psilocybin-experience [217]. Norpsilocin is also a potent 5-HT_{2A} receptor agonist and is even reported to be more potent and possibly more efficacious than psilocin [207], while other the tryptamine derivatives baeocystin and norbaeocystin may serve as prodrugs to the bioactive compounds norpsilocin and 4-hydroxytryptamine, respectively [207], Baeocystin is a direct precursor to psilocybin [218], although it is not hallucinogenic by itself [207].

Further research is necessary to determine potential synergies amongst these compounds and other active and inactive molecules produced by magic mushrooms, and to determine the bioactivity of each compound on its own. On this tangent, practitioners should consider that some patients may require individualized treatments that may require a combined treatment approach as opposed to treatment with a single compound. Table 6 lists some factors that affect therapeutic/clinical outcome of psilocybin administration.

Table 6

Factors that affect therapeutic/clinical outcome of psilocybin administration.

1.	Extra-pharmacological elements (as with any drug). These include age factors, body weight, body size, muscle mass, genetics, drug tolerance, drug interactions, drug purity, dosage, gender, recreational consumption and inexperience with recreational drug use, past experiences with drug use, mindset, setting (context in which drug is used), experimental setting, social interaction, cultural influences, medical history, placebo design and response to placebo, and drug instrumentalization (instruments used to administer drugs).	[192,205,219,220,221,222,223,224,225]
2.	Mindset - Patient attitude and expectations (psychological flexibility/ outlook) - Preconceptions of treatment - Affective processes	[2,192,221]
3.	Setting - Use of music and/or art - Use of religious and spiritual imagery - Engagement with nature - Use of a purpose-built facility	[192]
4.	Psychological support - Intensive clinical care/contact - Supportive and reassuring interaction with therapists/sitters. - Reliable induction of "mystical experience" by clinician/therapist. Mystical experiences after psilocybin administration directly correlate with therapeutic outcome and persisting positive subjective effects.	[15,192]
5.	Specific types of psychological experiences	[2]
6.	Treatment type - Some patients may require personalized/individualized treatment which may involve combination therapy with other drugs. Drug interactions may likely affect psilocybin treatment. - Treatments with mushroom extracts as opposed to pure	

3.5. Adverse Effects, Risks and Contraindications

To reiterate, psilocybin is a Schedule I controlled substance as defined by the United Nations 1971 Convention on Psychotropic Substances. By this definition, psilocybin is considered to have a high abuse potential and is currently not accepted medically. In uncontrolled settings such as in recreation, abuse of psilocybin may lead to what is referred to as a "bad trip". This is an undesired or overwhelm

tress, fear, lack of coordination, derealization, depersonalization, paraesthesiae, heightened fright, panic-attacks, traumatic flashbacks, paranoia, delirium, short-term psychosis and other symptomology characteristics of schizophrenia [228,229,230,231,232,233]. This undesired physical experience may also be accompanied by nausea, vomiting, mydriasis, headache, chills and drowsiness [229,230,234]. Some symptoms may even persist. A "bad trip" is typically treated with benzodiazepines [228].

Mushroom toxicity is also a risk associated with some species of psilocybin mushrooms. Though rare and typically accidental, mushroom poisoning is also a risk, and may lead to minor gastrointestinal illness (such as gastroenteritis), erythromelalgia, rhabdomyolysis, intestinal fibrosis, hypertension, hyperreflexia, liver failure, renal failure, convulsions, bradycardia, and tachycardia [228,230,235]. Mushroom poison may also require medical intervention or emergency hospitalization [230,231]. In general, alcohol and other drugs may exacerbate the psychological and physical risks of psilocybin abuse [229]. On the same tangent, individuals with a personal or family history of severe psychotic and psychiatric disorders are discouraged from using psilocybin, and by extension, other psychedelics [236].

In general, psilocybin is reported to have the most favourable safety profile of all psychedelic drugs [13,237,238]. Thousands of years of anecdotal evidence in addition to modern-day scientific studies confirm that psilocybin has low physiological toxicity, low abuse/addictive liability, safe psychological responses, no associated persisting adverse physiological or psychological effects during or after use [2,5,22,102,158,239,240]. Psilocybin overdose is very rare [241,242]. One such report of psilocybin overdose and subsequent fatality was specifically due to cardiac arrest, some 2–3 h after psilocybin ingestion, in a 24-year-old female who, 10 years prior, had a heart transplant due to end-stage rheumatic heart disease [243].

In patients with mental or psychiatric disorders, suicidal ideation and auto-mutilation are possible risks of magic mushroom ingestion and, though rare, have been documented in the literature [244]. Another risk is the possibility of exacerbating psychotic symptoms [192]. As a result, having psychotic disorders such as schizophrenic tendencies is a contraindication for undergoing psychedelic-assisted psychotherapy, particularly psilocybin-assisted psychotherapy [245].

It is also reported that repeated psilocybin use will build high tolerability but will not lead to physical dependence [5,158,246]. Cross-tolerance with other psychedelics such as LSD and mescaline [7,228,247]) is also a possibility. Discontinued psilocybin use does not typically cause adverse physical effects or symptomology related to drug withdrawal [228]. There is also a chance that psychological withdrawal may occur [228].

The Registry of Toxic Effects of Chemical Substances (RTECS) has assigned psilocybin a therapeutic index of 641, associated with a relatively better safety profile in comparison to nicotine and aspirin, with values of 21 and 199, respectively [102]. Essentially, this means that psilocybin has very low chronic toxicity, moderate acute toxicity, negligible public health and criminal effects [233]. To date, there is no standard value for a lethal dose at neither the recreational nor medicinal levels in humans [240].

cally supervised setting, professor preparatory counseling to induce the right patient mindset, and adequate professional clinical psychological and physiological support [227]. Due to the low physiological toxicity, low abuse/addictive liability, safe psychological responses, no associated persisting adverse physiological or psychological effects during or after use, it is hypothesized that the lethal dose of psilocybin is far greater than the effective dose [248,249,250,251].

3.6. Pharmacokinetics of Psilocin

To reiterate, the effects of magic mushrooms are dependent on the species of mushroom (and ultimately the concentration of active metabolites in a given species), an individual's mindset an individual's body type (particularly weight, metabolism) and an individual's level of tolerance.

