

Administrative Committee



Regular Meeting ~Agenda~

Laurie M. Hopkins
City Clerk

www.ci.moscow.id.us

208.883.7015

Monday, February 25, 2019

4:30 PM

**Council Chambers
206 E. Third St.**

REGULAR AGENDA

1. Approval of Administrative Committee January 14, 2019 Minutes (ACTION ITEM) - Laurie M. Hopkins

Minutes presented for approval.

PROPOSED ACTIONS: Approve minutes, amend minutes, or provide staff further direction

2. Request Authorization for Beer Garden for Renaissance Fair 2019 (ACTION ITEM) - Dwight Curtis

In accordance with Moscow City Code 5-13-4(B), Renaissance Fair 2019 is requesting that the City Council pass a Resolution allowing them to have a beer garden catered by a licensed vendor in East City Park for Renaissance Fair on May 4, 2019 between 11:30 a.m. and 7:30 p.m., and May 5, 2019, from 12:00 p.m. and 5:00 p.m. The event is open to the public and there have been no issues related to this request since the first beer garden request was approved in 2016.

PROPOSED ACTIONS: Recommend approval if the beer garden request for 2019 Moscow Renaissance Fair per the attached Resolution, or provide staff further direction.

3. City of Moscow Comprehensive Plan Update (ACTION ITEM) - Mike Ray

In 2017 the Moscow Planning and Zoning Commission initiated the process of updating the 2009 Comprehensive Plan. The Commission went through the entire Plan updating community data, maps, and the objectives and implementation actions. The Planning and Zoning Commission also consulted with other City Commissions to update the sections of the Plan that pertain to those Commissions. On October 24, 2018, the Commission conducted an Open House meeting which coincided with the start of a thirty day public comment period that ran until November 23, 2018. Numerous comments were received during the open comment period and many were subsequently incorporated in the final draft document. Then on January 23, 2019 the Commission conducted a public hearing on the proposed update and recommended approval to City Council with no modifications. This item has been scheduled for public hearing at the Council's upcoming March 4, 2019 meeting.

PROPOSED ACTIONS: Recommend forwarding the item for public hearing upon the proposed update at the Council's upcoming March 4, 2019 meeting; or provide staff further direction.

NOTICE: Moscow City Council and committee meetings are televised, videotaped and/or recorded. Individuals attending the meeting who require special assistance to accommodate physical, hearing, or other impairments, please contact the City Clerk, at (208) 883-7015 or TDD 883-7019, as soon as possible so that arrangements may be made.



Administrative Committee

Regular Meeting ~Minutes~

Laurie M. Hopkins
City Clerk

www.ci.moscow.id.us

208.883.7015

**Monday
January 14, 2019**

4:30 PM

**Council Chambers
206 E. Third St.**

The meeting was called to order at 3:00 PM

PRESENT: Kathryn Bonzo Councilmember, Brandy Sullivan Councilmember, Gina Taruscio Councilmember

OTHERS: Mayor Bill Lambert, Council Member Art Bettge

STAFF: Gary Riedner, Tyson Berrett, Roger Lanier, Tim Davis, Bill Belknap, Brian Nickerson, Leah Carlson, Mia Vowels, Amanda Argona, Laurie Hopkins

Staff suggested an amendment to the agenda adding a public meeting for a lot division. At the Council organizational meeting which took place January 7, the Council changed the meeting times of the committees. The good faith reason is that the notice for the public meeting was set for 4:30 p.m. prior to the meeting time switch. Bonzo moved to add the lot division public meeting to the agenda. Taruscio seconded. Vote was unanimous.

1. Selection of Committee Chair and Vice Chair (ACTION ITEM)

Sullivan was selected as Chair and Taruscio as Vice Chair.

2. Approval of Administrative Committee December 10, 2018 Minutes (ACTION ITEM) – Laurie M. Hopkins

The minutes were approved as presented.

3. Public Meeting - Proposed Lot Division at 433 Southview Avenue (ACTION ITEM) - Leah Carlson

Nils Peterson and the Moscow Affordable Housing Trust are requesting a lot division for a 9,247 square foot parcel of land located at 334 Southview Avenue in the City of Moscow. The owner proposes to establish three townhouse lots of approximately 3,258 sf, 2,591 sf, and 3,398 sf from the original parcel. The subject property is located within the Medium Density (R-3) Zoning District. The minimum lot size for a townhouse lot in the R-3 Zoning District is 2,000 sf and the minimum lot width is 20 feet. The three proposed lots are sufficiently sized to meet these requirements. Property owners within 600 feet of the subject property have been notified of the proposed division and notice of the public meeting was posted on site seven (7) days prior to the public meeting date.

PROPOSED ACTIONS: *Take public comment if applicable and recommend approval of the lot division request with no conditions; or recommend approval of the lot division request with conditions; or recommend denial of the lot division request; or provide staff further direction.*

Carlson introduced the item as written above.

Nils Peterson, Moscow Affordable Housing Trust, spoke on the percentage of median income and Moscow jobs coming in below that income. By dividing the lot, the price of a lot is manageable. The housing trust is implementing energy and water saving programs in the new houses assist with the overall operating costs. Land use is important with R-3 providing more density and transportation options. The

Committee reviewed the item and recommended approval with no conditions and that it be placed on the consent agenda.

4. Alcohol Resolution for City-Sponsored Events in City Hall (ACTION ITEM) - Jen Pfiffner

The Moscow Farmers Market has been an active sponsor of Love Your Farmer, Love Your Food and was the initiator of the original event in 2015. The event's intention is to provide an opportunity for community members to engage with local producers and their regional food system during the Market's off-season. The event has continued to be a collaborative partnership with other local food entities including Moscow Food Co-op, University of Idaho-Extension, Rural Roots, and the Palouse-Clearwater Food Coalition. The Moscow Farmers Market is interested in holding the event at City Hall in Council Chambers on Wednesday, February 20, 2019 from 6:00 to 8:00 p.m. and would like to feature a no-host bar from Moscow Brewing Company to accompany the light appetizers provided by the Moscow Food Co-op. Currently, the only City entity allowed to feature a no-host bar in City Hall is the Arts Department during Third Street Gallery art openings. The Moscow Farmers Market, as part of the Community Events Division would like to propose broadening the scope of Resolution No. 2010-04 to allow other City Departments to pursue having a no-host bar in City Hall and the Third Street Gallery. This flexibility would provide additional options for other events hosted at City Hall such as executive socials, Commission Fairs and the like.

PROPOSED ACTIONS: Recommend approval of the proposed resolution or provide staff further direction.

Riedner introduced Amanda Argona. Argona introduced the item as written above. This resolution is proposed with administrative approval as it only involves City-sponsored events. Staff confirmed they do not anticipate events going past 8:00 p.m. The Committee reviewed and recommended approval and asked that it be placed on the regular agenda.

5. Amendment to Comprehensive Sanitation System Master Plan Services Agreement (ACTION ITEM) - Tim Davis

The Sanitation Department procured the services of Great West Engineering, Boise, Idaho, for the development of a Comprehensive Sanitation System Master Plan (CSSMP) on February 26, 2018. The CSSMP process concluded with a City Council workshop presentation on October 28, 2018. One of the primary focuses of the CSSMP was the assessment of the condition and level of service provided at the existing Moscow Recycling Center (MRC). The evaluation was predicated on: 1.) potentially relocating MRC to a different location; 2.) relocating the baling/processing component of MRC to the Latah Sanitation, Inc. Solid Waste Processing Facility east of Moscow on highway 8; 3.) providing the City an opportunity to improve on services, safety and accessibility of MRC and yard waste facility. Based on the CSSMP and discussions at the City Council workshop, staff understood the direction to be to explore integrating prototypical conceptual facility designs developed by Great West Engineering to the existing MRC site. This will likely require relocation of the MRC baling/processing building. Staff has requested that Great West Engineering submit an amendment proposal to the CSSMP Agreement to perform preliminary design at the MRC for City Council consideration. The preliminary design will develop up to two schematic layout designs for the MRC and yard waste site for future City Council consideration of a preferred alternative. The project is estimated to take approximately four months to complete and the cost of the proposed amendment is \$35,713.

PROPOSED ACTIONS: Recommend approval of the proposed Amendment to the Comprehensive Sanitation System Master Plan with Great West Engineering; or provide staff further direction.

Davis introduced the item as written above. The baling operations has been scheduled to move to Latah Sanitation (LSI) all along as there is no place to store the bales and according to the Conditional Use Permit, they must be stored inside the building. LSI purchased property adjacent to the landfill and are

making plans to accommodate the baling operations. They also have representation on the steering committee. The yard waste drop off needs to be updated and without moving the building, there is not a lot that can be done with the property. Next steps are to provide different layouts for the property, determine a preferred alternative, and send out a request for proposals. The Committee reviewed the agreement and asked it be placed on the regular agenda.

6. Request to Dispose of Surplus SCBA and Extrication Equipment (ACTION ITEM) - Brian Nickerson

The Moscow Fire Department purchased 40 new self-contained breathing apparatus (SCBA) in FY2018. This purchase included 8 SCBAs which were funded through FEMA grant. The new SCBAs replaced 32 units which were nearing mandatory replacement, but still had useful life. During the FY2018 budget process, it was determined that the City would surplus and try to sell the 32 replaced SCBAs. 16 SCBAs have been sold, leaving a balance of 16 yet to sell. Four of the SCBAs will be transferred to the Water Department, to replace obsolete equipment. The Fire Department has also been contacted by Big Canyon Fire District, located in Peck, Idaho. Big Canyon Fire District has no SCBA equipment and have a limited budget. Big Canyon Fire District has asked the City to consider donating 12 SCBAs to their District.

In addition, the Fire Department recently replaced their outdated hydraulic extrication equipment with state-of-the-art electric equipment. The vendor of the new equipment would not take the outdated hydraulic extrication equipment on trade, indicating that it had no resale value. Big Canyon Fire District has no extrication equipment, and would like to utilize the surplus hydraulic extrication equipment.

PROPOSED ACTIONS: Recommend authorization to transfer 12 SCBAs and hydraulic extrication equipment to Big Canyon Fire District without compensation, or provide staff further direction.

Nickerson introduced the item as written above. Mayor Lambert said the items have become obsolete for Moscow and surplusing the items to a small jurisdiction with limited funding is the right thing to do. Riedner added Idaho law does allow cities to transfer/donate equipment. A fire truck was donated to Deary years ago. The Committee reviewed and recommended approval and asked that it be placed on the consent agenda.

7. Proposed Adjustment for POST Academy Attendance (ACTION ITEM) - Gary J. Riedner

Recently it has come to the attention of City management that Moscow Police Officers attending POST academy are/were required to attend training activities which extended beyond 40 hours in a work week. The United States Department of Labor Fair Labor Standards Act (FLSA) requires that time worked by non-exempt employees in excess of 40 hours per week must be compensated at one and one-half times the employee's hourly rate of pay. In the past, Moscow Police Officers attending POST were paid their regular hourly wage for 40 hours per week. Time in excess of 40 hours was not compensated, likely because attendance at POST was considered an "apprenticeship" as defined by the FLSA, and therefore not subject to the 40-hour regulation. After inquiry, review of the program was conducted by the City Attorney, who concluded that the POST program does not meet the FLSA requirements for an apprenticeship. The accompanying memo from the City Supervisor outlines the proposed resolution to adjust affected police officers' pay to compensate them for the overtime incurred.

PROPOSED ACTIONS: Recommend adjustment of affected police officers' pay pursuant to the attached memo to compensate them for the overtime incurred while attending POST academy or provide staff further direction.

Riedner introduced the item as written above. Staff also researched all officers that were in city employment and were required to attend POST of which sixteen officers are still employed. The City is not obligated to pay however staff felt it was the right thing to do. The budget impact would be \$5,300

and there is capacity to do so. The Committee reviewed and recommended approval and asked that it be placed on the regular agenda.

The meeting adjourned at 5:10 p.m.

COMMITTEE STAFF REPORT

DATE: Monday, February 25, 2019



RESPONSIBLE STAFF

Dwight Curtis, Parks & Recreation Director

ADDITIONAL PRESENTER(S)

OTHER RESOURCES

AGENDA ITEM TITLE

Request Authorization for Beer Garden for Renaissance Fair 2019 (ACTION ITEM) - Dwight Curtis

DESCRIPTION

Renaissance Fair 2019 is requesting that the City Council pass a Resolution allowing them to have a beer garden catered by a licensed vendor in East City Park for Renaissance Fair on May 4, 2019 between 11:30 a.m. and 7:30 p.m., and May 5, 2019, from 12:00 p.m. and 5:00 p.m. The event is open to the public and there have been no issues related to this request since the first beer garden request was approved in 2016.

The location of the beer garden has not changed and the map is attached.

Security will be provided by Allied Barton Security Services. No City police officers are required. The Acting Chief of Police has reviewed the request, as well as the safety requirements addressed in the agreement, and had no issue with this request.

STAFF RECOMMENDATION

Recommend approval of beer garden request for Moscow Renaissance Fair 2019 per the attached Resolution.

PROPOSED ACTIONS

PROPOSED ACTIONS: Recommend approval if the beer garden request for 2019 Moscow Renaissance Fair per the attached Resolution, or provide staff further direction.

FISCAL IMPACT

PERSONNEL IMPACT

ATTACHMENTS

1. MEMORANDUM-2019-MRFAcoholUsePermit
2. RenFair 2019 Beer-Wine Agreement 2-25-19
3. RenFair 2019 Beer-Wine Hold Harmless Agreement 2-25-19
4. RenFair Beer Garden Map 2019

MEMORANDUM

5 February 2019

To: Dwight Curtis, Director
City of Moscow Parks and Recreation Department

From: Dean Pittenger, Beer Garden Coordinator
Randy Emerson, President
Moscow Renaissance Fair
P.O. Box 8848, Moscow, ID 83843
Dean Pittenger Cell: 208-874-7144

Re: Request for Alcohol Permit for 2019 Moscow Renaissance Fair

The sole mission of the Moscow Renaissance Fair (MRF) is to produce Moscow's annual celebration of spring. Always held the weekend of the first Sunday in May, the two-day craft and music festival provides a venue for area artists, craftspeople and musicians, and a fundraising opportunity for local non-profit groups, which run all the food booths. There is no charge for admission and many free activities for children. Held outdoors in East City Park, our main motivation is to encourage the community to get outside and throw off winter – dance, have fun with kids and meet up with friends to enjoy great music, exceptional shopping and fantastic food.

Given the success and popularity of the MRF Beer Garden, we are look forward to sponsoring this event in 2019. We will work with Hunga Dunga Brewing Company of Moscow again this year. The beer garden will remain in the same location as last year - just north of, and adjacent to, the Peter Basoa Stage in East City Park. A map of the park showing the location of the approximately 50' x 30' area is attached. A portion of this area will be covered by an awning and the entire area will be fenced as per the standard Resolution conditions. The beverages will be vended from a tent erected along the pavement at the NE corner of the asphalt apron adjacent to the stage.

In keeping with the policy of the Moscow Renaissance Fair that crafters, artisans and food providers create what they sell, we are pleased to work with Moscow's Hunga Dunga Brewing Company. We are working closely with Owner Graham Lilley and Sales Manager Eric Bjerkestrand to ensure a safe, enjoyable weekend for all. Their catering permit request has been filed with Moscow City Clerk, Laurie Hopkins. Both Hunga Dunga Brewing Company and Moscow Renaissance Fair have purchased insurance policies as per the Resolution conditions and will file proof of such with the City Clerk as soon as possible.

The 2019 Moscow Renaissance Fair will take place Saturday, May 4th, and Sunday, May 5th. The fair starts up at 10:00 a.m. both days. Music ends at 7:30 p.m. on Saturday and the fair closes at 5:00 p.m. on Sunday. The beer garden will be open 11:30AM to 7:30 p.m. on Saturday and 12:00-5:00 p.m. on Sunday.

Moscow Renaissance Fair has engaged Allied Universal Security to provide security in the beer garden as recommended by Moscow Police Department Chief James Fry. Two (2) Allied Universal Security professionals will be present at all times while alcohol is being served. Hunga Dunga will provide staff to check IDs at the entrance to the beer garden. There will be a single opening in the fence on the south side of the area for both entrance and exit posted with an "Over 21 Only" sign. Only beer and wine will be sold in the beer garden and only by Hunga Dunga Brewery staff.

Summary

Event: 46th Annual Moscow Renaissance Fair

Dates/hours of event: Saturday, May 4, 2019, 10:00 a.m. to 7:30 (beer garden 11:30 a.m. – 7:30 p.m.)
Sunday, May 5, 2019, 10:00 a.m. to 5:30 p.m. (beer garden 12:00 - 5:00 p.m.)

Event sponsor: Moscow Renaissance Fair

P.O. Box 8848

Moscow, ID 83843

Contacts:

Dean Pittenger, Beer Garden coordinator, 208-874-7144, dpitt@moscow.com

Randy Emerson, MRF President, 509-595-6004, president@moscowrenfair.org

Vendor: Hunga Dunga Brewing Company

333 N. Jackson

Moscow, ID 83843

208-596-4855

Contact: Eric Bjerkestrand

509 496-5051

Proposed changes to standard Resolution:

1. Beer and wine may be dispensed from taps and thus not in original containers.

RESOLUTION NO. 2019 -

A RESOLUTION OF THE CITY OF MOSCOW, A MUNICIPAL CORPORATION OF THE STATE OF IDAHO, TO ALLOW FOR THE TEMPORARY VENDING OF BEER AND/OR WINE IN EAST CITY PARK UNDER SPECIFIC REGULATIONS AND UNDER CERTAIN LIMITED CONDITIONS, PURSUANT TO MOSCOW CITY CODE 5-13-4(B); PROVIDING THIS RESOLUTION TO BE EFFECTIVE UPON ITS PASSAGE AND APPROVAL.

WHEREAS, Moscow City Code 5-13-4(B) prohibits the possession of alcoholic beverages while present in a public park in the City of Moscow, Idaho (hereinafter “City”) except in accordance with specific regulations adopted by Council by Resolution; and

WHEREAS, East City Park in Moscow is a City Park as defined at Moscow City Code 5-13-3(D) (hereinafter “the Park”); and

WHEREAS, Moscow Renaissance Fair (hereinafter “the Permitted Event(s)”) is an event or series of events sponsored by Moscow Renaissance Fair (hereinafter “the Event Sponsor”), intended to promote family and community fellowship; and

WHEREAS, Council wishes to allow for the vending and responsible consumption of beer and/or wine under certain conditions contained herein, and during limited hours during the Permitted Event(s); and

WHEREAS, the Event Sponsor has paid the fee associated with the consideration of this Resolution; and

WHEREAS, Council wishes to prohibit the sale and/or consumption of liquor during the Permitted Event(s); and

WHEREAS, Council believes the regulations contained herein are appropriate; and

WHEREAS, Council believes that the specific regulations contained herein balance health and safety concerns of citizens, with the desire to promote responsible consumption of beer and wine; and

WHEREAS, nothing contained in this Resolution is intended to waive other laws and regulations applicable to the sale and consumption of alcohol within City limits; and

WHEREAS, nothing contained within this Resolution is intended to endorse or support any particular belief, philosophy, or political position of the Event Sponsor or of the Permitted Event(s), and/or its affiliates, associations, contributors, supporters, participants, etc.;

NOW, THEREFORE, BE IT RESOLVED by the Mayor and City Council of the City of Moscow, Idaho as follows:

SPECIFIC REGULATIONS ON THE SALE AND/OR CONSUMPTION OF BEER AND/OR WINE DURING MOSCOW RENAISSANCE FAIR 2019:

Intent:

This Resolution is intended to allow the sale and consumption of beer and wine only (and not liquor), pursuant to these specific regulations and is not intended to amend or expand the Moscow City Code or any other applicable law or regulation beyond the scope of the particulars of this Resolution or beyond the hours of the Permitted Event(s). Other than as specifically provided herein, park, sanitary, health, litter, police, fire, sidewalk café, alcohol vending, and other laws and regulations shall be unaffected by this Resolution. This Resolution shall not establish precedent nor shall it apply to any event other than the Permitted Event(s) held on the 4th day of May 2019, from 11:30 a.m. to 7:30 p.m. and on the 5th day of May, 2019 from 12:00 p.m. to 5:00 p.m. local time.

Liability, Insurance and Safety:

1. No less than ten (10) days prior to the Permitted Event(s) at which the licensed vendor will sell beer and/or wine, the Event Sponsor shall deliver to the City Clerk one (1) copy of written proof that the licensed vendor has current, paid up, off-premise alcoholic beverage liability insurance or special event insurance in an amount not less than One Million Dollars (\$1,000,000) combined single limits.
2. No less than ten (10) days prior to the first activity of the Permitted Event(s) herein described, the Event Sponsor shall deliver to the City Clerk one (1) copy of written proof that the Permitted Event(s) has obtained current, paid up, general liability insurance or special event insurance in an amount not less than One Million Dollars (\$1,000,000) combined single limits. Such general liability insurance or special event insurance policy shall be primary to any other insurance related to these events and to that of any potential party subject to a claim related to the Permitted Event(s).
3. City shall be named as an additional insured on the insurance policy of the licensed vendor.
4. No less than ten (10) days prior to the Permitted Event(s), the Event Sponsor shall deliver to the City Clerk the signed original of the agreement, attached as Exhibit "A", with City to defend, hold harmless and indemnify City of Moscow, Idaho, its agents, servants, employees, officers and contractors from any and all claims, causes of action or damages which may arise from the Event Sponsor use of the Park premises.
5. The Moscow Police Chief or designee is hereby empowered to order the immediate cessation of all activities allowed under this Resolution at any time he/she reasonably determines that it is in the best interest of City to do so. There shall be no appeal from a determination by the Moscow Police Chief or his/her designee to terminate all or part of the Permitted Event(s).

Vendor:

1. There shall be only one (1) licensed vendor of beer and/or wine at the Permitted Event(s);
2. All alcoholic beverages shall be sold only by a licensed vendor;
3. Every licensed vendor shall comply with all alcohol related laws and regulations, including, but not limited to, the City requirement of a catering permit;
4. The name, address, telephone number, alcohol license permit number of every licensed vendor, and proof of insurance covering the vendor's activities (as required herein) shall be provided to the City Clerk no less than ten (10) days prior to the Permitted Event(s) at which such licensed vendor shall sell alcoholic beverages;
5. The City shall play no role in determining which vendor shall be selected to sell beer and/or wine beverages in the Park during the Permitted Event(s); described herein
6. The vendor shall provide at least two (2) persons to check proper identification for those who shall be sold beer and/or wine during the Permitted Event(s). These persons shall be clearly identified and shall be stationed at the entrance to the designated sales and consumption area and no less than ten feet (10') from any sales or dispensing counter;

7. There shall be at least two (2) security officers from a City-approved security firm, clearly identified as such, providing security on duty at all times whenever beer and/or wine is being served. The Event Sponsor and City both specifically understand and acknowledge that the Event Sponsor shall be solely responsible for any and all liability resulting from action or inaction, negligence, and/or gross negligence by security provided by the Event Sponsor for the Permitted Event(s), including, but not limited to, every police officer required by this Agreement.

Sales and Consumption:

1. No less than ten (10) days prior to the Permitted Event(s) at which the licensed vendor will sell beer and/or wine, the Event Sponsor shall deliver to the City Clerk three (3) copies of a site map which shall be drawn to show the locations, dimensions of, and relative distances between the following: (a) the beer and/or wine garden within the Park; (b) the barricade, sales and/or dispensing area, consumption area, entry and exit points; (c) identification checking station; and (d) food sales and service areas. Said site design and any subsequent alterations shall be approved in writing by Moscow City Parks and Recreation Director or his/her designee, and by the Moscow Chief of Police prior to the Permitted Event(s).
2. All beer and/or wine sales and consumption shall take place within the area designated by the Event Sponsor and as shown on the site map required by this Resolution;
3. The designated sales and service area(s) shall be physically separated from the rest of the Park by a barricade which is no less than forty four inches (44") tall and which is constructed so no person can pass under, over, or through it except at established entry and exit points located, as shown, on the site map required by this Resolution. All sales, dispensing, service, and consumption shall take place inside the approved barricade;
4. All food sales and service shall be located outside the approved barricade and have a space of no less than ten feet (10') between the approved barricade and food sales or service area;
5. No person shall be allowed to purchase, consume or possess alcohol other than within the area designated for beer/wine sales and consumption as shown on the map required by this Resolution;
6. There shall be no more than one (1) entrance and one (1) exit to each area designated for beer and/or wine consumption, as shown on the map required by this Resolution;
7. All beer and/or wine shall be dispensed in and consumed from its original container. Such container shall be a readily identifiable container not more than sixteen ounces (16 oz.) in size which shall not bear a logo for a non-alcoholic beverage;
8. Every occupant within the area(s) designated for beer and/or wine consumption shall provide identification to law enforcement officers or City employees who request it.
9. No person under twenty one (21) years of age shall be present in the area(s) designated for beer and/or wine sales or consumption at any time beer/wine is being served.
10. A sign shall be prominently posted at or near the entrance and exit to each area designated for beer and/or wine sales or consumption stating that entrance by persons under twenty one (21) years of age is prohibited.
11. Beer and wine shall be sold only within the designated areas at the Park only between the hours of 11:30 a.m. and 7:30 p.m. local time on the 4th day of May, 2019 and between the hours of 12:00 p.m. and 5:00 p.m. local time on the 5th day of May, 2019.
12. Beer and wine shall be consumed only within the designated area at the Park only between the hours of 11:30 a.m. and 7:30 p.m. local time on the 4th day of May, 2019 and between the hours of 12:00 p.m. and 5:00 p.m. local time on the 5th day of May, 2019, during the Permitted Event(s);
13. No person shall carry or consume an alcoholic beverage within the Park which is not purchased or dispensed from the licensed vendor at the Permitted Event(s) and consumed within the approved consumption area. Consumption of alcohol within the Park and outside of the approved consumption area shall be considered a violation of the City's open container ordinance.

Failure To Comply:

Failure to comply with this Resolution shall expose any such person to all relevant civil and criminal consequences and may result in denial of subsequent applications for alcohol permits in public parks for a period of no less than five (5) years.

PASSED AND APPROVED by the Mayor of the City of Moscow, Idaho, this ____ day of _____, 2019.

Bill Lambert, Mayor

ATTEST:

Laurie M. Hopkins, City Clerk

Attachment: Hold Harmless Agreement

EXHIBIT "A"

Ren Fair Beer Garden Map 2019



AGREEMENT TO DEFEND, TO HOLD HARMLESS AND TO INDEMNIFY
BETWEEN CITY OF MOSCOW, IDAHO AND
MOSCOW RENAISSANCE FAIR
FOR THE MOSCOW RENAISSANCE FAIR EVENT

THIS AGREEMENT TO DEFEND, TO HOLD HARMLESS AND TO INDEMNIFY, between City of Moscow, Idaho (hereinafter "CITY") and the sponsor of the event, Moscow Renaissance Fair (hereinafter "RENFAIR"), is made and entered into this _____ day of _____, 2019.

WHEREAS, Resolution No. 2019-_____ of the City of Moscow, Idaho, passed and approved on the _____ day of _____, 2019, provides, in part, for the person(s) and or group holding the approved event to enter into an agreement with CITY to defend, hold harmless and indemnify CITY, its agents, servants, employees, officers, and contractors from any and all claims, causes of action, or damages which may arise from the sponsor's use of CITY Park premises for the approved event; and

WHEREAS, this Agreement meets such requirement;

NOW, THEREFORE, CITY and RENFAIR agree as follows:

AGREEMENT TO DEFEND, HOLD HARMLESS, AND INDEMNIFY;

RENFAIR, through its duly and specifically authorized agents, hereby releases CITY and agrees, contracts and covenants not to bring suit, and agrees to defend, hold harmless, and indemnify CITY, its officers, employees, agents and representatives from any and all claims, costs, judgments, awards, or liability to any person, including claims by RENFAIR's own agents, officers, employees and representatives to which RENFAIR might otherwise be immune, arising from the Moscow Renaissance Fair event scheduled to occur May 4, 2019 through May 5, 2019, permitted under the terms of Resolution No. 2019-_____, except for claims based upon the sole negligent, intentional acts of CITY.

RENFAIR expressly agrees that this indemnity provision extends to any and all claims for injury, sickness, or death of any person, including officers, employees, agents and representatives arising out of, related to, or caused by the presence, dispensing, sale, gift, or ingestion of alcohol by RENFAIR or its officers, employees, agents and representatives including, but not limited to, the caterer and/or vendor of alcohol during the Moscow Renaissance Fair event.

Inspection, review and/or acceptance by CITY of any activity performed by or during Moscow Renaissance Fair or any activity or non-activity by CITY police officers or other officers, employees, agents or representatives of CITY, shall not be grounds for avoidance of any of the

covenants of defense, indemnification or hold harmless by RENFAIR in behalf of CITY contained in this Agreement.

RENFAIR agrees that she/he (i) has read the foregoing Agreement, understands it, and agrees with its contents and conditions; (ii) has had an opportunity to speak with legal counsel prior to signing this Agreement; and (iii) understands that the terms of this Agreement are contractually and legally binding and that no verbal statement to the contrary, by any person, can void or alter the terms of this Agreement.

SIGNED this ____ day of _____, 2019.

RENFAIR

CITY OF MOSCOW, IDAHO

Randy Emerson, President

Bill Lambert, Mayor

ATTEST:

Laurie M. Hopkins, City Clerk

ACKNOWLEDGMENT

STATE OF IDAHO)
) ss.
COUNTY OF LATAH)

On this _____ day of _____, 2019, before me, a Notary Public in and for said State, appeared Randy Emerson, known to me to be the person named above and acknowledged that he executed the foregoing document as having been specifically authorized and having authority to bind Moscow Renaissance Fair to this Agreement.

Notary Public for the State of Idaho
Residing at _____
My commission expires _____

Ren Fair Beer Garden Map 2019



COMMITTEE STAFF REPORT

DATE: Monday, February 25, 2019



RESPONSIBLE STAFF

Michael Ray, Assistant CD Director/Planning Manager

ADDITIONAL PRESENTER(S)

OTHER RESOURCES

N/A

AGENDA ITEM TITLE

City of Moscow Comprehensive Plan Update (ACTION ITEM) - Mike Ray

DESCRIPTION

In 2017 the Moscow Planning and Zoning Commission initiated the process of updating the 2009 Comprehensive Plan. The Commission went through the entire Plan updating community data, maps, and the objectives and implementation actions. The Planning and Zoning Commission also consulted with other City Commissions to update the sections of the Plan that pertain to those Commissions. On October 24, 2018, the Commission conducted an Open House meeting which coincided with the start of a thirty day public comment period that ran until November 23, 2018. Numerous comments were received during the open comment period and many were subsequently incorporated in the final draft document. Then on January 23, 2019 the Commission conducted a public hearing on the proposed update and recommended approval to City Council with no modifications. This item has been scheduled for public hearing at the Council's upcoming March 4, 2019 meeting.

STAFF RECOMMENDATION

Recommend forwarding the item for public hearing upon the proposed update at the Council's upcoming March 4, 2019 meeting; or take other such action deemed appropriate.

PROPOSED ACTIONS

PROPOSED ACTIONS: Recommend forwarding the item for public hearing upon the proposed update at the Council's upcoming March 4, 2019 meeting; or provide staff further direction.

FISCAL IMPACT

PERSONNEL IMPACT

N/A

ATTACHMENTS

1. NPH CC Comprehensive Plan 03-04-19
2. memo - 2019 Comp Plan Update
3. Comp Plan Final Draft 12-6-18
4. 2018 Comp Plan Public Comments (r)

NOTICE OF PUBLIC HEARING

A Legislative Public Hearing on the Proposed Update to the City of Moscow Comprehensive Plan

A public hearing at which you may be present and speak will be conducted before the Moscow City Council at which time the following matter will be considered:

A proposed update to the City of Moscow Comprehensive Plan. A copy of the proposed Comprehensive Plan Update is available for public review at the Community Development Department located in the Paul Mann Building at 221 East Second Street, Moscow, Idaho and on the internet at <https://www.ci.moscow.id.us/686/Comprehensive-Plan-Update>. All interested parties, including residents with the City of Moscow and the surrounding area are encouraged to attend and participate.

The City of Moscow Planning and Zoning Commission conducted a public hearing on this matter on January 23, 2019, and recommended adoption of the proposed Comprehensive Plan update with no modifications.

HEARING DATE: Monday, March 4, 2019

HEARING LOCATION: Council Chambers on the Second Floor of Moscow City Hall
206 East Third Street, Moscow, Idaho

MEETING TIME: 7:00 p.m.

Note: Meeting start time is not necessarily indicative of hearing start time for the proposal advertised in this notice. Multiple hearings and/or agenda items may make it difficult to determine hearing start time, which could occur late in the meeting.

A copy of the proposed Comprehensive Plan Update is available for public review at the Community Development Department located in the, Paul Mann Building at 221 East Second Street, Moscow, Idaho and on the internet at <https://www.ci.moscow.id.us/686/Comprehensive-Plan-Update>. Please call 883-7035 to get a meeting agenda and further information about the matter.

Verbal testimony at the hearing is generally limited to three (3) minutes time. Minor amounts of written materials (less than two (2) pages) may be submitted to the hearing body at any time prior to the close of comments, as determined by the hearing body. More in depth written materials require at least five (5) calendar days for review prior to the hearing. You may obtain further information about the public hearing process and procedures on the City's Website at: <http://id-moscow.civicplus.com/593/Public-Hearing-Notices>

Laurie M. Hopkins, City Clerk


Anne Peterson, Deputy City Clerk

Publish: Saturday, February 2, 2019

Memo

To: City Council
From: Mike Ray, AICP, Planning Manager
Date: February 20, 2019
Re: 2019 Comprehensive Plan Update

The Comprehensive Plan is a statement of the community's values and policies to guide the long-range physical development of the City and the Area of City Impact. Through the vision, goals, objectives, policies, and implementation strategies, the Plan provides a framework for decision-making regarding land use and community character, all modes of transportation, adequate and affordable housing, livable neighborhoods, adequate public facilities and services, and economic development.

In 2009 the Moscow City Council adopted a re-write of the Comprehensive Plan after two years of public engagement and drafting of the plan. The last time the Plan had been updated was 1999. An extensive public outreach and participation program was conducted at the time which included neighborhood meetings, community-wide meetings, working groups, a steering committee, and public hearings before Planning and Zoning Commission and City Council.

In order to be effective and successful, the Comprehensive Plan must be a "living" and dynamic document. Since community decision-makers rely on the Plan, it is important that periodic reviews and amendments be made to keep the Plan current. The document should be reviewed, evaluated, and updated every five to ten years with the most up-to-date information, methods, and maps; to reaffirm community values; and amend the objectives and implementation steps.

In 2017 the Moscow Planning and Zoning Commission initiated the process of updating the 2009 Comprehensive Plan. The Commission has gone through the entire Plan updating community data, maps, and the objectives and implementation actions. The Planning and Zoning Commission has also consulted with other City Commissions to update the sections of the Plan that pertain to those Commissions. On October 24, 2018, the Commission conducted an Open House meeting which coincided with the start of a thirty day public comment period that ran until November 23, 2018. Numerous comments were received during the open comment period and many were subsequently incorporated in the final draft document. A summary of the updates which have occurred to each chapter of the Plan are below.

Plan Goals and Objectives

Overall Plan Goal

The overall Plan goal has remained unchanged from the 2009 Plan, which is to provide for sustainable, incremental growth while preserving and enhancing the distinctive characteristics of Moscow, and its rich and vibrant economic, cultural, social, and physical environments.

The community of Moscow wishes to manage physical and economic growth through sustainable policies while maintaining and promoting the unique character of neighborhoods and providing for the needs of all residents.

Chapter 1: A Vision for Moscow

The first chapter of the Plan establishes community values, plan goals and objectives, community context, and natural resources. Community values and the plan goals and objectives have remained the same, but much of the community demographic information has been updated since the 2009 Plan. The 2010 Census and annual American Community Surveys have provided much of the updated information within the chapter and items such as current population, population projections, and university enrollment have all been updated.

Updates within the Natural Resources portion of the chapter include floodplain information and a new section on the local response to changing global climate conditions. The new floodplain information discusses the 2013 University of Idaho Recreation Center/Paradise Creek daylighting project and subsequent Letter of Map Revision (LOMR) that was approved by FEMA. The 2013 LOMR remapped the floodplain from the US95/HWY8 south couplet to Perimeter Drive which resulted in the removal of a large portion of the 100-year floodplain from the area to the southwest of downtown.

The Planning and Zoning Commission is proposing to insert a new section at the end of the chapter that addresses the local response to changing global climate conditions. The inserted language within this new section largely came from the recommendations of the Sustainable Environment Commission. There are seven local areas of concern in regards to changing global climate conditions: water, air quality, energy usage, transportation, infrastructure and environmental impacts, climate migration, and food security. Each section describes potential issues that could occur and recommendations to help mitigate the impacts.

Chapter 2: Community Character and Land Use

The second chapter in the Plan is devoted to community character and land use. Similarly to Chapter 1, all of the community demographic data has been updated. Information that has been updated includes university and college enrollment, elementary and secondary school enrollment, housing unit inventory, projected future housing demand, affordable housing, home occupations, historic districts, urban renewal districts, and landscaping.

There are two maps that are associated with the Community Character and Land Use Chapter, the Existing Land Use map and the Future Land Use map. Each map contains land use designations with narrative descriptions which guide the application of the designations to certain areas of the City. The Existing Land Use map depicts the current development character of land located within the City limits and the Area of City Impact. The designations depict not only land uses, but also the character of the development as reflected in the physical built environment (street network configuration, structure type and placement and neighborhood age). The Existing Land Use map has been updated to reflect changes that have occurred since 2009 and two designations that weren't used within the map were also removed.

The Future Land Use map represents how and where the City will grow over the course of the next two decades and beyond. The Future Land Use Plan is an integral part of the Comprehensive Plan and represents the most desirable land uses based upon the goals and objectives stated in the Comprehensive Plan in consideration of existing uses and development and physical characteristics of the community. The land use designations form the basis for zoning, and thereby the location of housing, commercial, and industrial areas.

The most significant change to the Future Land Use map and the associated land use designations is the shift from the Neighborhood Conservation (NC) districts concept. The NC designation was originally applied to most of the City's existing developed neighborhoods with the intention of developing neighborhood specific zoning districts that would describe prevailing lot sizes, permitted uses, and still allow for improvement and expansion of existing development. Since the adoption of the 2009 Comprehensive Plan, there have been numerous Zoning Code amendments which have allowed more flexibility for properties located within existing neighborhoods and have therefore alleviated the need for neighborhood specific zoning districts. The NC designation has also been problematic when reviewing land use actions such as rezones for Comprehensive Plan compliance because there is a lack of detail regarding the intended density and permitted uses.

The Commission is proposing to eliminate the NC designation, add more detail to the existing designations to provide better guidance, and add designations such as High Density Residential which currently don't exist. The Future Land Use map has then been updated to replace the NC designated areas with appropriate designations that will guide future development in those areas. Implementation actions have also been updated to reflect tasks which have already completed such as the allowance of accessory dwelling units and establishing the Legacy Crossing Overlay District between downtown and the University.

Chapter 3: Community Mobility

The third chapter in the Plan covers community mobility and is intended to ensure the integration and coordination of the City's transportation systems with regional facilities and all modes of transportation. Planning for the orderly development and continuity of the City's street and pathway systems as well as connectivity to regional transportation networks is important to be able to ensure the efficient delivery of services and navigation by residents and visitors. Transportation systems should

enable safe access and promote alternative mode use for all modes of mobility, including pedestrians, bicyclists, motorists and public transit users of all ages and abilities.

Updates within Chapter 3 include community demographic data, bicycle commuter data, vehicle collision data, integration of the Public Art Master Plan, and updated Street Tree Program information. There are currently four maps which are contained within this chapter which include the Thoroughfare Plan, Accident-Prone Intersections, Multipurpose Pathways, and Transit Routes. The most significant update within the mapping section is the Thoroughfare Plan, which has been updated to reflect the findings of the 2014 Multi-Modal Transportation Plan. Changes include a cost/benefit analysis which recommended the elimination of the alternative highway bypass in the eastern quadrants of the City. The Transportation Commission has recommended that existing roadway alignments be used in the eastern quadrants in lieu of the alternative highway bypass, which has been reflected in the proposed Thoroughfare Plan.

The other significant change within the Thoroughfare Plan is the functional classification of some of the major streets within the City. The Multi-Modal Transportation Plan recommends that 'A' Street and Third Street be upgraded to minor arterial designation from their current collector status. After lengthy discussions by the Planning and Zoning Commission, it is also recommended that Sixth Street be designated as a minor arterial as well.

Chapter 4: Parks, Recreation and Open Space

The fourth chapter of the Plan is the parks, recreation, and open space chapter. Parks, open space, and recreation facilities are essential parts of a healthy, quality, and sustainable community environment. They provide necessary components in human existence for events outside of the home, after work, and beyond school activities. Whether for passive or active use, park areas and recreation facilities are an important part of everyday active living. Much like streets and sidewalks, water and wastewater lines, drainage facilities, police and fire equipment, and other municipal facilities and services, parks and open space are integral components of the municipal infrastructure. They warrant a significant level of attention and commitment of resources to be adequately acquired, constructed, operated, and maintained.

The primary changes within Chapter 4 include updates to community demographic data, the addition of parks that have been dedicated since 2009, and amended existing and future parks needs assessments. New parks include Baker Street Park, Lillian Woodworth Otness Park, Indian Hills Park, Morgan's Orchard Park, Edible Forest Park, and Itani Park. Also updated was the name change of East Gate Park to Triangle Park which occurred in 2018.

Chapter 5: Public Utilities, Services, and Growth Capacity

Chapter five evaluates the City's projected growth in light of its available water supply, public facilities, infrastructure, services, and available land for development and redevelopment. The chapter is divided into five sections: Potable Water, Sanitary Sewer, Storm Sewer, Emergency Services, and Waste Management. Most of the

updates within the water and sewer sections reflect two plans which have been adopted since 2009, the 2012 Comprehensive Water System Plan and the 2011 Comprehensive Sewer System Plan. Other updates within the water section include the addition of Well #10 which is currently under development, well production information, total water production, and updates to the Palouse Basin Aquifer Committee Water Action Plan. The City has also implemented a number of water conservation strategies including lawn reduction and low-flow toilet rebate programs.

Updates to the sanitary sewer section include a change to the name of the Wastewater Treatment Plant to the Water Reclamation and Reuse Facility. Other updates include a summary of improvements that have been made to the sanitary sewer system since 2009. The storm water and public safety sections only saw minor updates. The solid waste and recycling section has been updated with data regarding the curbside single-stream recycling program that was implemented in 2016 and expanded in 2017 to include multi-family and commercial entities.