Typically, individuals tend to feel the effects of psilocybin mushrooms anywhere between 10 to 40 min, peaks 60–90 min after ingestion of anywhere between 4–10 mg (an estimated 50–300 micrograms per kilogram (μg/kg) of body weight) and then subsides approximately six hours post-ingestion [119,233,241]. Recreationally, users typically ingest anywhere between 10–50 g of fresh mushrooms (1–5 g of dried mushrooms), which corresponds to a dosage of about 10–50 mg psilocybin [233]. According to a study by the John Hopkins University of Medicine, higher doses of psilocybin (20–30 mg/70 kg) directly correlate to positive persisting effects on behaviour, attitude, mood, and general outlook on life up to 14 months after follow-up [227]. On the same tangent, another study also suggests that an oral dose of 25 mg psilocybin (correlating to roughly 0.3 mg/kg of body weight) may be within the therapeutic window [252].

In another study, the pharmacokinetics of escalating oral doses of 0.3, 0.45, and 0.6 mg/kg in 12 healthy adults was also investigated [252]. Though psilocin clearance varied among patients (which may be due to varying rates of psilocin glucuronide metabolite hydrolysis across patients), a linear relationship was reported between psilocin clearance and the twofold range of doses [252]. The mean elimination half-life of psilocin was 3 h with a standard deviation of 1.1 [252]. Renal excretion accounted for less than the 2% intact psilocin found in urine [252]. No psilocybin was found in urine or plasma [252]. These results may mean that increasing dosages of psilocybin typically does not produce any serious physical or psychological effects [252].

Psilocybin has a shorter half-life and duration of action when given intravenously [5,142]. On the same tangent, psilocin has approximately two-thirds of unaltered (3–10%) psilocybin and glucoronidated metabolites are excreted through the kidneys after approximately 3 h [5]. Because the oral bioavailability of psilocin is 52.7% (after 10–20 mg psilocybin ingestion) [142], as a result, it is typically administered orally, but may also be administered intravenously, with comparable efficacy. Table 7 is a list of pharmacokinetic data on psilocin. Figure 7 shows the metabolic pathway of psilocybin.

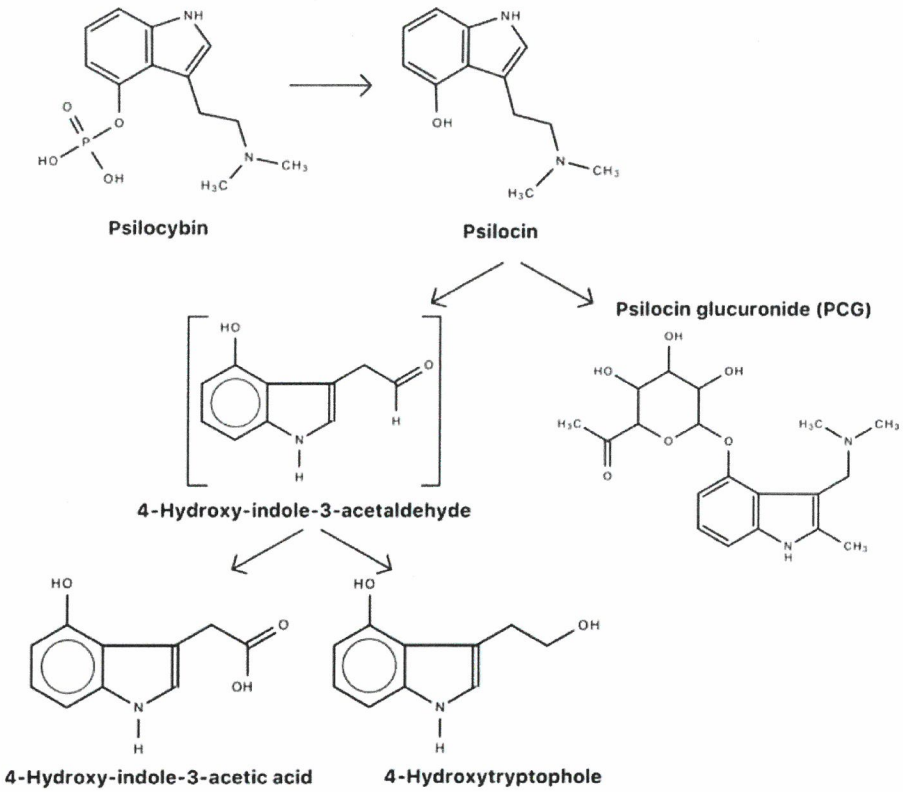


Figure 7

Metabolism of psilocybin [5,253,254].

Table 7

Basic pharmacokinetics of psilocin.

	Type of Administration	Mean Half-Life of Psilocin	Elimination Constant (k_C)	Absorption Constant (k_a)	References
1.	Mouth (PO)	135 min	0.307/h	1.307/f	[245]
2.	Mouth (PO)	163 min	-	-	[142]
3.	Intravenous	74 min	-	-	[142]

After oral administration, most psilocybin, psilocin and glucoronidated metabolites are excreted via the kidneys, typically after about three hours [251]. After about 24 h, almost all psilocybin and psilocin are excreted from the body [251].

4. Economic Analysis of Neuropharmaceuticals Market

tural and government acceptance, the increasing number of published scientific articles, and decriminalization, the burgeoning psychedelic industry has experienced an increase in economic value and a renewed pharmaceutical interest. This increase in value is also the result of more psychedelic companies going public and an increase in investors coming on board, especially since the COVID-19 pandemic and the subsequent collapse of investable cannabis opportunities [255].

In the 2nd quarter of 2019, more than USD 320 million was invested into psychedelic neuropharmaceutical development [255], followed by an estimated USD 100 million investment into various psychedelic research and clinical trials in the 3rd quarter of 2019 [255]. Globally, the psychedelic therapeutic market is predicted to reach a valuation of $6.8 billion by 2027, from USD 2 billion in 2019, at a growth rate of 16.3% [114]. The neurogenic market including mental health drugs, therapeutic services, neurodegeneration drugs and cognitive enhancement was valued at USD 373 billion [255]. The FDA's recent approval of SPRAVATO®, a ketamine analog developed by Johnson and Johnson for use in patients suffering from treatment-resistant depression, and the approval of "breakthrough therapy" statuses for psilocybin treatments for Major Depressive Disorder (MDD) by Compass Pathways Ltd. and the Usona Institute, is also expected to spur the growth of psychedelic research.

Recently, Numinus Wellness Inc. was granted the first Health Canada license to produce and extract psilocybin from mushrooms [256]. This hallmark achievement will spur the growth of the synthetic psilocybin market in particular, and will allow for the rigorous scientific investigation of synthetic psilocybin as an alternative therapeutic option to naturally-occurring psilocybin. This achievement will also allow for the wide-scale production of naturally occurring psilocybin and standardization of cultivation, extraction and testing methodologies—and innovation in said technologies, thereof.

5. Conclusions and Future Direction

Psychedelic-assisted therapies may provide new and significant opportunities to current issues in the conventional treatment of psychiatric disorders. Psilocybin-assisted treatment may be feasible, efficacious, toxicologically safe, physiologically well-tolerated, and may have enormous potential in psychiatric medicine, as evidenced by decades of multiple clinical studies and thousands of years of anecdotal reports [2,5,158]. However, there are limitations that must be overcome before it can become an established part of psychiatric treatment. These limitations include the highly sensationalized global history and lingering negative stigmatization of psychedelic drugs, particularly in the United States, challenges with federal regulations, U.S. Food and Drug Administration (USFDA) and (European Medicines Agency) EMA approval and federal funding for clinical psychedelic studies [2], the lack of standardized psychedelic/psilocybin diagnostic and therapeutic practices [257], particularly in inducing "mystical experiences" that are essential to the outcome of psilocybin therapy [192], lack of larger, more sufficient double-blinded, randomized, clinical studies to assess safety, pharmacology and dose–response relationships for each mood and anxiety disorder [158], and challenges with intellectual property (IP) and securing enforceable patents, seeing that mushrooms grow naturally. A result of this IP challenge is the unwillingness of some investors to invest in the psilocybin industry. However, with the COVID-19 pandemic and the subsequent collapse of investable cannabis opportunities, other investors have found this to be the prime time to invest in psychedelics.

ization of psilocybin mushrooms. In 2019, Denver (Colorado) and Oakland (California) were the first cities to decriminalize (though not legalize) psilocybin and plant and fungi psychedelics such as magic mushrooms, respectively [258]. In 2020, Washington, D.C., voted to decriminalize a select few plant and fungi psychedelics such as mescaline and psilocybin mushrooms [258,259,260,261]. In 2020, Oregon became the first state to legalize (and decriminalize) psilocybin mushrooms for personal development [261,262]. Other states like California are putting in grassroots efforts to decriminalize psychedelic mushrooms. Despite the efforts of multiple cities and states in North America in decriminalizing psychedelic mushrooms, only until there are changes in the federal regulatory framework and accessibility to federal funding will the psychedelic market reach its full potential.

On the contrary, in Jamaica, psilocybin mushrooms are legal and decriminalized, and there is a budding medical psychedelic tourism industry with the rise of psychedelic retreats like the Atman and Mycomeditations retreats [263]. As a result of Jamaica's flexible regulatory framework for psychedelics, overseas companies are coming to the island to set up production and distribution infrastructure for psychedelic mushrooms [264]. In the future, we can expect the rise of psychedelic retreats and ultimately, medical psychedelic tourism in Jamaica.

Psychedelic research is also on the rise in Jamaica. In an attempt to convince the WHO to reschedule psilocybin out of Schedule 1 to more favourable scheduling, it is important that Jamaica's growing psychedelic mushroom industry focus on and be driven by scientific research and evidence-based data.

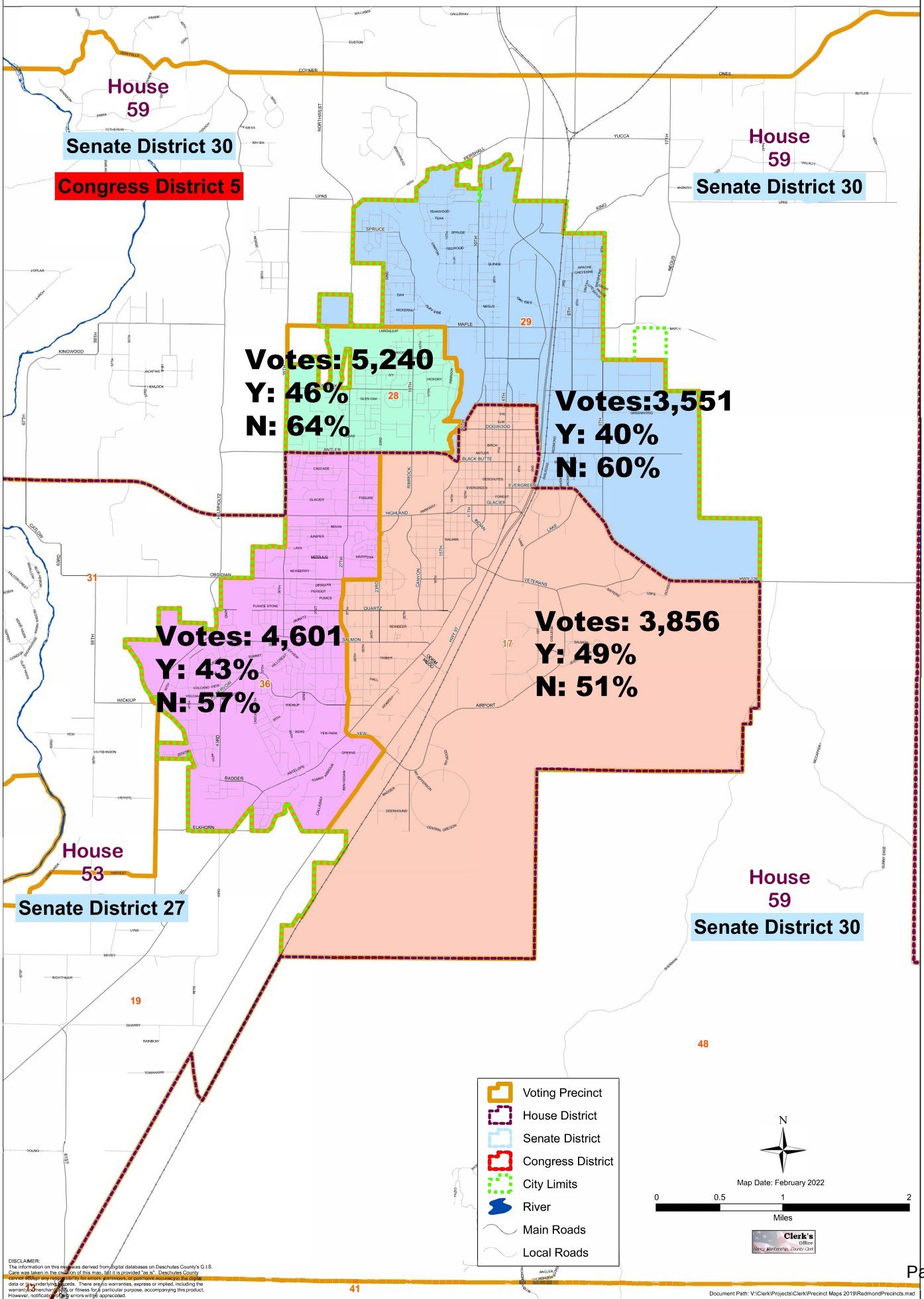
Pioneering plant-based psychedelic research companies such as The Psyence Group, based in Canada, has partnered with the Biotech Research and Development Institute (BRDI) (University of the West Indies, Jamaica), to bring to market novel psilocybin treatments for mental health disorders in Jamaica. Psyence was one of the first to build and operate a federally licensed commercial psilocybin cultivation and production facility in the world [130]. Other overseas companies have also partnered with the University of the West Indies (UWI), Mona to conduct psychedelic research and psilocybin clinical trials studying Major Depressive Disorder and Addiction in Jamaica [264].