Chapter 6: Economic Development

The sixth chapter of the Plan is dedicated to economic development which means different things to different people. For the purposes of this Comprehensive Plan, it means strengthening and diversifying the City's economy by building upon existing assets, providing business and employment opportunities for City residents, and taking steps to create an environment that offers greater potential for upward mobility. The chapter begins with identifying the region and the major employers and industries. The major employers have changed slightly since 2009 and information regarding the type and number of employees has been updated. Employment and income has also been updated for the top five industries with more than 20 employees.

Sections which cover the University of Idaho and Washington State University have been updated with current trends in student enrollment, employment, and the economic impact that students bring to the region. All other sectors of the economy have been updated with recent data including healthcare, manufacturing, agriculture, information, retail, tourism, and construction. Other economic indicators have also been updated including labor force, unemployment, underemployment, and demographics. Compatible target industries that the City wishes to actively promote have also been updated. The compatible industries include: arts, entertainment, and recreation; professional, scientific, and technical services; healthcare and social services; and tourism.

Chapter 7: Implementation

The last chapter in the Plan sets out an implementation framework, details plan administration, the plan amendment process, and ends with language regarding evaluation and updating of the Plan. The only substantial change that was made to Chapter 7 was within the evaluation and updating section. There was previously a directive to prepare an evaluation and appraisal report that is intended to identify the successes and shortcomings of the plan and implementation measures in light of relevant changes in the City, the region, the nation, and the world during the previous five years, and to make recommendations as to how the plan should be modified to address those successes, shortcomings, and changes. The Planning and Zoning

Commission has proposed to eliminate the evaluation and appraisal report and instead go directly to a review and potential update that will be coordinated by the Community Development Department and Planning and Zoning Commission.

On January 23, 2019 the Planning and Zoning Commission conducted a public hearing on the proposed Comprehensive Plan update and recommended approval to City Council with no modifications. This matter has been scheduled for public hearing before Moscow City Council on March 4, 2019.

Introduction and Purpose

COMPREHENSIVE PLAN

This Comprehensive Plan is a statement of the community's values and policies to guide the long-range physical development of the City and its Area of City Impact. Through the vision, goals, objectives, policies, and implementation strategies, this Plan provides a framework for decision-making regarding land use and community character, all modes of transportation, adequate and affordable housing, livable neighborhoods, adequate public facilities and services, and economic development. The success of this Plan depends on the community's commitment to planning and its acceptance of this Plan as a valid expression of community attitudes, values, and generally agreed-upon directions. This Plan helps to achieve more predictable and improved outcomes by guiding decisions and courses of action.

P.1 PURPOSE AND IMPORTANCE OF THIS PLAN

This Comprehensive Plan sets forth broad policies and goals that reflect the aspirations and visions of Moscow's residents. It includes information on many facets of our community, such as population, socio-economics, physical conditions, land use, natural and built environments, transportation, legal, and fiscal aspects, which will factor greatly into how, when, and where this community grows in the coming years. This Plan compares each of these aspects with the vision and preferred directions of the community's residents to guide the desired future development of our community. It also serves as a valuable source of information to inform decision makers, grant writers, and the public about history, processes, techniques, and ideas for implementation.

This Plan is intended to:

- ♦ Improve the physical environment of the community as a setting for human activities;
- ♦ Promote the broader public interest rather than the interests of individuals or special groups;
- ♦ Facilitate democratic determination and implementation of community policy;
- ♦ Inspire political and technical coordination for future development;



- ♦ Ensure consideration of long-range and cumulative impacts for short-range decisions; and,
- ♦ Utilize professional and technical knowledge for making decisions.

P.1.1 The Purpose of Planning

"If you don't know where you are going, any road will get you there." (Lewis Carroll)

Planning helps direct development rather than reacting to individual proposals as they occur. Among others, planning is necessary to protect community values, preserve heritage, and conserve resources. To this end, this Plan must be forward-looking, able to clearly articulate a vision, and able to provide strategic guidance to effectively lead the community's decision-makers in a common direction. This must be based on a balanced consideration of community-wide issues, interests, and desires. As a result, this community is more likely to realize its vision by adhering to this Plan than if individual decisions are made in its absence.

Planning Context

Planning is not new to Moscow. The very first act of planning that occurred in Moscow was when Lieuallen, Deakin, McGregor, and Russell each donated a portion of their landholdings to create the City Center in 1876. The City's first comprehensive plan was developed in 1956 – now over 60 years ago. This was followed by plan updates in 1965, 1979, 1985, and most recently in 1999. This update is the City's sixth plan, which aims at a 20-year planning horizon. As with any plan, this Plan will require periodic updates and amendments to ensure inclusion of the most current information, community desires, and policy directions. With ongoing and continuous planning, this Comprehensive Plan should serve this community as a strong foundation for decisions and development for many years to come.

Many plans, studies, and surveys have been conducted for and by the City of Moscow. These documents served as a resource for this Plan and are evidence of the community's proactiveness in planning for the future. Unfortunately, many of these plans have not been referenced and used as guidance for decision making. This Plan though, is mandated by State Code and required for consideration in all land use decisions. Inclusion of relevant information and directions from these other plans provides consistency and strengthens this Plan.

State of Idaho Planning Mandate

Each local government within the State of Idaho is required to adopt, by resolution, a comprehensive plan as required by the State of Idaho Local Land Use Planning Act or LLUPA (Chapter 67-65 of Idaho State Code). Specifically, I.C. Section 67-6508 states:



It shall be the duty of the planning or planning and zoning commission to conduct a comprehensive planning process designed to prepare, implement, and review and update a comprehensive plan, hereafter referred to as the plan. The plan shall include all land within the jurisdiction of the governing board. The plan shall consider previous and existing conditions, trends, desirable goals and objectives, or desirable future situations for each planning component.

LLUPA identifies 14 planning components, listed as (a) through (n), which a plan must be based upon. The maps, charts, and reports included in a plan support the components as they may apply to land use regulations. Additional components and subject matter may be considered in a plan to address any unique considerations of a particular community. This Plan includes all the planning components required by LLUPA and is organized into seven inter-related chapters, which are outlined in **Table P.1, Plan Organization** (see page P.8).

LLUPA also requires municipalities to adopt zoning and subdivision ordinances, by I.C. Sections 67-6511 and 67-6513, respectively. These ordinances must be in accordance with the policies set forth in the community's adopted comprehensive plan as these regulations substantially contribute to the implementation of the Plan. Beyond the implementing regulations, Idaho Code requires that development proposals be consistent with and further the goals, objectives, and policies of the Plan in terms of land uses, densities or intensities, capacity or size, timing, and other aspects of the development. Thus, the Plan forms a common criterion against which all land use decisions are judged for compliance with and furtherance of the goals and objectives articulated by the community.

P.2 PROPERTY RIGHTS

The Constitution of the United States and the Idaho State Constitution both provide that private property cannot be taken for public use without just compensation. As such, the regulation of land uses must be based upon sound and clearly articulated planning principles that allow for viable economic uses of private property while protecting and promoting the health, safety, and welfare of the community.

P.2.1 Purpose of Regulation and Land Use Decision Process

Laws and regulations that govern private property should be based upon the government's authority and responsibility to protect public health, safety, and welfare. Based upon this premise, courts have supported the limitation of the use of private property through land use planning regulations, including comprehensive plans, zoning ordinances, subdivision ordinances, and environmental quality acts.



Laws and regulations must be constructed so as to balance private property rights with insurance that impact from neighboring uses and development do not substantially and negatively affect another's property rights by such elements as noise, pollution, or other nuisances. Idaho State Code sets forth regulations and guidelines for the conducting of decisions regarding land use matters in order to protect private property rights.

P.2.2 Regulatory Takings

While governmental entities can take property for articulated public purposes with just compensation, such as for the construction of highways or other similar projects, governmental regulation is a more subtle mean by which a taking may occur. This type of taking is often referred to as a regulatory taking and is a situation where governmental regulations restrict the available uses of a property to such a degree as to prohibit any economically viable use of the property. The public review process required by Idaho State Code for evaluating proposed regulations is a method to safeguard rights of private property owners. The City should use the public review process to carefully consider the potential impacts to property rights for land use decisions and legislation. If property is subject to regulatory jurisdiction of multiple government agencies, each agency should be sensitive to the cumulative impacts of the various regulatory restrictions.

To assist local governments in avoiding an unintended regulatory taking, the State of Idaho Attorney General provides a list of questions to be utilized in judging the potential of land use decisions and legislation to create regulatory takings. While these questions provide a framework for evaluating the impact of proposed regulations, takings questions normally arise in the context of a specific affected property. Although a question may be answered affirmatively, it does not mean that there has been a "taking." Rather, it means there could be a constitutional issue and that the City should carefully review the proposed action.

P.3 PLANNING PROCESS

The planning process does not simply begin with public meetings and end with the adoption of the Plan. Rather, it is ongoing and ever-changing as development occurs, new ideas emerge, and values evolve. As these changes are made, it is important that they are wholly compatible with the present and future functioning of the community. The long-range vision contained within this Plan was prepared and adopted in 2009 through a comprehensive public input process that is described in detail below.

In 2018, the Planning and Zoning Commission, with the input and advice of other City Commissions, prepared a mid-term revision of the 2009 Plan to update statistics and other data, recognize the completion of the water, sanitary



sewer and transportation plans, reflect completed implementation actions since adoption, and to incorporate additional information, goals and objectives related to changing global climatic conditions. A more comprehensive community re-visioning is anticipated to be completed as the plan approaches the original 20-year planning horizon, unless it is deemed necessary sooner due to community change or other considerations.

P.3.1 2009 Public Participation and Input

Capturing the issues, values, and vision of the community was a critically important step in developing this Plan. To prepare a plan that accurately reflects what citizens want their community to be in the future, their ideas and desires must be collected, documented, and integrated into the plan. To this end, the process of this Plan included an extensive public outreach and participation program. The citizen engagement program identified opportunities and constraints to guide the formulation of the Plan's goals and policies. A summary of the public participation efforts and a detailed record of their comments is available.

Moscow Dialogues. A series of meetings were conducted at the outset of the planning process and again, when the first draft of the Plan was completed. For each set of meetings, one was held in each of nine neighborhoods. The first set of meetings held May 1-3, 2007, allowed residents to describe their neighborhood character and discuss their favorite aspects of, and their biggest concerns for, their neighborhood and the community as a whole. The second set of meetings was conducted on June 5-7, 2007, and the participants discussed in greater detail their experiences, ideas, and concerns for the topics discussed in the Plan including land use, mobility, parks and recreation, growth management, and economic development. A third set of meetings was conducted on February 25-26, 2008, and March 4-5, 2008, to introduce the draft Plan to the community and again, solicit their thoughts and suggestions.

Community-wide Meetings. On May 17, 2007, the Moscow Citizens' Congress was held at the Hamilton Indoor Recreation Center. The objective of this public forum was to explain the planning process and receive initial input from a broadly representative group of citizens. More than 130 people attended and provided valuable information. As an exercise, attendees were asked to indicate on a map their place of residence and place of work. It also helped in the identification of major employers and commercial areas within the community and reinforced the notion that this is truly a regional community, where many commute to, from, and within the community.

An Open House was held March 20, 2008, to obtain citizen input on the first draft of the Plan. Two additional Open House meetings were held on April 21 and April 23, 2009, to review the revised draft plan.



Opportunities to Comment. There are so many issues to discuss and ideas to contemplate that community members needed additional ways to be heard. Therefore, a website was established to provide information regarding the planning process, to provide access to the draft plan elements, and as yet another method for obtaining comments. Comment cards were also available at all of the public meetings to allow an opportunity for written comment.

Working Groups. The consultant met with nine working groups during May 2007, to identify issues and priorities among relatively organized segments of the community including:

- ♦ *Housing*, including the Fair and Affordable Housing Commission,
- ♦ *Transportation*, including the Transportation Commission and the Paradise Path Task Force,
- ♦ *Natural Resources*, including the Sustainable Environment Commission and the Tree Commission,
- ♦ *Parks, Recreation, and Open Space*, including the Parks and Recreation Commission and the Paradise Path Task Force,
- ♦ *Central Business*, including the Moscow Arts Commission, Urban Renewal Agency, and the Chamber of Commerce,
- ♦ *Neighborhood Preservation*, including the Historic Preservation Commission,
- ♦ *Economic Development*, including the Chamber of Commerce, URA, and the Latah Economic Development Council,
- ♦ *Civic Organizations*, including the Moscow Civic Association and the Greater Moscow Alliance, and
- ♦ *Redevelopment*, including the Urban Renewal Agency and stakeholders within the then proposed downtown urban redevelopment area, and now the Legacy Crossing Urban Renewal District.

P.3.2 2009 Plan Development and Adoption

Steering Committee. The Mayor and Council appointed a Steering Committee with the charge to oversee and guide the planning process and development of a draft Plan, and to make decisions and recommendations based upon the issues and values of the community. Initially, the committee represented 22 members of the City's boards and commissions, major employers, and community organizations, which was later expanded to 23 members to accommodate changes in representation. Because the Steering Committee represented many community groups and interests in Moscow, it provided a broad and diverse representation ensuring that the Plan reflects the shared values and expectations of the community. The Steering Committee met often throughout the process to review the draft Plan chapters and consider comments from the Moscow Dialogues, community-wide meetings, website and comment cards, and



working groups.

Public Hearings. The Planning and Zoning Commission and City Council reviewed the revised draft plan on March 11, 2009. The Commission subsequently considered the draft plan and conducted a public hearing on October 28, 2009, in accordance with I.C. Section 67-6509. After receiving testimony and considering the merits of the plan, the Commission recommended adoption of the plan to the City Council. A public hearing was held by the City Council on December 7, 2009, at which time they adopted the plan by resolution.

P.3.3 Monitoring and Amendments

In order to be effective and successful, this Plan must be a “living” and dynamic document. The community decision makers rely on the Plan and, therefore, periodic reviews and amendments must be made to keep the Plan current. The Plan was reviewed and updated in 2018 to include the most up-to-date information, methods, and maps, and to update the objectives and implementation actions. It is recommended that this Plan continue to be updated on a periodic basis and a more comprehensive re-visioning of the Plan be completed as the Plan approaches the original 20-year planning horizon.

P.4 PLAN ORGANIZATION

While the Local Land Use Planning Act requires that comprehensive plans within the State of Idaho address the 17 identified topics, (one of which is only required upon notification from the Public Utilities Commission), many of these subject matters are deeply interrelated. This Plan is therefore organized into a total of eight chapters (including the Preface) within which all the required topics, as well as those not required, are addressed. **Table P.1, Plan Organization**, is provided as a guide to assist in locating where the statutory topics are found within the document.

P.4.1 Goals, Objectives, and Implementation Actions

Within the Plan, there are specific goals and objectives that are identified for the various topics that are addressed with the Plan. The Goal statements serve as the broad articulation of a community desire, direction, or policy. The Goal statements are then followed by a series of Objectives which are specific components that support the achievement of the identified Goals. Finally, the Objectives are followed by Implementation Actions which are specific, measurable and actionable items that support the achievement of the Objectives, and in turn the supported Goal.



Table P.1
Plan Organization

Chapter	Scope	Statutory Requirement
Preface: Introduction and Purpose	Outlines the purpose and importance of the plan, addresses property rights, describes the public participation program, and discusses private property rights.	(a) Property Rights
Chapter One: A Vision for Moscow	Outlines the community history, natural resources and hazards in the area, and incorporates a statement of community vision.	(f) Natural Resources; (g) Hazardous Areas (n) Agriculture
Chapter Two: Community Character and Land Use	Outlines key land use related issues, goals, and recommendations. This element will also include policies to guide future zoning and land use decisions. Detailed recommendations regarding necessary modifications of the development ordinances will also be integrated into the chapter.	(e) Land Use; (k) Special Areas or Sites; (l) Housing; (m) Community Design
Chapter Three: Community Mobility	Outlines key transportation related issues, goals, and recommendations. The chapter will include recommendations regarding roadway cross-sections and necessary modifications to the subdivision regulations.	(i) Transportation (q) Public Airport facilities
Chapter Four: Parks, Recreation and Open Space	Outlines key recreation issues, goals, and recommendations. The chapter will include recommendations regarding proposed new park and greenway locations along with facility development standards.	(j) Recreation
Chapter Five: Public Utilities, Services, and Growth Capacity	Outlines key growth and facility-related issues, goals, and recommendations. This chapter will essentially examine the City's capacity to sustain its current and support future development, including evaluations of infrastructure capacities, facility needs, and demands. Additionally, it will include strategies and recommended mechanisms for managing the pattern of growth within the Area of City Impact.	(b) Population; (c) School Facilities and Transportation; (h) Public Services, Facilities, and Utilities
Chapter Six: Economic Development	Provides recommendations regarding land use measures that are intended to promote economic development.	(d) Economic Development
Chapter Seven: Implementation	Includes a table of prioritized action items to facilitate work planning by City departments and staff, tracking of implementation progress and accomplishments in a "checklist" fashion, and easy re-arrangement of the table as priorities are re-examined periodically.	(o) Implementation

Under I.C. Section 67-6508(p), after notification by the Public Utilities Commission concerning the potential federal designation of a national interest electric transmission corridor, comprehensive plans shall include an analysis of existing and possible future routing of high voltage transmission lines. The City of Moscow has not received this notification and therefore the Plan does not currently address this element.



A Vision for Moscow

COMPREHENSIVE PLAN

Moscow is a small college town of 25,146 (2017 U.S. Census estimate) in north central Idaho that offers an outstanding quality of life for its citizens and student population. Located on the edge of the Palouse in Latah County and sharing a border with Washington State, Moscow has a unique advantage in providing small town character with the knowledge and economic resources of a city and the aesthetic and recreational amenities of a rural community. See **Figure 1.1, Moscow Context**.

1.1 COMMUNITY VALUES AND PLAN GOAL

Through the public input process it was clear that the community possesses common desires for the future of Moscow. The values that were expressed frame the purpose of the plan and give a foundation for the formation of goals, objectives, and implementation steps that will turn the community's vision into a reality. Consideration should be given to these values during decision-making processes.

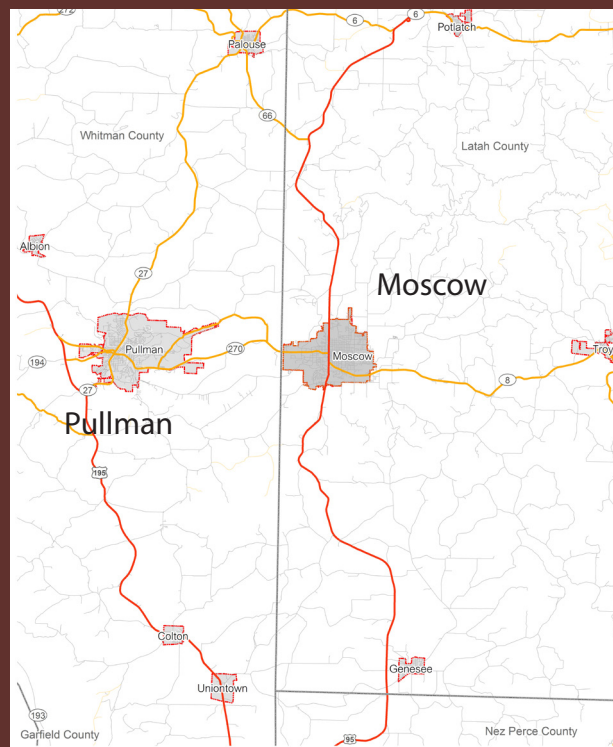
1.1.1 Community Values

Moscow is a unique community blending amenities of the urban environment with those of the rural landscape. The residents of Moscow value quality of life, stability and sustainability. They want growth to be sustainable and in keeping with the character of the community and Moscow's sense of place.

Maintenance and Enhancement of Community Character that Promotes a Sense of Community

Character and community are terms that are not easily defined yet have great meaning in context of how the people of Moscow identify with their

Figure 1.1:
Moscow Context



environment. The term *character* primarily refers to the built environment. It is formed by the arrangement of buildings and spaces and their relationship to each other, the natural environment, and other features. The design of buildings and the landscape reinforce and enhance the aesthetics of a quality environment. Although the term *community*, by itself, often refers to political boundaries, a *sense of community* is most often in reference to how people interact and the level of connection they share with others within the city.

A sense of community is inherently tied to the character of the built environment because people must feel connected to their environment and comfortable to partake in the interactions and events available to them. The built environment should be safe and provide places for people to gather, such as sidewalks, yards, neighborhoods, and public parks. Development character and aesthetics contribute to an environment that is inviting for residents to experience and enjoy.

Moscow has a unique sense of place that is close to the hearts of those who live here. Each neighborhood has characteristics that make it special, which help form its unique identity and shape each person's connection to the broader community. Sustaining character is vitally important to the residents as it defines their individual neighborhood and community and creates a quality of place like no other. In order to maintain character, important identifying features must be protected and integrated into development. There must also be transitions between areas of varying character so as to preserve values and ensure compatibility.

Development and Implementation of Sustainable Policies, Regulations, and Methods that Manage the Use of Resources and Growth of the Community

Sustainability has emerged as a prevalent and vital concept for the assessment of decisions and actions. It incorporates the ideal expressed by Marian Wright Edelman who stated, "we must not, in trying to think about how we can make a big difference, ignore the small daily differences we can make, which, over time, add up to big differences that we often cannot foresee." A goal of planning is synonymous with sustainability, in that decisions must not be made solely for an immediate result, but must be considered in light of their cumulative, long-term effects.

Resources are at the root of why sustainable choices are essential. There are limited quantities of necessary resources. To sustain the community for years to come, today's use of resources must be mindful of the needs of the current residents and that of future generations. Preservation of farmland and natural features, protection of riparian areas, and conservation of water resources are all important to the community. While there may be some concern that considering sustainable methods may initially cost more, there is great long-term value in efficiency, which is central to the concept of sustainability. The



community's commitment to environmental quality may serve its economic objectives through the promotion and support of the green building practices, transportation options, advances in environmental technology, and attraction of renewable energy industries.

Establishment of Predictable Development and Decision Making Policies that Balance Desires of the Community with Economic Needs for Growth

The community needs a certain amount of growth and renewal to remain vibrant and meet the needs of its businesses and citizens; however, without proactive land use and growth policies – and implementing regulations – it may adversely impact the character of the community. Finding a balance between these competing interests will require an ongoing effort and commitment, especially in light of an ever-changing economy. Having comprehensive and well defined regulations will help produce predictable outcomes for residents, businesses, and landowners alike. Consistent and fair decisions will further the community's desire for increasing predictability.

Provision of a Safe Environment in Which Needs and Amenities are Available to People of All Ages, Abilities, and Incomes

Opportunity and access to all services and amenities are important to the people of Moscow. Moscow serves a diverse population in terms of age, needs, and incomes. It is, therefore, a goal of this plan that all persons have adequate opportunity and safe access to life needs and amenities. This includes, among many others, provision of adequate sidewalks and safe travel routes for handicap accessibility, a broad mix of housing types and living environments that serve all social strata, and design of parks and public spaces for users of all ages, abilities, and interests.

1.1.2 Plan Goals and Objectives

Overall Plan Goal

Provide for sustainable, incremental growth while preserving and enhancing the distinctive characteristics of Moscow, and its rich and vibrant economic, cultural, social, and physical environments.

The community of Moscow wishes to manage physical and economic growth through sustainable policies while maintaining and promoting the unique character of the City and its neighborhoods, and providing for the needs of all residents.

Chapter 1: A Vision for Moscow

Goal

- ♦ Protect and conserve the natural resources of the area in a manner that balances their ecologic, economic, and aesthetic potentials to preserve



natural features and ecosystems while directing development away from floodplains, steep slopes and other hazard areas to protect public health, safety, and welfare, and preserve sensitive areas.

Objectives

- Promote the conservation of valuable agricultural lands and Moscow's surrounding rural landscape.
- Protect and enhance regional waterways and sensitive riparian areas to serve their natural functions, and as aesthetic and recreational assets.
- Protect and expand the City's urban forest.
- Minimize hazard potentials to new developments from flooding, excessive erosion, and earth slides.
- Conserve and protect the groundwater of the region's aquifers.
- Conserve sensitive natural areas for aesthetic and ecological purposes.

Chapter 2: Community Character and Land Use

Goals

- ♦ Direct land uses to meet current and future community desires and needs while conserving natural resources and protecting agricultural lands from scattered development through efficient and orderly development.
- ♦ Encourage a variety of housing types to meet the needs of residents of all ages and economic abilities.
- ♦ Preserve and enhance special areas of the community to celebrate the community's identity, character, and heritage.
- ♦ Enrich the community's social, cultural, physical, and economic environments through the arts and integration of aesthetic infrastructure standards, particularly through the placement of public art at key locations in the City.

Objectives

- Protect existing neighborhood identity and character.
- Provide a mix of housing that meets the economic and lifestyle needs for the diverse population of Moscow.
- Preserve and enhance special areas of the community to celebrate the community's identity, character, and heritage.
- Guide the expansion and intensification of downtown development while considering the needs for parking and desire to maintain the existing historic character.
- Strengthen community character through improvement of the physical environment that enhances the small town feel and historic nature of Moscow.



- Provide a continuum of land uses that allow a variety of uses and housing types to meet the needs of the community while ensuring the preservation of neighborhood character in an efficient manner.

Chapter 3: Community Mobility

Goals

- ♦ Ensure the integration and coordination of the City's transportation systems with the regional facilities and modes of transportation.
- ♦ Plan for the orderly development and continuity of the City's street and pathway systems, as well as connectivity to regional transportation networks to ensure the efficient delivery of services and navigation by residents and visitors.
- ♦ Ensure that all transportation systems enable safe access and promote alternative mode use for all modes of mobility, including pedestrians, bicyclists, motorists, and public transit users of all ages and abilities.
- ♦ Provide for the continuity and function of the City's transportation system while ensuring context-sensitive design that preserves and enhances community character and quality of life.

Objectives

- Provide for the efficient integration of the City's transportation systems with regional facilities and modes of mobility including county roads, state highways, shared-use trail systems, air transportation, and regional bus transportation services.
- Provide for the safe and efficient movement of people, goods, and services throughout the community supporting all modes of transportation.
- Plan for the logical and orderly extension of the City's public street network.
- Ensure that the City's transportation system supports and relates with the surrounding land uses and preserves and enhances the community's character and values.
- Provide for the safe access and use of the City's pedestrian facilities for users of all ages and abilities.
- Promote walking as a mode of transportation within the community to enhance the physical and social health of the community.
- Increase the safety and convenience of cyclists of all ages and abilities, and encourage the use of bicycles as a desirable mode of transportation within the community.
- Enhance the integration of cyclists and community public transit services.



- Promote the increased use and expansion of public transit services within the community and region as a desirable transportation alternative.
- Assist local schools in providing efficient and safe student access and transportation to school facility locations within the community.
- Promote student use of biking and walking to school through the development and improvement of pedestrian and bicycle facilities throughout the community.
- Ensure that the City's off-street parking requirements balance the need for parking to serve developments while promoting alternative transportation options and ensuring that environmental and aesthetic considerations are addressed.

Chapter 4: Parks and Recreation

Goal

- ♦ Provide a system of well-distributed parks, open space, and recreational facilities that meet the active and leisure recreation needs of citizens of all ages, interests, and abilities.

Objectives

- A comprehensive network of paths and linear parks connecting all parts of the community.
- Protect and sustain natural areas, resource features, and environmentally sensitive lands.
- Broadened development of the community's cultural infrastructure and its integration into park sites and recreational programs.
- Even and equal distribution and further development of park spaces, activities, and facilities to meet the diversity of local areas.
- Maximum availability and utilization of recreational programming.

Chapter 5: Public Utilities, Services, and Growth Capacity

Goals

- ♦ Provide for sustainable growth while conserving natural resources, protecting natural features and enhancing the character of the community and region.
- ♦ Provide for the orderly and efficient delivery and location of public facilities, utilities, and services to the residents and businesses within the community.
- ♦ Advocate and practice the sustainable management and development of local and regional water resources and supplies to meet the needs of both current and future residents.
- ♦ Direct growth to areas that can be most efficiently and economically served with public services and utilities while planning for future capacity needs.



Objectives

- Provide for a safe and sustainable water supply that meets the current and future needs of the community.
- Plan and provide for the orderly and efficient collection and treatment of waste water services to the community into the future while minimizing adverse impacts to the surrounding natural environment.
- Provide for the collection, treatment, detention, and conveyance of storm water within the community to minimize the threat of damage to life and property and minimize the impact of the City upon the environment.
- Plan for and provide the efficient and effective delivery of emergency services to the Community today and in the future.
- Provide for the orderly, efficient, and sustainable delivery of sanitation services to the community.
- Reduce municipal waste through the expansion of education, recycling, composting, reuse, and other waste-reducing activities.

Chapter 6: Economic Development**Goals**

- ♦ Provide for sustainable economic growth and employment opportunities where existing and new businesses can thrive, while preserving and enhancing the character of the community.
- ♦ Enhance and strengthen the regional economy utilizing the strengths and assets of the region.
- ♦ Promote and enhance the arts and cultural resources as catalysts for economic development and tourism.

Objectives

- Provide for the diversification of the local economy while maintaining and enhancing the character of Moscow.
- Strengthen and enhance the vitality of Downtown as the community's civic core.
- Reposition the industrial areas near Downtown to allow for redevelopment with modern mixed-use developments with commercial and residential uses; provide for easy approval of relocated industrial and agricultural support uses elsewhere in the City.
- Strengthen the physical linkage between Downtown Moscow and the University of Idaho.
- Expand and enhance the promotion of education, arts, and culture.
- Increase the supply of land available for modern commercial, office, and light industrial uses.



- Make the development review process more “user-friendly” and efficient, without compromising the quality and character of development.
- Provide a positive regulatory environment for investment in research, technology, and light industrial uses.
- Continue to foster strong relationships among the City of Moscow, the University of Idaho, the City of Pullman, Washington State University, Latah County, and Whitman County.
- Promote efforts of local and regional economic development agencies to provide education, training, and networking for local businesses and entrepreneurs.
- Ensure capacity for growth in the water, wastewater, and stormwater systems.
- Provide a sustainable water supply.
- Provide adequate streets to support traffic generated by planned employment and retail centers.
- Improve the reliability and speed of internet access in the City and reduce the cost of access.
- Provide certainty for investment in industrial uses in the southern part of the City.

1.2 COMMUNITY CONTEXT

Incorporated in 1887, Moscow’s historic roots are planted in agriculture. The University of Idaho was initially founded in 1889 as a land-grant university offering courses in agriculture and the mechanical arts. Since its inception, the University of Idaho has continued to expand its educational offerings as a premier research and educational institution and has formed the foundation of the community. As a result, Moscow has blossomed into the unique and vibrant community it is today.

1.2.1 Moscow’s Beginnings

Moscow was not always known as “Moscow.” Camas (a flowering bulb that was an important staple of the indigenous Native American diet) was once abundant and regional tribes of the Nez Perce, Coeur d’Alene, and Palouse would gather annually in the area to collect the roots. See [Figure 1.2, Camas Flower](#). It was the Nez Perce who first called the area Tatkinmah [Tat-Kin-Mah, tukkinma, or Taxt-hinma] referring to the abundance of deer fawns that were present while they gathered the starchy food source. The first permanent settlers of the area found that their pigs thrived from feeding on the camas roots, and the area was dubbed “hog heaven” for a time. The area was generally referred to as Paradise Valley and when the first post office, located at the southeast corner of Mountain View Road and Hillcrest Drive, was granted to the settlement in 1873, it was called “Paradise.” When a new post office was established in 1876 at the southwest



corner of First and Main Streets by Almon Asbury Lieuallen, the postal service requested a name change. Samuel Miles Neff is credited with choosing the name of Moscow. Although the reasons for Neff's choice are not clear, it is suggested that the meaning of "city of brotherly love" was a desirable connotation for the community, and he was likely influenced by the fact that he had been born near Moscow, Pennsylvania and had previously resided in Moscow, Iowa.

Although there was no permanent settlement by the three nomadic Native American tribes who visited the area to gather camas root and for other reasons, it was an important area to their cultures. The Nez Perce were the primary inhabitants of the area and became skilled horsemen. The tribe first obtained horses in the late 1600s and early 1700s and bred the horses for speed and endurance. These spotted horses became famous well outside of the region and are known as the Appaloosa. At one time, thousands of these horses could be seen on the Palouse. After the War of 1877, in which the United States government moved the tribes onto reservations, the horses had mostly been destroyed or confiscated. Even though the war occurred away from Paradise Valley, the settlers at the time were afraid of attacks and built three stockades to protect themselves. The most famous is Fort Russell, which was located northeast of present day Main Street; a historic neighborhood in the same area is named for this fort. The others included: Fort Howard, which was located northeast of town, and Fort Crumerine, which was located at the east end of present day Sixth Street.

Moscow's beginnings were humble, but the community has prospered due to a series of events that allowed the community to develop. Fur traders arrived in the area as early as 1809 and missionaries came to the area in the 1840s. Others came during the 1850s when a route for the Northern Pacific Railroad was sought out and documented. Some prospectors appeared in the 1860s and mining occurred in the region for decades after. Homesteaders arrived in the early 1870s and laid the framework for what was to become Moscow. Samuel Miles Neff opened the first general store in Paradise Valley in 1873; it also served as Moscow's first post office. Another early and important homesteader and businessman was Almon Asbury Lieuallen. Although he homesteaded in 1871 east of present day Moscow, Lieuallen bought Neff's claim in northeast Moscow in 1875 and established a general store at the southwest corner of First and Main Streets. This location also served as the Lieuallen residence and the community's second post office, which was called Moscow. In 1876 four homesteaders, whose claims met at the corner of Sixth and Main Streets, agreed to donate 30 acres of land each to establish a city center for the community. Almon Asbury Lieuallen

Figure 1.2:
Camas Flower



Camas is a flowering bulb that was an important staple of the indigenous Native American diet.

Source: Virginia Lohr



Figure 1.3:
Historic Downtown



McConnell Maguire Building

Source: Latah County Historical Society

owned the northwest portion, James Deakin the southwest, Henry McGregor the southeast, and John Russell the northeast. The namesakes of each founder may be found to this day in the street names, plats, and neighborhood identities of each quadrant.

During the late 1870s, Moscow established itself as a center for business and trade. Previously having to travel 150 miles by wagon to Walla Walla, Washington, for goods and supplies, settlers of the area could now conduct business in the community. Early businesses included a dentist, doctor, sawmill, hotel, and blacksmith shop. The opening of the McConnell Maguire General Store in 1879 was large enough to draw consumers from nearby communities. See **Figure 1.3, Historic Downtown**. By 1880 the population of Moscow had grown to 300 persons and the community continued to thrive with the establishment of a flourmill, church, brewery, and newspaper in the early 1880s. Soon, a school followed on land donated by homesteader John Russell and the first brick building that housed one of the first banks was constructed by Lieuellen in 1885.

Moscow was incorporated on July 12, 1887, after growing in population partly due to the development of a Union Pacific Railroad depot. By the following year Moscow had become the largest city in Nez Perce County and requested to become the county seat. When that moved failed, Representative Fred Dubois pushed a bill through the United States Congress to carve out Latah County from the northern part of Nez Perce County, thus creating the only county formed by an act of Congress. When Moscow became the county seat of Latah County its citizens dropped their support for the county to join Washington in statehood.

Another great movement in 1888 included Moscow's journey to become the site for Idaho's land grant college, the University of Idaho. Congress had approved a measure severing the Idaho panhandle from the rest of the territory and attaching it to Washington; however the bill was stopped by President Grover Cleveland due to protests from Idaho Governor Edward A. Stevenson. This action angered the residents of the north who favored joining Washington, fueled by Lewiston's loss of the territorial capital to Boise in 1865. As a gesture of peace to the north, the 1889 territorial legislature designated Moscow as the location for the public university. Council Bill 20, known as the university's charter, was signed into law on January 30, 1889, and became a part of the state constitution when Idaho was admitted to the Union in 1890.

1.2.2 Moscow Today

Moscow is a unique and vibrant community that prides itself in a strong sense of place, a high quality of life, and a place where people choose to live. The



education industry established over 100 years ago continues to serve as the foundation of the community's economy and, along with the region's agricultural heritage, continue to build contributes to Moscow's community character. See **Figure 1.4, Present-Day Downtown**.

Agriculture

The main draw for the early settlers of the area, agriculture continues to be the foundation of the community's identity. The Palouse region's rich soils, adequate rainfall, and mild 150 day growing season allow for dryland farming practices and contribute to the factors that make the agricultural lands around Moscow some of the most productive in the world. The steep 25 and 30 percent slopes of the area created unique challenges to farming, resulting in skilled teamsters and eventually tractors and harvesters specially designed for the region's steep slopes.

Livestock and fruit were once bigger parts of the region's agricultural production and economy, but today, the principal crops in the region are soft white winter wheat and rotations of pulse crops such as peas, lentils and garbanzos. The latter earned Moscow the home of the headquarter offices for the USA Dry Pea and Lentil Council, and neighboring Pullman, Washington is host to the National Lentil Festival.

University of Idaho

Founded in 1889 as the State of Idaho's only land grant institution, the University of Idaho provides the major economic, educational, and cultural foundation of Moscow. The University's 1,585 acre campus encompasses a major portion of land area within Moscow's city limits, and provides more to the community than simply an academic campus. The historic core of the campus was designed by the Olmstead Brothers in 1908 and includes a beautifully landscaped setting for the Tudor Gothic Administration Building designed by Boise architect, John Tourtellotte. The campus grounds are irrigated predominantly with treated effluent from the City's wastewater treatment plant, and include nearly 80 acres of arboretum, which provide not only learning grounds for students, but an area for passive recreation and conservation of open space. In addition to the campus, the University has over 850 acres of farmland that is utilized for teaching and research and serves as a tribute to the community's tradition in agriculture.

Recreation and athletics play a large part in the identity and assets of the University. Home of the Vandals, the University has a variety of collegiate sporting events that draw residents, area alumni, and fans to Moscow. The Kibbie Dome is the home of the football team, but also plays an important role

Figure 1.4:
Present-Day Downtown



Friendship Square

Source: City of Moscow



in community-wide events and is a point of pride as it achieved a national engineering structural achievement award when it was constructed in 1976. Large outdoor play fields are often utilized by practicing teams, student groups, and community members. The campus also includes a 150-acre, 18-hole public golf course that adds to the recreational assets of the community.

Focusing on quality undergraduate and graduate education, the University continues to emphasize its commitment to higher education by providing a variety of programs to more than 11,000 students from all 50 states and foreign countries. The University has been recognized as one of the best values for public colleges for the institution's academic strength and value. Employing over 850 faculty and 1,300 staff members, the University is a core employer in the community. In large measure, the question of the future rate of Moscow's growth will depend upon the growth of the University of Idaho. The University's Long-Range Development Plan Update 2000 states that the University can support 15,000 to 17,000 students by intensifying its current academic core.

Arts & Culture

Arts and culture are at the heart of Moscow's identity. In fact, one of the City's official slogans is "Heart of the Arts" and Moscow has many programs and events that foster connections to the arts. The Farmers' Market was established in 1977 and is a popular gathering and shopping event held downtown, on Main Street every Saturday from May through October. The Fresh Aire Concert series highlighting local musicians is sponsored by the Moscow Arts Commission (MAC). Moscow ARTWALK, started in 2004, brings regional artists together with local businesses. Moscow City Hall is home to the Third Street Gallery where exhibits sponsored by the MAC are open to the public during business hours and evening openings.

The University of Idaho contributes strongly to the cultural amenities of the community. Each February, the Lionel Hampton International Jazz Festival brings thousands of students and jazz fans to Moscow for three full days and nights of artist studios, performances, and student competitions. See [Figure 1.5, Lionel Hampton Jazz Festival](#). The event began in 1967 and took on Lionel Hampton's name in 1985 after he pledged his support to the event and the festival was awarded the National Medal of the Arts in 2007. The mounting importance and recognition of this event illustrates Moscow's ability to cultivate assets and contend with communities of larger size. The Prichard Art Gallery is an outreach facility of the University located in the heart of downtown since 1982. It hosts changing exhibits throughout the year, serving over 15,000 visitors annually, and the Hartung and Forge Theaters, on the University campus, is the location of many live theater productions.

There are many other long-standing traditions and facilities that promote Moscow as an arts and cultural center. The Renaissance Fair was started in 1973 and is held the first weekend of May as a celebration of spring with arts



and crafts booths and live entertainment. Rendezvous in the Park is a three-day music event held each July that was started in 1983 and, due to its great success, became a private non-profit corporation in 1990. Both of these events occur at the East City Park, which is a favored location for many outdoor arts and music events. The McConnell Mansion Museum, located at 110 S Adams Street, was constructed in 1886 as the home of William J. McConnell who, as state governor, secured Moscow as the site of the University of Idaho. The house was bequeathed to Latah County in 1966 for use as a museum and is operated by the Latah County Historical Society. Another museum housing important local history is the Appaloosa Museum and Heritage Center, located at 2720 W Pullman Road. It was established in 1975 to collect, preserve, study, and exhibit objects and information that illustrate the history of the Appaloosa horse.

Regional Connections

Moscow is not only characterized by its historical foundations and current activities within its borders, but also by its relationships with the surrounding areas and communities. Moscow is tied closely to the residents of Latah and Whitman Counties and surrounding incorporated towns, many of whom commute to or through Moscow daily.

Moscow's location in north central Idaho is a part of a mini-region often referred to locally as the Quad Cities. This designation is shared with Lewiston in Nez Perce County, Idaho; Clarkston in Asotin County, Washington; and Pullman in Whitman County, Washington, and is often considered in economic conversations. All four communities are within easy commuting distance of each other and individuals often have split-interests in the communities as either the place they live or work.

Pullman is the closest community to Moscow, not only in distance but also in economic foundations. Just eight miles to the west of Moscow, Pullman is home to Washington State University (WSU) and has the same historical roots in agriculture as does Moscow. In comparison, Pullman is home to approximately 33,354 residents (2017 U.S. Census estimate) and WSU has 20,286 students (2017 Pullman Campus enrollment). Moscow and Pullman, with their twin-like characteristics, share some assets but retain their distinct identities. Shared amenities include the Moscow-Pullman Regional Airport, the Bill Chipman Palouse Trail, and certain academic and athletic events.

Within the Inland Northwest region, the largest nearby cities are Spokane, Washington and Coeur d'Alene, Idaho, both approximately 85 miles north. Spokane has a population of just over 217,000 persons and provides international air travel. Both cities are situated along I-90, Moscow's nearest

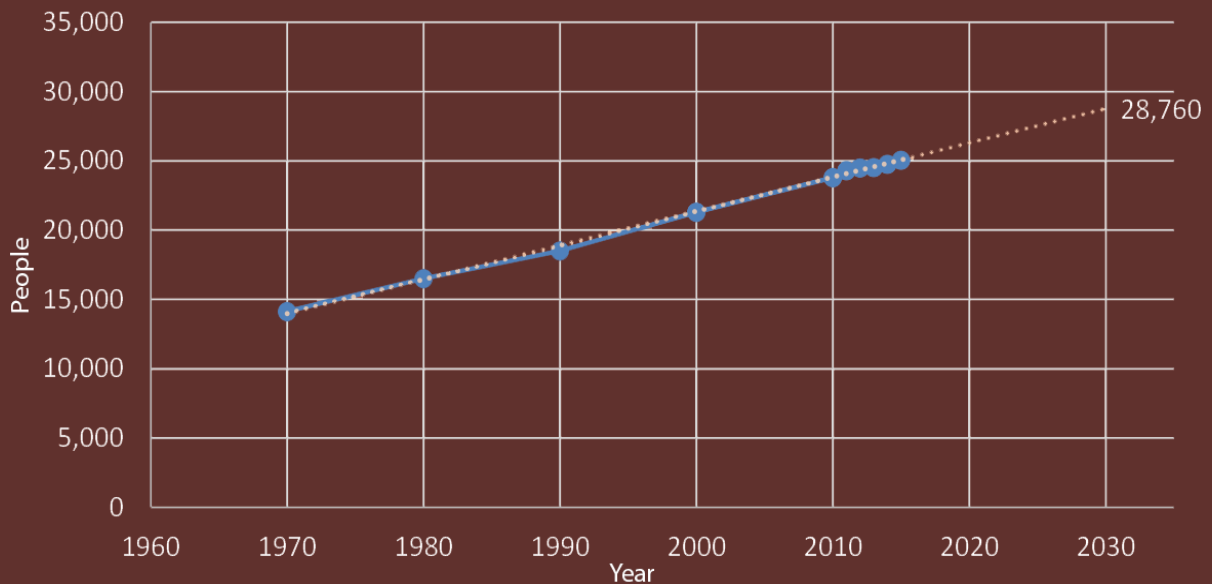
Figure 1.5:
Lionel Hampton Jazz Festival



Source: University of Idaho



Figure 1.6
Moscow Population Trend



Source: U.S. Census (1970-2017); City of Moscow (projections)

link to the interstate system. Moscow is more closely related to these cities for economics and commerce than to the state's capital of Boise which is roughly 300 miles to the south and accessed only by the state highway system and air transport.

1.2.3 Moscow in 2030

In 2010, the City of Moscow had a population of 23,800 persons, according to the U.S. Census. As of 2017, the population had grown to 25,146, an increase of 1,346 persons or 5 percent over the seven-year span. This amounts to an average annual rate of growth of slightly less than one percent. The relatively linear population growth rate that the City has historically experienced is projected to reach 28,760 people by 2030. See [Figure 1.6, Moscow Population Trend](#). This would be a 14.4 percent increase over the 2017 estimate, adding another 3,614 persons.



1.3 NATURAL RESOURCES

Moscow's unique sense of place comes as much from the surrounding rolling hills of the Palouse as it does from the City's built environment. The preservation and protection of these scenic landscapes, valuable farmlands, and other natural resources from scattered urban development is critical to the logical, orderly, and sustainable growth of the community that preserves the community's noted high quality of life.

1.3.1 Natural Setting

Moscow's natural setting on the eastern edge of the Palouse region provides the basis for the region's agricultural economy while providing a picturesque landscape with recreational opportunities for area residents. The Palouse is a region of asymmetric rolling hills in Idaho and eastern Washington north of the Clearwater and Snake Rivers. The rolling landscape is composed of wind-blown silt, or loess, that is particularly beneficial for dry land farming.

Vegetation and Wildlife. Before the first settlers arrived in the late 1860s, the area was prized by the regional Native American tribes for gathering camas root. The native landscape was rich in bunchgrasses, short shrubs, and wildflowers with stands of ponderosa pine. The northern faces of the region's higher hills continue to grow small stands of douglas fir and ponderosa pine. Views from Moscow to Paradise Ridge and Moscow Mountain are evidence of the more heavily timbered past of the Palouse and the region's wood product industries. These stands of forest not only offer a home to area wildlife, but also provide an amenity to rural home sites.

Within the City there is extensive urban tree canopy, especially in the historic and established neighborhoods that surround downtown. Moscow has been recognized as Tree City USA since 1994 and its volunteer Tree Commission works for the preservation, protection, and management of the community urban forest. Trees provide great benefits to the community in the way of aesthetics, reducing pollutants, and protecting resources. Trees enhance the appearance of the street environs while calming traffic and promoting a comfortable environment for pedestrians. Studies have shown that the presence of trees increases residential property values and encourages shoppers to linger in commercial districts. Summertime shade afforded by tree canopies reduces energy consumption by minimizing the need for air conditioning and reducing the effect of heat islands such as parking lots, which increase the air temperature. Pollutants are removed from the air and ground through a tree's natural processes, thus creating cleaner air and preventing pollutants from entering the waterways. The sheltering effect of trees also slows rain, reducing the speeds of runoff, allowing for better absorption of water into the ground and reducing erosion.



Riparian, wetlands, and pollinator habitats are a unique part of the natural and urban environment as they provide for a diversity of species and are beneficial to wildlife and people alike. The term *riparian* generally refers to the vegetation that occurs along the banks of natural watercourses while *wetlands* are low lying areas saturated with water. *Pollinator* habitats focus on pollinator-friendly plants, flowers, and ground areas that promote insect transit corridors and pesticide-safe islands and borders in an urban environment which are further useful for accessing rural agricultural lands. These types of environments are important to protecting water quality and providing shelter, food, and corridors for animals. Common riparian vegetation in the area includes willows, alders, aspen, and cottonwoods. The vegetation slows water velocity and provides multiple benefits to water quality. With the slower stream velocity, the rate of erosion is slowed and particulate matter is allowed to settle. The roots filter pollutants and catch sediment thereby preventing them from reaching the stream. The canopy provides shade preventing an increase in stream temperature. The riparian and wetlands are especially important for avian habitat and support red-winged blackbirds, mallards, and yellow warblers on the Palouse. Agricultural and urban development adjacent to waterways often harms these important habitats. Preservation of these areas can help minimize the impacts of development and provide amenities such as buffers between uses and recreational pathways.

Deer, elk, and moose originally inhabited the area and can still be seen today. Hawks and owls have thrived despite the change in habitat, feeding on ground squirrels, gophers, and mice. However, many species have not been so fortunate due to the changing landscape. Birds such as the Brewer's sparrow and the sharp-tailed grouse are diminished while many non-native species are commonly seen such as the Canada goose, California quail, and ring-necked pheasant.

Although these animals generally depend upon the natural and agricultural areas that surround the City for habitat, some have adapted to living within the City such as ring-necked pheasants, squirrels, California quail, and others. Many residents enjoy watching the birds and small animals in their neighborhoods, which connects the urban area with its surrounding rural landscapes.

Soils and Minerals. The rolling hills of the Palouse were formed from windblown silt, or loess, that has been shaped by wind and snow and is more than 150 feet deep in some places. The predominant soil types are Palouse Silt Loam and Caldwell Silt Loam. The latter is found where drainage courses have cut through the deep soil and deposited alluvial material in their valleys. The earliest settlers found the region to be particularly suitable for agricultural uses despite the challenging topography. The unique water-retention qualities of the soil allows crops to mature over the dry summers without irrigation.

The steep 25 and 30 percent slopes combined with the silty soil and agricultural uses create prime conditions for erosion. Where vegetation is removed periodically in the fields, severe erosion of the topsoil can occur. According to the



Latah County Soil and Water Conservation District, the average farm loses three to four tons of topsoil per acre annually. This reduces the productivity of the land, creates siltation of streams, and damages water quality. The Latah County Soil and Water Conservation District works with farmers on a voluntary basis to implement best management practices to reduce soil erosion. The erosive soils around Moscow are generally not fit for septic systems, except on large parcels.

Under the layers of wind-deposited loess, the area has a very unique geology. Once a deep canyon, volcanic activity filled the area and provided for the basalt layers that contain two major aquifers that supply the area with water. The distinctive geology also provided for the development of minerals and gems. Early settlers mined for gold, opals, copper, mica, vermiculite, and asbestos in limited areas of the Palouse and the surrounding mountainous areas to the east of Moscow. Today, recreational mining of garnets occurs in Latah County as well as commercial mining of clay for pottery and mineral extraction and basalt for gravel. To the northeast of Moscow, there are clay deposits rich in alumina and ilmenite, which is a source of titanium. Although additional mining could be possible in the area surrounding Moscow and Latah County, steps should be taken to ensure that such activity does not adversely affect the quality or quantity of water available to area residents.

Water. Moscow utilizes two major aquifers that are located in the basalt rock under the layers of loess soil. The Wanapum is the shallower of the two aquifers at about 60 feet below the surface. The Grande Ronde is much deeper at 300 feet below the surface. These aquifers supply water to Moscow. The Grande Ronde also supplies water to Pullman, Palouse, and Colfax, Washington. During the 1950s and 1960s, draws from the Wanapum aquifer brought levels down to alarmingly low levels. The City then developed wells within the Grande Ronde aquifer. As demand increased, the City began drawing water from both aquifers, finding that in the interim, the Wanapum aquifer had experienced some level of recharge. The City still draws from both aquifers, but concerns remain about the quantity of water that is available to the City. To protect future water supply, the City should engage in conservation, promote further research, and investigate the potential for using alternative sources of water.

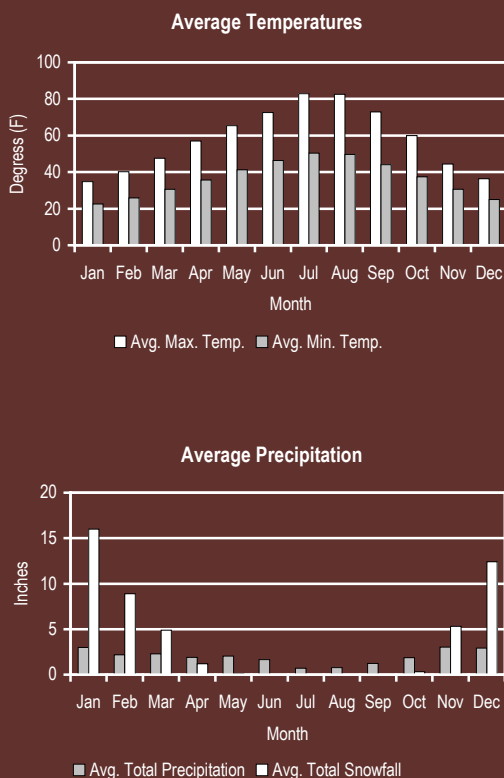
Much research has been conducted on the area's hydrology since the 1960s, yet identification of significant recharge areas has been elusive. Research is ongoing as to how, where, and to what degree the aquifers are recharged. The Latah County Hydrologic Characterization Project Final Report by Jerry Fairley et al., found that the base of Moscow Mountain was not a significant area of recharge for the Wanapum aquifer, as had been previously suspected. The September 30, 2006 report concluded that a field study, at the west side of the basin in the vicinity of the Idaho-Washington state line, should be conducted with regard to Wanapum aquifer recharge.

Paradise Creek and the South Fork of the Palouse River are the principal



watercourses in the area. Paradise Creek originates in the Palouse Range to the northeast of Moscow. It runs along the east side of the City limits, cuts through the southeast corner of town, follows the Burlington Northern–Union Pacific Railroad rights-of-way through the center of town, and then west toward Pullman, Washington. The South Fork of the Palouse River and Paradise Creek both normally experience year-round flow. A small tributary named Hogg Creek cuts through the Northwestern area of the City and flows into Paradise Creek along Pullman Road.

Figure 1.7:
Moscow's Climate



Source: Western Regional Climate Center; University of Idaho monitoring station. Period of record: 11/7/1893 to 5/31/2016

The valleys of these three waterways, with more level land than is found in other areas of the City, attract development. Both the river and creeks, however, are subject to occasional flooding during the winter and early spring, when warmer air melts snow and brings heavier precipitation.

Climate and Air Quality. Moscow's climate is relatively mild. Average summer high temperatures are in the low 80s, and average winter low temperatures are in the 20s. The City averages 23.8 inches of total annual precipitation. January is generally the month with the greatest snowfall, 16 inches of average snowfall, and four inches of average snow depth. Mild winters with wet springs facilitate the growth of crops and the unique water-retention qualities of the soil allow the crops to mature over the dry summers without irrigation. Monthly climate data is shown in [Figure 1.7, Moscow's Climate](#).

Generally, air quality in the region is quite good. The state monitors the air for particulate matter that is 2.5 microns in size (PM_{2.5}) and at this time has no cause to monitor for other pollutants. The Environmental Protection Agency (EPA) provides a composite measure of air quality called the Air Quality Index or AQI. Ninety-nine percent of the time the air quality was considered "good" at a AQI less than 50. Since 2001, there have been only three recorded instances where air quality was considered unhealthy for

sensitive groups with an AQI between 101 and 150. The most significant sources of air pollution, including particulates, are wildfires and field burning.

1.3.2 Hazardous Areas

With the exception of steep slopes and floodplains that are discussed below, there are very few natural hazards in the City or its area of influence.



Topography. Topography in and around Moscow is generally rolling hills, typically rising between 20 and 80 feet above adjacent low points. See [Map 1.1, Steep Slopes and Floodplain Areas](#). The north and northeast faces of the area's hills are frequently as steep as 40 to 50 percent, while the south and southwest slopes have grades that are generally between 10 and 25 percent. The City's rolling hills and surrounding peaks are a visual asset. The ridges in and around Moscow are desirable sites for residential development because of their views, yet the challenges presented by the topography are as numerous as its desirable aspects.

The steeper slopes increase building costs and make intensive development difficult. For example, pumping facilities are required to provide water and sewer service to some areas. Furthermore, as slopes increase, the velocity of runoff is increased, which, in turn, increases the severity of erosion to vulnerable fine-grained soils. Where land is developed and vegetation is not replaced nor expensive retaining walls built, excessive moisture and highly erosive soils can cause small-scale landslides. As such, City regulations should require extensive erosion control measures on slopes during and after construction, and the City should support efforts to educate landowners about soil conservation best management practices.

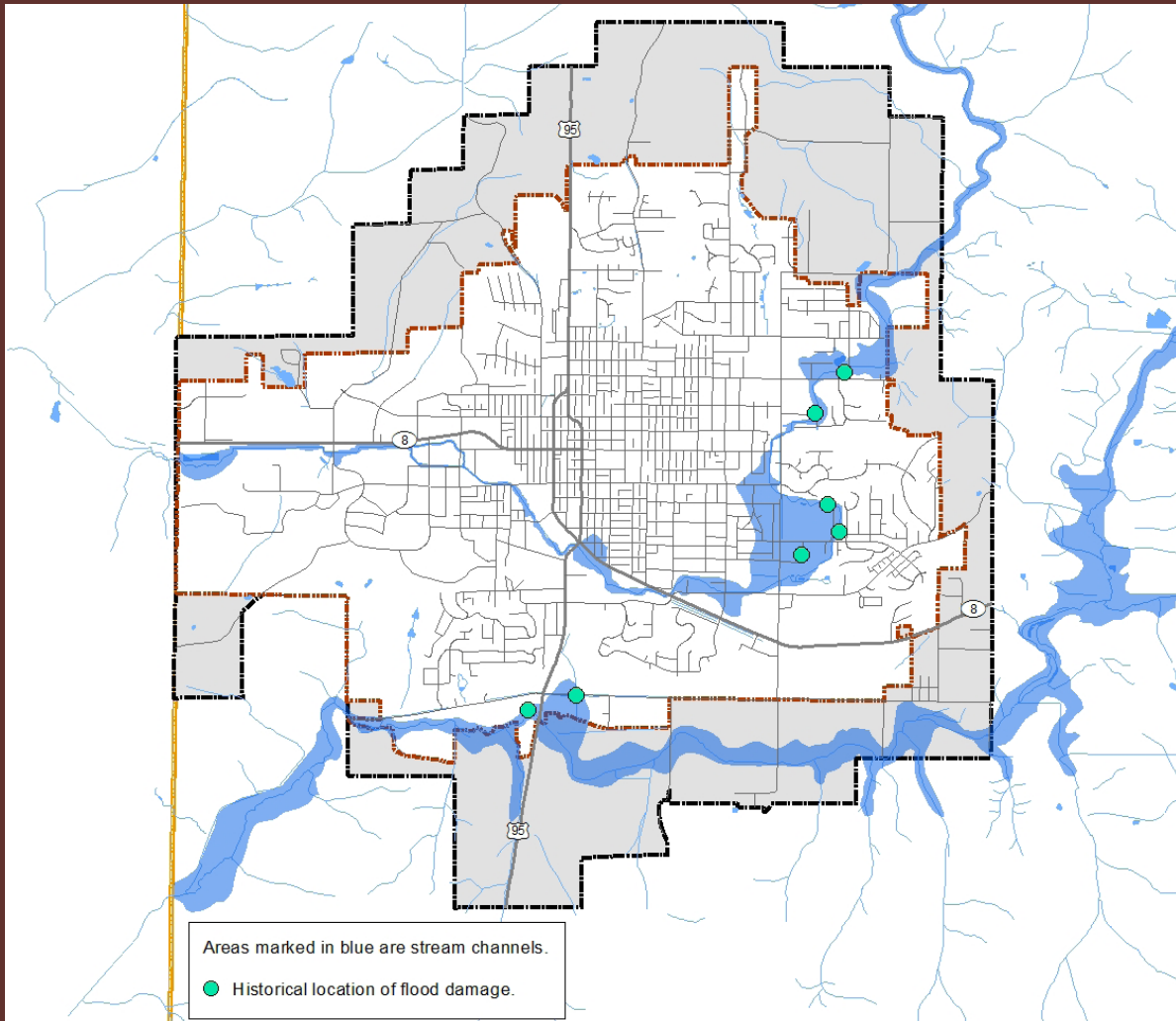
Floodplains. The most recent Federal Emergency Management Agency (FEMA) flood zone map was promulgated by FEMA on April 15, 2002. A Letter of Map Revision (LOMR) was approved by FEMA on March 27, 2013 as part of the University of Idaho Recreation Center/Paradise Creek daylighting project. The 2013 LOMR remapped the floodplain from the US95/HWY8 south couplet to Perimeter Drive. They are depicted in [Figure 1.8, Map of Flood Hazard Areas](#) (see next page).

Flood mitigation requirements for development within a floodway and/or floodplain have been incorporated into the Zoning Ordinance. Historically, Moscow's focal points for flood damage have been:

- ♦ Paradise Creek on the north side of East D Street, west of Eisenhower Street;
- ♦ The east end of Hillcrest Drive and the north end of Bridge Street;
- ♦ The land south of the creek east of Mountain View Road, west of South Meadow Street, and north of Joseph Street;
- ♦ South Meadow Street north of Joseph Street;
- ♦ Ghormley Park and Home Street;
- ♦ East of Line Street at its intersection with State Highway (S.H.) 8 and Third Street;
- ♦ South Fork of the Palouse River east of U.S. Highway 95 South at Palouse River Drive;



Figure 1.8:
Map of Flood Hazard Areas



Source: Federal Emergency Management Agency; City of Moscow

- ◆ West of U.S. Highway 95 south of Palouse River Drive; and
- ◆ South Harding Street.

Seismology. There are no active faults within Moscow or its Area of City Impact. However, Moscow is situated within Seismic Zone IIB, which means that there is a moderate risk of earthquakes resulting from seismic activity in other locations. The City's building codes account for this risk.



1.3.3 Local Response to Changing Global Climate Conditions

According to the American Planning Association, over the past decade, planners have long focused on smart growth and sustainability, although they have not always directly connected them to climate change. Mitigation measures such as combating urban sprawl and fewer vehicle-miles traveled in turn can result in reduced greenhouse gas (GHG) emissions. Addressing the symptoms of climate change such as stormwater management and precipitation changes are adaptation measures. Many cities are working to significantly lower GHG emissions among a variety of actions, including higher density development, encouraging green building materials, and incorporating alternative energy sources. “By promoting the synergy between smart growth, sustainability and climate change mitigation and adaptation, planners can effect positive outcomes through a so-called ‘no regrets’ approach, whereby actions taken to adapt to or mitigate climate change are ones that should be taken anyway for other reasons related to smart growth and sustainability.” (American Planning Association, Policy Guide on Planning and Climate Change)

The Guide identifies five primary hazard types linked to climate change: Heat waves, strong storms, flooding, drought, and wildfires. It further references areas of local concern. It is generally expected that the specific climate change impacts to the Pacific Northwest Region will include increases in annual average temperatures between 5°F and 8.5°F by the year 2080 with potentially slight increases in annual precipitation. With the warmer temperatures it is anticipated that annual snowpack will decline, stressing water resources, and increasing the risk of wildfires from rising temperatures and drier summer conditions. Additionally, climate changes may result in population migration as people seek less adversely impacted areas. The Guide states that, “Rapid population growth may strain infrastructure, exacerbate NIMBYism, negatively impact community character, and create significant social services capacity issues.” Among their recommendations are: to protect and enhance green spaces; reduce GHG emissions; promote public awareness and incentive programs; focus on public construction specifications, requirements, and retrofitting; and encourage locally produced food.

Water. With the reliance on the Wanapum and Grande Ronde aquifers as the primary water sources for Moscow, there is a potential for reduced aquifer recharge because of changing climate patterns. The relatively linear population growth rate that the City has historically experienced is projected to reach 28,760 people by 2030. The changing climate conditions in other regions of the United States may lead to an increase in population growth in the northwest region due to a migration of people from areas that are more adversely effected by climate change. Increased water consumption due to population growth, declining aquifers, lower precipitation in the summer, earlier and faster

Palouse Prairie

“The Palouse Prairie comprises moderately to strongly dissected loess-covered basalt plains, hills with large steptoes, undulating plateaus, and some river breaklands. Dry farming and livestock grazing occurs on about 90 percent of the area.”

Source: www.palouseprairie.org



runoff in the spring, and climate migration could further strain water supply in the future. Providing for future growth will require additional conservation, the expansion of effluent irrigation, and the investigation into an alternate water supply among other recommendations which are discussed in detail in **Section 5.3, Potable Water.**

Air Quality. Climate change is projected to alter forests in the northwest and southwest regions of the United States by increasing wildfire risk and insect and tree disease outbreaks. Many impacts will be driven by water deficits, which increase tree stress and mortality, tree vulnerability to insects, and fuel flammability. Although Moscow has a relatively low wildfire risk because of the surrounding agricultural fields, the City will continue to experience impacts to air quality because of regional wildfires and a lengthened fire season. Health, quality of life, outside working conditions, outdoor recreation, and the tourist economy can all be significantly impacted by air quality. Although air quality is largely a result from broad weather patterns that far exceed the city's ability to influence, the City should encourage natural filtering agents such as the urban forests, continue to reduce carbon emissions, and explore alternatives to outdoor activities that would provide additional options during negative air quality events.

Energy Usage. Moscow is currently implementing a 20% by 2020 plan through city operations with a goal of reducing carbon emissions 20% below a 2005 baseline. Upon completion of this goal in 2020, the City should explore expanding that effort to further reduce carbon emissions and fossil fuel consumption. The City could also explore incentives for citizens, businesses, and the University of Idaho to reduce their carbon emissions, similar to current incentives for water conservation. Individuals and businesses may desire to implement on-site solar electric or solar thermal or small-scale wind systems. There may also be a desire to create co-op or other community energy production systems which may require new permitting schemes. The City should identify barriers to alternative energy production and promote the use of fossil fuel alternatives.

Transportation. In order to reduce carbon emissions in the transportation sector, the City should continue to promote the use of multi-modal transportation within the community. Expanding SMART Transit routes and schedules while sustaining them at low or no cost to citizen use (the fixed SMART route is currently free to riders while the Dial-a-Ride has a fare charge) has been surveyed as a desired community outcome. Greater flexibility and accessibility should increase SMART ridership and decrease general vehicle usage. The City should continue to expand the bicycle and pedestrian transportation network and continue the "Complete Streets" approach that has been incorporated in new development. The City should work with the University of Idaho to research the feasibility of developing a bike and potentially, scooter share program initially focused on stations located on campus and downtown. Electric vehicles and their charging stations are also an emerging trend which the City could partner



with Avista to explore. Strategic locations like public parking lots downtown could be chosen for charging stations which could provide an economic benefit to downtown. Mixed-use developments and subdivisions can also provide shorter distances to critical services and promote the use of non-motorized transportation. Transportation goals and objectives are discussed in more detail in **Chapter 3, Community Mobility**.

Infrastructure and Environmental Impacts. Over the past decade the City has been focusing on revising Zoning Code requirements to allow greater flexibility in setback requirements, more mixed-use development permitted by right, more opportunities for infill development, and higher density close to the City core. Parking requirements were revised in 2017 to allow for reduced areas of impervious surface, larger areas of green space to manage and filter stormwater runoff, incentives for incorporating bicycle parking, and easier opportunities shared parking arrangements. The City should continue to support opportunities to incorporate higher density development where appropriate as well as different housing options such as townhomes, twinhomes, and smaller homes. Managing storm water runoff as federally mandated and mitigating stream flooding impacts will maintain property value and retain more moisture in soils, as well as reduce impacts on city wastewater treatment and recovery systems.

Climate Migration. Due to the effects of climate change in certain regions of the Country potentially flooding coastal areas, causing wide spread drought and extreme temperatures, and increasing the frequency of dangerous storm events, there is a potential for a population migration from those regions to areas that are less adversely impacted such as Moscow. Migration could occur slowly or could become sudden and would increase the demand for jobs, housing, resources, and services. Planning for growth is critical for normal population growth and made more urgent by the potential of climate migration which could bring with it an increasing burden to support economic opportunities, infrastructure, and city services.

Food Security. Climate change presents two challenges to the local food supply. Remote weather events could impact production and prices; and local weather events (ice storms, flooding) could impede supply. Locally produced and distributed food could address some of these concerns, both via the Farmers Market and individual urban agricultural efforts. There is a growing trend toward local food establishments featuring locally grown produce, as evidenced by a very successful downtown Moscow Food Co-op, local restaurants that feature regionally-sourced ingredients, and a variety of food vendors in the Farmers Market. The City approved an urban agriculture ordinance in 2013 which permitted agricultural activities throughout the City to promote local food production. Continued support of local food production can increase access to healthy food options, reduce the environmental impacts of food distribution and transportation, and increase food security and affordability in the community.



1.4 NATURAL RESOURCE GOALS AND OBJECTIVES

1.4.1 General Natural Resource Goal

- ♦ To protect and conserve the natural resources of the area in a manner that balances their ecologic, economic, and aesthetic potentials to preserve natural features and ecosystems while directing development away from floodplains, steep slopes, and other hazard areas to protect public health, safety and welfare, and preserve sensitive areas.

1.4.2 Natural Resource

Objectives

- Promote the conservation of valuable agricultural lands and Moscow's surrounding rural landscape.
- Protect and enhance regional waterways and sensitive riparian areas to serve their natural functions, and as aesthetic and recreational assets.
- Protect and expand the City's urban forest.
- Minimize hazard potentials to new developments from flooding, excessive erosion, and earth slides.
- Incorporate a proactive response to potential local and regional effects of changing climate conditions on natural resources and their impacts on biological diversity, ecological sustainability, and socio-economic factors.
- Conserve and protect the groundwater of the region's aquifers and their natural recharge areas (as they are identified).
- Conserve sensitive natural areas for aesthetic and ecological purposes.

Implementation Actions

- Direct new development to areas that are adjacent to existing developed areas where City utilities and other public services are readily available.
- Minimize large lot subdivisions and other low-density development patterns in areas close to the City where higher density development can make more efficient use of available lands.
- Protect farmland in areas surrounding the City, where intensive development is not appropriate, through agricultural zoning, clustered development, and non-agricultural use restrictions.
- Promote the protection of the remaining areas of Palouse Prairie, utilize restoration methods for open spaces and retired farmland, and encourage use of native plant species in landscaping applications.
- Provide buffer areas between new development and waterways, riparian and wetland areas by clustering development outside these areas, while still providing for the equivalent development density.



Where feasible, non-motorized multi-use pathways should be incorporated within riparian buffer areas to enhance educational, transportation, and recreational opportunities.

6. Develop partnerships with local, state, and federal environmental and natural resource management agencies to preserve and restore riparian areas and key wildlife corridors and habitats.
7. Actively promote the protection and expansion-of the City's urban forest by:
 - a. Increasing the species diversity of ROW tree planting efforts through publications, educational venues, and partnerships with local tree nurseries.
 - b. Developing a systematic program for education, attentive monitoring, and active enforcement of existing ordinances concerning the removal and replanting of ROW trees.
 - c. Inventorying the condition and vigor of the Downtown Business District ROW trees and determining a complete lifecycle and replacement plan that would consider methods of improving conditions for existing trees and developing improved planting schemes.
 - d. Working with utility providers to relocate utility lines underground or to one side of the street to reduce the damage done to street trees by pruning around utility lines.
8. Revise the surface drainage regulations to increase treatment and detention of surface water runoff using techniques such as bioswales and on-site detention, and consideration of the use of alternative pervious paving surfaces, particularly in areas of modest or infrequent vehicular utilization.
9. Adopt regulations to direct intense development away from steeply sloped areas to minimize grading, soil erosion, and the potential for property damage.
10. As they are identified, adopt regulations that protect and set aside aquifer recharge areas as open space.
11. Understand, conserve, and protect the aquifers of the region including:
 - a. The enhancement and expansion of water conservation practices by individuals and private and public entities, including the expansion of effluent reuse.
 - b. Further research of the aquifers to better understand the water quantity, quality, sources, and locations of recharge that may be occurring.
 - c. Research and consideration of alternative water sources that may be utilized to supplement the current groundwater withdrawals.
12. Adopt regulations that provide for preservation of sensitive natural areas via development clustering and other innovative development practices.
13. Amend the parkland dedication ordinance to allow credit for the preservation of sensitive natural areas that meet defined passive recreation and open space preservation criteria.



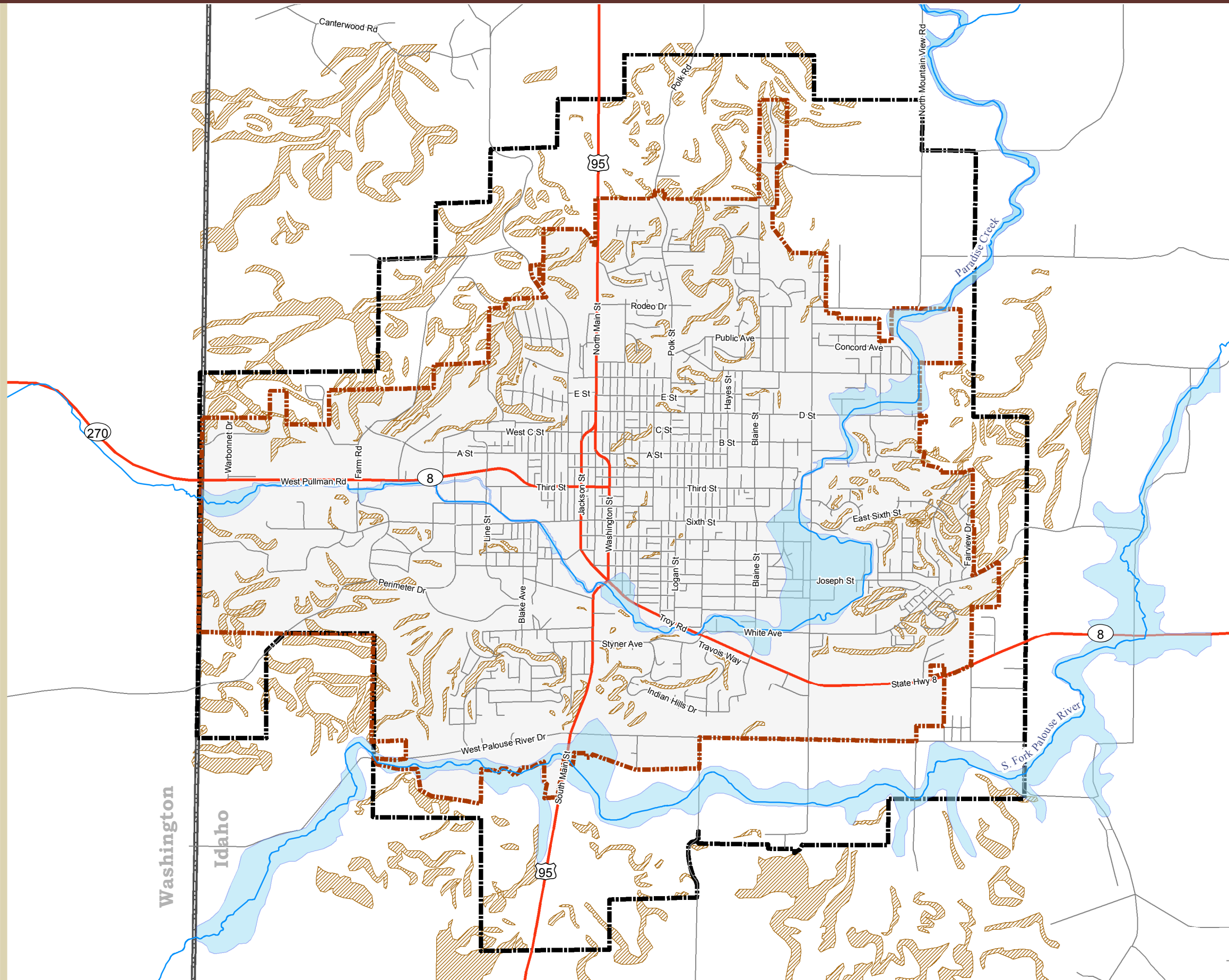
Steep Slopes & Floodplain Areas

FLOODPLAIN & SLOPES

- 100-Year Floodplain
- Steep Slopes

BOUNDARIES, WATER, & INFRASTRUCTURE

- City Limits
- Area of City Impact
- State Border
- Paradise Creek and S. Fork Palouse River



0 0.15 0.3 0.6 Miles



comprehensive PLAN

Community Character and Land Use

COMPREHENSIVE PLAN

This Chapter provides a 20-year policy framework for the future physical development of the City and its area of impact. The analysis of the community's existing and desired character provided in this Chapter is based upon the community values (discussed in *Chapter 1, Community Context*) which were articulated by the citizens during public outreach efforts. This Chapter provides a policy framework for governing landscaping, building design, tree planting, signs, and housing, as well as suggested patterns and standards for community design, development, and beautification. This Chapter is guided by the following general goals:

- ♦ Direct land uses to meet current and future community desires and needs while conserving natural resources and protecting agricultural lands from scattered development through efficient and orderly development.
- ♦ Encourage a variety of housing types to meet the needs of residents of all ages and economic ability.
- ♦ Preserve and enhance special areas of the community to celebrate the community's identity, character, and heritage.
- ♦ Enrich the community's social, cultural, physical, and economic environments through the arts and integration of aesthetic infrastructure standards, and particularly through the placement of public art at key locations in the City.

2.1 EXISTING COMMUNITY CHARACTER

Land use planning is a recognition that Moscow does not have to wait and react to growth and development. Rather, it can determine where growth will occur and what character this new development will reflect. Through active community support, this Plan will ensure that development meets certain standards that contribute to achieving the desired community character. The following is a brief assessment of the various land uses, their character, and locations throughout the community to provide a perspective of the needs and challenges for planning for future land uses.



Figure 2.1:
Regional Agriculture



Source: Kendig Keast Collaborative

2.1.1 Agricultural and Resource Extraction

The City of Moscow is largely surrounded by agricultural lands utilized for the production of wheat, dry peas, lentils, and other dry land crops. See [Figure 2.1, Regional Agriculture](#). The continuation of the existing agricultural uses is generally considered desirable to preserve the agricultural landscape and the local economy until such time as development occurs. Careful consideration must be given to how large tracts of farmland are subdivided, to ensure development that is orderly, efficient and compatible with adjoining uses.

Timber production and mining are not uses that commonly occur within the City limits; however, as the City grows and the Area of City Impact expands there may be opportunities for mineral extraction uses to occur near or within the City's jurisdiction. Mineral extraction uses can present impacts to the community on a broader scale than most uses, as there is the potential for high levels of water use, increased heavy truck traffic, and contamination of water and soil. Care must be taken for such uses to minimize impacts to other resources and require mitigation of land disturbances once the use has ceased.

2.1.2 Residential

Residential use is currently the predominate land use within the community. The character of residential areas vary dramatically from neighborhood to neighborhood due to variations in the era of development, housing types, street layout, building design, and many other elements.

Early development of the City primarily followed a traditional block grid system characterized by straight streets intersecting each other at regular intervals and blocks bisected with alleys. The lots are often narrow and rectilinear in shape with access provided via an alley at the back of the lot. This type of development is found primarily in the areas near downtown and was the typical design of residential development in the late 1800s and early 1900s.

During the 1950s and 60s, developments began catering to the automobile and less emphasis was placed on the pedestrian orientation of neighborhoods.



Streets developed during this period continued to follow the traditional block grid system, however alleys were no longer provided and vehicular access was shifted to the street. Lots became somewhat wider in order to accommodate a driveway, and garages were shifted to the front of homes, pushing the living quarters to the sides and rear of the lot. These types of neighborhoods in Moscow can be seen east of Logan and Hayes streets to Mountain View Road and north of “D” Street to the east of Mountain View Road.

A third type of neighborhood character was formed during the 70s through today with the introduction of curvilinear streets. These areas have no alleys, and the lots are larger but often irregular in shape. The street pattern is often disconnected (serving only the developed area), and many streets end in cul-de-sacs. Such neighborhoods in Moscow can be found south of S.H. 8 and the University, east of Mountain View Road in the area south of “D” Street, and in limited areas north of Public Avenue. The rolling topography of the Palouse perpetuates this design and makes continuation of a linear connected grid pattern difficult.

Manufactured home parks are of a unique character due to the clustered nature of a specific housing type. Areas with manufactured housing are located throughout Moscow, with the most parks located on the west side of North Almon Street, on North Polk Street, and south of East and West Palouse River Drive. Several manufactured home parks are located outside the City limits and may be incorporated as the City grows.

A newer type of neighborhood development is the planned neighborhood, in which innovative and nontraditional methods of development occur. This type of neighborhood may include a variety of housing types and lot arrangements, outdoor and recreational amenities, and sometimes limited commercial services. Often these areas are developed with a specific design or style in mind and serve to complement a lifestyle of its residents. Units may be owned separately or have common ownership, and they commonly feature smaller lots than are allowed in typical developments. Planned neighborhoods in Moscow are generally smaller than most subdivisions, and are typically development of large lots that have been reviewed under the Planned Unit Development Code.

2.1.3 Commercial and Industrial

Moscow’s commercial districts are generally located within the Historic Downtown Central Business District and along the state highways that run through town. The largest commercial area is located along the north side of west S.H. 8, commonly known as the Pullman Road. This area includes a series of restaurants, fuel stations, hotels, a shopping mall, and general retail stores. The second major commercial area is along east S.H. 8 or the Troy Road. Similar uses are located through this area, but they are generally smaller in scale than those on Pullman Road due to shallow lot depths and the proximity of Paradise



Creek. Commercial uses also extend along U.S. 95/Main Street to the north and south of downtown.

Business offices are located throughout the community in all of the commercial districts and thus are surrounded by a variety of other business types. In the downtown area offices tend to locate in store fronts or in suites above street-level retail. These office suites are often small and outdated. Office uses are also commonly located in smaller structures in the Motor Business (MB) zoned areas and in converted homes within the Residential Office (RO) zoned areas.

The industrial uses within Moscow have historically been primarily related to agriculture. With recent changes in agricultural product and transportation methods, the grain storage facilities located along the railroads have ceased operation. As the old agricultural and railroad properties are redeveloped to uses more suited to the core of town, the majority of land designated for industrial uses will be lost. A new location for industrial uses will be needed to maintain a diverse economy.

The majority of the residential areas within the community are located on the east side of town and they continue to expand in that direction. With the primary location of commercial development along the highways, the residential development in the northeast area of town is distant from many commercial services. Allowance for neighborhood business areas that provide low impact professional office, services, and gathering places would reduce traffic congestion and provide opportunities for jobs and services close to home. Such neighborhood business areas can be designed with a residential character by requiring increased landscaping, locating parking in the rear, and utilizing pitched roofs.

Figure 2.2:
Moscow City Hall
(former Post Office and Federal Courthouse)



Source: City of Moscow

2.1.4 Governmental and Institutional

In the area just east of downtown is a core of governmental and institutional entities. Moscow City Hall is housed in the historic Old Post Office on Third and Washington streets and the Carnegie Public Library is one block to the northeast. See [Figure 2.2, Moscow Post Office and Court House](#). Two blocks south of City Hall is the Federal Building and current post office, and two blocks east of there is the Latah County Courthouse.



Moscow High School is also located within this area. This governmental and institutional core provides an employee and service base that supports downtown commercial and retail uses, and reinforces the sense of a civic center to downtown.

Gritman Medical Center is a community institution and a major employer located at the south end of Downtown Main Street. The medical facility has been the impetus for the location of several supporting health-related practices in the area, including an area along Washington Street that has transitioned from residential uses into various health-related professional offices while retaining the residential character of the structures. Another area where medical uses have clustered is along West “A” Street near War Bonnet Drive.

Many places of worship are scattered throughout the community. These are oftentimes located within residential neighborhoods, and are generally considered to be compatible with the residential uses. Parking is often the largest impact of these uses, and care should be taken to ensure that adequate space is provided, or that parking needs are minimized and expanses of pavement are screened from view of residential uses by landscaped buffers.

2.1.5 Recreation

Much like the governmental and institutional uses, the recreational uses are scattered throughout the community. These uses typically incorporate City-owned parks and recreation facilities, as well as other open spaces that are available to the public such as school grounds, University of Idaho open spaces and various trails and paths throughout the area. Availability of recreational uses adds richness to the community character and facilitates social connections and healthful recreational activities. For more information on recreational uses, see *Chapter 4, Parks, Recreation, and Open Space*.

2.1.6 Education

The University of Idaho is the largest educational institution within the community. For the 2017-2018 school year, the University reported an on-campus degree-seeking enrollment of 9,319, along with 928 faculty and 2,240 staff members. The draw of students into the community by the University accounts for nearly half of Moscow’s population, and thus creates a demographic with different needs and desires for housing and commercial uses than communities of a similar size that do not include a college or university. In addition to the University of Idaho, only eight miles to the west in Pullman, Washington is Washington State University with a 2017-2018 on-campus enrollment of 20,286.