With an estimated 20% of Jamaicans suffering from anxiety and depression now exacerbated by COVID-19, psilocybin-assisted therapy may be a viable solution [264].

Additional limitations to psilocybin pharmaceutical research, and psychedelic research in general, include lack of data on psilocybin–drug interactions and combination-medicine studies [99], the lack of data on the effects of psilocybin on brain activity/dynamics/structure and neuroplasticity [99], and the lack of data on the molecular, neurobiological and psychological mechanisms of action and behavioural effects of psilocybin for each diseased state, and the mechanism of action behind persisting positive effects after psilocybin treatment.

The future of psilocybin-based neuropharmaceuticals may also involve the general research and development of psilocybin drugs, the development of individualized neuropharmaceuticals to meet the specific needs of a given patient, combination therapy of psilocybin or psilocin with other drugs (such as cannabis/cannabidiol) [265,266], conventional psychotherapy, and of non-psychoactive analogues

Redmond Area Voting Precincts



In November 2020, Oregon voters approved Ballot Measure 109, known as the Oregon Psilocybin Service Act (codified at ORS 475A), which allows for the manufacture, delivery and administration of psilocybin (mushrooms) at licensed facilities. The Oregon Health Authority (OHA) has begun the rulemaking process to implement Measure 109 and will begin accepting applications for psilocybin licenses in January 2023. This means local governments need to begin thinking about whether and to what extent they want to impose regulations on these types of facilities soon.

The Measure 109 program for psilocybin was modeled after the state's marijuana program. As with the marijuana program, there are different types of licenses that OHA will issue under the state's psilocybin program—manufacturer (production), laboratory (testing), facilitator (server), and service center licenses (location where provided and taken). Also, like the marijuana program, local governments may be involved in this process in three ways:

(1) by imposing prohibitions on all or some of the types of licensed facilities being located within their jurisdictions; (2) by imposing time, place and manner restrictions on such facilities; and (3) by considering a land use compatibility statement (LUCS) that any such facility must acquire before it can obtain a license from OHA.

Accordingly, local governments should consider a few regulatory issues this summer so they are prepared when OHA begins to accept applications for licenses in January 2023:

- Local governments may impose prohibitions on psilocybin manufacturing and service center facilities within their jurisdictions. Importantly, state law already prohibits locating a service center within residential zones of an incorporated city. A local prohibition can be permanent or for a limited duration. As with marijuana prohibitions, however, local psilocybin prohibitions must be approved by the voters during a statewide general election. Thus, if a local government wants to propose a prohibition to the voters, it must do so for this November's election or it will need to wait until the November 2024 election to do so. The deadline to refer a measure to this November's ballot is August 18.

- Instead of a prohibition, local governments may impose time, place and manner restrictions on such facilities. Often, such regulations are included as part of a local jurisdiction's development code, and amendments to such codes can require a somewhat lengthy process, as they typically include providing notice to the state as well as hearings before the local planning commission and governing body. Thus, local governments wishing to impose time, place or manner restrictions on these types of facilities should begin the process this summer. Of note, state law already prohibits the manufacturing of psilocybin products outdoors as well as prohibits locating a service center within 1,000 feet of a school. As noted above, service centers are also already prohibited within a residential zone of an incorporated city. Whether additional regulations are necessary is a decision each jurisdiction should make locally.

Some issues local jurisdictions will not need to consider are local licensing requirements, as well as local taxes, because Measure 109 preempted local ordinances on both. The League of Oregon Cities (LOC) has produced model ordinances to be referred to the voters to prohibit the location of psilocybin facilities within a jurisdiction. In addition, LOC has made available a presentation about psilocybin from OHA for local governments.

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League of Oregon Cities

Model Psilocybin Ordinance & Ballot Measure

JUNE 2022

Cities and counties that desire to prohibit the establishment of psilocybin-related businesses may do so by referral at a statewide general election, meaning an election in November of an even-numbered year. Cities and counties should consult the secretary of state's referral manual and work with the city recorder, elections official, or similar official to determine the procedures necessary to refer an ordinance to the voters.

Once the governing body of a city or county adopts an ordinance, its city or county must submit the ordinance to the Oregon Health Authority (OHA). The OHA will then stop registering and licensing the prohibited businesses until the next statewide general election, when the voters will decide whether to approve or reject the ordinance. In other words, the governing body's adoption of an ordinance acts as a moratorium on new psilocybin-related businesses until the election.

In addition, it is important to note that once election officials file the referral with the county election office, the ballot measure is certified to the ballot. At that point, the restrictions on public employees engaging in political activity will apply. Consequently, cities should consult the secretary of state's manual *Restrictions on Political Campaigning by Public Employees* and their city attorney to ensure that public employees are complying with state elections law in their communications about the pending measure. The model ordinances and ballot measures below contain two versions. The first is a permanent ban of psilocybin-related businesses until the ordinance is repealed and the second acts as a two-year moratorium.

This document is not a substitute for legal advice. City and county councils considering prohibiting psilocybin-related activities should not rely solely on this sample. Any city or county council considering any form of regulation of psilocybin should consult with its city or county attorney regarding the advantages, disadvantages, risks and limitations of any given approach.

Legal counsel can also assist a city or county in preparing an ordinance that is consistent with local procedures, existing ordinances and charter, and advise on what process is needed to adopt the ordinance. The sample provided is intended to be a starting point, not an end point, for any jurisdiction considering prohibiting psilocybin-related activities.

PERMANENT BAN

ORDINANCE NO. _____

AN ORDINANCE DECLARING A BAN ON PSILOCYBIN SERVICE CENTERS AND THE MANUFACTURE OF PSILOCYBIN PRODUCTS

WHEREAS, in November 2020, Oregon voters approved Ballot Measure 109, known as the Oregon Psilocybin Service Act (codified at ORS 475A), which allows for the manufacture, delivery and administration of psilocybin at licensed facilities; and

WHEREAS, ORS 475A.235 provides that the Oregon Health Authority will regulate the manufacturing, transportation, delivery, sale and purchase of psilocybin products and the provision of psilocybin services in the state; and

WHEREAS, the Oregon Health Authority has initiated a rulemaking process to implement the state's psilocybin regulatory program and intends to begin accepting applications for psilocybin-related licenses on January 2, 2023; and

WHEREAS, as of June {date}, 2022, the Oregon Health Authority has not completed the rulemaking process for implementing the state's psilocybin regulatory program, and the City of {city} is uncertain how the manufacture, delivery and administration of psilocybin at licensed psilocybin facilities will operate within the city; and

WHEREAS, ORS 475A.718 provides that a city council may adopt an ordinance to be referred to the electors of the city prohibiting the establishment of state licensed psilocybin product manufacturers and/or psilocybin service centers in the area subject to the jurisdiction of the city; and

WHEREAS, the {city} City Council believes that prohibiting psilocybin product manufacturers and psilocybin service centers within the city's jurisdictional boundaries to enable the adoption of the state's psilocybin licensing and regulatory program and to allow the city to adopt reasonable time, place, and manner regulations on the operation of psilocybin facilities is in the best interest of the health, safety and welfare of the people of {city}; and

WHEREAS, the City Council seeks to refer to the voters of {city} the question of whether to establish a ban on state-licensed psilocybin product manufacturers and psilocybin service centers within the city's jurisdictional boundaries.

Now, therefore,

THE CITY OF {CITY} ORDAINS AS FOLLOWS:

Section 1. **Prohibition**.

The establishment of psilocybin product manufacturers licensed under ORS 275A.290 and psilocybin service centers licensed under ORS 475A.305 is prohibited in the City of {city}.

Section 2. Referral.

This ordinance is referred to the electors of the city of {city} for approval at the next statewide general election on November 8, 2022.

Section 3. Effective Date.

This ordinance takes effect and becomes operative 30 days after the day on which it is approved by a majority of voters.

First reading this ____ day of _____, 2022.

Second reading and passage by this Council this ____ day of _____, 2022.

Signed by the Mayor this ____ day of _____, 2022.

ATTEST:

_____
{NAME}, City Recorder

SIGNED:

_____
{NAME}, Mayor

BALLOT TITLE

A caption which reasonably identifies the subject of the measure.

10-word limit under ORS 250.035(1)(a)

Prohibits psilocybin-related businesses within {city}. [Prohibition sunsets after two years.]

QUESTION

A question which plainly phrases the chief purpose of the measure so that an affirmative response to the question corresponds to an affirmative vote on the measure.

20-word limit under ORS 250.035(1)(b)

Shall {city or county} prohibit {psilocybin-related businesses} in {city or county}?

SUMMARY

A concise and impartial statement summarizing the measure and its major effect.

175-word limit under ORS 250.035(1)(c)

State law allows operation manufacturer, distribution and possession of psilocybin and psilocin. State law provides that a {city or county} council may adopt an ordinance to be referred to the voters to prohibit the establishment of any of those registered or licensed activities.

Approval of this measure would prohibit the establishment of {psilocybin project manufacturers} and/or {psilocybin service center operators} within the area {subject to the jurisdiction of the city} or {in the unincorporated area subject to the jurisdiction of the county.}

****

EXPLANATORY STATEMENT

An impartial, simple and understandable statement explaining the measure and its effect for use in the county voters' pamphlet.

500-word limit under ORS 251.345 and OAR 165-022-0040(3)

Approval of this measure would prohibit the establishment {and operation} of psilocybin-related businesses within the {city or county}.

A {city or county} council may adopt an ordinance prohibiting the establishment of psilocybin related businesses within the {city or county}, but the council must refer the ordinance to the voters at a statewide general election. The {CITY or COUNTY} OF {NAME} {city or county} council has adopted an ordinance prohibiting the establishment of psilocybin-related businesses within the {city or county} and, as a result, has referred this measure to the voters.

If approved, this measure would prohibit psilocybin-related businesses within the {city or county}.