In addition to the University of Idaho, Moscow also hosts New Saint Andrew’s College, a private classical liberal arts Christian college with locations in downtown Moscow in the Skattaboe Block on Friendship Square and North Main Street. In Fall of 2017, New Saint Andrews reported an enrollment of 143



full-time undergraduate students and 16 graduate students.

Moscow School District 281 is the singular public school district within the community and enrolls more than 2,500 students. Four elementary schools are located throughout the community. Russell Elementary is located just northeast of downtown; McDonald Elementary is on the far east side of town on “D” Street; Lena S. Whitmore is located at Blaine and First streets; and West Park Elementary is near the University of Idaho between Sixth and Third streets. The pattern of elementary schools essentially creates a line east to west across the middle of the community, resulting in the need for children from the southern parts of town to be bussed or driven to school because it is too far (or too dangerous) to walk.

Moscow High School is located just east of downtown and Moscow Middle School is located at the intersection of Mountain View Road and “D” Street. The playfields located near the middle school also serve the high school. Paradise Creek Regional High School is located on South Main Street, near Styner Avenue, and has programs designed for students who have dropped out or are at risk of dropping out of traditional high school to earn a high school diploma.

There are two public charter schools in the community: Moscow Charter School is a public school for K-6 with an enrollment of 169 during the 2017-2018 school year, and Palouse Prairie Charter School is a public K-8 school with an enrollment of 189 during the 2017-2018 school year.

There are also two private schools in operation within the Community. St. Mary’s Catholic School is a private school for grades K-8. Logos School is a private classical Christian K-12 school with a 2017-2018 enrollment of 388. Much like the religious institutions, these educational uses are located primarily in residential areas.

2.2 HOUSING

2.2.1 Housing Types and Ownership

According to the 2015 American Community Survey, there were a total 10,151 housing units within Moscow. This figure does not include group living quarters such as dormitories, fraternities and sororities which housed 2,894 individuals

in 2010. In 2015, of the 10,151 housing units, 3,786 were single detached units (single family homes), 627 were attached single units (townhomes), 878 were duplexes, 522 were mobile homes, 4,338 units were attached multiple dwelling

Table 2.1
2015 City of Moscow Housing Unit Inventory

Single Family Dwelling	4,413
Two Family Dwelling	878
Multiple Family Dwelling	4,338
Mobile Homes	522
Total	10,151



units (apartments) **Table 2.1, 2015 City of Moscow Housing Unit Inventory**, illustrates the current distribution of housing unit type within Moscow. In 2015 the American Community Survey also reported that 40.1 percent of the City's housing stock was owner-occupied, and 59.9 percent was renter-occupied.

Moscow already has a wide range of neighborhood characters and housing types, from urban to suburban, and from duplex, multiplex and apartment, to converted homes and efficiencies in basements and ancillary units. Residential-over-ground-level retail and office uses is another housing option that adds to the vibrancy of downtown.

The detached single family residence is the iconic living arrangement. It is generally a dwelling designed for use by one family that sits on its own lot of land. Although home sizes, arrangements, and densities vary immensely, it is nonetheless the primary occupant of land within the community. This housing arrangement generally utilizes the most land area per dwelling unit.

Attached single family residences are those where each dwelling unit has a ground level, shares one or more common wall with other dwelling units, and has some interest in an area of land, whether individually or commonly owned. There are many arrangements of attached residences including twinhomes, townhouses, and patio homes.

Multiple-family residences are those in which dwelling units may be above or below other units. These units do not typically include a divided interest in land, but instead have open areas under common ownership. Generally this type of housing is called apartments.

There are other types of housing that meet needs other than those of a family. A group home is typically where several people live together under a common interest, but are not related. A standard example of this type of housing is a fraternity or sorority. Accessory units are another means of providing housing. These are often referred to as mother-in-law apartments or granny flats and are secondary to a detached single family residence, whether they are an apartment within the primary structure or an accessory building on the property.

Many times, group homes and accessory units are not simply a housing type, but a use of a housing unit. The great need for student housing within Moscow often results in the use of single family homes as group homes for several students living together or conversion of portions of single family homes into for-rent accessory apartments. Although these housing types meet a need for housing within the community, they also come with a greater need for parking, excess noise, and sometimes a lack of maintenance or care.



2.2.2 Housing Demand

Moscow's population is forecast to grow from 25,146 people in 2018 to approximately 28,760 by the year 2030. See [Chapter 1, A Vision for Moscow](#). According to the 2015 American Community Survey, the average household size within Moscow was 2.23 people. Assuming that average household size remains consistent with that observed during the 2015 Census, it is projected that by 2030 the community would require a total of 11,811 housing units, which would represent 1,660 additional housing units, or 110 housing units per year to meet the housing needs of the current and future residents. This projected demand for new dwelling units excludes on-campus group housing such as dormitories, fraternities, and sororities which account for housing of about 18.4 percent of Moscow's population. It is anticipated that the University of Idaho will continue to provide on-campus housing for that 18.4 percent of the City's population (or approximately an additional 65 beds per year) through various on-campus housing opportunities through 2030.

Based on past ratios and the University's targets for future enrollment growth, roughly half of the projected population growth is likely to be students of the University of Idaho. If that enrollment growth were to occur, between 25 and 30 percent of the total future housing supply should be multifamily units that are located relatively close to campus and marketed toward University students and another 20 to 25 percent of future units should be alternative types of housing that allow for rental spaces (*e.g.*, ancillary units, basement units, efficiency rooms, and other affordable housing options). Enrollment growth should be carefully monitored to ensure the appropriate mix of housing is available.

At any given point in time, a portion of the housing stock is vacant. Vacancies are essential to the healthy functioning of the housing market and the City's economic development. When vacancy rates are too low, demand for housing will push up rents and prices as they vie for scarce units. In the case of a college town like Moscow, this pressure may make some students opt for other schools. The rule of thumb used by many economists is that five to eight percent is a healthy vacancy rate that promotes a healthy housing market. In 2015, according to the American Community Survey, the City had a relatively low 2.6 percent vacancy rate among all rental housing units. This suggests that depending upon the future enrollment at the University of Idaho there continues to be a potential need to provide additional apartment units within the City. Therefore, an adequate stock of quality housing options located close to campus is essential.

Residents have also expressed a desire to have more housing options available that are principally developed for owner-occupancy. As people and families age, their housing needs change as well. If a mix of housing is provided within neighborhoods, people have the option to move to another home that suits their needs without leaving the community. Units such as village houses, patio homes, townhomes, and downtown residential-over-retail housing units should



Even though 59.9 percent of the City's housing stock was for rent in 2015, the City's year-round population has a very high degree of owner-occupancy because students account for approximately 84 percent of the rental units. If the student rental population is not considered, the owner-to-renter ratio in the City is a very healthy 83 percent to 17 percent.

As inflation of the housing market has surpassed income growth for many households, the City should implement programs and regulations to provide year-round residents with a variety of housing options at a variety of price points.

be encouraged in appropriate locations to expand the housing types available in the community. Additionally, as the Baby Boomer generation ages, there will be an increased need for additional assisted living and continuing care facilities, as well as for centrally-located, accessible dwelling units.

2.2.3 Affordable Housing

Generally, housing is considered to be affordable if it costs no more than 30 percent of the household's annual income. Typically this consideration includes taxes, insurance, and utilities as part of the cost of housing. According to the 2012-2016 American Community Survey, the local median income for a family in Moscow is \$61,499, while the median income for a household is \$34,784. The median home price, based on the selling price of homes sold in Moscow in 2016, as cited by local real estate companies, was \$248,500, which is in excess of what is considered affordable housing for someone at the median income level.

There are several strategies available to local government and community organizations to promote affordable housing. Often the most easily implemented strategies are those that can be controlled through land use and development codes. Allowance of infill development and accessory dwelling units provides more housing options by increasing densities, lowering the cost of land associated with a dwelling unit, and supplementing a homeowner's mortgage payment.

Conversely, codes may also inadvertently pose impediments to the development or maintenance of affordable housing. Careful consideration needs to be given to code regulations and amendments so that regulations are not overly restrictive or costly. Some such regulations may limit the ability for a potential home buyer to obtain a loan on the property due to a nonconforming lot, structure or use. Incentives can be built into codes to encourage developers to construct affordable housing by allowing density bonuses, alternate housing types, additional height, reduced fees, or priority plan review.

Other strategies require the establishment of programs and enforcement to be effective. Establishing a new affordable unit is easy in comparison to keeping the unit affordable when the original owner sells. A mechanism is needed to



restrict the unit from being sold at market rate. Programs can be developed to fund the construction and rehabilitation of affordable units through trust funds. Other options include deed restrictions or the creation of land trusts - arrangements in which a private non-profit organization holds ownership of the land, and/or community housing funds that can reduce the purchase price to home ownership providing housing buy downs that are repaid upon the future sale of the property. These strategies typically require third party involvement that may require partnerships between local government and other public or private organizations. To that end, a Community Housing Development Organization (CHDO) by the name of the Moscow Affordable Housing Trust (MAHT) was created in 2009 with the goal of creating affordable housing within the community. Ultimately, it is important that the City carefully monitor the distribution and condition of housing that is available to all residents of all income levels within the community and implement the strategies such as those identified above to address community needs.

2.2.4 Home Occupations

With the advent of the personal computer and the communication age, society began a move toward telecommuting and new forms of home-based businesses. These uses are prevalent today and will continue to become more common as technology becomes more affordable and price of fuel increases. Although many times no one would know if their neighbor operated a business from home, these activities are technically commercial uses within residential zones -- uses that can have impacts on the neighborhood. Home businesses can add to the economic foundation of the community and grow into larger businesses. In this respect, they can be viewed as business incubators. In 2008 the City amended the Zoning Code to establish two different categories of home occupations that allow for these limited commercial activities while ensuring their compatibility with the surrounding neighborhood.

2.3 SPECIAL AREAS AND SITES

2.3.1 Historic Districts

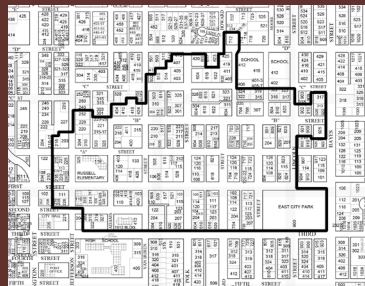
Moscow has two historic districts listed on the National Register of Historic Places. The Fort Russell Neighborhood was originally designated in 1980 and amended in 2017, and the Moscow Downtown Historic District was designated in 2005. There are also 19 individual structures in Moscow that were listed on the National Register before these historic districts were established. When the Downtown Historic District was designated, 32 buildings were listed as contributing structures, including six that had already been listed individually. When the Fort Russell Neighborhood was originally designated, approximately 117 buildings were listed as contributing structures. With the 2017 amendment there are now 243 properties within the Fort Russell Historic District. Thus,



altogether, some 275 Moscow buildings have been listed on the National Register of Historic Places, whether individually, as contributing structures within a historic district, or both. Numerous other buildings, sites, and neighborhoods within the city may be considered historically significant but have not yet been officially designated as such.

Fort Russell Neighborhood Historic District. The Fort Russell Neighborhood is located northeast of downtown. It contains 243 properties. See **Figure 2.4, Fort Russell Neighborhood Historic District**. It is bounded generally by Third Street on the south, “D” Street on the north, Jefferson Street on the west, and Hayes Street on the east. This residential neighborhood is laid out in the traditional grid pattern and has an extensive tree canopy. A majority of the homes in the district were built between the years 1880 and 1920, using a mix of architectural styles including Queen Anne, Eastlake, Gothic Revival, Colonial Revival, English Cottage or Tudor, American Foursquare, and Bungalow. Many of Moscow’s early businessmen had homes in this area -- Frank H. Barton, Henry Dernham, William Kaufmann, and Frank A. David. The history of this neighborhood goes back to the establishment of Fort Russell during the Indian wars of 1877. Houses listed on the Register as “contributing” were at least 50 years old in 1990. A significant number of houses constructed after 1940, including prime examples of Art Deco and Moderne styles, could be classified as historic, but are not within the period of significance which is between 1885 and 1940.

Figure 2.4:
Fort Russell Neighborhood Historic District



Source: City of Moscow Historic Preservation Commission

Moscow Downtown Historic District. Recognizing the core of the town, the Moscow Downtown Historic District runs the length of Main Street between Sixth and First streets. See **Figure 2.5, Moscow Downtown Historic District** (next page). It is generally bounded by First Street, Sixth Street, Washington Street, and the alley between Main and Jackson streets. The commercial district includes 60 structures, a majority of which were built between 1888 and 1953.



Figure 2.5:
Moscow Downtown Historic District



Source: City of Moscow_Historic Preservation Commission

The earlier buildings represent the Italianate, Romanesque, Mission/Spanish Colonial Revival and Art Deco architectural styles. The location of Moscow's downtown was decided when Almon Asbury Lieuellen, James Deakin, Henry McGregor, and John Russell each donated 30 acres of land to create the town site in 1876.

Individually Listed Structures. Most of the 19 buildings that were on the National Register of Historic Places before the historic districts were established are clustered in three areas: the downtown commercial district, the University of Idaho campus, and an institutional corridor lying between the downtown commercial district and the Fort Russell neighborhood. The other two are nearby residences. Those 19 buildings are as follows:

Downtown Commercial Area:

- ◆ Davids' Building (302 S Main Street, established in 1889 by Henry Dernham and Emmanuel Kaufmann)
- ◆ Hotel Moscow (313 S Main Street, established in 1891 by Robert H. Barton)
- ◆ Kenworthy Theatre (508 S Main Street, established in 1926 by Milburn Kenworthy)
- ◆ McConnell-Maguire Building (102 S Main Street, established in 1891 by William J. McConnell and James H. Maguire)
- ◆ NuArt Theatre (516 S Main Street, established in 1935 by Milburn Kenworthy)
- ◆ Skattaboe Block (401 S Main Street, established in 1891 by Kenneth Oliver Skattaboe)

University of Idaho Campus:

- ◆ Administration Building, University of Idaho (built 1907-09)



- ♦ Kappa Sigma Fraternity, Gamma Theta Chapter (918 Blake Street, built 1916)
- ♦ Memorial Gymnasium (built 1927-29)
- ♦ Ridenbaugh Hall (built 1901-1902)
- ♦ Sigma Alpha Epsilon Fraternity House (920 Deakin Street, built 1932)
- ♦ University of Idaho Gymnasium and Armory (built 1904)

Institutional Corridor:

- ♦ First United Methodist Church (322 E Third Street, built 1904)
- ♦ W. J. McConnell House (110 S Adams Street, built 1886)
- ♦ Moscow Carnegie Library (110 S Jefferson Street, built 1906)
- ♦ Moscow High School (410 E Third Street, built 1912)
- ♦ Moscow Post Office and Courthouse (206 E Third Street, built 1911)

Nearby Residences:

- ♦ Mason A. Cornwall House (308 S Hayes Street, built 1889)
- ♦ Almon Asbury Lieuallen House (101 S Almon Street, built 1884)

Historic resources are significant to the identity of the community and many more structures and possibly districts may be added to the National Register listing over the years. Keeping historic resources eligible for listing and protecting and preserving them is important to the character and heritage of the community.

The identification and designation of these two historic districts represent important first steps in the promotion and preservation of these historic areas within the community. However, there are currently no guidelines or architectural standards within these districts to ensure that their historic nature is preserved, nor to enhance development and redevelopment activities that might occur within these districts. The City should consider the development of historic district architectural design standards and reviews to retain the historic character of these areas in the future.

2.3.2 Urban Renewal Districts

The Urban Renewal Agency was formed in 1995 and is not a city governmental body, but is supported by the city staff and the board is appointed by the Mayor with confirmation by the City Council. The Urban Renewal Agency's purpose is to encourage redevelopment of areas through authority given by the state. It seeks to address deteriorated or deteriorating areas that are impeding economic growth by addressing public needs of both underdeveloped properties and properties in transition. There are currently two urban renewal districts within Moscow.



Alturas Urban Renewal District. The Alturas Urban Renewal District was established in 1996 to provide a for technology-based businesses. It is located south of S.H. 8/Troy Road and west of Mountain View Road. A special zoning district was formed to encourage a cohesive and consistent district to excite economic development. Alturas has fostered economic growth through diversification by establishing a place for research and technology companies to locate and grow in the company of related businesses. The City of Moscow and the University of Idaho desired to make use of the success of the business incubator and provide additional space for the growth and development of new companies. These companies were forecast to provide employment, investment and tax revenue generation capable of maintaining and improving the economy and community of Moscow. However, to accommodate and foster this new growth, it was necessary to provide public infrastructure of water, sewer streets, and parks within the project area. Without these public improvements, the project was not expected to go forward and new growth and business development was anticipated to locate outside of Moscow. The Alturas District was closed in 2015, however several lots remain available for development.

Legacy Crossing Urban Renewal District. The Legacy Crossing district was established in 2008 with the purpose of guiding the development occurring in the old agricultural industry corridor along the railroad and Paradise Creek alignment between the University of Idaho and downtown. The formation of this district came about from the community's desire to eliminate conditions impeding the City's economic growth in an area which is located between Moscow's historic downtown and the University of Idaho campus. The intention of Legacy Crossing is to spur a transition of properties from former agricultural and/or industrial uses to new uses, create more cohesive zoning arrangements, add diversity to the General Business and Residential/Office mixed use zones, and thereby transform the area from its current state of economic liability to one of economic vibrancy. The Legacy Crossing District was amended in 2018 to include the adjacent portion of Main Street to assist with addressing the deteriorating public infrastructure in the Downtown area.

2.3.3 University of Idaho Campus

The University of Idaho takes up a major portion of the southeast quadrant of the City with its 1,585 acre campus. As a major land holder, economic foundation, open space provider, and draw for outsiders, it is an important part of the community. The mix of historic buildings, modern facilities, and extensive landscaped open space add to the unique and identifiably academic feel of the campus. The educational core of the campus is located amongst the extensions of Line Street and Sweet Avenue. Residential areas are located at the north and east perimeters of campus nearest downtown and Pullman Road. Dormitories are generally north of Sixth Street, Greek housing is located primarily on Nez Perce Drive and Elm Street, and student family apartments are



located between Sweet and Taylor Avenues. The geographic center of campus contains the Kibbie Dome, athletic track, and various playfields. The southern portion of campus includes a golf course and arboretum that extends to West Palouse River Drive. The western areas of campus contain agriculture and university farm facilities.

2.4 DOWNTOWN

Downtown Moscow is treasured by the community. It is the heart of the City, not only geographically, but also in terms of identity, community character, and community spirit. It is also a key activity center and gateway to the University of Idaho. Consequently, the quality and character of downtown, including its interfaces with the University, is a meaningful contributor to the University's ability to attract and retain students.

At the heart of downtown is Friendship Square, a public plaza with amenities that include ample seating, a fountain, a message board, and playground structure. See **Figure 2.6, Friendship Square**. Functionally, downtown has evolved from a retail and service dominated central business district to a truly mixed use district, with offices, institutional and governmental uses, residential units, and ground-floor retail. See **Figure 2.7, Evolution of Downtown Moscow**. Although peripheral auto-oriented retail development with national chain tenants has pushed downtown to adapt, it has not significantly undermined the viability of downtown because the location, authentic character and quality of downtown as a location for dining, entertainment, and specialty retail continue to exist. In recent years there has been considerable reinvestment in downtown with many of the historic buildings being adaptively reused with new uses. Many restaurants have decided to locate downtown which has contributed to downtown's growth as a dining and entertainment district.

Downtown has continued to be a community gathering place, hosting many community activities throughout the year. Events include the Farmers Market which is held every Saturday from May through October, Artwalk, block parties, parades, homecoming for the University of Idaho, rallies, and concerts.

Figure 2.6:
Friendship Square



Friendship Square is the "heart" of
Downtown Moscow.

Source: City of Moscow



Figure 2.7:
Evolution of Downtown Moscow



Moscow's historic buildings have been adaptively re-used for decades.

Source: City of Moscow

2.4.1 Downtown Expansion

Expansion of the downtown area has been considered through several planning efforts including the City's 2003 Downtown Revitalization Plan and the City's current Comprehensive Plan. Most immediately, the agricultural-industrial area situated along the railroad tracks between downtown and the University of Idaho is a target for downtown-style redevelopment. Although the seed company that is located on a portion of the site is a continuing, viable enterprise, most of the uses and buildings on the site are obsolete. The Urban Renewal Agency and private interests are seeking to redevelop this area with mixed use buildings that reinforce the connection among the University, the hospital, and downtown. See [Section 2.3.2 Urban Renewal Districts](#).

The City's 1999 Comprehensive Plan recommended expanding downtown to the north, south, and west. Because of the limits to the regional economy, the expansion of downtown should be approached in guarded manner, phasing in new development and redevelopment in a way that is in pace with market demands.

- ♦ The focus of the first phase should be the agricultural-industrial area in the Legacy Crossing Urban Renewal District to the southwest of downtown (generally between Sixth Street, Jackson Street, and Paradise Creek). Since the success of the City is largely tied to the success of the University, enhancing the character of the interconnections between the two, as well as the access of University students to the downtown, is an important policy priority.
- ♦ Accordingly, if the market will support such development, buildings in this area should be four to six stories or more in height to emulate some of the structures that were previously located on the site that were higher than six stories. Vertically mixed uses and structured parking should be incorporated as warranted and feasible. The additional building height will create a draw to the south end of downtown, reinforcing the linkage to the University and the hospital, provided that the taller buildings have landmark-quality architecture and are highly sensitive to the context of the area.



If the market study shows uncertainty with regard to whether the market will support a building with structured parking, the City should consider participating in the development of the parking structure in exchange for public access to the parking spaces. This would be a significant benefit to the community character because increased surface parking would likely create a physical and psychological barrier between the University and downtown, and would most assuredly alter the character of this area from urban to auto-urban.

- ♦ The focus of the second phase should include the residential area in the Legacy Crossing Urban Renewal District that lies north of Sixth Street and south of Third Street to the west of downtown along Asbury, Almon, and Lilly Streets. This connection should be strengthened by improving the quality and character of development by redeveloping the corridor with mixed-use buildings with a student housing component. These buildings should be three to four stories in height and compatible with the historic downtown's architectural palette.
- ♦ The third phase should include the expansion of the downtown into the motor business area along Main and Jackson Streets to the north of "A" Street. The policy behind this expansion is to upgrade the character of these commercial areas which are connected to the downtown core. This is identified as the third phase because stretching downtown to the north will increase walking distances between downtown uses, potentially diluting the energy of the downtown. As such, expansion of the downtown to the north should be undertaken with caution and demonstrated market support, and only after the two prior phases that include the connections to the University have been established.

2.4.2 Downtown Parking

Like many other cities, there is a perceived parking problem in the downtown core. The City's existing land development regulations exempt downtown uses from off-street parking requirements. Whether parking is empirically a problem or not, the situation should not be exacerbated as new development and redevelopment occur. Accordingly, parking requirements should be modified for the downtown area so any redevelopment resulting in increased parking demand is required to provide the necessary additional parking. This may include a "fee in lieu" of parking spaces for smaller developments, provided there is an established program in place to locate, purchase, and develop public parking facilities, and creative parking joint use and management plans for uses that have complementary parking demands that can be served by common parking facilities.

The largest and most convenient parking lot to the downtown core is the South Jackson Street lot, which is located on Jackson Street between Fourth and Sixth



Streets. However, its only convenient pedestrian access to Main Street that does not require walking through a business is via Friendship Square. Many business owners believe that convenience is key, so despite the destination character of downtown, they worry their customers may go where parking is more convenient. Historically appropriate signage and kiosks directing people to and from parking areas and other locations of interest were installed in 2015 to help alleviate this concern.

Parking limitations extend beyond automobiles. With the large number of bicyclists within the community there is an ever-increasing need for convenient, secure, and preferably covered, bicycle parking downtown. Additionally, convenient and timely public transit services to and from downtown to outlying areas can encourage people to leave their vehicles at home and reduce parking demand. Parking is discussed in more detail in *Section 3.6.4, Bicycle Parking* and *Section 3.10, Parking*, of this Plan.

Some business owners also consider commercial loading to be problematic in some areas. Without off-street loading areas, trucks must block alleys or streets for pick-ups and deliveries. If the property layout permits, significant new commercial structures in the downtown area should be designed with loading access removed from the public rights-of-way.

2.5 COMMUNITY DESIGN

The physical character of a place creates the first impression for visitors and contributes to the quality of life for residents. The appearance of the physical environment is an asset to be valued, and is formed by many factors. One of the main attributes of Moscow is its small town atmosphere. Aside from the actual size of the town, community design plays an important role in creating this atmosphere. Moscow is characterized by rolling Palouse hills, open farmland, the University of Idaho campus, the historic downtown, and the residential neighborhoods with tree-lined streets. The accessibility, viability, and pedestrian friendliness of downtown are significant factors in this small town feeling. The visual effects of the agricultural component to the local economy also contribute to the small town impression.

2.5.1 Entrances and Corridors

The visual effect of entrances is important. Not only does an entrance provide a first impression of an area, the entrance advertises and defines what is within that area. An appropriately designed and maintained City entrance can project a sense of community pride and slow traffic in addition to marking the City limits and welcoming visitors.

The primary entrances into Moscow include S.H. 8 on the west and east ends of town and U.S. 95 on the north and south ends of town. Although the City



welcome signs are attractive and have landscaped areas around them, a variety of other signs clutter the entrance areas. In 2015, the City prepared a City Entryway Beautification Plan intended to identify and guide aesthetic improvements to the City's entryways and highway corridors.

Implementation of the City Entryway Beautification Plan include development of standard signage design and placement, landscape requirements, and incorporation of public art will help to beautify these entrances and add to the community way-finding system.

The entrances to the University of Idaho campus are important as well. The primary entrances to campus include Sweet Avenue at U.S. 95 (S Main Street), Sixth Street at Deakin Avenue, and Line Street, Stadium Drive, and Perimeter Drive at their intersections with S.H. 8 (Pullman Road). Over the past several years, the University incrementally developed new entrances at the Line Street, Stadium Drive, and Perimeter Drive intersections with S.H. 8.

The corridors leading into the City center are as important as the actual entry points into the community. Each of the four main corridors leading into the community is lined with a mix of commercial and residential uses that are not visually separated from the roadway by landscaping or sidewalks. By requiring setbacks and landscaping measures even unattractive land uses will not materially hamper an attractive route into town. Proposed improvements to these entrances and corridors are discussed in more detail in [Section 3.4.10, Corridor and Gateway Beautification](#), of this Plan.

2.5.2 Streetscapes

The design of a streetscape includes the road, sidewalk, and landscape elements within the public right-of-way, and may include the building facades and landscaped setbacks within the private realm. Streetscape elements such as street lights, trees, and street furniture (benches) can contribute unique character to a block or entire neighborhood. Street trees and furniture are present throughout the downtown area. They are very important in creating a pleasant, comfortable, and inviting atmosphere.

Streetscape standards are often developed to create a uniform appearance and identity to downtowns, historic districts, and other special areas. Public art can be directly incorporated into streetscape design by reserving locations for sculpture. It can also be incorporated into various elements of the streetscape furnishings. Additionally, streetscape elements such as bike racks; can be developed and designed by artists to create interest, landmarks, and a sense of discovery to the streetscape. Provisions should be made to allow for such furnishings and amenities throughout the community in a manner that would afford an enhancement of neighborhood character and identity.



Figure 2.8:
Buffers



A good, extensive buffer between building and street reduces the appearance of building mass.



Buffers can be used to mitigate the impacts when apartments are built next to single-family homes.

Source: Kendig Keast Collaborative

2.5.3 Landscaping

Landscaping is a significant factor in the formation of the City's ambiance. Trees, flowers, and shrubs are perceived as being a reflection of the natural world, thus landscaping is seen as a means of beautifying the urban environment. The aesthetics of landscaping is only one of the many benefits plants provide to the homeowner and the community. Landscaped yards increase home values, careful placement of trees can save on cooling costs, and appropriate planting selections can save water. Having a landscaped yard can provide additional living space, encourage outdoor activities such as gardening, attract birds and butterflies, buffer a home from neighbor's lights and noise, and reduce pollution and erosion. See **Figure 2.8, Buffers**.

Landscaped public open spaces can contribute to a greater sense of community, reduced crime, and lower vacancy rates. Studies have shown the benefits of plants and landscaping beyond the residential realm, in that their presence can reduce stress and anxiety which increases productivity for workers and healing for patients. Additionally, shoppers prefer to patronize business locations where trees and other landscaping are present. The City should strive to increase the number of trees and areas of public lands throughout the City should be identified for viable, large-scale tree planting efforts.

The University and the residential areas of Moscow are well landscaped. The older residential areas feature streets lined with large tree canopies, adding grace to the City. The extensive landscaping of the more visible parts of the University benefits the entire City. In the downtown area, the landscaping

in Friendship Square creates a restful atmosphere, and trees throughout the downtown area break the monotony of the pavement. The downtown street trees provide shading and cooling during the summer, filter runoff, and enhance the aesthetics of downtown. The City should develop a plan to for managing the aging downtown trees with ways to upgrade the existing forest and make it more resilient.



2.5.4 Scale, Density, and Building Design

The massing and design of buildings is an important factor in how the community looks and feels with scale, height, and setbacks all being important factors. They can impact compatibility with existing development, the availability of solar access, and even the comfort of pedestrians. The architectural design of buildings adds to the character, continuity, and interest in an area.

In Moscow's Historic Downtown, many buildings are built at the street, providing a street wall or continuous row of storefronts that maintain a pedestrian's interest and frame Friendship Square. There is substantial uniformity in the bulk and exterior treatment of the buildings that unifies the downtown area. Heights range from one to four stories, and brick has been used extensively as a building material. Floor area ratios and residential densities are higher in the downtown area than in the rest of the community, giving a greater opportunity to mixed uses, but also creating a need for parking which is often provided off-site or in public parking lots.

In other community locations, buildings are set back from the street, allowing for landscaped front yards in residential areas and on-site parking in commercial areas. The eastern residential area contains numerous stately homes, many of them historic to Moscow, concentrated notably in the Fort Russell district. The agricultural warehouses south of the central business district have special visual significance as examples of grain elevator construction, and because the towering elevators are a symbol of the importance of agriculture in the region. They also add a vertical element to the city's design.

The architecture of many of the City's buildings is interesting and contributes both to the small town feeling and Moscow's sense of place. Preservation and enhancement of some of these buildings and the construction of compatible new buildings can help maintain the City's special ambiance. The downtown area and the University of Idaho campus are two outstanding assets to the design of the community, with historic and architecturally interesting structures, public spaces, landscaping, and open spaces. The location of the University is somewhat concealed from visitors entering the City. Better integration of the University into the design of the City would benefit both the University and the City.

2.5.5 Signage and Lighting

In both public and private streetscapes, signage and lighting relate strongly to architectural design and the appearance of the town. Both signage and lighting have obvious benefits, but can also create concerns which must be addressed carefully. Signage is necessary for providing direction and advertising businesses. However, improper placement and excess displays of signage can distract and block driver views and detract from the aesthetic character of an



area. Lighting enhances safety, but can also cause a nuisance by glaring onto adjacent properties and illuminating the night sky.

Controlling the amount, location, size, and type of signage helps to balance the need for advertising and free speech with the need for safety measures and community aesthetics. The design of traffic signage is regulated federally through the Manual of Uniform Traffic Control Devices (MUTCD) and cannot be modified. Way-finding and community information signage, which may direct motorists and pedestrians to parking or points of interest, often have a uniform theme and style and are maintained by the City. Commercial signage is the most challenging to regulate and may have the largest benefit to community character, if regulated appropriately. Giving greater consideration to the type, size, and materials of signage, as well as landscaping beneath self-supported signs in certain areas, will enhance community character.

Lighting is used functionally for illuminating roadways, sidewalks, paths, and entries, and also used aesthetically for building and landscape accents. Lighting should be applied in a manner that provides for even illumination of an area, while giving careful consideration to glare or trespass. Full cutoff lighting is a good solution to preventing glare and trespass, but flexibility should be retained to allow accent lighting that can contribute to the aesthetics and character of a building or neighborhood.

2.5.6 Parking

Parking is a major need and concern for all areas of the community. It also has a significant impact on community character. On-site parking is required of all uses in each zoning district (except the Central Business (CB) Zone, where an exemption applies in order to preserve the pedestrian nature of downtown). The strip commercial areas along major roadways are characterized by large parking lots between the roadway and buildings. Such expanses of paved parking discourage walking, encourage the use of the automobile for traveling between businesses, and do not provide adequate vegetative landscaping to break up the masses of pavement.

Residential areas are either characterized by parking at the rear of lots, when facilitated by alleys, or by parking in the front of homes. Each scenario creates a residential character that is quite different from the other. On-site parking accessed by an alley protects the pedestrian realm at the street by eliminating driveways and bringing the living quarters of the residences toward the front of the lot, encouraging interaction. Parking accessed directly from the street discourages neighborhood interaction because multiple curb cuts interrupt the sidewalk flow and garages are located at the front of homes. Availability and use of on-street parking also affects the character of a neighborhood and can provide a measure of traffic-calming. Careful consideration should be given to ensure adequate parking in appropriate locations that does not interfere with



the aesthetics of an area.

2.5.7 Neighborhood Identity

While neighborhood preservation is an important issue within the community, many of the existing neighborhoods in Moscow lack a clear identity that is recognized within the community or represented by active neighborhood associations. Neighborhood associations can be a means to foster a greater sense of community, bring neighbors together to make their neighborhood a better place to live, and provide a more meaningful channel of communication between neighborhoods and the City government. The City Council should explore fostering the development of neighborhood associations and the creation of communication channels between these associations and the City government.

2.6 LAND USES

2.6.1 Existing Land Use

Map 2.1, Existing Land Use Character, depicts the current development character of land located within the City limits and the Area of City Impact. The designations depict not only land uses, but also the character of the development as reflected in the physical built environment (street network configuration, structure type and placement and neighborhood age).

- **Agriculture** represents the peripheral rural lands that are adjacent to the City limits and throughout the Area of City Impact. These lands include both tilled ground and open pasture land. The majority of these properties are currently zoned Agriculture/Forestry (AF) or Farm Ranch (FR).
- ♦ **Suburban Residential** areas are generally developed with individual residences on larger lots and acreages, commonly around the periphery of more highly developed areas that are primarily located in the northern regions of the community. The majority of these properties are currently zoned Suburban Residential (SR).
- ♦ **Auto-Urban Residential** includes the conventional and more recently

Figure 2.9:
Comparison of R2 Areas



The R2 District east of Mountain View Road has an auto-urban character.



The western part of the R2 District west of Mountain View Road has an urban residential character.

Source: Kendig Keast Collaborative

Figure 2.10:
Urban Residential



Source: Kendig Keast Collaborative

Figure 2.11:
Auto-Urban Commercial



Source: Kendig Keast Collaborative

developed subdivisions with lots ranging in size from 6,000 to 9,600 square feet and where there are no alleys. These areas are principally single family only. Generally, these areas are located in the eastern regions of the City east of Hayes Street, with a few smaller areas in the southern reaches of the City in the Anderson Addition and Indian Hills Addition areas. The current zoning of these areas is largely R-1, Low Density Single Family and R-2, Moderate Density Single Family. See [Figure 2.9, Comparison of R2 Areas](#), previous page.

- ♦ **Auto-Urban Residential** (Moderate Density), represents the areas that are developed as multiple-family and manufactured homes. These areas are generally located south of the central S.H. 8 corridor and the northwest region of the City. The existing zoning of these areas is largely R-3, Medium Density Residential and R-4, Multiple Family Residential.

- ♦ **Urban Residential** is the near-downtown neighborhoods that have garage access by way of alleys and also where there is a moderate incidence of accessory residential units. The current zoning of this area is mostly R-2, Moderate Density Single Family and R-3, Medium Density Residential. See [Figure 2.10, Urban Residential](#).

- ♦ **Urban Residential (Moderate Density)** is for the neighborhoods that abut downtown and where there is a high incidence of multiple-family dwellings. R-4, Multiple Family Residential is the primary current zoning of this area.

- ♦ **Suburban Commercial** represents a very few properties that reflect a suburban characteristic with an increased amount of landscape surface area and a residential-like building design.

- ♦ **Auto-Urban Commercial** is the character type of the commercial land uses along each of the community's main corridors, including those approaching downtown. The majority of these areas are currently zoned MB, Motor Business. See [Figure 2.11, Auto-Urban Commercial](#).



- ♦ **Urban Commercial** is for the areas around the historic downtown core that have a similar character and are also within the current CB, Central Business zone.
- ♦ **Suburban Industrial** is for the Alturas Business Park since it is within an attractive campus-like setting with an open plaza area. The current zone for Alturas is RTO, Research, Technology, and Office.
- ♦ **Auto-Urban Industrial** represents all of the more intensive industrial uses principally along the railroad tracks and U.S. 95 to the south and located within the “I”, Industrial zone.
- ♦ **Public and Semi-Public** uses are for government buildings and properties, as well as semi-public or institutional uses such as churches, schools, and the hospital.
- ♦ **University** encompasses the land owned by the University of Idaho and is a part of or directly adjacent to campus. This designation excludes the open and recreational areas that are characterized as Parks, Recreation, and Open Space.
- ♦ **Parks, Recreation, and Open Space** includes each of the City’s developed and undeveloped parks and pathways, as well as public and semi-public open spaces on University grounds and designated open areas within private developments.
- ♦ **Vacant** designates those areas within the City that are currently not developed.

2.6.2 Future Land Use

As a guide for land development and public improvements, **Map 2.2, Future Land Use and Growth Plan**, represents how and where the City will grow over the course of the next two decades and beyond. The Future Land Use Plan is an integral part of this Comprehensive Plan and represents the most desirable land use based upon the goals and objectives stated in the Comprehensive Plan in consideration of existing uses and development and physical characteristics of the community. The land use designations form the basis for zoning, and thereby the location of housing, commercial, and industrial areas. The Future Land Use Plan and the Thoroughfare Plan are two of the more important planning tools available to the City.

In the determination of whether a specific zoning classification conforms to the land use designation on the map, flexibility should be used to interpret land use designation boundaries which are applied upon a broad scale. Street rights-of-way, lot lines, topography, and other features should be utilized in the location of appropriate zoning district boundary lines. Generally, zoning district boundaries should follow rear lot lines or alleys to preserve the cohesiveness of the streetscape and compatibility of adjacent uses.



Consideration shall be given to the preservation of the character of the existing neighborhood when deciding upon specific zoning classifications. Since there is some amount of inherent overlap within the descriptions of the land use designations, consideration shall be given to zoning classifications that permit development that is consistent with the scale, development pattern, and uses within the surrounding area.

Applying zoning regulations break these areas into more specific classifications with legally binding land use regulations. Idaho State law requires zoning to be "...in accord with the comprehensive plan." An area may be zoned for a lower intensity than is indicated by this Plan, but generally should not be zoned for a more intense use. The following discusses the land use designations found in the Future Land Use Plan.

- ♦ ***Agriculture*** is intended to allow continued use for agricultural purposes with allowances for limited residential development at very low densities. Lands with this designation should be preserved for agricultural use and development should be directed to areas in closer proximity to the City where municipal utilities are available and land can be efficiently developed and serviced. Areas shown as Agriculture on the Future Land Use Plan are outside of the 10-year growth area (refer to *Chapter 5, Public Utilities, Services, and Growth Capacity*), and beyond the area for which the City is prepared to provide adequate facilities and services during the horizon of this Plan. Generally, these are found around the periphery of the City and throughout the Area of City Impact. The residential development options allow septic/well and septic/public water (where applicable and warranted) at very low densities, consistent with the intended agricultural character. Appropriate current zones for lands with this designation are Agriculture/Forestry (AF) and Farm, Ranch, and Outdoor Recreation (FR).
- ♦ ***Suburban Residential*** designates areas appropriate for larger lot and fringe area development at gross densities ranging from 0.85 to 1.55 dwelling units per acre. These areas are generally located within the northern reaches of the City along north Polk Road and Almon/Mix Road where public services are limited, topography is somewhat challenging, and streets are currently developed to a lesser standard. Clustered development with preservation of open spaces and sensitive areas or steep topography should be promoted within these areas. The use of this designation should be limited to areas that will not impede more intense development in the future where such more intense development can be accommodated. The appropriate current zoning to be applied to Suburban Residential designated areas is Suburban Residential (SR).
- ♦ ***Auto-Urban Residential*** designated areas contain predominantly single-family detached homes on lots ranging from 7,000 to 11,000 square feet in size and are more isolated from surrounding uses which may require



residents to rely more on automobile transportation. This designation includes those areas generally anticipated to be developed for low to moderate density residential uses at densities between 3 to 6 units per acre which could include a mix of detached single-family, twinhome, and townhome residential dwellings. Appropriate current zoning for Auto-Urban Residential designated areas include Low Density Residential (R-1), Moderate Density Single Family Residential (R-2) and Medium Density Residential (R-3) in order to include a mixture of attached and detached dwellings where appropriate.

- ♦ **Urban Residential** designated areas are comprised of more compact residential development at densities of 5 to 15 units per net acre. This designation encompasses many of the older and historic residential neighborhoods of town which are located in close proximity to the City core and are developed in a traditional grid street pattern with alley access. See **Figure 2.12, Urban Residential Alley**. Prevailing lot sizes within existing neighborhoods generally range between 5,000 to 7,000 square feet in size. Lands designated as Urban Residential are generally appropriately zoned Medium Density Residential (R-3) or Multiple Family Residential (R-4).
- ♦ **High-Density Residential** designated areas are intended to allow the highest density residential development at common densities between 15 and 26 units per acre. Areas appropriate for this designation include those located adjacent to areas of higher activity where there are a range of uses. High-Density Residential areas should be located adjacent or in close proximity to designated arterial or collector streets. New areas of high-density residential development should be located near mixed-use activity areas and corridors that accommodate multi-modal transportation. Lands designated as Urban Residential are generally appropriately zoned Medium Density Residential (R-3), Multiple Family Residential (R-4), or Residential Office (RO).
- ♦ **Urban Commercial** designated areas are intended to provide for the most intensive mix of commercial and residential uses in a pedestrian orientated manner. This is appropriately applied within the City's downtown urban core and the immediate surrounding area where deemed appropriate. Different standards should be applied within Urban Commercial designated areas

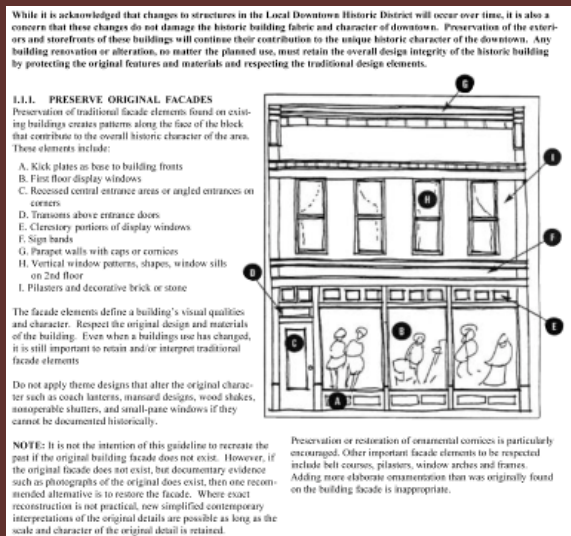
Figure 2.12:
Urban Residential Alley



Source: City of Moscow



Figure 2.13:
Pattern Book Example



Source: City of Boulder, Colorado

depending upon whether or not the property is in the Downtown Moscow Historic District. Inside the district, standards should be applied to preserve the existing character and promote compatible infill development or redevelopment. Historic district design standards should be established and applied using a pattern book to ensure compatibility of proposed modifications, additions, and demolitions of historic buildings. See **Figure 2.13, Pattern Book Example**. Outside the Historic District, more intensive development should be allowed so as to preserve and strengthen the urban, pedestrian-oriented environment. These areas are intended to redevelop with a character that is similar to downtown (and is architecturally complementary) and one which promotes continuous pedestrian oriented commercial frontage, wide urban sidewalks and discourages large areas of surface parking. Incentives should be provided that would allow increased densities for vertical mixed use and structured parking. The most appropriate current zoning designations for these areas are Central Business (CB) or General Business (GB) in areas removed from available public parking facilities.