TWO-YEAR MORATORIAM

ORDINANCE NO. _____

AN ORDINANCE DECLARING A TEMPORARY BAN ON PSILOCYBIN SERVICE CENTERS AND THE MANUFACTURE OF PSILOCYBIN PRODUCTS

WHEREAS, in November 2020, Oregon voters approved Ballot Measure 109, known as the Oregon Psilocybin Service Act (codified at ORS 475A), which allows for the manufacture, delivery and administration of psilocybin at licensed facilities; and

WHEREAS, ORS 475A.235 provides that the Oregon Health Authority will regulate the manufacturing, transportation, delivery, sale and purchase of psilocybin products and the provision of psilocybin services in the state; and

WHEREAS, the Oregon Health Authority has initiated a rulemaking process to implement the state's psilocybin regulatory program and intends to begin accepting applications for psilocybin-related licenses on January 2, 2023; and

WHEREAS, as of June {date}, 2022, the Oregon Health Authority has not completed the rulemaking process for implementing the state's psilocybin regulatory program, and the City of {city} is uncertain how the manufacture, delivery and administration of psilocybin at licensed psilocybin facilities will operate within the city; and

WHEREAS, ORS 475A.718 provides that a city council may adopt an ordinance to be referred to the electors of the city prohibiting the establishment of state licensed psilocybin product manufacturers and/or psilocybin service centers in the area subject to the jurisdiction of the city; and

WHEREAS, the {city} City Council believes that prohibiting psilocybin product manufacturers and psilocybin service centers within the city's jurisdictional boundaries to enable the adoption of the state's psilocybin licensing and regulatory program and to allow the city to adopt reasonable time, place, and manner regulations on the operation of psilocybin facilities is in the best interest of the health, safety and welfare of the people of {city}; and

WHEREAS, the City Council seeks to refer to the voters of {city} the question of whether to establish a two-year temporary ban on state-licensed psilocybin product manufacturers and psilocybin service centers within the city's jurisdictional boundaries.

Now, therefore,

THE CITY OF {CITY} ORDAINS AS FOLLOWS:

Section 1. **Prohibition**.

The establishment of psilocybin product manufacturers licensed under ORS 275A.290 and psilocybin service centers licensed under ORS 475A.305 is prohibited in the city of {city}.

Section 2. Referral.

This ordinance is referred to the electors of the city of {city} for approval at the next statewide general election on November 8, 2022.

Section 3. Effective Date.

This ordinance takes effect and becomes operative 30 days after the day on which it is approved by a majority of voters.

Section 4. Sunset.

This ordinance is repealed on December 31, 2024.

First reading this ____ day of _____, 2022.

Second reading and passage by this Council this ____ day of _____, 2022.

Signed by the Mayor this ____ day of _____, 2022.

ATTEST:

_____
{NAME}, City Recorder

SIGNED:

_____
{NAME}, Mayor

BALLOT TITLE

A caption which reasonably identifies the subject of the measure.

10-word limit under ORS 250.035(1)(a)

Prohibits psilocybin-related businesses within {city}. [Prohibition sunsets after two years.]

QUESTION

A question which plainly phrases the chief purpose of the measure so that an affirmative response to the question corresponds to an affirmative vote on the measure.

20-word limit under ORS 250.035(1)(b)

Shall {city or county} prohibit {psilocybin-related businesses} in {city or county}?

SUMMARY

A concise and impartial statement summarizing the measure and its major effect.

175-word limit under ORS 250.035(1)(c)

State law allows operation manufacturer, distribution and possession of psilocybin and psilocin. State law provides that a {city or county} council may adopt an ordinance to be referred to the voters to prohibit the establishment of any of those registered or licensed activities.

Approval of this measure would prohibit the establishment of {psilocybin project manufacturers} and/or {psilocybin service center operators} within the area {subject to the jurisdiction of the city} or {in the unincorporated area subject to the jurisdiction of the county.}

****

EXPLANATORY STATEMENT

An impartial, simple and understandable statement explaining the measure and its effect for use in the county voters' pamphlet.

500-word limit under ORS 251.345 and OAR 165-022-0040(3)

Approval of this measure would prohibit the establishment {and operation} of psilocybin-related businesses within the {city or county}.

A {city or county} council may adopt an ordinance prohibiting the establishment of psilocybin related businesses within the {city or county}, but the council must refer the ordinance to the voters at a statewide general election. The {CITY or COUNTY} OF {NAME} {city or county} council has adopted an ordinance prohibiting the establishment of psilocybin-related businesses within the {city or county} and, as a result, has referred this measure to the voters.

If approved, this measure would prohibit psilocybin-related businesses within the {city or county} until December 31, 2024.

Local Government Partners Webinar
Introduction to The Oregon Psilocybin Services Act

Angie Allbee, Section Manager
Jesse Sweet, Policy Analyst
Jennifer Violette, Licensing Program Manager
Gil Garrott, Compliance Program Manager
Oregon Psilocybin Services

June 17, 2022

Oregon Health Authority

PUBLIC HEALTH DIVISION
Oregon Psilocybin Services

Oregon Psilocybin Services Section

Oregon Psilocybin Services is a new section housed within the Oregon Health Authority Public Health Division's Center for Health Protection.

The OPS team has been designed around three program areas:

- **Policy and Engagement**
- **Licensing**
  - **Local Government and Law Enforcement Liaison position**
- **Compliance**

Each program will center on health equity, including outreach to partners and communities and working to ensure access to services.

Ballot Measure 109: The Oregon Psilocybin Services Act

In November of 2020, Ballot Measure 109, the Oregon Psilocybin Services Act was passed by voters in Oregon. The ballot measure is now codified as ORS 475A.

M109 created a license and regulatory framework for production of psilocybin and facilitation of psilocybin services for adults 21 years of age and older and created the Oregon Psilocybin Advisory Board that makes recommendations to OHA.

M109 does not:

- Create a consumer market for psilocybin
- Allow for export or import of psilocybin
- Allow licensees to interact with unregulated markets

License Types

Manufacturer License

- Cultivates fungi and manufactures psilocybin products
- Cannot cultivate outdoors
- Premise must have defined boundaries
- Cannot exceed production quantities established in rule
- Product tracking system required to track manufacturing, sale and transfer of psilocybin products to prevent diversion, ensure accurate accounting, ensure accurate reporting of lab testing results

Laboratory License

- All psilocybin products must be tested by a licensed lab prior to sale.
- Labs must be accredited by the Oregon Environmental Laboratory Accreditation Program
- Testing results must be entered in the product tracking system

License Types (cont'd)

Facilitator License

- Supervises sessions where clients consume psilocybin.
- Must complete **OHA approved training program** as a condition of licensure.
- Must pass exam approved or administered by OHA

Service Center License

- Cannot be located within 1000 feet of a school
- Must have defined boundaries
- Transfers psylocibin products to client for use during administration session

Psilocybin Services

Psilocybin will only be administered to persons 21 years or older in licensed service center settings under the supervision of trained and licensed facilitators.

Psilocybin Services may include:

- Preparation Session
- Administration Session
- Integration Session (optional)

Product tracking system required to track manufacturing, sale and transfer of psilocybin products to:

- Prevent diversion
- Ensure accurate accounting
- Ensure accurate reporting of lab testing results

Local Government Issues

Local Government Opt-Out:

- Local governments (cities and counties) may adopt ordinances that prohibit Manufacturers and Service Centers
- Ordinances must be referred to voters at the next general election

Local Government Time Place and Manner Regulations

- Local governments may adopt reasonable regulations on hours, location, and operation of licenses

Land Use Compatibility Statements (LUCS)

- Applicants for Service Center and Manufacturer licenses are required to request a LUCS from their local government before submitting a license application

Site Requirements

Service Centers:

- GIS mapping tool for school proximity
- Cannot be located on public land; must have defined boundaries
- Cannot be located within a residence
- Cannot be located in an area within city limits that is zoned exclusively for residential use

Manufacturers:

- Cannot be located on public land; must have defined boundaries
- Outdoor cultivation is prohibited
- Landlord must consent to use

TPM:

- OPS will not track local time place and manner regulations

License and Application Fees, Taxes

License and Application Fees

- License and application fees will be set in rule later this year
- Oregon Psilocybin Services will be a fee-based program and fees must cover the costs associated with the agency's work

Taxes

- Service Centers collect a 15% tax on the sale of psylocibin products payable to Oregon Department of Revenue
- Local taxes and fees are prohibited
- Psilocybin services are not taxed

OHA Key Dates

- **November 24, 2021:** Preliminary recommendations from OPAB
- **December 2021:** Public Listening Sessions
- **January 1, 2022:** Community Interest Survey
- **May 13, 2022:** Effective Date for Expedited Rules.
- **June 1, 2022:** OHA begins accepting applications for training programs
- **June 30, 2022:** Recommendations for Remaining Rules
- **July 2022:** Public Listening Sessions
- **September 2022:** RAC for Remaining Rules
- **November 1-21, 2022:** Public Comment for Remaining Rules
- **December 30, 2022:** Effective Date for Remaining Rules
- **January 2, 2023:** OHA begins accepting applications for licensure

Thank You!

Please visit our website:

https://www.oregon.gov/psilocybin

CITY OF REDMOND
RESOLUTION NO. 2022-24

A RESOLUTION OF THE CITY OF REDMOND CITY COUNCIL, DECLARING A BAN OR TEMPORARY BAN ON PSILOCYBIN SERVICE CENTERS AND/OR THE MANUFACTURE OF PSILOCYBIN PRODUCTS.

WHEREAS, in November 2020, Oregon voters approved Ballot Measure 109, known as the Oregon Psilocybin Service Act (codified at ORS 475A), which allows for the manufacture, delivery and administration of psilocybin at licensed facilities; and

WHEREAS, ORS 475A.235 provides that the Oregon Health Authority will regulate the manufacturing, transportation, delivery, sale and purchase of psilocybin products and the provision of psilocybin services in the state; and

WHEREAS, the Oregon Health Authority has initiated a rulemaking process to implement the state's psilocybin regulatory program and intends to begin accepting applications for psilocybin-related licenses on January 2, 2023; and

WHEREAS, as of August 16, 2022, the Oregon Health Authority has not completed the rulemaking process for implementing the state's psilocybin regulatory program, and the City of Redmond is uncertain how the manufacture, delivery and administration of psilocybin at licensed psilocybin facilities will operate within the city; and

WHEREAS, ORS 475A.718 provides that a city council may adopt an ordinance to be referred to the electors of the city prohibiting the establishment of state licensed psilocybin product manufacturers and/or psilocybin service centers in the area subject to the jurisdiction of the city; and

WHEREAS, the Redmond City Council believes that prohibiting psilocybin product manufacturers and/or psilocybin service centers within the city's jurisdictional boundaries to enable the adoption of the state's psilocybin licensing and regulatory program and to allow the city to adopt reasonable time, place, and manner regulations on the operation of psilocybin facilities is in the best interest of the health, safety and welfare of the people of Redmond; and

WHEREAS, the City Council seeks to refer to the voters of Redmond the question of whether to establish a ban or moratorium on state-licensed psilocybin product manufacturers and/or psilocybin service centers within the city's jurisdictional boundaries.

NOW, THEREFORE, be it resolved, by the City of Redmond City Council as follows:

SECTION ONE: City Council hereby calls for submission of the ballot title for publication of notice for the purpose of submitting to the electors of the City of Redmond the [establishment of psilocybin product manufacturers licensed under ORS 275A.290 and psilocybin service centers licensed under ORS 475A.305] is prohibited in the City of Redmond for consideration at the General Election on November 8, 2022.

SECTION TWO: The election will be conducted by the Deschutes County Clerk. The precincts for the election shall include all territory within the City of Redmond and no other territory.

SECTION THREE: City Council will submit the ballot caption, question and summary for the measure as determined by Council.

SECTION FOUR: City Council will submit the explanatory statement for the measure as determined by Council.

SECTION FIVE: The City Council directs the City Manager, the City Recorder or their respective designees (each an "Authorized Representative") to take all necessary steps to effectuate this resolution, including providing public notice and submitting required materials to the Deschutes County Clerk.

SECTION SIX: The provisions of this Resolution are severable. The invalidity of any section, clause, sentence, or provision of this Resolution shall not affect the validity of any other part of this Ordinance which can be given without such invalid part or parts.

SECTION SEVEN: This resolution shall be effective on this 16th day of August 2022.

ADOPTED by the City Council and **SIGNED** by the Council President this 16th day of August 2022.