- ♦ **Urban Mixed** designated areas are intended to provide for the infill development and adaptive re-use of areas that surround downtown. Within these areas, a mix of residential and limited commercial uses should be promoted through the development of small urban apartments, townhomes, and two to three story vertically mixed-use buildings. The urban mixed area should provide a pedestrian connection between the University of Idaho and downtown, and provide space for a variety of housing alternatives, niche retail, restaurants, artist studios, and personal and professional services. Off-street parking should be required, but the requirements should be reduced in this area due to the likely number of non-motorized travel the uses will attract.
- ♦ **Suburban Commercial** designated areas are intended to provide local and neighborhood commercial services in a manner that is compatible within a residential neighborhood environment. Lands appropriate for this designation include areas in close proximity to higher density residential development and intersections of designated collector or arterial streets near residential development. Developments within these designated areas should include additional building scale and design standards (e.g.,



roof shape and materials, building height, setbacks, lighting, signage, etc., coupled with increased buffer yard requirements would better ensure compatibility). Developments within Suburban Commercial designated areas should limit the floor area ratios and require greater landscaping. See **Figure 2.14, Suburban Commercial Character** (see next page). Suburban Commercial designated areas are most appropriately zoned Neighborhood Business (NB).

- ♦ **Auto-Urban Commercial** designated areas provide for commercial services and developments that are motor vehicle oriented or those which require large amounts of land. These areas should be located adjacent to existing commercial developments and along major arterials where the vehicle traffic can be accommodated. Developments within these designations should be required to provide significant landscaping which would be applied to enhancing areas along the street edge, screening parking lots, and buffering adjacent uses. Such areas are most appropriately zoned Motor Business (MB).
- ♦ **Research/Technology Park** designated areas are intended to provide for professional office and research and technology-based business developments in a campus-like setting. Developments within these designated areas should include additional aesthetic standards and guidelines such as minimum landscape surface ratios and maximum floor area ratios. Building scale and design standards should also be applied. These areas are most appropriately zoned Research, Technology, and Office (RTO).
- ♦ **Industrial** designated areas are intended for industrial uses that involve outside storage and manufacturing or hazardous material storage. These areas are generally located south of East Palouse River Drive and east of U.S. 95. The character of developments within Industrial designated areas should be managed through landscaping standards which require more landscape treatment on the perimeter of development than on the interior.
- ♦ **Civic/Institutional** designated areas are intended to include properties that are civic or institutional in nature which include but are not limited to educational institutions, government properties, cemeteries, hospitals, fairgrounds, public service and utility facilities, and community/

Figure 2.14:
Suburban Commercial Character



Suburban commercial uses are intended to blend harmoniously with a low density neighborhood environment, with design standards to ensure their compatibility.

Source: Kendig Keast Collaborative

neighborhood centers. Since these areas are dispersed throughout the community, most zoning districts are appropriate for Civic/Institutional designated areas.

- ♦ **University** designated areas are intended to include publicly and privately owned properties that support the operation of the University of Idaho. These areas are most appropriately zoned University (U), Neighborhood Business (NB), and Multiple Family Residential (R-4). It is recommended that the City explore the amendment of the University (U) Zoning District to include uses that are currently allowed in the NB and R-4 Zones and change the zoning classification of the areas on and surrounding “Greek Row” to the revised U Zone. Eliminating the requirement that U Zoned properties must be owned by the University of Idaho should be part of the U Zone amendment.

2.6.3 Recommended Future Zoning and Land Use Regulation Considerations

It is recommended that the City change its approach to zoning to more comprehensively address community character and to provide additional flexibility with respect to providing a variety of housing types in particular locations. It is recommended that the City amend the land development regulations to require a balance of buildings, landscaping, and perceived enclosure of the street based on the desired character for the district. Within any given district, the appropriate balance can be achieved with a number of alternative development patterns, provided there is enough land to accommodate the appropriate balance. Development standards would be used to enhance design and ensure land use compatibility.

2.7 LAND USE AND COMMUNITY CHARACTER GOALS AND OBJECTIVES

2.7.1 General Land Use and Community Character Goals

- ♦ Direct land uses to meet current and future community desires and needs while conserving natural resources and protecting agricultural lands from scattered development through efficient and orderly development.
- ♦ Encourage a variety of housing types to meet the needs of residents of all ages and economic ability.
- ♦ Preserve and enhance special areas of the community to celebrate the community’s identity, character, and heritage.
- ♦ Enrich the community’s social, cultural, physical, and economic environments through the arts and integration of aesthetic infrastructure standards, and particularly through the placement of public art at key locations in the City.



2.7.2 Existing Community Character

Objective:

Protect existing neighborhood identity and character.

Implementation Actions:

1. Prevent unintended impacts to established neighborhoods when new areas are developed or zoning designations are modified.
2. Protect existing neighborhood streets from concentrated traffic by maintaining a well-connected and distributed street system, including installation of traffic calming measures to discourage through traffic when appropriate.
3. Develop and adopt neighborhood design standards to protect neighborhood and community character, including controls for street trees, fencing, and open space.

2.7.3 Housing

Objective:

Provide a mix of housing that meets the economic and life-style needs of the diverse population of Moscow.

Implementation Actions:

1. Provide residential zoning districts in sufficient quantity and location that allow for the creation of a variety of housing types to meet the diverse needs of the community. Zone for multifamily development close to the University and promote the Sixth Street corridor, between downtown and the University, for mixed-use residential-over-retail buildings.
2. Identify areas for infill residential development, including downtown multifamily and residential-over-retail opportunities. Identify barriers to redevelopment of these areas and take steps to eliminate the barriers and promote development and redevelopment.
3. Include a variety of regulatory incentives for the creation of affordable housing opportunities.

2.7.4 Special Areas and Sites

Objective:

Preserve and enhance special areas of the community to celebrate the community's identity, character and heritage.



Implementation Actions:

1. Implement design review for development and redevelopment activities within the City's designated historic districts to preserve and enhance the community's historic assets.
2. Develop a pattern book that illustrates design elements, materials, and methods for the City's various architectural styles to be used for making decisions with respect to the improvement of historic buildings within the City.
3. Encourage the continued development of the University of Idaho identity that creates an attractive, functional, and marketable campus.

2.7.5 Downtown**Objective:**

Guide the expansion and intensification of downtown development while considering the needs for parking and desire to maintain the existing historic character.

Implementation Actions:

1. Create design standards for intensive redevelopment of areas near historic downtown so that they complement the existing character of downtown.
2. Include parking and loading provisions in the land development regulations that will require significant development and redevelopment proposals to provide off-street parking and loading.
3. Develop a plan for acquisition and development of public parking areas downtown and collect a fee-in-lieu of parking spaces on significant redevelopment projects that occur on parcels that are not large enough to support required amounts of off-street parking.
4. Enhance public transit services to and from downtown to reduce parking demand within the downtown area.

2.7.6 Community Design**Objective:**

Strengthen community character through improvement of the physical environment that enhances the small town feel and historic nature of Moscow.

Implementation Actions:

1. Develop and adopt standards to improve the quality of development in auto-urban corridors which serve as the entrances to the community. Standards should include streetscape requirements, strengthened sign controls, site landscaping requirements, and building design and scale standards.



2. Develop streetscape plans to enhance and identify special areas of the community, including downtown and historic districts, and to highlight special connecting streets such as Sixth Street between downtown and the University and Third Street between Washington and Farm Road and City entrances.
3. Provide landscaping and street tree requirements to ensure future tree cover that enhances community character and provides environmental and economic benefits.
4. Consider the impacts to character that building scale, massing, and design have when revising land use regulations. Provide appropriate setbacks, build-to lines, density, and design guidelines to enhance existing character in the downtown area and in established neighborhoods to promote attractive new development.
5. When revising land development regulations, consider the effects that location and manner of parking has on the character of downtown, neighborhoods, and commercial development. Provide regulations that promote a street environment which is friendly to pedestrians.
6. Develop programs to develop aesthetic infrastructure standards and incorporate public art in streetscape, landscape, and corridor plans, require public art in public projects, and incentivize art in private development.

2.7.7 Land Uses

Objective:

Provide a continuum of land uses that allow a variety of uses and housing types to meet the needs of the community while ensuring the preservation of neighborhood character in an efficient manner.

Implementation Actions:

1. Revise and rewrite the City's land development regulations so that the zoning districts are focused on a continuum of community character from Agricultural to Urban, rather than focused on use categories that have a limited relationship to community character.
2. Provide flexible development options within each district that are consistent with the district's character.
3. Create neighborhood conservation districts to allow for reasonable improvements in existing neighborhoods without cumbersome variance procedures. Include standards for making improvements to buildings to ensure that they remain in character with the neighborhood and do not adversely impact the use and enjoyment of neighboring properties.
4. Provide for areas of expansion for residential uses where the extension of utilities and streets can be done in a cost-effective, fiscally prudent manner.



See *Map 2.2, Future Land Use and Growth Plan*.

5. Develop and adopt standards for landscape buffers between incompatible uses.

DRAFT



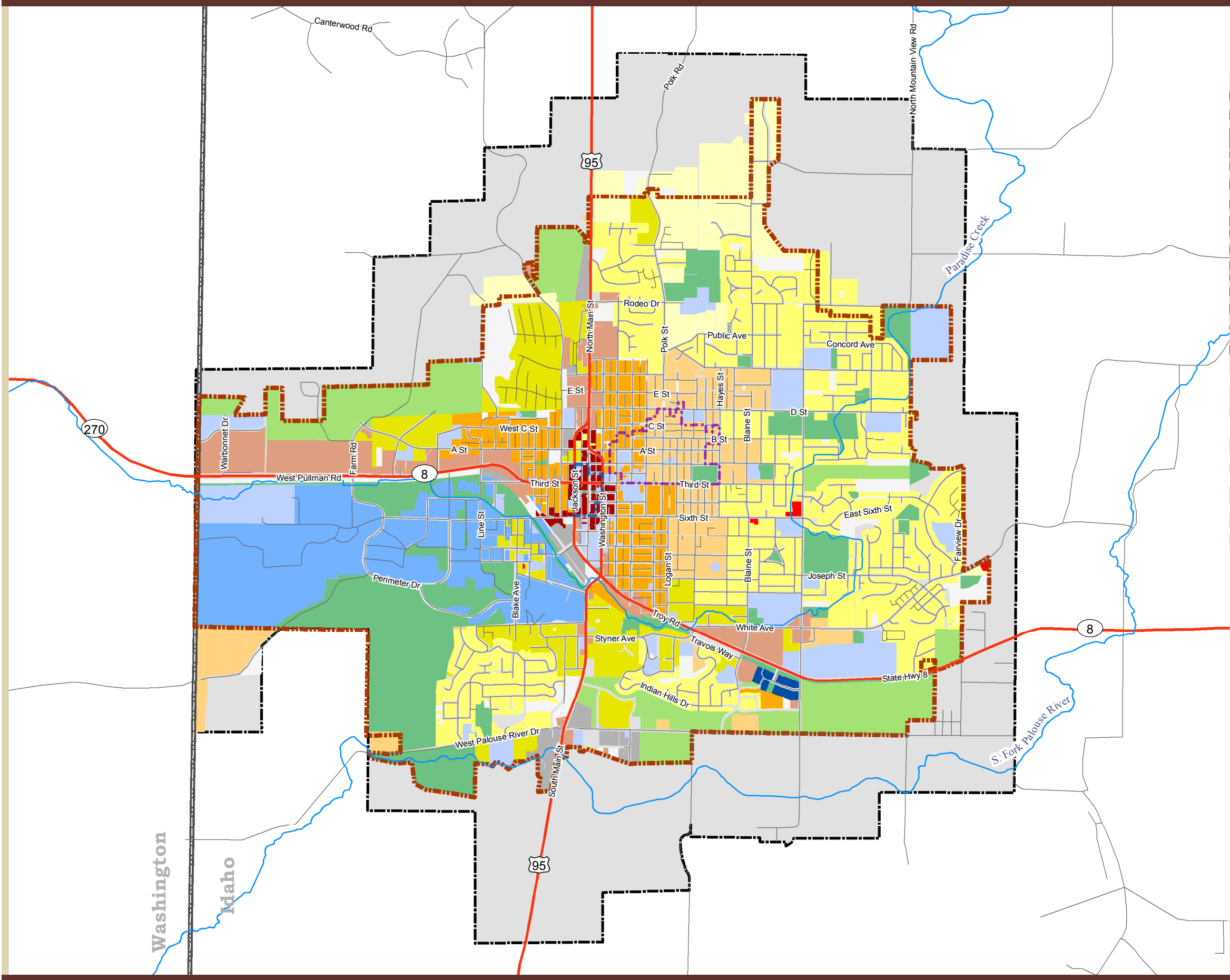
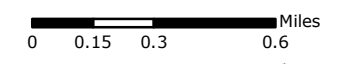
Existing Land Use Character

EXISTING LAND USE

- Agriculture
- Suburban Residential
- Auto-Urban Residential
- Auto-Urban Residential, Medium Density
- Urban Residential
- Urban Residential, Medium Density
- Auto-Urban Commercial
- Suburban Commercial
- Urban Commercial
- Auto-Urban Industrial
- Public and Semi-Public
- University
- Research/Technology Park
- Parks, Recreation, and Open Space
- Vacant

BOUNDARIES, WATER, & INFRASTRUCTURE

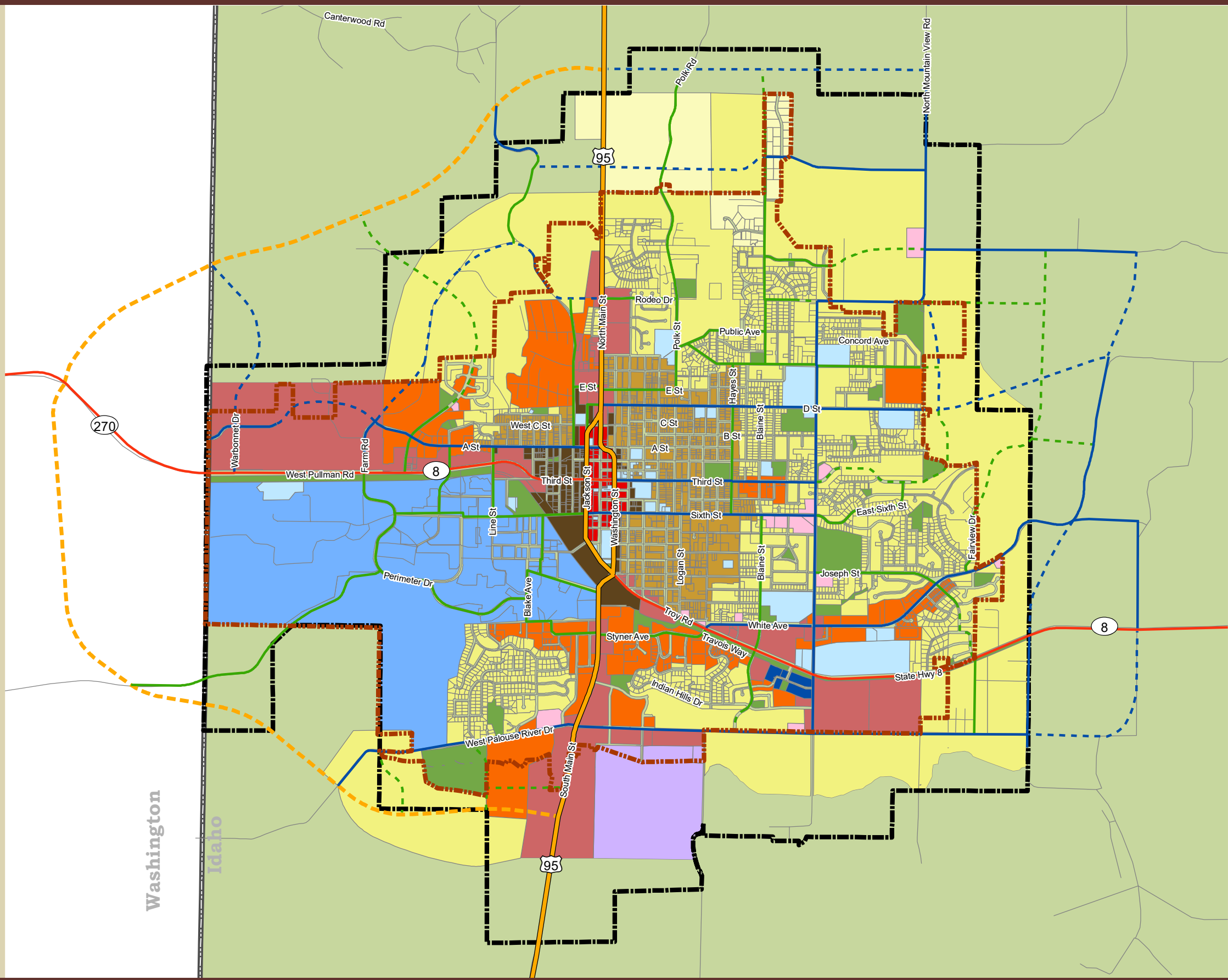
- City Limits
- State Border
- Area of City Impact
- Moscow Downtown Historic District
- Fort Russell Historic District



comprehensive PLAN

Future Land Use and Growth Plan

comprehensive PLAN



FUTURE LAND USE

- Rural and Agriculture
- Neighborhood Conservation
- Suburban Residential
- Auto-Urban Residential
- Urban Residential
- High-Density Residential
- Urban Mixed
- Suburban Commercial
- Auto-Urban Commercial
- Urban Commercial
- Business Park
- Industrial
- Civic/Institutional
- University
- Parks and Open Space

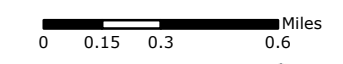
THOROUGHFARE PLAN

- National Highway
- Alt Highway 95 Align
- Principal Arterial
- Minor Arterial
- Proposed Minor Arterial
- Collector
- Proposed Collector

BOUNDARIES, WATER, & INFRASTRUCTURE

- City Limits
- State Border
- Area of City Impact

Note: Proposed future roadway locations are approximate and ultimate roadway locations will be determined at the time of development based upon topography, existing development, property boundaries and proposed devleopment needs.



Washington

Idaho

Community Mobility

COMPREHENSIVE PLAN

3.1 INTRODUCTION

Community mobility includes a multitude of components that collectively create a system that facilitates the movement of goods and people to, and throughout, the community. These components include not only roadways for motorized vehicles, but also sidewalks, bike lanes, multi-purpose pathways, and transit facilities. A comprehensive and efficient transportation system provides for the ease of circulation within a community, and enhances the community's environmental, economic, and social environs. People of all ages, abilities and modes of movement must have the ability to circulate throughout the community from their home to workplace, shopping, dining, and entertainment activities. To achieve this end, an integrated and multi-faceted strategy must be implemented that addresses the interconnections between land uses and mobility demands.

This strategy is driven by four broad overarching goals, followed by more specific goals for the multiple mobility components listed at the end of this Chapter:

- ◆ Ensure the integration and coordination of the City's transportation systems with the regional facilities and modes of transportation.
- ◆ Plan for the orderly development and continuity of the City's street and pathway systems, as well as connectivity to regional transportation networks to ensure the efficient navigation and delivery of services by residents and visitors.
- ◆ Ensure that all transportation systems enable safe access and promote alternatives for all modes of mobility, including pedestrians, bicyclists, motorists, and public transit users of all ages and abilities.
- ◆ Provide for the continuity and function of the City's transportation system while ensuring context-sensitive design that preserves and enhances community character and quality of life.

Mobility Is About More Than Just Cars

Even though 93 percent of Moscow's households have an available vehicle, a sizeable number of Moscow's estimated 11,774 workers do not drive alone to work. In fact, the 2016 American Community Survey revealed that almost one-quarter (24.1 percent) of workers either walked, bicycled, or used "other means" (non-vehicular) to get to work – and only 60.2 percent drove alone. By comparison, nationally, four percent walked or used "other means," while over 75 percent drove alone.



3.2 REGIONAL CONTEXT

3.2.1 Introduction

While community mobility is often primarily focused upon the ability to move and circulate within the community, it also concerns the interactions and interconnections of the local circulation system with broader regional, state and federal transportation facilities. The economic viability of a community is dependent upon the ability for people, products, and goods to circulate to and throughout the community.

3.2.2 Relationship to National and Regional Highways

Moscow is connected to the rest of the State by U.S. 95, which runs north-south, and S.H. 8, which runs east-west and connects to State Route 270 on the Washington side of the State line. Other than its close relationship to Pullman, Washington, approximately nine miles west on S.H. 8, the City is relatively isolated. The closest cities of significant size to the north are Spokane, Washington, 85 miles away via Highways 270 and 195 in Washington, and Coeur d'Alene, 87 miles away via U.S. 95. To the South is Lewiston, 30 miles away via U.S. 95. The closest Interstate Highway is I-90, accessible from Spokane, Washington, and Coeur d'Alene, Idaho.

The limited regional road network in the Idaho panhandle means that Moscow is in the path of trucks traveling U.S. 95 to access the Port of Lewiston, Coeur d'Alene, and destinations in British Columbia and Alberta, Canada. Many of these trucks bring wood chips from areas north of the City to the paper plant south in Lewiston. Washington Highway 195 connects Lewiston, via Pullman, to Spokane, and therefore, likely provides some relief from regional truck traffic.

Moscow is located within Idaho Transportation Department's District 2 and is surrounded by the North Latah County Highway District.

3.2.3 Air Transportation

The Pullman-Moscow Regional Airport is roughly seven miles west of downtown Moscow in Washington State. The Pullman-Moscow Regional Airport is presently served by Horizon Airlines/Alaska Air, as well as a full-service fixed-base operator that offers regional charter services.

The Lewiston-Nez Perce County Regional Airport is located in the southern part of Lewiston, approximately 30 miles south of Moscow. The Lewiston-Nez Perce County Regional Airport is slightly more trafficked than the Pullman-Moscow Regional Airport, and is currently served by SkyWest/Delta Airlines.

Many air travelers use the larger Spokane International Airport located 85 miles away and offers service from ten commercial carriers. Local transit provider



Wheatland Express runs a fixed-route, periodic shuttle service between the Pullman-Moscow and the Spokane International Airport.

3.2.4 Rail and Interstate Bus Transportation

The closest passenger rail service is provided by Amtrak via its “Empire Builder” line in Spokane, Washington, servicing Seattle, Portland, and Chicago. Northwestern Trailways and Greyhound provide regional and national bus transportation services. Smart Transit provides local bus services. Wheatland Express offers scheduled shuttles to the Spokane Airport and special express trips to western Washington and Oregon during university holidays. Freight rail service is provided by a BNSF short line, which connects to a main line at Lakeside Junction in Washington.

3.2.5 Regional Ports

Thirty-two miles south of Moscow is the Port of Lewiston, on the Snake River. See **Figure 3.1, Port of Lewiston**. The Port provides connections to seaports on the West Coast and contains warehousing and distribution facilities, a storage container yard, and grain storage facilities.

The Port is served with rail service provided by Union Pacific (via a short line operated by the Great Northwest Railroad Company) and BNSF. However, rail service in the region has been declining recently as many rail lines have been abandoned in nearby rural areas. Rail service is also inherently limited by the Snake River Canyon topography that forces rail lines to run west to get out of the canyon before they go north, south, or east. Truck traffic from the port uses U.S. 95 to access cities to the north, including Moscow.

Four other river ports are located in or adjacent to Whitman County, Washington: The Port of Almota, a small but significant grain shipping port on the Snake River; the Port of Wilma, across the river from Lewiston, Idaho; the Port of Central Ferry, a rural port, 50 miles downstream from the Port of Wilma; and the Port of Clarkston, located between Whitman County and Asotin County, Washington, the farthest inland port in Washington State, located along the Snake River approximately 460 miles from the mouth of the Columbia River. The Port of Clarkston also provides

The Port of Clarkston was created in 1958, which was 17 years before completion of the Lower Granite Dam in 1975. The dam enabled shipments of agricultural and forest products from the area. The Port of Clarkston is the farthest inland port in Washington State, located at river mile 137.8 of the Snake River, approximately 460 miles from the mouth of the Columbia River. Prior to navigable access, the Port focused on industrial development.

The Port of Clarkston’s jurisdiction includes the entire county, but most of its activity is centered in the City of Clarkston adjacent to the Snake River on 120 acres of prime flat land with all infrastructure in place. However, this area has become nearly fully utilized. As a result, the Port is planning development of an additional 120 acres of land available for future development, in an area located south and west of the existing Port facilities. The Port of Clarkston is involved in marine commerce, property development (industrial and commercial) and recreation/tourism facilities.

Source: <http://portofclarkston.com>

Figure 3.1:
Port of Lewiston



Source: Port of Lewiston



docking for the Columbia Queen and Empress of the North cruise boats along with four other cruise lines and tour boats. From these ports, barge and tug lines also link the region to the coast and international markets.

3.3 LOCAL CONTEXT

Moscow is a small town with a compact form. As a result, it is a very walkable and bikeable community that remains conducive to non-motorized mobility opportunities. In fact between 2012 and 2016, the American Community Survey reported that four percent of the City's "journey to work" trips were made by bicycle. Nearly one-half of the City's population consists of students of the University of Idaho who regularly walk or bike to school, work, and shop. In reflection of the University, the City's traffic volumes ebb and flow around the academic calendar.

Generally, traffic congestion is rarely considered a significant problem within the community. In the City's 2016 Citizen Survey, 72 percent of the City's residents believed that traffic is either "not a problem", or only a "minor problem." Only eight percent of respondents believed that traffic was a "major problem" or "extreme problem." The most significant traffic within the community results from the two highways (U.S. 95 and S.H. 8) that pass through the center of the City, channeling both local and regional traffic through the community.

Auto ownership in Moscow has been relatively stable over the last two decades, despite the increasing wealth of Moscow's residents. However, even though 93 percent of Moscow's households have an available vehicle, a sizeable number of Moscow's workers do not use single-passenger automobiles to get to work. In fact, between 2012 and 2016, just over 24 percent of Moscow's residents either walked or used "other means" (non-automobile) to get to work, and just over 60 percent of those drove alone. By comparison, national figures during the same time period reflected that just over 4 percent walked or used "other means," while over 76 percent drove alone.

In reflection of Moscow's favorable comparison with the nation for non-motorized transportation use, it is no surprise that creating a walkable environment was a recurring desire articulated by community residents throughout the plan development process. To accomplish this, transportation facilities must be planned, designed and constructed with all users in mind to create an environment that is safe, free of impediments, and aesthetically pleasing.

3.4 CITY STREETS

3.4.1 General Existing Conditions

The City of Moscow includes over 88 miles of paved streets and nearly 9 miles of developed alleyways. Generally, the older historic core of the community



was developed with a traditional grid system of interconnected streets running in a north-south and east-west direction. As the community grew into the areas east of Mountain View Road, and in limited areas in the southern and eastern reaches of the City, developers encounter challenging terrain, as well as changing market preferences, that result in the creation of curvilinear street networks that often include cul-de-sacs.

The northern and southern portions of Main Street and western portions of Third Street function not only as local community roads but as national and state highways as well, and as a result, commercial truck, and other through traffic is channeled through downtown. Until approximately 1980, U.S. 95 was aligned through Main Street and through the center of downtown. Subsequent highway construction projects resulted in the one-way couplet configuration that exists today, with Washington and Jackson Streets serving as one-way north and south segments of U.S. 95 respectively. The additional heavy traffic is disruptive to the pedestrian environment that is desired and promoted within the central business district which inhibits the vitality and expansion of this core community area.

While the majority of the City's streets are paved, some limited areas remain surfaced with only gravel. While the City has historically not proactively paved gravel streets, the City does support the owners of property adjacent to such streets who wish to pave them through the creation of Local Improvement Districts. In approaching the improvement of these streets, consideration should be given as to a street improvement program whereby each gravel street segment is rated and prioritized based on criteria such as average daily trip volumes, property access, and its function within the street network system.

3.4.2 Street Classification

The purpose of the City street system is to provide for the orderly and efficient navigation into and within the community by all modes of mobility. The distribution of land uses and the transportation system often leads to the channelization of traffic as people and goods circulate from origin to destination, from home to work, shopping, and other destinations. Each road or street segment thus plays a particular role in serving the mobility needs of the community and in turn the desirable attributes of that segment (such as width, access, amenities and capacity) through its functional classification. It is important to note that while the functional classification system is important and necessary to accommodate and plan for future transportation needs, it must be complemented with a well-connected street network that provides for reduced trip distance, improved street system function, and the orderly and efficient delivery of community services.

As the City has developed and transitioned over the last century, the role that individual streets play has evolved as well. Streets such as East Third and Sixth



Streets have transitioned from lesser-used local streets to designated arterial and collector streets conveying significantly greater volumes of traffic. This transition of street function over time can result in conflicts between the adjacent land uses (such as access, parking, and disruption of residential activities) and the need to provide the necessary circulation through the community. Future street network planning must adequately consider the current and future function of the street system to avoid the creation of similar conflicts in future developments within the City.

Public streets also serve many users beyond just the automobile. Their design, operation, and maintenance must ensure that they are safe and accessible to all users. For public streets to reach their full potential, the needs of bicyclists, pedestrians, motorists, and public transit users of all ages and abilities must be addressed through the creation of an integrated and connected network. These modes of mobility are addressed in more detail later in this Chapter.

The thoroughfare plan for the City is set out in [Map 3.1, Thoroughfare Plan](#). The thoroughfare plan classifies the streets in the City into five types:

- ♦ National/State Highways;
- ♦ Principal Arterials;
- ♦ Minor Arterials;
- ♦ Collectors; and
- ♦ Local Streets.

Principal Arterials

Principal arterials are intended to carry large amounts of regional traffic. Within Moscow, the designated principal arterials include U.S. 95 and S.H. 8. These arterials are commonly two- to five-lane facilities that are designed to accommodate in excess of 15,000 vehicles per day. Access is generally limited along streets of this classification in order to preserve their vehicle carrying capacity, but as they enter urbanized settings implementing access control becomes more challenging. Since the principal arterials within the City are also State highways, the City's ability to manage these roadways is limited. While it is necessary that arterials continue to serve their intended purpose of conveying regional traffic, within an urban setting it is important that they also provide facilities for all users including bike lanes, tree lawns, sidewalks, and transit facilities.

Minor Arterials

Minor arterials are intended to carry less traffic than major arterials. Generally, minor arterials can be anticipated to accommodate 3,000-15,000 vehicles per day and they are typically fed by collectors, although local streets may also



connect to them. Access to these streets from neighboring properties should be controlled to limit conflicts. Mountain View Road is a good example of a minor arterial. Minor arterial streets should include bike lanes, tree lawns, sidewalks, and transit facilities.

Collectors

Collectors are intended to carry fewer trips than minor arterials, but they are “higher order” roads than local streets. Collector streets can typically be expected to accommodate 1,000-5,000 vehicles per day. To adequately serve their role to collect and distribute traffic from local streets to the arterial street system, collectors are generally placed between arterial streets, with a desired spacing of no more than approximately one-half mile. To maximize mobility it is essential that collector streets traverse adjacent neighborhoods to provide access and circulation not only within, but also among, neighborhoods.

Access via driveways to individual residential properties along collectors should be limited. Where numerous residential driveways exist, the City should require access spacing, on-site turn-arounds, semi-circular driveways, or alley access (where available) when properties with direct access to the street are substantially improved or redeveloped. All collector streets should include bike lanes, tree lawns, sidewalks, and transit facilities.

Local Streets

Local streets are principally intended to provide access to abutting properties. Traffic on local streets is generally slow and relatively sparse and such streets can typically be anticipated to accommodate fewer than 1,500 vehicles per day. Local streets in areas of cut-through traffic are candidates for traffic calming (see [Figure 3.2, Traffic Calming](#) on next page). Where local streets provide only local access to adjacent residential developments, narrower streets may be allowed to reduce the amount of impervious surfaces (to reduce stormwater runoff) and to slow local traffic through residential areas. Local streets should include tree lawns and sidewalk facilities.

3.4.3 East-West Access

While much of the more recent residential development has occurred at the eastern portions of the community, many employment and shopping centers continue to be located in the central and western areas of the community, thus increasing east-west local traffic patterns (as opposed to regional). This separation between residential and commercial areas increases the dependence upon motor vehicle trips to reach shopping and employment centers, reduces the share of non-motorized modes of mobility for these trips, and increases traffic and congestion upon the City’s streets. Thus one of the key vehicular transportation challenges in Moscow is east-west local access.



Figure 3.2:
Traffic Calming

There are a number of techniques to calm traffic. Some examples include changes in paving materials, chokers (which narrow the road for some distance), elevated pedestrian crossings, on-street parking, speed tables, marked gateways, and street trees.



This traffic circle on White Avenue calms traffic, creates a visual break in a long street segment, and is more efficient than a four-way stop.

Source: Kendig Keast Collaborative

Speed tables are a way to calm traffic mid-block. This example is from Moscow.

Source: City of Moscow

In the above example from Englewood, Colorado, several techniques are used. Sculptures mark a gateway; and on-street parking and chokers also help to keep travel speeds low.

Source: Kendig Keast Collaborative

Access within the core of the City is facilitated by a traditional grid system of streets. However, overall east-west circulation is limited because only four streets ('D' Street, Sixth Street, State Highway 8 and Palouse River Drive) provide uninterrupted continuity between Highway 95 to the west, and Mountain View Road to the east. The connections across Mountain View Road tend to spread traffic throughout the near-downtown neighborhoods because they terminate at intersections that are varying distances to the West of Mountain View Road. Much of this traffic naturally migrates to U.S. 95 or S.H. 8, which are also used for regional trips. The nine connections are, from north to south:

- ♦ F Street, which ends at Public Avenue, but is more likely to feed into Garfield or Hayes Streets;
- ♦ D Street, which extends across Main Street (U.S. 95) to Jackson Street (thus providing the first direct east-west connection);
- ♦ B Street, which terminates at a T-intersection at Adams Street;
- ♦ Third Street ultimately merges with S.H. 8, which provides access to highway commercial uses and the City of Pullman, Washington. However, East of U.S. 95, Third Street terminates at Paradise Creek near Mountain View Road;
- ♦ Sixth Street, which provides a cross-City connection to the University of Idaho (thus providing the second direct east-west connection);



- ♦ Joseph Street, which terminates at a T-intersection at Nez Perce Street;
- ♦ Harold Avenue, which terminates at a T-intersection at Lynn Street;
- ♦ White Avenue, which connects to S.H. 8 and, via Styner Avenue, to U.S. 95;
- ♦ S.H. 8, which provides regional east-west connectivity (thus providing the third direct east-west connection); and
- ♦ Palouse River Drive, which connects to U.S. 95 (thus providing the fourth and final direct east-west connection).

The Thoroughfare Plan (shown in [Map 3.1](#) and discussed in [Section 3.4.5](#)) reflects the following improvements to east-west mobility (listed starting from the north):

- ♦ Trail Road would extend from Orchard Avenue westward across U.S. 95 tying into Mix Road;
- ♦ Darby Road would be extended westward connecting Orchard Avenue and Mountain View Road;
- ♦ The current east-west segment of Mountain View Road would be extended eastward and westward as a collector street that would eventually connect to Orchard Street;
- ♦ East F Street would be extended eastward to tie into the proposed connection between East Third Street (as extended) and the northernmost segment of Mountain View Road;
- ♦ D Street is planned to extend eastward providing a continuous connection between points to the east and U.S. 95;
- ♦ The development of Third Street beginning at Mountain View Road and continuing eastward eventually curving north, intersecting with Sixth Street and D Street (near the current City limits), and extending to the northernmost segment of Mountain View Road;
- ♦ Robinson Park Road is planned to extend eastward;
- ♦ A connection between Joseph Street and Carmichael Road; and
- ♦ Palouse River Drive is planned to serve as a minor arterial roadway. It is advised that the traffic-carrying capacity of this roadway be protected through access management regulations that prevent closely spaced curb cuts and promote a corridor design where access to properties that front on Palouse River Drive is taken from side streets or auxiliary roads constructed in conjunction with new development.

The City's Transportation Commission and City Council have previously endorsed the construction of a vehicle bridge across Paradise Creek to extend Third Street east to connect to Mountain View Road. The proposed bridge is intended to better connect the City street system and balance the amount of traffic on Sixth Street, "B" Street, "D" Street and Hayes Street. The City's 2014 Multi-Modal Transportation Plan recommended that the bridge installation be accompanied with traffic calming measures to mitigate potential adverse impacts to existing land uses within the corridor and provide for the safety of non-motorized users. After an unsuccessful bid process to construct the vehicular bridge in 2018, the City began the installation of various pedestrian safety and bicycle system improvements within the corridor that were developed through a public participation process and will reevaluate the installation of the vehicular bridge at a later time.



Each of these proposed roadway extensions and improvements would occur concurrently with new development. The cumulative effect of these network enhancements would serve to greatly improve east-west mobility.

In addition to improving east-west street continuity, there are additional strategies that can be utilized to help alleviate east-west congestion. Improvement of available transit services into the eastern side of the City would help reduce traffic volumes by providing a viable alternate to individual automobiles. Additionally, improving the availability of commercial goods and services in close proximity to existing and future residential developments in the eastern side of the City could also help reduce east-west traffic volumes. This is most needed within the northeastern area of the City, where existing residential uses are currently located nearly two miles from the nearest available commercial services.

3.4.4 North-South Access

Similar to east-west streets, the north-south streets within the City also have limited continuity. Only Mountain View Road and U.S. 95 provide continuous paths from the southern to the northern areas of the City. North-south access is complicated by regional truck traffic as U.S. 95 is the only cross-City north-south route that allows for regional movements (although Mountain View Road provides direct north-south access within the City limits on the east side of the City).

U.S. 95 plays several roles. First, it runs directly through much of Moscow's downtown Central Business District through a separated one-way couplet system. Second, it is a regional traffic and truck route. The two roles of U.S. 95 conflict with each other as the regional traffic detracts from the function of downtown as a pedestrian-oriented retail district.

Although the City's downtown is successful notwithstanding the impacts of regional traffic, the City prefers to reduce the conflict and re-route the regional traffic. As such, the City has planned for alternative access and truck routes around the City through a future alternate U.S. 95 alignment outside the City's downtown core.

3.4.5 Thoroughfare Plan

Thoroughfare system planning is intended to facilitate the development of the most efficient and appropriate street system necessary to meet existing and future travel needs. The primary objective of the Thoroughfare Plan is to ensure that adequate right-of-way is preserved on appropriate alignments to allow the orderly and efficient expansion and improvement of the street system. The Thoroughfare Plan will affect the growth and development of Moscow as it guides the future development of the City's street network. While other



elements of the Plan examine foreseeable changes and needs over a 20-year horizon, thoroughfare planning requires a much longer-range perspective. Future changes in transportation technology, cost structure, service demand, and long-term shifts in the economy and urban growth patterns require a far-sighted approach to thoroughfare planning decisions.

Map 3.1, Thoroughfare Plan, illustrates the proposed general conceptual future alignments for new and existing arterial and collector streets. The location and alignment of thoroughfares within proposed developments should generally conform to the Thoroughfare Plan, but actual alignments will be determined at the time of development in consideration of topography, logical and orderly development layout and other considerations. Any proposed significant change in thoroughfare alignment should be reviewed to ensure it will not adversely impact the function of the street system.

Some elements of the thoroughfare system may require new or wider rights-of-way and depending on need, may be developed as two-lane or multi-lane roadways with various cross sections. Some streets identified as collectors on the plan may not ever be widened due to physical constraints and right-of-way limitations. Instead, the collector designation signifies its traffic-handling role in the overall street system and the importance of maintaining it in good condition - including designations such as snow routes prompting priority removal - to maximize their traffic capacity since they most likely cannot be improved to an optimal width and cross section.

The plan does not show future local streets because they function to provide access to individual sites and parcels and their future alignments will vary depending upon individual land development plans. Local street alignment can be determined by the City in conjunction with landowners as part of the subdivision development process. Likewise, collectors are required with new development, but may not all be reflected on the Thoroughfare Plan since their alignments will depend on the surrounding street system and the particular development concept. They are, nevertheless, vital to an efficient and viable transportation network and therefore, must not be overlooked during the subdivision development review process.

3.4.6 Proposed Alternate Highway Alignments

For nearly 50 years, the City has discussed the need to provide alternative routes for regional and local traffic to reach its intended destination without having to funnel through downtown, which conflicts with the intended use of downtown as a pedestrian-oriented retail and entertainment district. This concept has appeared in various City planning documents over the last several decades often under the moniker of “Loop Road” among others. More recent planning documents focused on a U.S. 95 bypass that was proposed to be located at the western edge of the City along the alignment of Warbonnet Drive.



In early 2002 and 2003, the City and Idaho Transportation Department conducted an origin-destination study upon the state highways and a corridor study for the portion of S.H. 8 located west of Washington Street. Both studies concluded that a State highway bypass was not warranted at this time, and that the projected future traffic volumes for the next twenty years could be physically accommodated within the existing highway corridors. While the studies concluded that the traffic could be physically accommodated without a bypass, the wider community's opinion has been that accommodating the current and anticipated future traffic volumes through the center of downtown is not a desirable long-term solution.

Out of this discussion, the City's Transportation Commission began the process of identifying future transportation corridors that would link together the four quadrants of the City and the State highway system, thus providing a more direct alternative route for both local and regional traffic and relieving congestion in the downtown area. These proposed alternate highway alignments would provide a truck bypass route (especially along its western alignments, due to the large amount of truck traffic that comes into the City from the north and south on U.S. 95 and exits to the west on Pullman Road) and improve east-west mobility within the community.

Within the 2014 Multi-Modal Transportation Plan, the proposed 'Ring Road' was modeled to assess the relative benefits the facility would provide to reduce congestion within the downtown core. The study concluded that the Ring Road would not significantly improve intersection operations downtown or on parallel routes and would increase truck travel times using the Ring Road compared to the existing highway system. The study largely concluded that the benefits of the ring road would not justify the projected expense of \$110 to \$140 million. The study recommended continued pursuit of the southwest quadrant which provided the greatest benefit based upon current traffic patterns.

As a result, the City's Transportation Commission revised the City's long range street system plan including a potential alternated U.S. 95 alignment which is reflected in the Thoroughfare Plan shown in Figure 3.1.

3.4.7 Local Street Design

While the Thoroughfare Plan projects the future for the City's major street system, the character and development patterns of local streets impact the quality of neighborhoods and the mobility of its future residents.

Many past developments within the City have resulted in a somewhat disconnected street system. Discontinuous streets create circuitous routes that increase trip distances and present challenges to navigation by residents, visitors and emergency responders, as well as the efficient delivery of public services (sanitation collection, transit delivery, mail delivery, and others). Increased trip distances also result in greater vehicle fuel consumption and emissions, and



reduce the attractiveness of non-motorized modes of mobility.

As new local streets are planned and developed, considerations should be provided to the interactions and relationships with adjacent existing and future planned roadways. Intersections of new local streets with existing thoroughfares within or bordering the subdivision should be planned to align with existing intersections, where feasible, to avoid creation of off-set or “jogged” intersections. Through-streets and T-intersections should be utilized in place of cul-de-sacs, when feasible, and care should be taken to minimize the utilization of cul-de-sacs, which limits through-access, restricts pedestrian circulation, increases response times, and confuses motorists. When cul-de-sacs are used, their length should be limited from the connecting street and pedestrian ways should be provided to enhance pedestrian access.

Street continuity must also be balanced against the preservation of neighborhood quality. A properly designed hierarchy of arterial, collector, and local streets can be utilized to direct local traffic to collector streets and beyond and reduce through-traffic on local streets. Where through-traffic problems exist, traffic calming devices can be effectively utilized to discourage through-traffic use of local streets, while still maintaining the overall connectivity of the street network.

Subdivision layout should avoid the creation of residential lots fronting on collector or arterial streets. Rather, lots should be accessed from local residential streets within or bordering the subdivision or an auxiliary (or marginal access) street designed to accommodate driveway traffic. Existing streets in adjacent areas should be continued, and when an adjacent area is undeveloped, the street layout should provide for future continuation of streets into the undeveloped area.

The City should discourage the use of private streets, including gated communities, unless adequate precautions are taken to ensure minimum standards of construction, necessary space for utilities and street widening, sufficient room and an access arrangement for emergency vehicles, and appropriate public pedestrian access and circulation.

3.4.8 Arterial and Collector Street Access Management

The automobile-oriented segments of the City’s principal commercial corridors (S.H. 8 and U.S. 95) were, in large measure, developed at a time when the level of traffic on the highways was low enough that driveway access did not significantly impair regional traffic flow. Consequently, the highways have numerous access points to adjacent uses, which is normally the function of local streets. Currently, the City’s regulations prohibit backing movements onto arterials and allow for a maximum of one driveway connection per lot onto City streets. The State of Idaho has additional access management requirements for State highways that involve access spacing requirements. The City should develop similar access



Figure 3.3:
Signal Timing

The benefits of improved signal timing have been demonstrated in Oakland County, Michigan and Syracuse, New York. In Oakland County, Michigan, retiming 640 traffic signals during a two-phase project resulted in Carbon monoxide reductions of 1.7 and 2.5 percent, Nitrogen oxide reductions of 1.9 and 3.5 percent, and hydrocarbon reductions of 2.7 and 4.2 percent. The benefit-to-cost ratios for the two phases of this project were 55:1 to 175:1.

In Syracuse, New York, benefits were realized when signal timing was optimized for 145 intersections. Signal retiming decreased the number of stops by 15.7 percent, reduced travel time by 16.7 percent, lowered delay by 18.8 percent, caused a 13.8 percent decline in fuel consumption, and resulted in a 13 percent reduction in vehicle emissions and noise pollution.

Source: U.S. Department of Transportation.

management strategies along its arterials and collectors. Such a strategy could include consolidating access points and requiring internal cross-access between adjacent uses, where feasible, as they develop and redevelop.

3.4.9 Traffic Control and Safety

Intelligent Transportation Systems (“ITS”) help relieve congestion and improve traffic operations by optimizing traffic signal timing and communication. See **Figure 3.3, Signal Timing**. The University of Idaho is home to the National Institute for Advanced Transportation Technology (“NIATT”), which has pioneered cutting-edge ITS components to better manage arterial roadway traffic. NIATT is currently deploying many of these systems in the City. The City should continue to partner with NIATT and the Idaho Transportation Department to improve traffic operations using technology-based solutions as part of a multi-faceted approach to transportation management. Pullman Road, Third Street (in the downtown area), Main Street, Washington Street, and Jackson Street should be priority areas for ITS systems.

According to ITD collision data reporting, 753 collisions were reported in Moscow between 2007 and 2011. See **Map 3.2, Accident-Prone Intersections**. Collisions in

nearly every category decreased during this time, year to year. However, 2011 saw the first traffic-related fatality in five years. Collisions occurred in a variety of weather conditions, but only 13% occurred in snowy or rainy conditions. In addition, road surface conditions were primarily dry (67% of collisions versus the 18% occurring in icy or snow covered road conditions), and three quarters of all collisions (77%) occurred during the daylight hours. Factors contributing to collisions included high travel speeds, failure to yield, limited sight distances or obstructed visibility, and failure to obey traffic control devices such as red lights and stop signs. See **Table 3.1, Top Ten Collision Locations in Moscow (2007-2011)** (see next page).

3.4.10 Corridor and Gateway Beautification

The character of a roadway corridor is made up by more than just the physical components of the street, curbs and sidewalks. It also includes items such as landscaping, signage, building style and placement, public art, and street trees and furnishings that collectively create the character of any particular street. Improving the aesthetic and physical character of a roadway corridor can help calm traffic, promote use by cyclist and pedestrians, and enhance the economic and social vitality of the surrounding area. One of the most critical elements



of these beautification efforts is the inclusion of trees which not only provide aesthetic benefits, but also visual screening of unsightly views and filter vehicle emissions and traffic noise. Within the City, the north and south City entrances as well as the S.H. 8 (Troy and Pullman Roads), U.S. 95 (Jackson and Washington Streets), and Sixth Street (in the downtown area) corridors are high priority locations that would benefit from streetscape enhancements. See **Figure 3.4, Corridor Beautification**.

Table 3.1
Top Ten Collision Locations in Moscow (2007-2011)

Rank	Street	Cross Street	Collisions
1	Jackson Street	Third Street	51
2	SH-8	Driveway/Parking Lot	50
3	SH-8	Peterson Drive	44
4	SH-8	Farm Road	26
5	Jackson Street	Sixth Street	24
6	SH-8	Line Street	22
7	Third Street	Asbury Street	21
8	Main Street	D Street	19
9	Third Street	Lilly Street	17
10	SH-8	Warbonnet Drive	16

Source: Idaho Transportation Department State Crash Database

City Entrances

The City's current northern and southern entrances along U.S. 95 contain various unattractive surrounding land uses and deteriorating structures, as well as limited landscaping and green spaces. As U.S. 95 serves as two of the most heavily traveled entrances into and through the community, improvement to the aesthetic and physical character of these gateways through the transition of land uses, provision of green ways, landscaping, and public art installations would greatly improve the City's impression upon visitors and travelers using U.S. 95.

Key Roadway Corridors

Along many of these roadway corridors there are limited landscape areas. In terms of character, S.H. 8 on the west side of the City (Pullman Road) and the segments of U.S. 95 near the City entrance locations has the greatest potential for significant impact. The City should initiate a beautification program of sign controls, upgraded landscaping, street tree planting, strategic installation of

Figure 3.4:
Corridor Beautification



The existing character of S.H. 8 is a mixed bag. Part of it (pictured above) is characterized by sign clutter, overhead utilities, and large expanses of pavement. Another part (pictured below), has a better character due to improved buffering and setbacks that reduce the appearance of building mass.



This Plan recommends a more consistent and formal buffer landscaping arrangement for the City's gateways.



landscaped medians (if traffic engineering analysis supports them), and the installation of public art (including both public art installations, as well as the incorporation of art into common street fixtures and infrastructure).

In terms of median installation, the City should explore the opportunity for median installation on the Pullman Road along the Palouse Mall frontage, where the presence of Paradise Creek and Paradise Path on the south side of the road limit the impacts of medians upon access to private property. Medians are commonly constructed in either a raised or lowered form. Medians in either configuration provide a number of benefits including improved traffic safety, provision of a pedestrian sanctuary, reduced impervious surfaces, and enhanced aesthetic character.

3.4.11 Public Art Integration

Public art not only improves the quality of the commute and aesthetics of the roadway corridor, but it also helps with way-finding by providing landmarks throughout the City. Public art can be in the form of installations of sculptures, as well as the incorporation of art into everyday street fixtures such as handrails, guard rails, bridges, signage, public benches, bus shelters, grates, light standards, and many others. In 2015, the City adopted a Public Art Master Plan that identified a ten-year vision for public art in Moscow, and outlined a plan for desired types of art and locations for public art placement.

The Plan identified ten priority locations for installation within the next ten years:

- ◆ North City Entry - Couplet at Main & C Street
- ◆ Downtown Streetscape (benches, trash receptacles, planters, sculpture plinths)
- ◆ Jackson and 6th Street (SW corner)
- ◆ South City Entry - U.S. 95 crossing of the South Fork of Palouse River
- ◆ Moscow Public Library
- ◆ Berman Creekside Park
- ◆ East City Park
- ◆ 1912 Center
- ◆ Paradise Path
- ◆ Friendship Square

3.4.12 Street Trees

As discussed in [Section 1.3.1](#), street trees and the tree lawn areas are an essential part of the character of the historic parts of the City and provide significant environmental, economic, and aesthetic benefits to the community. Tree lawns



provide separation of pedestrians from passing automobiles, as well as a location for the storage of snow away from the sidewalk during the winter months. However, in many neighborhoods and the downtown business district, the city's street trees are aging and under additional stress from increased temperatures and drier conditions. The threat of invasive and destructive insect and disease pests has increased as these species begin to migrate to our warming region. The rate of tree mortality along Moscow's streets is increasing. As such, the City should continue its efforts to diversify its urban forests since tree diversity is the best mechanism to make trees more resilient to weather extremes, disease, and insect pests.

In 2017, the City revised its existing Street Tree Planting Program to require street trees to be planted as part of the building permit process. Street trees are now required to be planted as part of any new development and the developer is given the option of planting the trees or furnishing a security to install the trees at a later date. The Community Forestry Administrator works in concert with the Community Development Department to administer the Street Tree Planting Program.

3.5 PEDESTRIAN MOBILITY

3.5.1 Introduction

Much of Moscow (especially in and around downtown) is highly "walkable," with connected sidewalks and attractive streetscapes. This pedestrian-friendly environment is essential to the lifestyle of Moscow's residents. And Moscow residents do "walk the walk" (so to speak) -- one out of every five Moscow workers walked to work between 2008 and 2012.

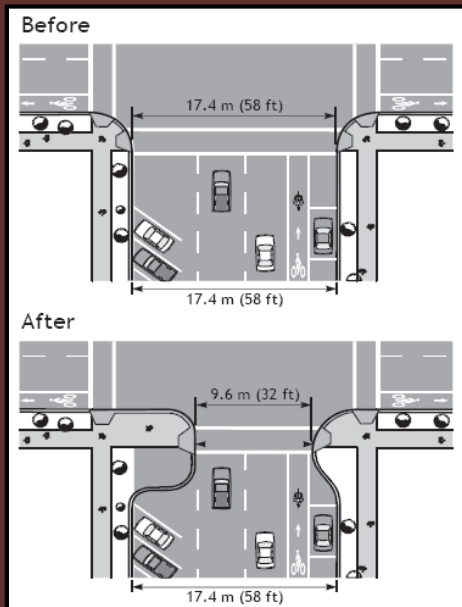
Part of Moscow's charm is the fact that the only large, uninterrupted width of street pavement in the City is S.H. 8 between downtown and the State line. For the streets with more limited capacity, the fact that so many people walk to work helps to reduce the need for street improvements and expansion -- protecting community character and the public treasury. Accordingly, maintaining and enhancing the pedestrian environment is a high priority.

3.5.2 Sidewalk and Crosswalk Facilities

Pedestrian connectivity and mobility is highly valued within the community. The installation of sidewalks where they do not currently exist and the repair of sidewalks in disrepair have been identified as a priority for the City. Prioritization for sidewalk installation should include key routes to schools, as well as those areas connecting residential developments and areas of employment and commercial services.



Figure 3.5:
Pedestrian Refuge Areas



Source: Federal Highways Administration

Source: Federal Highways Administration

The design of public streets and their amenities greatly influences the safety and enjoyment of pedestrians and encourages people to choose alternative modes of transportation. Sidewalks of a minimum width of five feet should be constructed on both sides of all new public streets with wider sidewalks along designated arterial streets and within commercial areas. Tree lawns of at least eight feet in width provide areas for street tree planting, snow storage, and separate pedestrians from the noise, exhaust, and danger of adjacent automobile traffic and should be included within all new streets. Street grades should generally be less than 10% so that sidewalks remain conducive to use by pedestrians, cyclists, wheelchairs, and others.

The design of intersections must accommodate bicyclists and pedestrians in a manner that is safe, accessible, and convenient. Pedestrian refuge areas for crosswalks in both the median and shoulder (bulb-out) locations allow for greater pedestrian safety and visibility, especially on wider and higher-volume collector and arterial streets, and should be incorporated within collector and arterial street construction standards. See [Figure 3.5, Pedestrian Refuge Areas](#). Where appropriate, elevated pedestrian crossings can provide greater pedestrian safety and function as traffic calming measures.

As previously mentioned, the City is essentially divided into four quadrants by the two State Highways (S.H. 8 and U.S. 95) that bisect the community. These highways present barriers to pedestrian mobility as they are wide, high-volume roadways that are intimidating to pedestrians. This situation is most prevalent at the intersection of North Main Street and E Street, the intersection of Styner and U.S. 95, and the intersections of Styner and Mountain View Road with S.H. 8. Potential pedestrian crossing and safety improvements at these highway intersections should be assessed to help mitigate the barrier these highways present to pedestrians and bicyclists.

3.5.3 Subdivision Design and Pedestrian Pathways

While street connectivity provides many benefits including the promotion of alternative mode share in transportation selection, pedestrian routes must be viewed at a significantly different scale. A block length of 500 feet in a motor vehicle may feel inconsequential, but for a pedestrian it is much more significant. Within subdivision review, likely current or future pedestrian destinations (such as parks, schools, and nearby shopping and dining establishments) should



be carefully examined and pedestrian pathways should be required in mid block or cul-de-sac locations to provide more direct and efficient pedestrian route opportunities.

3.5.4 Accessibility for People with Disabilities

A critical component of pedestrian mobility is the provision of equal access and use of the pedestrian network regardless of age or ability. In accordance with the Federal Americans with Disability Act (ADA) requirements, all new sidewalk and pathway improvements in the City must comply with ADA accessibility standards, See **Figure 3.6, Accessible Walkway**. However, there are many miles of existing sidewalk that remain barriers to persons with disabilities due to their poor condition or lack of pedestrian drops at street intersections.

In 2006, the City conducted an inventory of existing sidewalk conditions and implemented a sidewalk installation and repair program. Since that time, 1.4 miles of sidewalk have been replaced or repaired to mitigate trip and accessibility hazards. The City also currently conducts an annual program to construct pedestrian drops and other accessibility improvements at key intersections within the community to promote accessibility. Between 2014 and 2018, 110 pedestrian ramps have been installed. It is important that the City continues this program to correct these impediments to disabled accessibility.

3.6 BICYCLE MOBILITY

3.6.1 Introduction

In the years 2008-2012, the American Community Survey reported that over 5% of the City's "journey to work" trips were made by bicycle. This ranks Moscow in the top 1% of communities in the U.S. for bicycle commuters. Moscow City Surveys have shown higher and increasing percentages of bicycle commuters. The 2012, 2014, and 2016 City Surveys reported bicycle commuting shares of 9%, 7%, and 7%, respectively. Because of its relatively compact size, slower-speed and low-volume streets, and its progressive citizenry, Moscow is an ideal community in which to encourage bicycle mobility.

Figure 3.6:
Accessible Walkway



Example of an accessible walkway on Sixth Street.

Source: City of Moscow



Almost anyone can ride a bicycle, and this makes bicycling a difficult mode of transportation to plan for. Bicyclists vary significantly in their age, knowledge, skills, and comfort level in riding with other traffic. Therefore, different types of facilities are needed to accommodate different types of bicyclists.

Bicyclists' riding behaviors can be grouped into three broad categories along a spectrum: integrated, segregated, and separated. Bicyclists using integrated behaviors act like other vehicles on the street and require no special on-street facilities. Bicyclists using segregated behaviors ride in bike lanes on the street or on shoulders, segregated from motor vehicle traffic. Bicyclists using separated behaviors ride on shared-use pathways, physically separated from the street. Most bicyclists use all three behaviors at some time when riding, depending on their route, riding preferences and the facilities provided.

Bicyclists use all streets in Moscow, and accommodating them requires different facilities depending on the street's characteristics. Segregated facilities (i.e., bike lanes) are not necessary on low-volume, low-speed local streets where bicyclists and motorists can safely and comfortably share the road. As traffic volumes, speeds, and street classification increase to collector and arterial status, the rationale increases for providing bike lanes for bicyclists' safety and comfort. Bicyclists that prefer to avoid streets altogether and use shared-use pathways also need a well-connected and maintained pathway system in order for bicycle mobility to reach its full potential in Moscow.

3.6.2 Bike Lanes

Bike lanes provide extra width on the roadway that allows motorists to pass bicyclists with more ease, comfort, and safety. In Idaho, bicyclists are not required to use bike lanes. Sometimes bicyclists' safety dictates that they not use the bike lane, for example, when preparing for a left turn, when the bike lane is covered in snow or ice, or when the bike lane is located in the door zone next to parked cars.

Planning for and providing the roadway width necessary to include bike lanes is relatively easy for new street construction. It is more difficult, however, to retrofit streets with bike lanes once curbs are in place and the street width is fixed. Retrofitting streets with bike lanes may involve tradeoff decisions involving numbers of traffic lanes, width of traffic lanes, and provision of on-street parking.

In 2016 the City's Transportation Commission and Public Works Department developed a City-wide Bike Route and Facilities Plan which was adopted by the City Council in June of 2016. Since that action, the City has gradually been working to implement the plan with many of the routes and facilities.



3.6.3 Bike Routes

Bike Routes are suggested routes for bicyclists that may or may not have special bicycle facilities. They usually follow lower speed and traffic volume streets, as well as bike lanes, and paths. Signing bike routes with directional and destination information is important for their utility by bicyclists. The City should develop and maintain maps of signed bike routes and signs along bike routes in accordance with the 2016 Bike Routes and Facilities Map and should indicate the prominent destinations to which the route leads.

3.6.4 Bicycle Parking

Bicyclists need adequate and secure parking when they reach their destinations. In addition, Moscow experiences some form of precipitation about half the days each year so covered bicycle parking would encourage bicycling during periods of inclement weather. The City has recently adopted a bicycle parking incentive whereby a certain percentage of automobile parking spaces can be reduced with the inclusion of bicycle parking. The City should continue to pursue the development of bicycle parking requirements for new multi-family residential and commercial developments.

3.6.5 Integrating Bicycling with Transit

Integrating bicycling with transit increases the utility and convenience of both modes of transportation and may decrease the necessity of using private automobiles for some longer trips. The City should create an integration plan for bicycling and public transit. Elements should include such things as:

- ♦ Designating bicycle routes that lead to bus stops.
- ♦ Covered, secure bicycle parking at bus stop shelters.

3.6.6 Other Bicycling Issues

Nonresponsive traffic signals are a problem at many intersections for bicyclists. Although in Idaho bicyclists are allowed to proceed through red lights after stopping and only when it is safe to do so, safety issues still arise due to nonresponsive signals. Many newer traffic signals do not change in a pre-set or predictable pattern, leaving the waiting bicyclists wondering what the duration of the signals current indicator may be.

3.7 MULTI-PURPOSE PATHWAYS

The City has developed, maintains and continues the expansion of a system of separated multipurpose pathways that include the Paradise Path and the interconnections of the Latah Trail to the east and the Chipman Trail to the west. These multi-purpose pathway systems provide not only opportunities for passive and active recreation activities, but also function as multi-modal



transportation corridors linking various locations within the community. These facilities are discussed in more detail in [Section 4.4.4](#) of this Plan. See [Map 3.3, MultiPurpose Pathways](#).

3.8 TRANSIT AND TRANSIT-SUPPORTIVE DEVELOPMENT

3.8.1 Introduction

According to the 2000 U.S. Census, about one percent of Moscow's workers used transit (which includes taxicab) to get to work. The national average was 4.7 percent. However, fixed-route transit did not exist in Moscow in 2000. A local non-profit corporation, Regional Public Transportation, Inc. operating as Moscow Valley Transit, began providing fixed route services in 2004 and quickly became important to the mobility of all City residents. In 2012, Moscow Valley Transit became the Sustainable Moscow Area Regional Transportation (SMART) Transit system. SMART Transit continues to provide free ridership and should be considered as a factor that influences the ability of the City and the University to attract and retain students and staff.

3.8.2 Existing Routes and Ridership

At the time of this writing, SMART Transit provides two free fixed bus routes for local transit (East Route, which serves generally east of Main Street; and West Route, which serves generally west of Main Street, except for a slight jog into the University). These routes, shown in [Map 3.4, Transit Routes](#), have 30-minute headways and report 120,000 boardings annually. Almost two-thirds of SMART Transit riders are University of Idaho students. Forty-six percent of the students riding SMART Transit are going to and from class. SMART Transit also provides point to point "dial-a-ride" service.

The University of Idaho, the City of Moscow, the U.S. Department of Transportation, Idaho Transportation Department, United Way, and New Saint Andrews College all contribute to support transit services within the region through "in-kind" or cash-match contributions. Together, they contribute funding that is used to leverage federal funding that helps fund transit service in the region.

3.8.3 Projected Ridership

It is likely that the most significant limiting factor in ridership is the limited transit service coverage and service hours possible under current available funding. There are many examples around the country where small town public transportation operations can be successful given adequate funding mechanisms, such as local option taxes and student fees in university communities. As funding allows, new routes and additional service hours should be investigated as a means to increase ridership, and the rising cost of gasoline could also contribute to an increased interest in transit over time.



3.8.4 Bus Shelters and Transit-Supportive Development

Part of the transit ridership equation is having adequate shelter at the pick-up point and then a safe, attractive, and convenient walk to the destination of choice. This City should take efforts to provide all-weather bus shelters in locations that are prioritized, based on the average number of boardings at the stop. Further, the City should take steps to improve the character of the stops by providing benches, appropriate signage, unique public art, and by ensuring that sidewalks and landscaping around the stops are in good condition. See **Figure 3.7, Transit Stops**.

Higher density development has historically provided greater opportunities for more efficient transit operations in that a large number of riders concentrated in a single location allows for the logical location of fewer transit stops and more efficient transit operation. While development densities within Moscow vary widely, the location of established and potential future transit routes should be considered in locating higher density development nodes within the City. Subdivision design should be reviewed for the appropriate siting and construction of centrally located and accessible transit stops. Facilities should include pull-outs, shelters and signage, and be accessible via pathways and sidewalks. Additionally, infill and higher-density redevelopment projects should be encouraged in areas where transit service is readily available.

3.8.5 Extension of Transit Service

There are several areas that are currently zoned for multifamily development or manufactured housing that are located more than one-quarter mile from the nearest SMART Transit bus stop. These locations could be relatively dense sources of additional ridership. This Plan recommends that these additional areas be studied to determine whether additional service is warranted.

As there are limited funding sources for public transit within the State of Idaho, funding of any service extensions within Moscow presents a challenge. Future service extension studies should include a fiscal component to determine whether a reasonable bus fare schedule would help support the service extension, and if benefits of the service extension to overall community mobility and underserved populations would outweigh the burden that existing users would bear if bus fares were charged. Fares typically support only a modest portion of the

Figure 3.7:
Transit Stops



cost of delivery of transit services and collection of fares can negatively impact transit ridership. Therefore, care must be taken to carefully weigh the costs and benefits of fare collection upon service delivery and utilization.

3.9 SCHOOL ACCESS AND TRANSPORTATION

3.9.1 Introduction

Moscow School District #281's strategic plan states that the District aims to: "provide safe and efficient pupil transportation services to all qualifying students in the district." To that end, it seeks to "[d]evelop a system of to/from school routes that will provide qualifying students with safe and efficient transportation to the appropriate school buildings." This includes bus routes and safe routes for students to walk to school.

In terms of busing, the District has 13 bus routes that transport approximately 700 students. As common school busing times overlap with normal peak-hour traffic, the street network patterns that affect non-school traffic also affect school buses. The School District reports that the existing stock of buses is adequate to provide the necessary service.

In terms of walking routes, State regulations generally require that students who live within one and one-half miles of their school must walk or use private transportation. As such, connected sidewalks are essential to safe travel to school.

The City has already obtained grant funding and constructed sidewalks that serve Lena S. Whitmore Elementary School and Moscow Middle School through the Safe Routes to School Program.¹

Sidewalks have also been installed on several streets including Cleveland Street between First and B Streets and F Street and Public Avenue, B Street between Blaine and Cleveland Streets, and D Street between Moscow Middle School and the Eggen Youth Center.

In addition to the projects listed above, continuous sidewalks should be installed along Orchard Avenue, Public Avenue, Mountain View Road, Polk Street, and Jefferson Street.

3.9.2 Safety Routes

In the absence of safe connections, the School District may run bus routes called "safety routes" to students who live closer than one and one-half miles to school. There are currently five "safety routes," which are shown in *Map 3.5, Safety Routes*. Completion of the sidewalk system along Mountain View Road

¹ The Safe Routes to School program provides grant funding for installing or repairing sidewalks and signage, safety education and enforcement through extra police patrols. Individual schools, school districts, nonprofits, highway districts, cities, and counties can apply for the grants.



including the area outside the City limits where Mountain View Road turns into an east-west alignment, will enable the school district to eliminate one of these routes by providing a safe route for students to walk to school. The balance of the safety routes cannot be “fixed” with sidewalks because they were created to address the risks associated with crossing major streets.

3.10 PARKING

3.10.1 Introduction

The City’s parking requirements are set out in the City’s Zoning Code which stipulates the minimum number of off-street parking stalls that must be provided for various uses. Many of the requirements are at least in part based on the number of employees on the premises, which can make plan review and code enforcement very difficult. The City recently reviewed parking requirements and made revisions to better address parking demands and ease of administration.

3.10.2 Downtown Parking

As of this writing, uses within the Central Business (CB) Zoning District are exempt from the requirement to provide off-parking under the City’s Zoning Code. The requirement for large private surface parking lots would detract from the desired urban pedestrian oriented character of the downtown area and create demand for automobile traffic in the area. Currently the majority of the auto parking demand is satisfied with readily available public parking, both on-street and in several public parking lots. The reliance on public parking for the downtown district provides a great deal of flexibility in meeting parking demand as it fluctuates during the course of the day and week, rather than privately held and managed parking dedicated to a particular use.

Although a formal traffic and parking study has not been conducted for the downtown area since 1993, the City’s Transportation Commission conducted a downtown parking survey in 2008 to assess the perception of parking held by business owners, employees, residents and customers in the downtown area. While degree of the perceived problem varied among the user groups surveyed, the conclusion of the Transportation Commission’s work was that a perception exists that there is a parking shortage within the downtown area. The Transportation Commission’s report concluded with a list of 25 implementation strategies that were identified as feasible actions to pursue in order to improve parking in the downtown area. The City should pursue the implementation of the Transportation Commission’s recommendations and conduct additional surveys in subsequent years to assess their effectiveness.

In addition to the implementation of the Transportation Commission’s recommendations, which are anticipated to assist in meeting current parking demands, the City should pursue requiring the provision of off-street parking



within the CB Zone for uses that have greater demands than the short-term public parking can fulfill. Examples of such uses include residential uses and hotels/hospitality and larger office complexes where long-term parking demands cannot be reasonably served with the currently available public parking. If parking is required of such uses, the City should carefully control its placement, such as underneath or behind the buildings, so as to not interrupt the continuous building streetwall and pedestrian environment of downtown.

3.11 COMMUNITY MOBILITY GOALS AND OBJECTIVES

3.11.1 General Community Mobility Goals

- ♦ Ensure the integration and coordination of the City's transportation systems with the regional facilities and modes of transportation.
- ♦ Plan for the orderly development and continuity of the City's street and pathway systems, as well as connectivity to regional transportation networks to ensure the efficient delivery of services and navigation by residents and visitors.
- ♦ Ensure that all transportation systems enable safe access and promote alternative mode use for all modes of mobility, including pedestrians, bicyclists, motorists, and public transit users of all ages and abilities.
- ♦ Provide for the continuity and function of the City's transportation system while ensuring context sensitive design that preserves and enhances community character and quality of life.

3.11.2 Regional Mobility

Objective:

Provide for the efficient integration of the City's transportation systems with regional facilities and modes of mobility including county roads, state highways, shared-use trail systems, air transportation, and regional bus transportation services.

Implementation Actions:

1. Actively engage and participate within regional transportation planning efforts of surrounding jurisdictions and entities engaged in the development, provision, and maintenance of transportation facilities and services.
2. Work in collaboration with the Idaho Transportation Department to identify and construct priority transportation improvement projects through the State of Idaho Statewide Transportation Improvement Plan program and other similar programs.



3.11.3 City Street System

Objectives:

- A. Provide for the safe and efficient movement of people, goods and services throughout the community supporting all modes of transportation.
- B. Plan for the logical and orderly extension of the City's public street network.
- C. Ensure that the City's transportation system supports and relates with the surrounding land uses and preserves and enhances the community's character and values.

Implementation Actions:

1. Provide for the orderly development and preservation of future alignments of the City's arterial and collector street network as identified in the Thoroughfare Plan. See [Section 3.4.5, Thoroughfare Plan](#).
2. Ensure that all City streets are designed to provide safe access and use for all users including pedestrians, bicyclists, transit users, and motorists. See [Section 3.4.2, Street Classifications](#).
3. Ensure that future local streets provide for the continuity of the City's street network while directing through-traffic to collector and arterial streets. See [Section 3.4.2, Street Classifications](#).
4. Adopt and implement approved traffic calming measures, such as narrower streets, on-street parking, and other devices, in residential areas where such actions will not impede the function of the City street network. See [Section 3.4.7, Local Street Design](#).
5. Identify and explore cooperative opportunities for the preservation of right-of-way for the proposed Alternate Highway 95 Alignment.
6. Encourage the improvement of existing substandard and gravel streets and alleys through the use of local improvement districts or other techniques. See [Section 3.4.1, General Existing Conditions](#).
7. Implement the 2015 corridor and entrance beautification program along S.H. 8 and U.S. 95 with landscaping and public art; install a landscaped median with appropriate cuts on S.H. 8 along the mall frontage. See [Section 3.4.10, Corridor and Gateway Beautification](#) and [Section 3.4.11, Public Art Integration](#).
8. Implement a program of access management along designated arterial and collector streets to preserve their safe and efficient function. See [Section 3.4.3, East-West Access](#).
9. Require street improvements and right-of-way dedication when property is developed, redeveloped, or substantially improved, based on the functional classification of the adjacent street. See [Section 3.4.3, East-West Access](#).



10. Expand collaboration with the National Institute for Advanced Transportation Technology at the University of Idaho and the Idaho Transportation Department to deploy and upgrade intelligent transportation systems infrastructure. See **Section 3.4.9, Traffic Control and Safety**.
11. Set out a policy for joint access easements along S.H. 8 and U.S. 95 (outside of downtown) as properties develop and redevelop to reduce the number of private driveways and access points. The policy should reinforce State access management standards. See **Section 3.4.8, Arterial and Collector Street Access Management**.
12. Monitor and prioritize traffic safety improvements at intersections with high accident rates. See **Section 3.4.9, Traffic Control and Safety**.

3.11.4 Pedestrian Mobility

Objectives:

- A. Provide for the safe access and use of the City's pedestrian facilities for users of all ages and abilities.
- B. Promote walking as a mode of transportation within the community to enhance the physical and social health of the community.

Implementation Actions:

1. Continue efforts to fill gaps in the City's existing sidewalk system utilizing a variety of possible funding sources including bonds, grants, local improvement districts, and other methods. See **Section 3.5.2, Sidewalk and Crosswalk Facilities**.
2. Continue the development and expansion of the City's multipurpose pathway system. See **Section 3.7, Multi-Purpose Pathways**.
3. Assess, monitor and maintain the City's pedestrian facilities and operation to ensure safe access and use for all users at all times. See **Section 3.5.4, Accessibility for Disabled Persons**.
4. Provide direct pedestrian access within and through new developments to surrounding pedestrian destinations through easements, dedications, or other means. See **Section 3.5.3, Subdivision Design and Pedestrian Pathways**.

3.11.5 Bicycle Mobility

Objectives:

- A. Increase the safety and convenience of cyclists of all ages and abilities, and encourage the use of bicycles as a desirable mode of transportation within the community.
- B. Promote the development and enhancement of logical and connected bicycle



ways and parking facilities throughout the community.

- C. Enhance the integration of cyclists and community public transit services.

Implementation Actions:

1. Implement the 2016 Bike Route and Facility Plan. See **Section 3.6.2, Bike Lanes**.
2. Develop and maintain a current map of the City's bicycle system plan where it can be easily accessed and viewed, such as on the City's website. See **Section 3.6.3, Bike Routes**.
3. Integrate bicycling and public transit facilities by integrating bicycle routes and bus stops, and provide covered, secure bicycle parking at bus stop shelters. See **Section 3.6.5, Integrating Bicycling with Transit**.
4. Continue to develop and extend the City's multipurpose pathway system. See **Section 3.6.1, Introduction** and **Section 3.7 Multi-Purpose Pathways**.
5. Ensure that all bicycle facilities (i.e., bike lanes and shared-use paths) are designed and built to meet the guidelines in the most current version (2012 as of this writing) of AASHTO's Guide for the Development of Bicycle Facilities and that City traffic signals accommodate bicyclists to the greatest extent possible. See **Section 3.6.6, Other Bicycling Issues**.

3.11.6 Public Transit

Objective:

Promote the increased use and expansion of public transit services within the community and region as a desirable transportation alternative.

Implementation Actions:

1. Review all applicable (those adjacent to a transit route and not already served by a nearby transit stop) subdivisions and large commercial developments to integrate transit stop improvements into their site design. See **Section 3.8.4, Bus Shelters and Transit-Supportive Development**.
2. Identify, prioritize and seek funding to improve bus stops to provide all-weather shelters. See **Section 3.8.4, Bus Shelters and Transit-Supportive Development**.
3. Improve streetscape, sidewalks, landscape and public art around bus stops. See **Section 3.8.4, Bus Shelters and Transit-Supportive Development**.
4. Study feasibility of extending bus service to the north, east, and south including potential funding sources to support the extension of service within the community. See **Section 3.8.5, Extension of Transit Service**.



3.11.7 School Access and Student Transportation

Objectives:

- A. Assist local schools in providing efficient and safe student access and transportation to school facility locations within the community.
- B. Promote student use of biking and walking to school through the development and improvement of pedestrian and bicycle facilities throughout the community.

Implementation Actions:

1. Pursue grant and other funding opportunities to reduce the need for safety bussing areas. See [Section 3.9.2, Safety Routes](#).
2. Review proposed subdivisions and other development proposals for potential pedestrian easements or other means of providing more direct pedestrian routes between residential developments and school facilities. See [Section 3.5.3, Subdivision Design and Pedestrian Pathways](#).

3.11.8 Parking

Objective:

Ensure that the City's off-street parking requirements balance the need for parking to serve developments while promoting alternative transportation options and ensuring that environmental and aesthetic considerations are addressed.

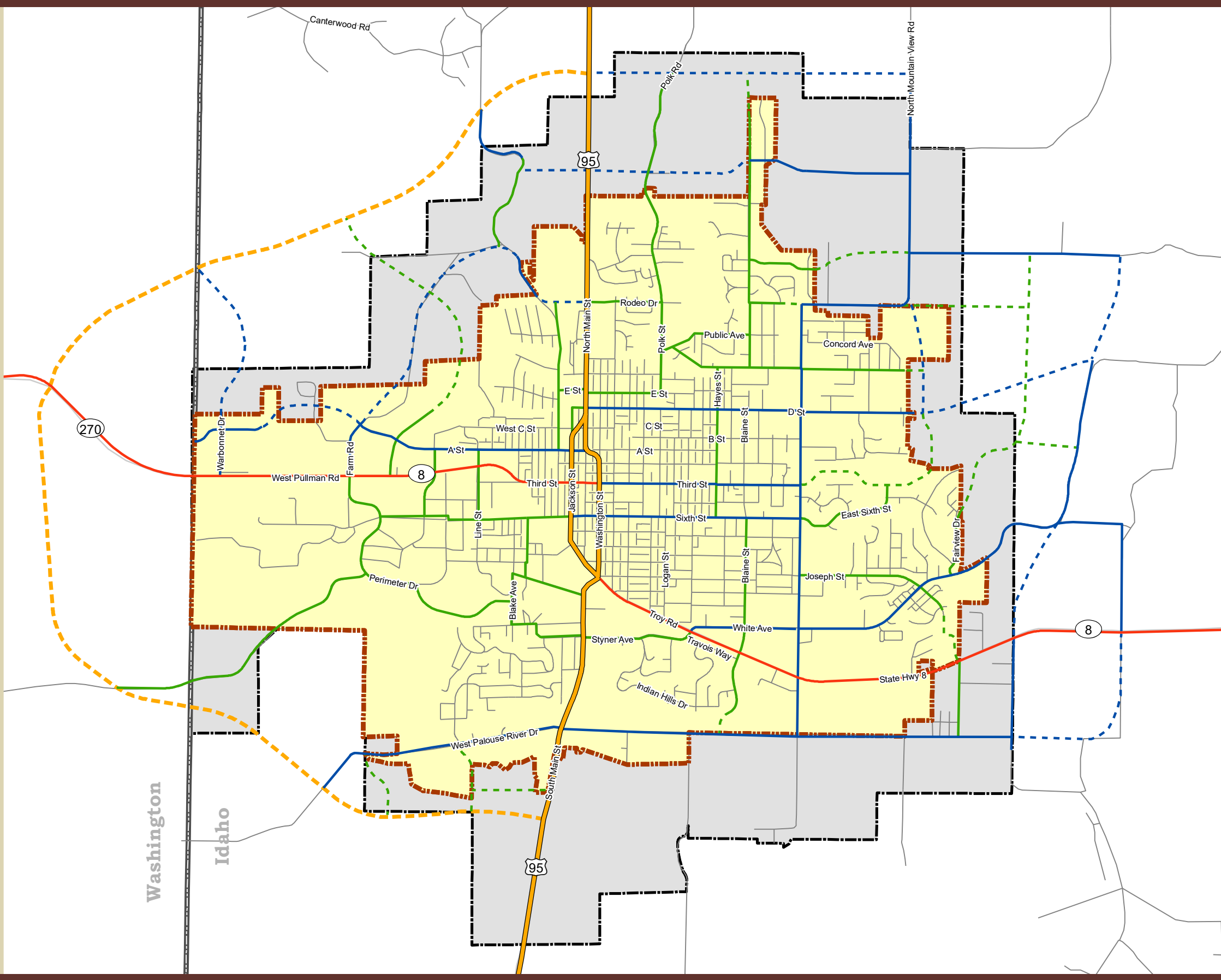
Implementation Actions:

1. Pursue implementation of the Transportation Commission's 2008 Downtown Parking Study's recommended actions to improve parking in the downtown area. See [Section 3.10.2, Downtown Parking](#).
2. Require parking to be provided within the Central Business District for development of new long-term parking demand generating uses such as residential, hotel and large office uses within the downtown area. See [Section 3.10.2, Downtown Parking](#).



Thoroughfare Plan

comprehensive PLAN



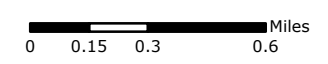
THOROUGHFARE PLAN

- National Highway
- Alt Highway 8 Align
- Alt Highway 95 Align
- Principal Arterial
- Minor Arterial
- Proposed Minor Arterial
- Collector
- Proposed Collector

BOUNDARIES, WATER, & INFRASTRUCTURE

- City Limits
- State Border
- Area of City Impact

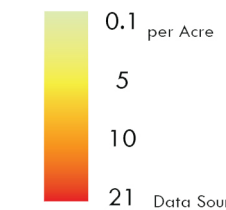
Note: Proposed future roadway locations are approximate and ultimate roadway locations will be determined at the time of development based upon topography, existing development, property boundaries and proposed development needs.