_____
Robert J. Patrick, Council President

ATTEST:

_____
Kelly Morse, City Recorder

CITY OF REDMOND

CITY HALL
411 SW 9th STREET
REDMOND, OR 97756
541.923.7710
FAX: 541.548.0706
info@redmondoregon.gov
redmondoregon.gov

STAFF REPORT

DATE: August 16, 2022
TO: Redmond City Council
THROUGH: Keith Witcosky, City Manager
FROM: Zachary Bass, Airport Director
SUBJECT: Bid award to Central Oregon Roofing for replacing the roof on the Airport Rescue and Firefighting Station: $92,150.

Addresses Council Goal:
5.B.iii. Aggressively pursue physical improvements to airport facilities, increase amenities and enhance customer experience.

Report in Brief:
This action requests City Council award a $92,150 contract to Central Oregon Roofing for the replacement of the roof liner on the Airport Rescue and Firefighting (ARFF) Station 403 Building.

Background:
The ARFF building was constructed in 1998. The expected 15-year lifespan of the roof membrane is well past life expectancy and needs replacement. Over the years, the Airport has extended the utility of the roof system by conducting preventative maintenance and repairing small tears. At this time, the roof membrane has deteriorated to the point that a full replacement is needed.

Discussion:
The ARFF roof overlay replacement will maintain the integrity of the building for the next 20 years and will save time and money on repairs caused by water damage. Four companies were invited to provide quotes; Central Oregon Roofing and Northwest Quality Roofing were the two responsive companies. After careful review of both quotes and comparing total cost and warranty length (20 years vs. 15 years), it was found that Central Oregon Roofing would be the best choice for this project.

Fiscal Impact:
The Fiscal Year 2022/23 budget includes $65,000 for this item. Due to increasing costs, the price to replace the roof is $27,150 higher than budget. This additional cost can be covered by savings identified within the Airport's operating budget.

Alternative Courses of Action:
1. Authorize the contract
2. Do not authorize the contract
3. Request more information

Recommendation / Suggested Motion:
"I move to award the contract for replacement of the Airport Rescue and Firefighting Station roof to Central Oregon Roofing in the amount of $92,150 and authorize the City Manager to sign the contract."

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STAFF REPORT

DATE: August 16, 2022
TO: Redmond City Council
THROUGH: Keith Witcosky, City Manager
FROM: Zachary Bass, Airport Director
SUBJECT: Bid award to Central Oregon Roofing for repairing the roof on an Airport-owned hangar: $74,800.

Addresses Council Goal:
5.B.iii. Aggressively pursue physical improvements to airport facilities, increase amenities and enhance customer experience.

Report in Brief:
This action requests City Council award a contract in the amount of $74,800, to Central Oregon Roofing, for repair of the roof on an Airport-owned hangar.

Background:
The hangar requiring repair was constructed in 1980. The proposed contract would include costs associated with the installation of a protective coating to the existing aging metal roof. The current roof has had on-going maintenance issues requiring increasingly more expensive short-term fixes. Besides adding 15 years of life to the roof, the repair helps lower the surface temperature, which can lead to less energy use within the building.

The hangar is being leased to a long-term tenant for $66,225 annually. It also has an annual 3% cost escalator. The tenant uses the hangar as a business for maintaining, supplying, and building aircraft. The on-going issues with the roof are causing disruption to their operations and, as their landlord, we are contractually required to repair it.

Discussion:
Four companies were invited to provide quotes. Two responded: Central Oregon Roofing and Northwest Quality Roofing. After reviewing both quotes and comparing the total cost and warranty, it was found that Central Oregon Roofing would be the best choice for this project.

Fiscal Impact:
The Fiscal Year 2022/23 budget included $65,000 for this item. Due to increasing costs, the price to replace the roof is $9,800 higher than budget. This additional cost can be covered by savings identified within the Airport's operating budget.

Alternative Courses of Action:

1. Approve the contract
2. Do not approve the contract
3. Request more information

Recommendation / Suggested Motion:
"I move to award a contract for repairing the roof on an Airport-owned hangar to Central Oregon Roofing in the amount of $74,800 and authorize the City Manager to sign the contract."

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STAFF REPORT

DATE:	August 16, 2022
TO:	Redmond City Council
THROUGH:	Keith Witcosky, City Manager
FROM:	Zachary Bass, Airport Director
SUBJECT:	Bid award to Apollo Mechanical Contractors for the repair and replacement of the Airport Terminal HVAC chiller system: $107,511.

Addresses Council Goal:

5. Establish Redmond Municipal Airport as the best Airport of its size in the country.
5A. Maintain comfort, safety and security as the number one priority for the airport.

Report in Brief:

This item requests City Council approval to award a $107,511 contract to Apollo Mechanical Contractors to remove, repair and replace the Chiller Condenser Tubes to ensure redundancy to the Airport HVAC system.

Background:

The Redmond Municipal Airport relies on two chillers to provide air conditioning to more than 140,000 square feet of terminal space. Combined, these chillers have the capacity to provide 400 tons of cooling, compared to a home unit that is typically 2-5 tons. During the last preventative maintenance, it was noted that chiller #2 was losing refrigerant and repairs were needed. Due to the refrigeration leak, unit #2 was evacuated (refrigerant removed) and placed out of commission. With only one chiller, we can provide comfortable temperatures inside the terminal in mild weather. However, when the outdoor temperatures exceed 80 degrees, we do not have the capacity to adequately cool the building. With this investment, the additional chiller not only allows added capacity, but also provides redundancy to assure the facility is cooled.

Discussion:

Three proposals were received and reviewed by the Airport: MacDonald-Miller, Johnson Controls and Apollo Mechanical Contractors, Inc. After evaluating cost and mechanical experience, the Airport recommends the contract be awarded to Apollo Mechanical Contractors, Inc.

Fiscal Impact:

The Fiscal Year 2022/23 budget included $86,000 for this item. Due to increasing costs, the price to repair and replace the HVAC chiller system is $21,500 higher than budget. This additional cost can be covered by savings identified within the Airport's operating budget.

Alternative Courses of Action:

1. Approve the contract
2. Do not approve the contract
3. Request more information

Recommendation / Suggested Motion:

"I move to award the contract for repair and replacement of the Airport Terminal HVAC chiller system to Apollo Mechanical Contractors Inc. in the amount of $107,511 and authorize the City Manager to sign the contract."