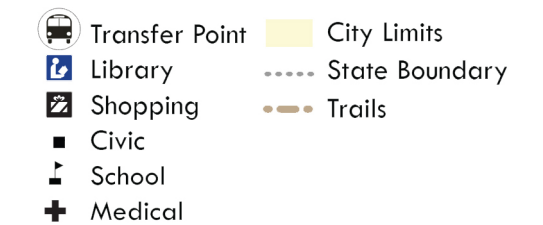
Accident-Prone Intersections

Number of Collisions

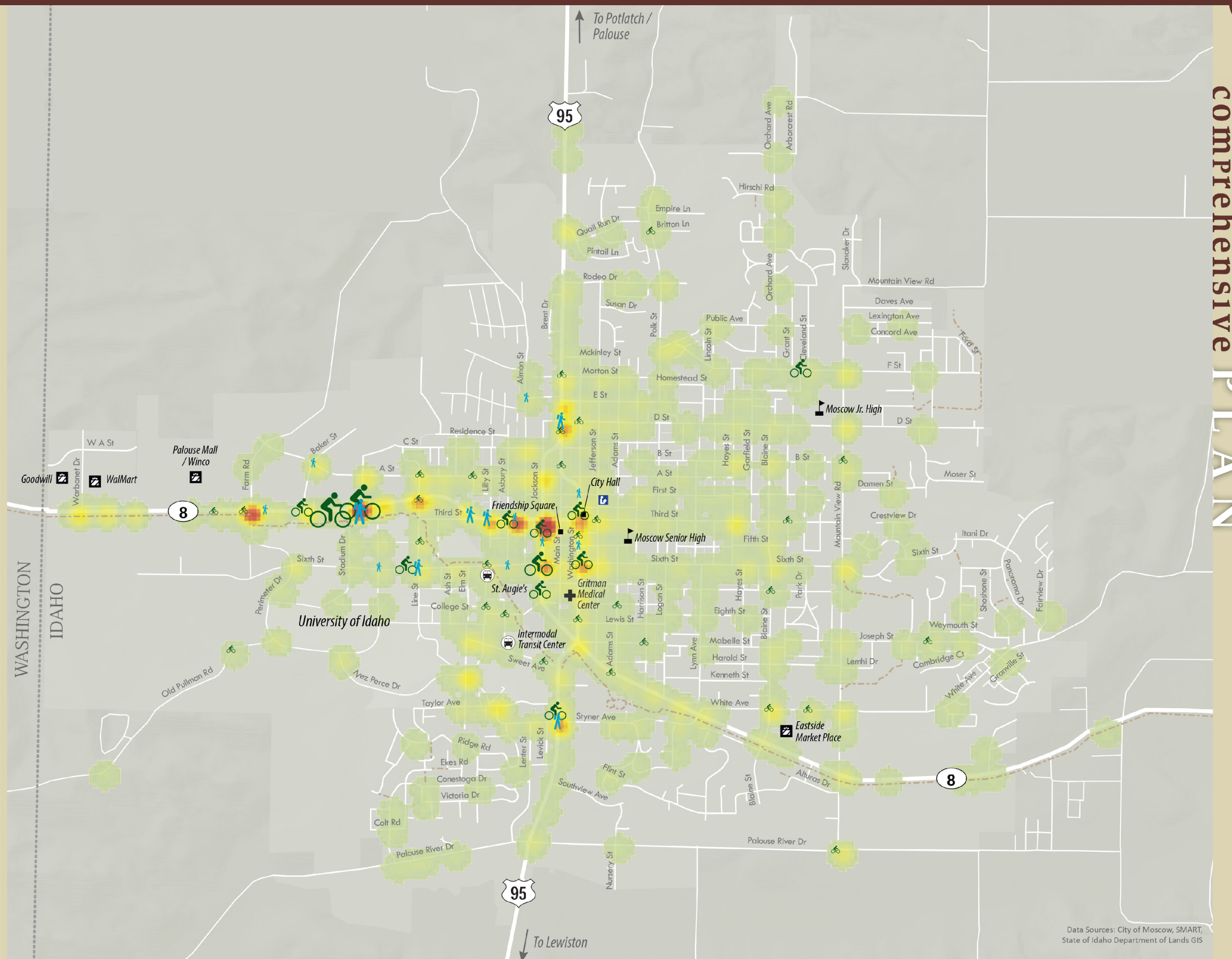
All Reported Collisions, 2007-2011



Data Source: Idaho DOT



*Refer to Table 3.1, Top Ten Collision Locations in Moscow (2007 to 2011) on Page 3.16



Data Sources: City of Moscow, SMART, State of Idaho Department of Lands GIS



NOT TO SCALE

Multipurpose Pathways

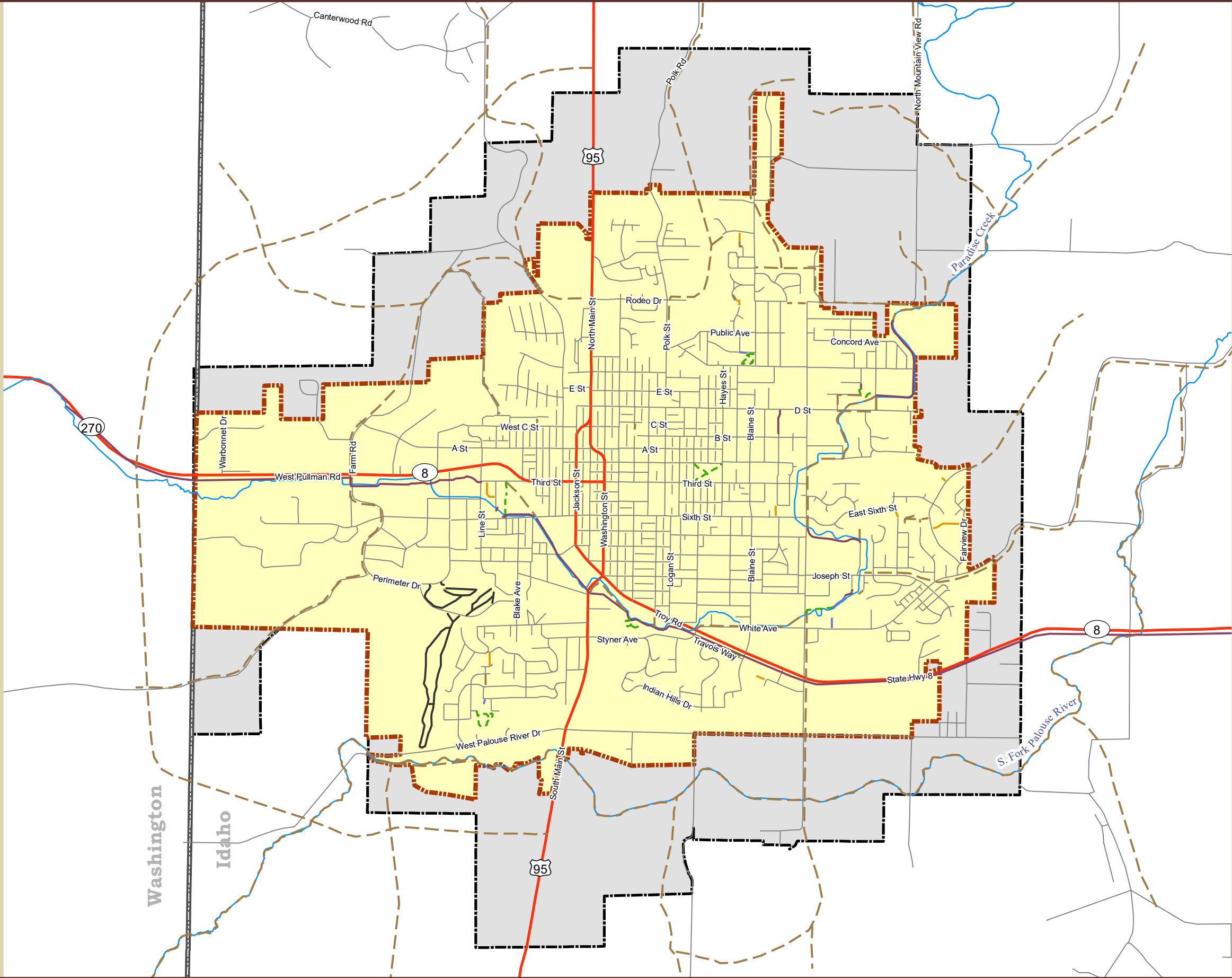
FUTURE PROPOSED PATHS

- Pedestrian Walkways
- Future/Proposed Pathways
- Multi-Purpose Pathways - Paved
- Multi-Purpose Pathways - Unpaved
- Park Pathways
- University Pathways - Unpaved

BOUNDARIES, WATER, & INFRASTRUCTURE

- City Limits
- Area of City Impact
- State Border
- Paradise Creek and S. Fork Palouse River

comprehensive PLAN



0 0.125 0.25 0.5 Miles



Transit Routes

SMART Transit

- West Route (Green)
- East Route (Blue)
- Limited Services
- Bus Stops
- Transfer Point
- 1/4 mile Walking Buffers around Stops

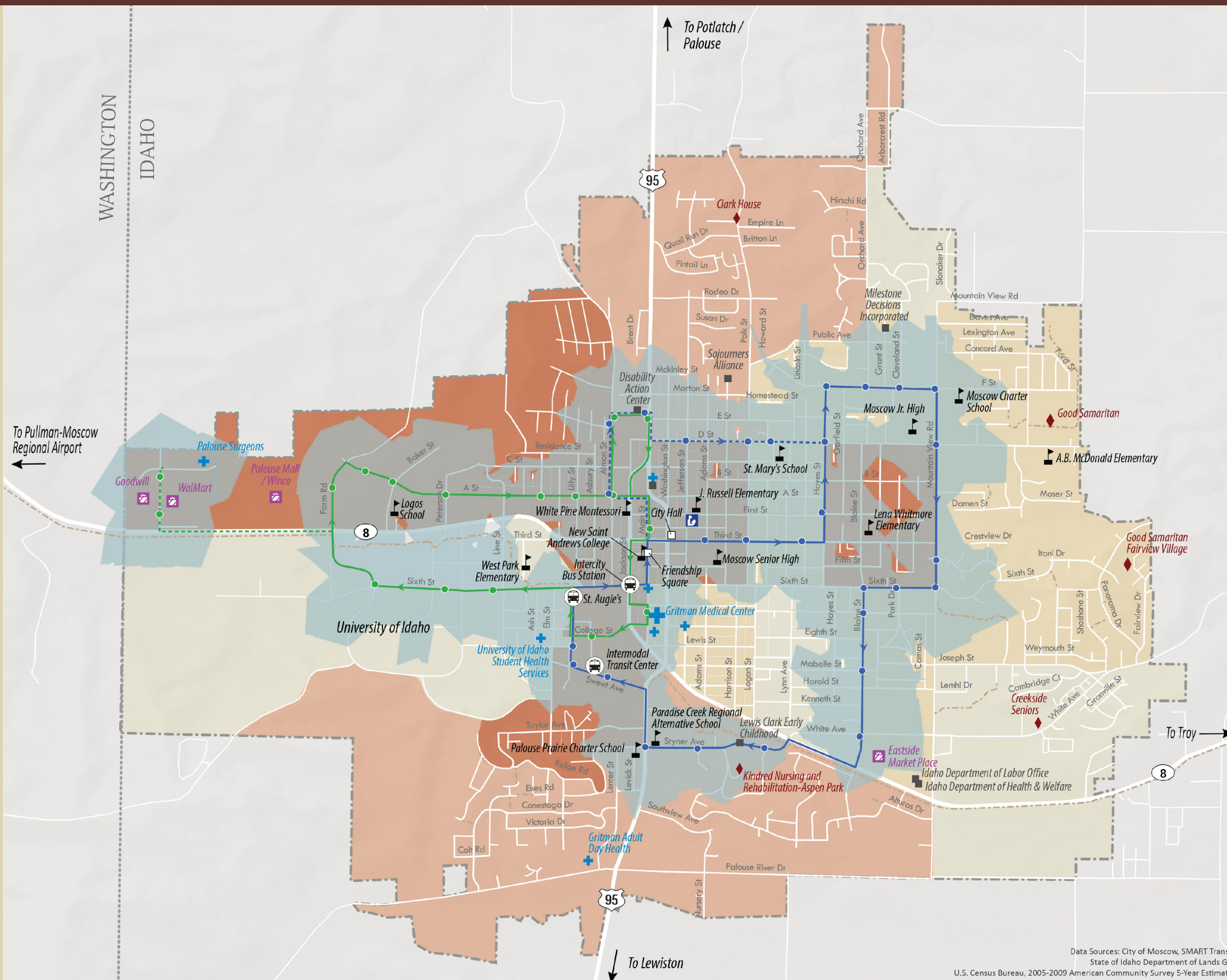
Landmarks

- Civic
- Senior Housing
- Social Service
- Library
- Shopping
- School
- Medical
- Downtown District
- City Limits
- State Boundary
- Trails

Population at or below Federal Poverty Line

Persons per Acre
By Census Block Groups

- 0.0 - 0.5
- 0.6 - 1.0
- 1.1 - 2.0
- 2.1 - 7.1



Data Sources: City of Moscow, SMART Transit,
State of Idaho Department of Lands GIS,
U.S. Census Bureau, 2005-2009 American Community Survey 5-Year Estimates



Safety Routes

Section 33-1501, Idaho Statutes provides for busing of children who live more than 1.5 miles from school. The distance is measured "by the nearest and best route from the junction of the driveway of the pupil's home and the nearest public road, to the nearest door of the schoolhouse he attends."

Safety bus routes are provided for those students who would experience unsafe conditions walking to school along that route. The safety routes shown in this map are a composite for all schools. They may overlap with walking routes or regular bus routes, depending upon the school the child along the route attends.

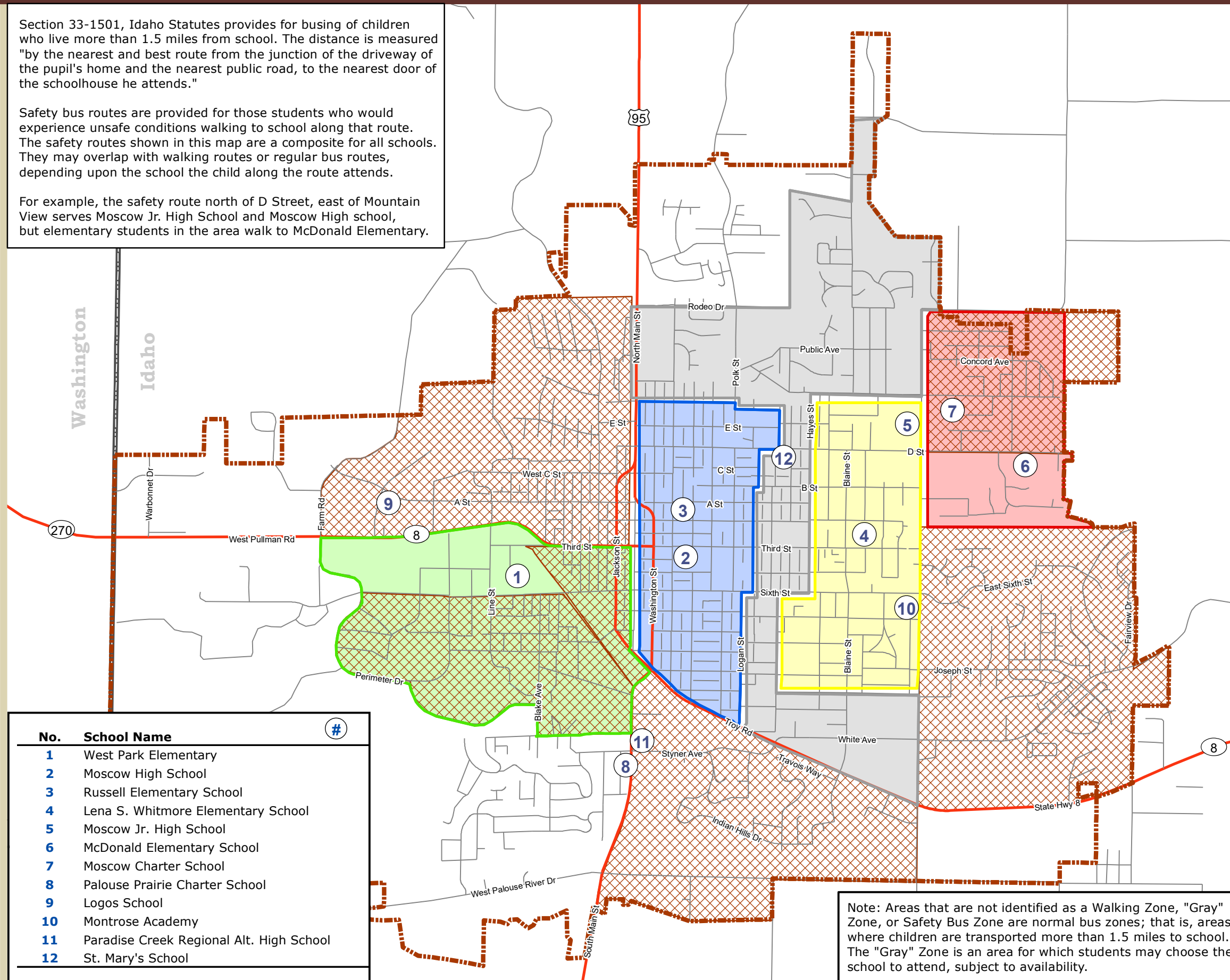
For example, the safety route north of D Street, east of Mountain View serves Moscow Jr. High School and Moscow High school, but elementary students in the area walk to McDonald Elementary.

ELEMENTARY SCHOOL WALKING ZONES

- Lena S. Whitmore Elementary Walking Zone
- McDonald Elementary Walking Zone
- Russell Elementary Walking Zone
- West Park Elementary Walking Zone
- "Gray" Zone
- Safety Bus Zone

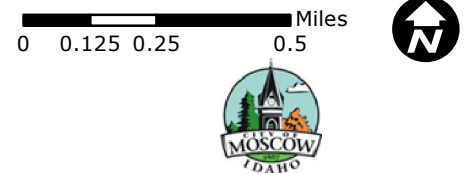
BOUNDARIES, WATER, & INFRASTRUCTURE

- City Limits
- State Border



No.	School Name	#
1	West Park Elementary	
2	Moscow High School	
3	Russell Elementary School	
4	Lena S. Whitmore Elementary School	
5	Moscow Jr. High School	
6	McDonald Elementary School	
7	Moscow Charter School	
8	Palouse Prairie Charter School	
9	Logos School	
10	Montrose Academy	
11	Paradise Creek Regional Alt. High School	
12	St. Mary's School	

Note: Areas that are not identified as a Walking Zone, "Gray" Zone, or Safety Bus Zone are normal bus zones; that is, areas where children are transported more than 1.5 miles to school. The "Gray" Zone is an area for which students may choose the school to attend, subject to availability.



Parks, Recreation, and Open Space

COMPREHENSIVE PLAN

4.1 INTRODUCTION

Parks, open space, and recreation facilities are essential parts of a healthy, quality, and sustainable community environment. They provide necessary components in human existence for events outside of the home, after work, and beyond school activities. Whether for passive or active use, park areas and recreation facilities are an important part of everyday active living. Much like streets and sidewalks, water and wastewater lines, drainage facilities, police and fire equipment, and other municipal facilities and services, parks and open space are integral components of the municipal infrastructure. They warrant a significant level of attention and commitment of resources to be adequately acquired, constructed, operated, and maintained.

A comprehensive and interrelated system of parks, open space, and recreation opportunities that respond to the needs and values of the local residents contribute to a community's quality of life and livability. These opportunities contribute to the health of residents, provide a variety of recreational and educational activities for all ages, and preserve and enhance the quality and integrity of the natural environment. Parks and recreation opportunities are also important in attracting visitors to the community and, thus, contribute to local tourism and economic development.

Through development of this Plan the community's stated desires for parks, recreation, and open space opportunities include:

- ♦ Invest in the community's livability and quality of life to contribute to its economic development and attractiveness as a place to live and conduct business;
- ♦ Improve the quality and appearance of public spaces to form a positive and desirable image of Moscow;
- ♦ Contribute to a healthful community life through provision of opportunities for sport and exercise;
- ♦ Provide facilities for athletic events and social festivities for local recreation leagues and activity groups;

Parks, recreation, and open space areas all provide a lasting value and benefit to Moscow. They add to local quality of life and community character through the provision of recreation opportunities and open space and natural areas, and serve essential environmental functions including habitat preservation, flood control and water quality management. As the City continues to grow, enhancement of the parks system and conservation of open space will be important in preserving the very qualities that define the character of the community and the reasons people choose to call Moscow home.



- ♦ Establish criteria for the development of new parks, including their type, design, location, and methods of financing;
- ♦ Provide diverse areas and facilities in close proximity to all citizens to meet their individual needs; and,
- ♦ Preserve valued open spaces and sensitive lands to promote good stewardship and contribute to the enjoyment of future generations.

The creation and development of these opportunities is driven by a single overarching goal, followed by more specific goals for the various parks, open space, and recreation components listed at the end of this chapter:

To provide a system of well distributed parks, open space, and recreational facilities that meet the active and leisure recreation needs of citizens of all ages, interests and abilities.

4.2 PARKS AND RECREATION MASTER PLAN

In 2013 the City adopted a Parks and Recreation Master Plan to determine the community's current and future needs for improving, expanding, and enhancing its parks and recreation system. The Parks and Recreation Master Plan includes the City's policy direction pertaining to the preservation and conservation of natural areas and open space, the timing of park development, the placement of parks and open spaces within the City and the Area of City Impact, the types of facilities, and the method by which enhancements and improvements may be funded. The Master Plan guides the City's planning efforts for developing a high-quality system of parks, open spaces, and recreation, while directing private contributions through provision of active recreation areas and open space to meet the requisite needs of new development. The Master Plan addresses the availability, quality, type, size, and location of leisure and recreation opportunities to meet the needs of Moscow's residents and visitors. The complete plan may be referenced for further details and specific implementation steps and recommendations.

4.3 LOCAL CONTEXT PARK CLASSIFICATION SYSTEM

Moscow and the surrounding Palouse area provide various recreational opportunities for the enjoyment of its citizens. The City offers an assortment of parks and facilities that provide opportunities for a variety of uses and recreation activities. The park system that is owned and managed by the City includes over 171 acres of pocket, neighborhood, community, linear, and special use parks and facilities, plus an additional 58 acres that is owned by the Moscow School District. See [Map 4.1, Existing Parks](#).

Each of the developed and undeveloped public and semi-public parks, as well as the linear parks and pathway segments, are displayed in [Map 4.1, Existing Parks](#).



The Virgil Phillips Farm County Park, which is owned by the City and operated by Latah County, and the Moscow Mountain Property are not shown since they are located outside of the City limits and beyond the extent of this map.

4.4 PARK CLASSIFICATION SYSTEM

The City's parks serve various purposes and needs depending upon park size, location and facilities. For the purposes of this Plan the City's parks and public spaces are classified in the following categories:

- ♦ Pocket parks
- ♦ Neighborhood parks
- ♦ Community parks
- ♦ Linear parks or pathways
- ♦ Special use parks and facilities
- ♦ Regional parks
- ♦ Open spaces
- ♦ Semi-public park facilities

4.4.1 Pocket Parks

Pocket parks are small parks of less than three acres in size and with a service area of approximately one-quarter mile – generally two to four blocks. They are intended to serve the needs of people living or working in the immediate area and, therefore, the number of persons that benefit from these public spaces can be relatively small depending on the location and facilities provided. There are 11 pocket parks within the community that provide a total of more than 14 acres, as shown in **Table 4.1, Pocket Parks**.

4.4.2 Neighborhood Parks

Neighborhood parks are moderately sized facilities of three to four acres in size that are intended to serve neighborhood residents within a one-half mile radius. The size of neighborhood parks currently within the City varies according to the availability of property,

Table 4.1 Pocket Parks	
Park Name	Size (acres)
Almon Asbury Lieuellen	1.57
Alturas Park	0.90
Triangle Park	1.75
Friendship Square	0.40
Indian Hills	1.23
Kiwanis Park/Hordemann Pond	2.75
Jim Lyle/Rotary Park	2.14
Lillian Woodworth Otness Park ¹	0.53
Morgan's Orchard	0.42
Subtotal, Developed	11.69
Vista Park ¹	1.94
Itani Park ¹	0.84
Subtotal, Undeveloped	2.78
TOTAL	14.47
¹ Undeveloped land Source: City of Moscow Parks and Recreation Department	



**Table 4.2
Neighborhood Parks**

Park Name	Size (acres)
Anderson Frontier	4.60
Berman Creekside	4.17
Lena S. Whitmore Park	3.00
Subtotal, Developed	11.77
Lola Clyde Park ¹	5.10
Moser Property ¹	3.50
Milton Arthur Park ¹	3.00
Baker Street Park ¹	3.00
Subtotal, Undeveloped	14.60
TOTAL	26.37
¹ Undeveloped land Source: City of Moscow Parks and Recreation Department	

**Table 4.3
Community Parks**

Park Name	Size (acres)
East City Park	7.04
Mountain View Park	16.00
TOTAL	23.04
Source: City of Moscow Parks and Recreation Department	

method and timing of acquisition, and the intended use. Presently, there are seven neighborhood parks that total over 26 acres, as shown in **Table 4.2, Neighborhood Parks**. It is important to note however, that Lola Clyde, Moser, Milton Arthur, and Baker Street parks are City neighborhood parks that have not yet been developed as of this writing.

4.4.3 Community Parks

Community parks provide for the needs of the entire community and, therefore, are the largest parks within the municipal system ranging from 5 to 25 acres in size. These larger areas have a broad variety of facilities and intended uses including both passive and active recreation, such as walking and jogging paths, athletic courts, ball fields, picnic areas, activity centers, and swimming pools that

draw residents primarily within a distance of one mile. The secondary service area extends two miles to accommodate the park users within an expanded area.

Due to the size and types of facilities and improvements available, there are two parks that are classified as community parks, including East City Park and Mountain View Park. Together, these properties account for just over 23 acres, as shown in **Table 4.3, Community Parks**.

4.4.4 Linear Parks or Pathways

A linear park is developed for one or more modes of recreational travel, such as hiking, biking, walking, and, in some cases, horseback riding. Pathways may be used for active use, such as running or biking, or for passive purposes. Beyond recreational purposes, linear parks and multi-purpose pathways also serve an important role as transportation corridors throughout the community (See *Section 3.7 Multi-Purpose Pathways*). The growing system of pathways is expanding its reach within the community and increasingly improving access throughout the City and the surrounding area. Its continued progression will greatly enhance the overall parks and pathways system, eventually providing



linear linkages to parks, schools, and neighborhoods. Furthermore, the Latah Trail, extending eastward to Troy and connecting to Pullman to the west via the Chipman Trail, creates a regional spine from which lateral trails may be extended.

Displayed in **Table 4.4, Linear Parks and Pathways**, are the five existing path segments which contribute 37.60 acres to the City's inventory of parks and recreational areas. The merit of linear parks and pathways is not based on acreage but rather the interconnectivity they provide. For service area planning purposes, the primary service area of a pathway or linear park extends one-quarter mile on each side, similar to a neighborhood park.

4.4.5 Special Use Parks and Facilities

Special use parks and facilities serve the entire community and, depending on their nature and scale, sometimes appeal to the region or state. These facilities provide for specialized and multi-purpose recreation activities. They contribute unique additions to the parks and recreation system and supplement the traditional indoor and outdoor recreation opportunities.

Special use facilities commonly include civic centers, museums, conservancies, or arboretums such as the University's Arboretum and Botanical Garden, nature centers and parks, community orchards, fairgrounds, ice rinks, water parks, and gymnasiums (like the Hamilton-Lowe Aquatic Center and Hamilton Indoor Recreation Center), larger-scale sports stadiums or coliseums (like Guy Wicks Field and the Kibbie Activity Center on the UI campus), and other special features. The presence of the University of Idaho greatly expands the list of these facilities available in Moscow. Those that are subject to this Plan include the spaces and facilities listed in **Table 4.5, Special Use Parks & Facilities**. Together, the areas provide over 69 acres to the City's inventory, although their contributions to the park system and community are not measured

Table 4.4
Linear Parks and Pathways

Park Name	Size (acres)
Bill Chipman Palouse Pathway	5.60
Itani-Rolling Hills	0.34
Meadow Street Property	0.11
Paradise Path	30.80
Travois Way Property	0.75
TOTAL	37.60
Source: City of Moscow Parks and Recreation Department	

Table 4.5
Special Use Parks and Facilities

Park/Facility Name	Size (acres)
Dog Park	1.00
Edible Forest Park	4.1
Eggan Youth Center/Skatepark	1.00
Ghormley Park	10.54
Hamilton-Lowe Aquatic Center and Indoor Rec Center	9.00
West Palouse River Drive Ball Fields ¹	44.00
TOTAL	69.64

¹ Undeveloped land

Source: City of Moscow Parks and Recreation Department



by size but by the variety of activities provided and the attraction of residents and visitors. It is important to note that the land for the West Palouse River Drive ball fields is dedicated for public park use, but it is not yet developed.

4.4.6 Regional Parks

There is one regional park facility in the City's inventory, Virgil Phillips Farm County Park, which is owned by the City but operated by the County. This property contributes 160 acres, as shown by **Table 4.6, Regional**

Parks. However, due to its location and proximity to the City, it is for special purpose use rather than for everyday activities.

4.4.7 Open Spaces

There are several open spaces that are dedicated for such purpose and maintained by the City. Such open spaces contribute to the general openness of the community and protect sensitive habitat resource areas. They are intended for their passive contribution to the visual environment rather than for any means of organized activity. In some cases though, such as the Bridge Street property, the open space may be used as an informal playing field by neighborhood children and residents. Therefore, a one-eighth mile service area is used for public open space.

As exhibited in **Table 4.7, Open Spaces**, there are nine open space properties that provide a total of 12.34 acres of parks and recreation areas. These areas include those described above, as well as excess rights-of-way as in the case of

the C Street and Virginia Avenue triangles and the White Avenue roundabout.

4.4.8 Semi-Public Park Facilities

The Moscow School District (MSD) campuses contribute 58.44 acres of public open space and recreational areas to the City park tally, as reflected in **Table 4.8, Semi-Public Parks**, (next page). One should note this acreage is for the entire school property rather than that portion

**Table 4.6
Regional Parks**

Park Name	Size (acres)
Virgil Phillips Farm County Park	160.00
TOTAL	160.00

Source: City of Moscow Parks and Recreation Department

**Table 4.7
Open Space**

Park Name	Size (acres)
Bridge Street Property	0.75
C Street Triangle	0.11
Carol Ryrie Brink Nature Park MSD	3.50
Heron's Hideout	2.79
8 th St./Water Tower Open Space	0.75
Virginia Avenue Triangle	0.11
Vista Reservoir	3.83
White Avenue Roundabout	0.30
Wren Welcome Garden	0.20
TOTAL	14.06

Source: City of Moscow Parks and Recreation Department



of the site devoted solely for park and open space purposes. With the addition of the school sites, the accessibility of public open space to the adjacent and surrounding neighborhoods is increased to 87.81 acres, meaning that the schools more than double the City's neighborhood park acreage.

A collaborative approach to parks and recreation planning requires communication and coordination among interested parties. Through joint agreements created between public agencies, as well as partnerships with the private sector, the parks and recreation system benefits in its quality and affordability. Joint acquisition, construction, and ongoing operation and maintenance allow efficient use of public dollars, while ensuring that facilities are coordinated and connected. Funding major improvements, particularly to overcome the current deficiencies, is a significant challenge confronting this community. A good example of overcoming this challenge is the joint development/usage agreement of the Joseph Street Fields property belonging to the MSD. Funds provided by both the City and MSD were bundled for the ball field project development that was constructed in 2014.

The City may wish to further formalize their relationship with MSD through implementation of a reciprocal agreement. Currently, the City and MSD do not have a formal agreement for the City's use and maintenance of six MSD campuses or MSD's use of Ghormley Park and Mountain View Park. A written agreement would prove beneficial in terms of ensuring efficiency, sustained facility use, and, most certainly, cost savings for both parties.

Similarly, the University campus and open spaces are remarkable assets to the community. While nearly all of the University's 230 acres of facilities and grounds are generally open and accessible to the public, they serve a distinctly different purpose and remain under the stewardship of the University and the Board of Regents, and therefore, this acreage is not included within this Plan.

4.5 FACILITY STANDARDS

A publication of the National Recreation and Park Association (NRPA) entitled *Recreation, Park and Open Space Standards and Guidelines* includes criteria for the provision of parks and recreation facilities. The criteria are based on a national survey of municipalities of all sizes and geographic regions. These offered a baseline from which the standards of the Master Plan was developed. Due to

Table 4.8 Semi-Public Parks	
Park Name	Size (acres)
Joseph Street Ball Fields, School District	19.50
Carol Ryrie Brink Nature Park	3.50
McDonald Elementary School	8.60
Moscow Middle School	16.94
Oylear Property	8.00
Russell Elementary School	1.12
West Park Elementary School	0.78
TOTAL	58.44
Source: City of Moscow Parks and Recreation Department	



the uniqueness of Moscow and the University environment, these standards have been adjusted to reflect the desires expressed by the community through the Plan development process.

To ensure the community's interests are met, these facility standards are supported by the input gained through the Parks and Recreation Commission and community survey. The approach of the Parks and Recreation Master Plan combines the use of standards with community input to determine the improvement needs and priorities of the parks and recreation system.

As a University town where the median age is 23.9 years and, according to the 2010 Census, one-half of the households are classified as "non-family" households (those of unrelated individuals or single people), the improvement needs and priorities must be tailored to account for the community's unique demographics. Additionally, the University significantly contributes to meeting the demand for both indoor and outdoor facilities, thereby lessening the impact on the City's park system.

Considerations in the development of the acreage and facility standards include:

- ♦ A projected Year 2030 population estimate of 28,760 persons. This stable rate of growth represents an increasing demand for parks, open spaces, and recreation facilities.
- ♦ The median age of the population is 23.9 years, meaning that there are greater needs for active recreation facilities, such as courts and playing fields. This is reflected by the community survey. At the same time though, there are also needs for mature adults.
- ♦ Among all households, 26.8 percent earn less than \$15,000. An additional 10.9 percent earn between \$15,000 and \$24,999, with a median income of \$34,784. Therefore, the availability of public parks and recreational facilities and programs is important particularly for those who cannot afford more costly recreational events and activities.
- ♦ There are areas in the community for which parks are not conveniently located. These include the near downtown neighborhoods, those adjacent to the undeveloped neighborhood parks (Lola Clyde, Moser, and Vista Water Tower Parks), and the northwest quadrant of the City.
- ♦ Moscow is confronted by limited resources with which to address the scale of improvement needs. This emphasizes the importance of partnerships and restructuring of the parkland dedication ordinance to ensure a fair-share responsibility for the provision and improvement of new parks.

The classifications of park types are displayed in [Table 4.9, Park Classifications](#), (next page). The system includes parks ranging in size and type from pocket and neighborhood parks to community and linear parks, and special use facilities.



Table 4.9
Park Classifications

Pocket Park	Use: Serves a concentrated population within an immediate proximity. Examples are a tot lot in an apartment complex or a vacant lot developed as a passive park.
	Service Area: Primarily serves neighborhood residents within a one-half mile radius.
	Desirable Size: 0.25 to 2.99 acres
	Density: 0.25 acre per 1,000 persons
	Site Characteristics: Close proximity to high-density developments.
Neighborhood/ Linear Park	Use: Serves neighborhood residents within walking distance. Facilities are for active use (e.g. sports activities, playgrounds) and passive use (e.g. walking, picnicking).
	Service Area: Primarily serves neighborhood residents within a one-half mile radius.
	Desirable Size: Minimum 3 to 5 acres
	Density: 2.5 acres per 1,000 persons
	Site Characteristics: Evenly distributed across the City with convenient and safe access for nearby residents. Joint school/park facilities are highly desirable.
Community Park	Use: Serves the broad community. Includes facilities for active and passive recreation and leisure, including athletic fields, swimming pools, picnic areas, walking/jogging paths, open play areas, exercise stations, and restrooms, among other improvements
	Service Area: Primarily for neighborhood residents within a one-mile radius, but available throughout the City.
	Desirable Size: Minimum 5 to 25 acres
	Density: 5.0 acres per 1,000 persons
	Site Characteristics: Located to provide full access to the city.
Special Use Facility	Use: Serves the broader community or region for specialized, multi-purpose recreation activities (e.g. performance center).
	Service Area: Available to all persons.
	Desirable Size: No minimum standard.
	Density: No minimum standard.
	Site Characteristics: Intended for city-wide or regional use.

Source: National Recreation and Park Association (modified for Moscow)



The table reflects the intended use, relative service area and desirable size, density, and preferred site characteristics for each park type.

NRPA Recommendations

- Pocket Parks – 0.25 to 0.50 acres/1000 persons
- Neighborhood – 1-2 acres/1,000 persons
- Community – 5-8 acres/1,000 persons

Recommended Standards for Moscow:

- Pocket-Parks – 0.25 acres/1,000 persons
- Neighborhood/linear – 2.5 acres/1,000 persons
- Community – 5 acres/1,000 persons

Source: NRPA and Kendig Keast Collaborative

4.6 NEEDS ASSESSMENT

While the City provides a variety of parks and recreation facilities, additional improvements and facilities are desired by residents to meet the community's current and future demands. The purpose of the needs assessment is to identify the current and future needs for additional park acreage, new facilities, and other equipment and improvements. This need is measured by determining the degree to which the existing parks and recreation facilities are in sufficient supply and to what extent there are deficiencies. It examines the acreage and locations of parks and the quantities of recreation equipment and facilities relative to the standards outlined in Chapter 4, Facility Standards of the Parks and Recreation Master Plan.

The National Recreation and Park Association's (NRPA) *Recreation, Park, and Open Space Standards and Guidelines* recommends an average of 6.25 to 10.5 acres of pocket, neighborhood, and community parks per 1,000 persons. Given the existing level of service and the desire for a quality park system, the desired standard for Moscow was determined to be 7.75 acres per 1,000 persons. The primary change to the NRPA guidelines is the combination of neighborhood and linear parks with an increased standard of 2.5 acres per 1,000 persons. This reflects the community's preference for expanding its pathway system. Therefore, greater emphasis is applied to the development of linear connections and the availability of neighborhood parks.

4.6.1 Community Survey

During the spring of 2008, the Parks and Recreation Commission, in coordination with the Parks and Recreation Department, conducted a community survey. There were 600 surveys mailed out for which an impressive 42 percent were completed and returned. A summary of the survey results may be found in the Parks and Recreation Master Plan, Appendix A. Key findings of the survey include:

- ♦ The most-visited parks and recreation facilities were East City Park followed by the Paradise Path/Chipman & Latah Trails, Mountain View Park, and the Hamilton Indoor Recreation Center and the Hamilton-Lowe Aquatics Center.



- ♦ The reasons given for not using the City's parks include a lack of desired facilities, unawareness as to where the parks are located, and the use of non-City clubs and facilities.
- ♦ The types of recreation programs for which there is the greatest interest include: lifetime sports (golf, tennis, biking, etc.) and aquatic activities followed by educational classes, arts & crafts, and noncompetitive and competitive youth/adult sports.
- ♦ The factors that would encourage greater use of the Hamilton-Lowe Aquatics Center are covering the pool for year-around use, more swim times for age-specific groups, decreased crowding, and reduced costs.
- ♦ The most important indoor parks and recreation facility needs include covering the Aquatics Center, weight rooms/fitness facility, and an indoor ice rink.
- ♦ The most important outdoor facility needs are paved walking and biking paths, community gardens, covered picnic shelters, and youth sport fields.

4.6.2 Current Needs

As shown in **Table 4.10, Existing Park Needs**, the City meets the standards for the acreage of pocket and neighborhood parks while an additional 102 acres of community parks are needed. However, there are two pocket parks (Vista and Itani) and four neighborhood parks (Lola Clyde, Moser, Milton Arthur, and Baker Street) that are undeveloped. These parks account for 2.78 and 14.60 acres, respectively. Excluding these undeveloped parks means there is actually a 5.39 acre surplus of pocket parks, and a 13.28 acre deficiency of neighborhood

**Table 4.10
Existing Park Needs**

Classification	Existing Acreage	Recommended Standard (Acres per 1,000 persons)	Recommended Acreage	Surplus/Deficiency Acres (excluding undeveloped acreage)
Pocket Park	14.47 ¹	0.25	6.3	+ 8.17 (5.39)
Neighborhood/Linear Park ¹	63.97 ²	2.50	62.65	+1.32 (-13.28)
Community Park	23.04	5.00	125.3	- 102.26
TOTAL	101.48	7.75	194.25	- 92.77 (-110.15)
Based on an estimated population of 25,060 persons in 2015				
¹ Includes 6.10 acres of undeveloped pocket parks				
² Includes 14.60 acres of undeveloped neighborhood parks				
Source: City of Moscow Parks and Recreation Department				



parks. Therefore, it is a priority to improve these undeveloped parcels with park facilities. It should be noted that the acreage of pocket parks include only those that are City owned. Neighborhoods and apartment complexes that have private playlots help meet the demand.

The City also owns and maintains several open spaces contributing an additional 14 acres of public land. Virgil Phillips Farm Park contributes 160 acres as a regional park. However, its location outside of town and its lack of improvements limit its use by the public.

4.6.3 Year 2030 Needs

The population is projected to increase to 28,760 persons by the year 2030. This increase in population will create a demand for more parks and recreation facilities. Displayed in [Table 4.11, Future Park Needs](#), is the acreage of each park type that will be needed to meet the future demand. An additional 126 acres of parkland will be needed to meet the City's adopted standards in 2030.

Table 4.11 Future Park Needs				
Classification	Existing Acreage	Recommended Standard (Acres per 1,000 persons)	Recommended Acreage	Surplus/Deficiency Acres (excluding undeveloped acreage)
Pocket Park	14.47 ¹	0.25	7.19	+7.28 (+4.5)
Neighborhood/Linear Park	63.97 ²	2.50	71.75	- 7.78 (-22.38)
Community Park	23.04	5.00	143.80	-120.76
TOTAL	96.40	7.75	222.89	-126.49 (143.87)
Based on a population estimated population of 25,060 persons in 2015				
¹ Includes 6.10 acres of undeveloped pocket parks				
² Includes 14.60 acres of undeveloped neighborhood parks				
Source: City of Moscow Parks and Recreation Department				

4.7 PARK SERVICE AREA EVALUATION

In addition to the acreage of parks, their locations relative to the existing and planned future neighborhoods are equally important. They should be well distributed and conveniently accessible to all areas of the community. An evaluation of park service areas helps to determine whether there is sufficient coverage and where new parks are needed to fill the deficient areas. The following describes the service areas for each park type.



4.7.1 Pocket Parks

There are 11 pocket parks currently within the City (including undeveloped parks). These small public spaces have a service area of one quarter mile and are intended to serve those in the immediate area as shown in **Map 4.2, Pocket Park Service Areas**. Their purpose is to provide public open space and small activity areas for dense developments, such as apartment complexes, manufactured home parks, and employment and other activity centers.

4.7.2 Neighborhood/Linear Parks

Shown in **Map 4.3, Neighborhood & Linear Park Service Areas** are the one-half mile service areas for the City's neighborhood and linear parks. The school sites are also included as these public spaces substantially improve the coverage and distribution of neighborhood and linear parks. Service areas are also shown for each community park since they, too, serve the park needs for adjacent residents.

The neighborhood parks are fairly evenly distributed throughout the community. Where there are deficiencies, the school properties help to fill the void, particularly in the near downtown neighborhoods. The service areas along the pathways also provide added coverage. The areas of deficiency include those where Lola Clyde, Moser, Milton Arthur, and Baker Street Parks are not yet improved. As these parks are improved, so will the service area coverage.

There is considerable overlap in the service areas of the school, neighborhood, and linear parks. In these areas there is an increased availability and choice of nearby parks. For future planning, it is important that neighborhood parks are more evenly distributed with little overlap. This maximizes their coverage and optimizes the level of service. Therefore, future parks must be carefully located. In some instances, fee in-lieu of land dedication will be preferable. This will allow expansion or improvement of an existing park or, together with other collected fees, the acquisition of a larger, centralized park.

4.7.3 Community Parks

Community parks should have a complete service area coverage across the community. In other words, the one-mile service areas should nearly encompass all neighborhoods and areas planned for future residential development. Areas beyond this coverage are not within reasonable proximity to a community park and hence, are not well served.

Depicted in **Map 4.4, Community Park Service Areas**, are the service areas of the existing community parks. As shown, a majority of residents are within one mile of a community park. Development of the Palouse River Drive ball fields will improve the coverage of community parks.



4.7.4 Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities are an important component of the City's quality of life. Residents have expressed a desire to expand and enhance the already impressive pathway system. Pathways contribute to the community's recreation needs by providing connections between parks and other public facilities, and opportunities for biking, walking, and nature viewing. Additionally, bicycle and pedestrian facilities serve as an alternative mode of travel, particularly for those traveling to the University campus and those who ride to work.

Displayed in **Map 4.5, Pathway System**, are the existing and proposed pathways. The proposed network utilizes a variety of pathway sections along streams, road shoulders, and abandoned railroad corridors to connect parks and recreation facilities. Pedestrian amenities such as crosswalks, lighting, benches, and drinking fountains must continue to be considered and developed in conjunction with the pathway system.

4.7.5 Future Areas of Need

As shown in the above maps reflecting the service areas of each park classification, a majority of the community has convenient access to parks, recreation areas, open spaces, and pathway connections. However, there remain areas that are beyond the service radii of the existing areas and facilities, particularly around the community's fringes, that warrant park development. Furthermore, the existing park properties that are not yet developed (including Indian Hills, Lola Clyde, Moser, Salisbury, and Vista Parks, and the West Palouse River Drive Ballfields) are not fulfilling the current needs and are reflected as need areas. Displayed in **Map 4.6, Areas of Need**, are the defined areas warranting either improvement of existing parkland or acquisition and development of new parks and recreational facilities.

Summary of Needs

The following summarizes the identified parks and recreation facility needs:

- ◆ Based on a current estimated population of 25,060 persons, there is an overall need for an additional 92 acres of parkland. The community has surplus acreage of pocket and neighborhood parks but needs an additional 102 acres of community parks (see **Table 4.10, Existing Park Needs**).
- ◆ There are 2.78 acres and 14.60 acres of pocket and neighborhood parks, respectively, that are undeveloped. Accounting for these undeveloped acres, the overall need climbs from 91 acres to 110 acres. Therefore, improvement of these parks is a priority.
- ◆ By the Year 2030, the City will need an additional 126 acres of parkland (see **Table 4.11, Future Park Needs**).
- ◆ Formalizing an agreement with MSD would present significant opportunities



to achieve improved park accessibility across the community. This would particularly improve coverage and distribution of parks within the central part of town.

- ♦ According to standards, there are current needs for tennis courts (8), volleyball courts (3), baseball/softball fields (14), regulation horseshoe pits (7), and lighted soccer fields (7). Considering the rate of growth and the projected future population, these needs will increase by 2030.
- ♦ In terms of equipment requirements, there are a variety of needs including additional benches, picnic tables, trash cans, and parking.
- ♦ Many of the existing parks and equipment are in need of routine maintenance and/or repair.
- ♦ There is a legal and moral responsibility to provide a reasonable level of accessibility to parks and programs for individuals with disabilities. The City must be committed to creating and maintaining a parks and recreation system that is accessible for all persons.

4.8 IMPLEMENTATION

The implementation program is based on the quantification of needs presented in the needs assessment. The assessment identifies the current and projected park acreage requirements, facility and equipment needs, and the distribution and spacing of parks relative to their users. Therefore, the implementation plan specifies the park improvement priorities, including the improvement of existing, undeveloped parks; acquisition of land for parks and pathways; and facility and equipment needs

4.8.1 Implementation Through Partnerships

Meeting the increasing demands of a growing population necessitates the formation of partnerships to best address the needs of the community. There are several benefactors with whom partnerships may be warranted. These include Latah County; Moscow School Districts; quasi-public entities such as churches, private schools, and civic clubs; land owners and developers; as well as the state and federal governments. The following describes the implementation roles of the City and its partners:

- ♦ **Moscow.** The City's role is to increase its commitment of resources to enhance existing parks by improving undeveloped park properties, adding additional facilities and equipment, repairing and replacing improvements, extending the pathway system, and expanding recreational programs.
- ♦ **Latah County.** A joint partnership with the County would be advantageous to acquire, develop, and maintain parks that benefit both City and County residents. A partnership may take the form as an on-going funding agreement (such as the Latah Trail Maintenance Funding/Maintenance



Agreement already in place), joint maintenance and use agreement, and/or land donation or acquisition.

- ♦ ***Moscow School District (MSD).*** The City should formalize its relationship with MSD through a reciprocal agreement. Currently, the City and MSD do not have an agreement for the City's use and maintenance of six MSD campuses. A written agreement would prove beneficial to ensure efficiency, sustained facility use, and most certainly, cost savings for both parties. An opportunity is to re-purpose the school yards to serve as a multi-functional public space. Adopting a "learning landscapes" approach, including demonstration gardens, interpretive environments, and public art, would facilitate education and allow school yards to become more useful public spaces.
- ♦ ***Quasi-Public Entities.*** The University has a great interest in the public open spaces and recreation activities for their students. The City should explore partnership opportunities with the University that could be mutually beneficial in providing recreational opportunities for the University's students and the community.
- ♦ ***Private Sector Entities.*** The private sector may contribute to the City's parks and recreation system through the dedication or development of parkland, or payment of a fee in-lieu of land dedication. It is essential though, for this land or fee contribution to fulfill the objectives of this plan. This must be accomplished by an amended parkland dedication ordinance that conforms to the standards of this plan.
- ♦ ***Land Trusts.*** Land trusts such as the Palouse Land Trust, which is an active nonprofit organization in the region, work to preserve open space, scenery, and wildlife habitat through purchasing of land as well as conservation easements. The City should work with land trusts to allow public access through their properties where such access would be beneficial in connecting or extending the City's linear park and pathway system.
- ♦ ***State and Federal Governments.*** There are a variety of available sources of funds through the state and federal governments for park and pathway development. The City must continue to be diligent in their efforts to access grant assistance for the projects identified in this plan.

4.9 IMPLEMENTATION PRIORITIES

Maintaining and enhancing the existing parks must be balanced with acquiring land and developing new facilities. With limited financial resources, the City must determine its priorities and the proportionate share of its capital budget committed to existing park improvements versus the acquisition and development of new parks and pathways. Similarly, the operating budget must also be allocated between the maintenance and renovation of parks and



the provision of recreational programs. All are important to provide a well-balanced parks and recreation system. Based on the pace of development and the extent of need for additional parks, it is advisable for 25 to 35 percent of the annual parks and recreation budget to be allocated to refurbishing the existing system. The remaining 65 to 75 percent may be dedicated to the improvement of undeveloped or new parks, and the expansion of the pathway system.

4.9.1 Existing Park Improvements

The existing parks should be improved incrementally, meaning that individual improvements (e.g. replacement of playground equipment, picnic tables, etc.) should be made to all parks rather than complete renovation of an individual park. This will require sufficient funding and a commitment to a long-term improvement program. To facilitate this, the City should maintain a capital park improvement program to prioritize the equipment and facilities needs of each park. The program may be organized into immediate, mid-term, and long-range priorities, eventually allowing all parks to be brought to an equivalent, quality standard.

4.9.2 Parkland Dedication and Development

In addition to the above-recommended capital improvements, there are also regulatory and programmatic initiatives that are important to further develop the parks and recreation system. One of the principal mechanisms to acquire parkland is the Parkland Dedication Ordinance that is intended to mitigate the impacts of new development upon the City's delivery of community services. Under the City's current Parkland Dedication Ordinance new subdivisions are required to dedicate a certain percentage of the net developable area for public park use. The Parkland Dedication Ordinance should be reviewed to ensure that the required dedications are sufficient to achieve the standards recommended in this Plan.

While the Parkland Dedication Ordinance provides a means to acquire land for the development of parks, there is no current mechanism to fund the development of the parks which has resulted in the large number of undeveloped parks within the City. The City should explore options that may be available to obtain the necessary funding for the development of newly acquired parkland, such as impact fees or other means.

4.10 PARKS AND RECREATION GOALS AND OBJECTIVES

4.10.1 General Parks and Recreation Goal

- ♦ To provide a system of well-distributed parks, open space, and recreational facilities that meet the active and leisure recreation needs of citizens of all ages, interests and abilities.



4.10.2 Pathways, Greenways, and Linear Connections

Objective:

Provide a comprehensive network of paths and linear parks connecting all parts of the community.

Implementation Actions:

1. Continue to acquire necessary rights-of-way or easements for construction of the pathway network and the linkages to all parts of the community.
2. Plan for the development of a linear park and pathway system along the South Fork of the Palouse River from the West Palouse Rive Drive Ball Fields to the Latah Trail along S.H. 8.
3. Establish policies, design standards, and seek funding for separated pedestrian crossings of significant barriers (where possible), such as S.H. 8, U.S. 95, the railroad, and other major roadways.
4. Repurpose pathway corridors as multi-functional linear parks and transportation corridors with activity areas such as exercise circuits, playscapes, and eco-destinations.
5. Work to ensure that all new publicly dedicated parks have access to a pathway system, which may include a sidewalk, bike lane, and/or path.

4.10.3 Environmental, Conservation, Preservation and Sensitive Planning

Objective:

Protect and sustain natural areas, resource features, and environmentally sensitive lands.

Implementation Actions:

1. Incorporate interpretive signage within parks and along pathways to acknowledge natural features and to educate the public about the local ecosystems.
2. Amend the Parkland Dedication Ordinance to prescribe a maximum percentage of dedicated land which may be environmentally constrained (e.g. slope, wetland, floodplain). The balance of the dedicated land must be suitable for park activities (uplands, minimum slope, good soils, etc.).
3. Encourage a local land conservation and/or public land trust to accept dedicated open spaces to be preserved in their native state. This may be possible by way of attractive density bonuses to encourage clustering and conservation developments.
4. Adopt conscientious land management practices for public park facilities such as the use of natural composting, environmentally safe fertilizers and pesticides, use of “no-mow” zones around resource features, and native xeriscaping.



4.10.4 Cultural Enhancement

Objective:

Broadened development of the community's cultural infrastructure and its integration into park sites and recreational programs.

Implementation Actions:

1. Adapt unused or underutilized spaces to create neighborhood gardens, plazas, landscape malls, and common open spaces for the beautification and enjoyment of residents and visitors.
2. Incorporate monuments, markers and interpretive stations at City parks to enhance interpretation or highlight historic figures and events for tourists and visitors.
3. Create and publish a public art walking tour for viewing of pieces on display in parks, open spaces, and along community pathways.

4.10.5 Convenience and Accessibility of Public Parks, Recreational Areas, and Public Open Spaces

Objective:

Even and equal distribution and further development of park spaces, activities, and facilities to meet the diversity of local areas.

Implementation Actions:

1. Prioritize the development of unimproved park spaces, including Milton Arthur, Moser, and Lola Clyde Parks, and the Palouse River Drive ball fields.
2. Revise the Parkland Dedication Ordinance as recommended within this Plan.
3. Develop park zone boundaries to define neighborhood and community park use areas, within which fee-in-lieu of land should be required of development within areas that have sufficient land that is yet to be improved.
4. Locate future parks adjacent to linear greenways and planned extensions of the pathway system so as to maximize their accessibility.
5. Improve way-finding to parks and public spaces by installing unique directional signage along roadways and at every park entrance so that users and passers-by can easily identify public facilities.
6. Adopt park development standards to identify minimum improvements within all parks, with unique consideration of the location relevant to user population characteristics.
7. Incorporate handicap accessible ramps, play structures, and equipment in every park.



4.10.6 Diversity and Availability of Recreational Programs

Objective:

Maximum availability and utilization of recreational programming.

Implementation Actions:

1. Create recreational programs for both young and mature adults, including fitness and exercise classes, visual and performing arts, etc.
2. Expand, renovate, and provide new facilities for recreational programs so as to increase the type and numbers of activities and to attract new users.



Existing Parks

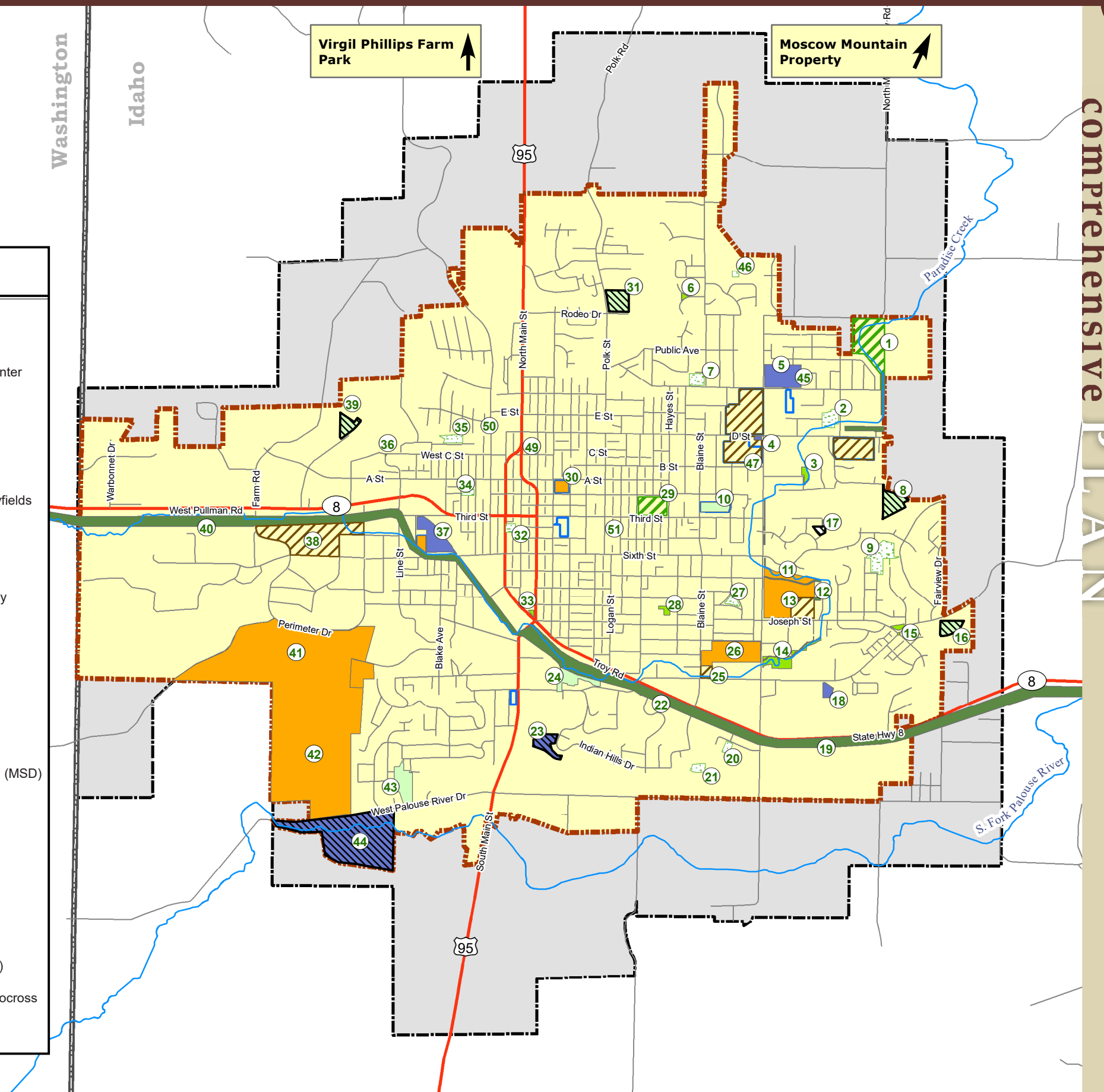
PARKS, SCHOOLS, & LANDMARKS

- Plaza/Pocket Park
- Neighborhood Park
- Community Park
- Linear Park/Pathway
- Special Use Park and Facility
- City Open Space
- Semi Public Park
- Semi Public Open Space
- Undeveloped Park
- School

BOUNDARIES, WATER, & INFRASTRUCTURE

- City Limits
- Area of City Impact
- State Border
- Paradise Creek and S. Fork Palouse River

#	Park Name
1	Mountain View Park
2	Kiwanis Park Hordemann Pond
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40	Bill Chipman Trail
41	University of Idaho Golf Course
42	Arboretum and Botanical Garden (U of I)
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Pocket Park Service Areas

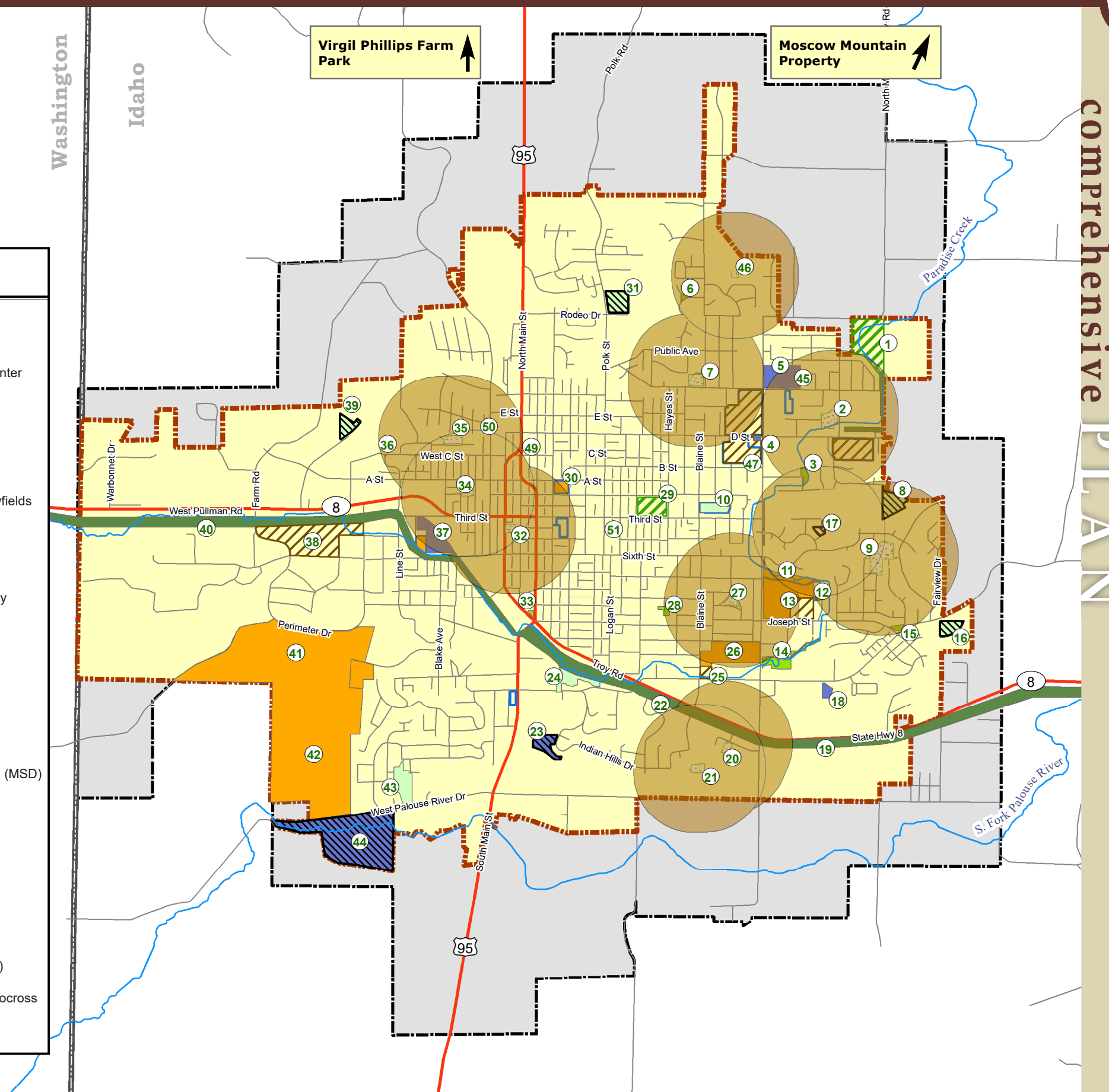
PARKS, SCHOOLS, & LANDMARKS

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0 0.1 0.2 0.4 Miles



Neighborhood Park Service Areas

PARKS, SCHOOLS, & LANDMARKS

- Plaza/Pocket Park
- Neighborhood Park
- Community Park
- Linear Park/Pathway
- Special Use Park and Facility
- City Open Space
- Semi Public Park
- Semi Public Open Space
- Undeveloped Park
- School

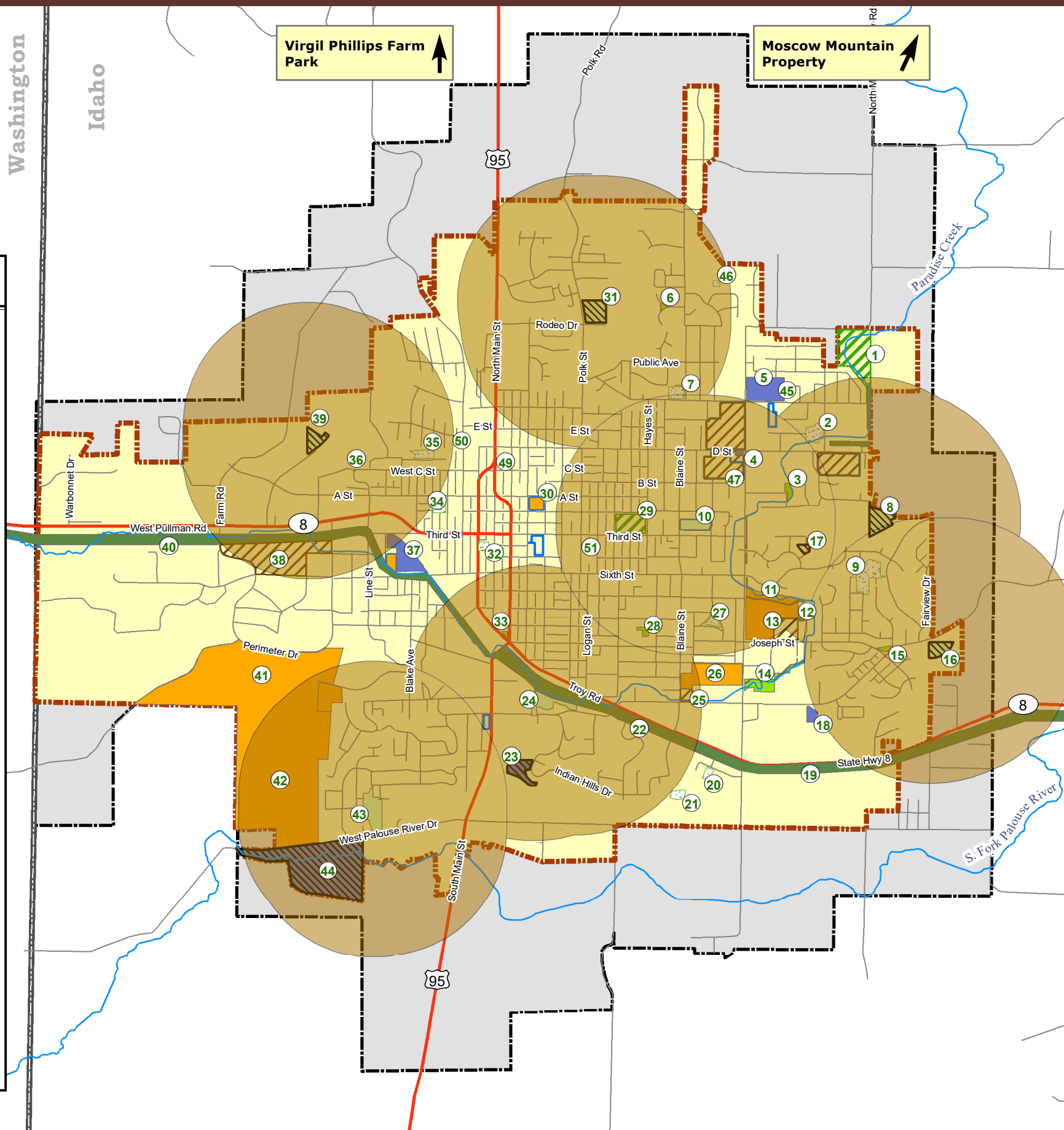
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Community Park Service Areas

PARK SERVICE AREAS

Community Park Service Area (1 mi)

PARKS, SCHOOLS, & LANDMARKS

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- Neighborhood Park
- Community Park
- Linear Park/Pathway
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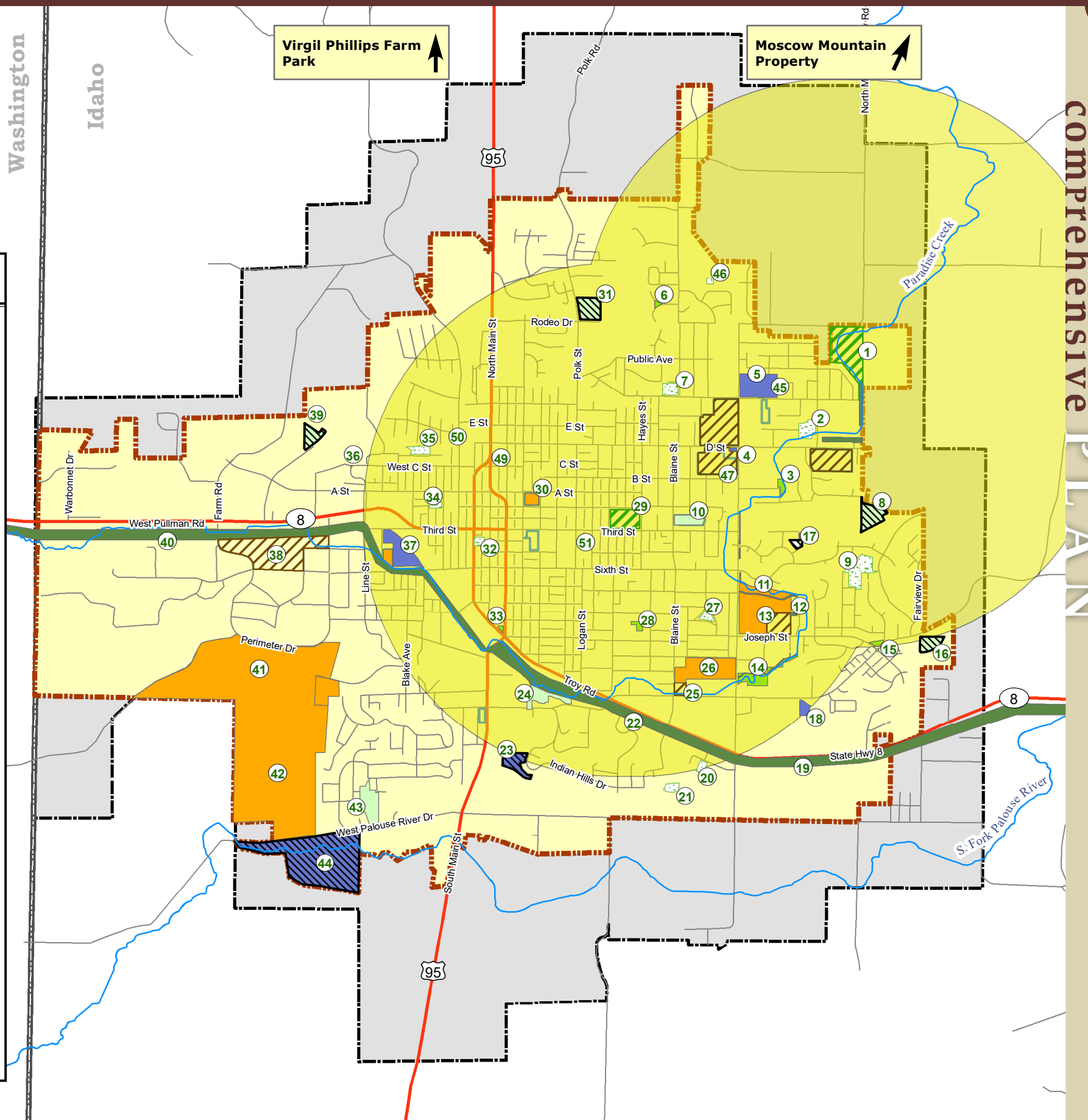
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Pathway System

- Bike Paths/Pedestrian Walkways
- Future/Proposed Paths
- Park Pathways
- Pathways - Unpaved
- University Pathways - Unpaved

PARKS, SCHOOLS, & LANDMARKS

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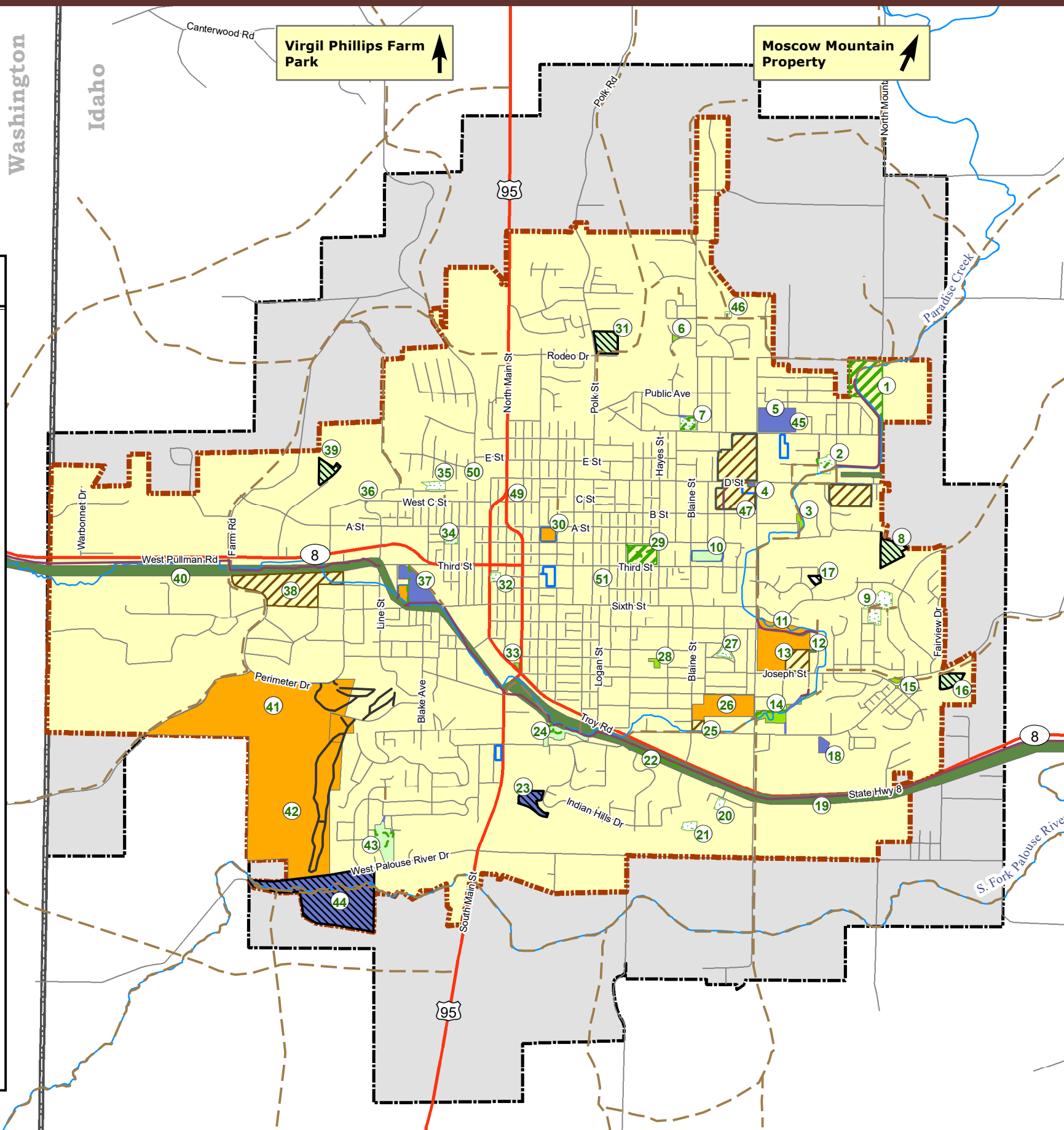
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comprehensive PLAN

Areas of Need

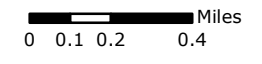
- Community Park Need Area (1 mi)
- Neighborhood Park Need Area (1/2 mi)

PARKS, SCHOOLS, & LANDMARKS

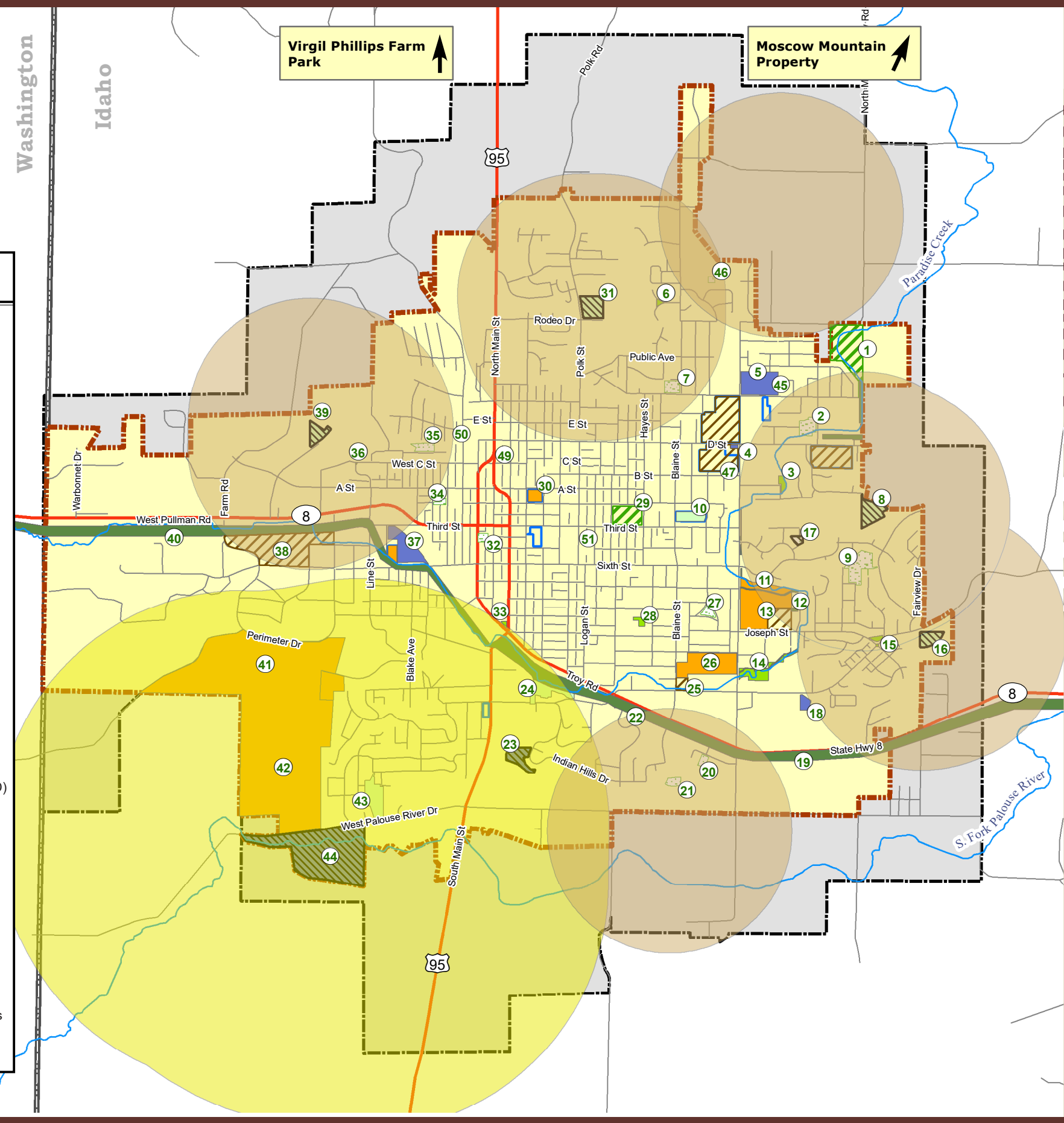
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comprehensive PLAN

Public Utilities, Services, and Growth Capacity

COMPREHENSIVE PLAN

5.1 INTRODUCTION

This Chapter evaluates the City's projected growth in light of its available water supply, public facilities, infrastructure, services, and available land for development and redevelopment.

This effort is guided by the following general goals:

- ♦ Provide for sustainable growth while conserving natural resources and enhancing the character of the community and region.
- ♦ Provide for the orderly and efficient delivery and location of public facilities, utilities, and services to the residents and businesses within the community.
- ♦ Advocate and practice the sustainable management and development of local and regional water resources and supplies to meet the needs of both current and future residents.
- ♦ Direct growth to areas that can be most efficiently and economically served with public services and utilities while planning for future capacity needs.

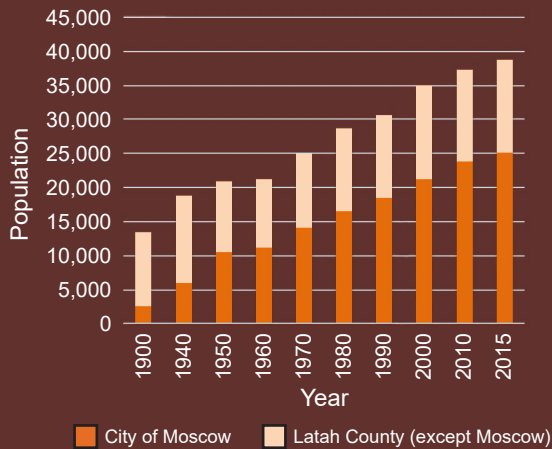
5.2 REGIONAL CONTEXT

5.2.1 Population of Moscow and Latah County

Moscow is the county seat and largest city in Latah County. As of 2017, the U.S. Census estimated that Moscow is home to over 64% percent of the total population of Latah County. Moscow is one of relatively few cities set in a rural context that has consistently increased its share of county population for more than 100 years. In 1900, Moscow's 2,484 residents comprised just over 18% percent of the overall County population of 13,451. Since then, Moscow's population has multiplied by a factor of ten, while the County's population (including the unincorporated County and all cities except Moscow) has only grown 29.4 percent during the last 117 years – an annual growth rate of approximately 21 one-hundredths of one percent. See [Figure 5.1, Growth of Moscow Relative to Latah County](#), (next page).



Figure 5.1:
Growth of Moscow Relative to
Latah County



5.2.2 Regional Water and Sewer Infrastructure

Water and sewer services within the region generally are provided via individual private wells and septic systems, or by publicly or privately owned systems. Each of the county's nine municipalities has water and sewer services available to their residents. Several small, privately-owned water and sewer systems operate within the County to serve mobile home parks and other unincorporated developments. The Southeast Moscow Water and Sewer District is the only nearby independent water and sewer district that is connected to the Moscow Water Reclamation Conveyance system and Water Reclamation & Reuse Facility.

The first goal of Latah County's comprehensive plan calls for the unincorporated County to preserve its rural character, with most growth to

be accommodated in and around incorporated Cities. As the County's most populated city, Moscow is the logical place for most of the County's growth to occur. Therefore, Moscow's ability to provide water and sewer service to new development is critical to its role as a growth center.

The University of Idaho operates its own water system and sewer collection system, but does not offer service off-campus. Moscow's Water Reclamation & Reuse Facility receives and treats the University's wastewater and returns a portion of it to the University for re-use for irrigation during the growing season.

5.3 POTABLE WATER

5.3.1 Generally

The City provides potable water service to its residents and businesses. Groundwater is the sole source of the City's potable water supply which comes from both the Wanapum (shallow) and Grande Ronde (deep) aquifers. These aquifers are currently reached by five operating wells. Combined, these wells currently have the potential to produce up to 8.5 million gallons per day (MGD). Moscow's water consistently meets U.S. Environmental Protection Agency's standards for quality, although some taste and odor issues (i.e. iron) have been identified, especially within the Wanapum aquifer.

In 2012 the City adopted a Comprehensive Water System Plan which details all the components of the drinking water system (supply, treatment, storage and distribution). Key water system issues affecting growth that are general enough



to be addressed by this Plan include:

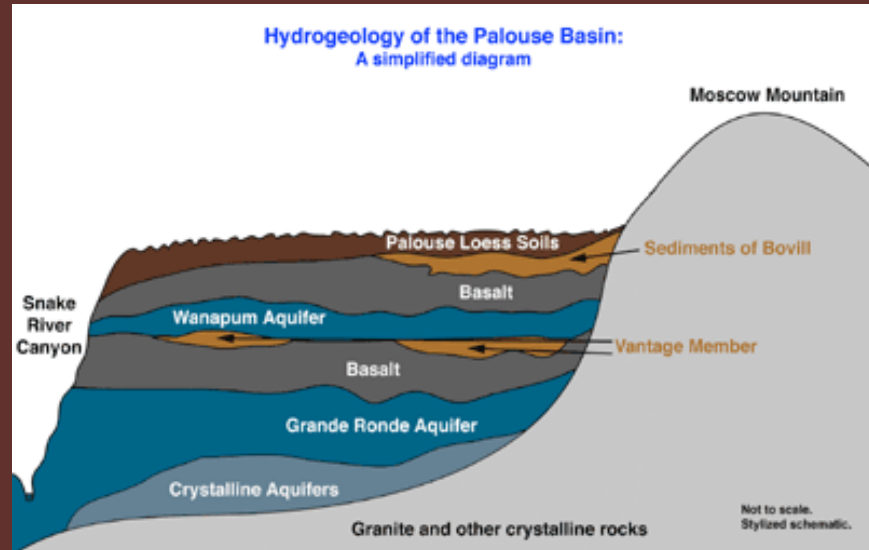
- ♦ Moscow relies on groundwater as its sole source of drinking water. The aquifers below Moscow have historically experienced a decline in water levels which might limit growth if additional supply and conservation measures are not implemented.
- ♦ Supply, treatment, distribution, and storage facilities are aging and will need to be replaced, and new components will need to be added to the water system as Moscow grows.

5.3.2 Supply

The City, University of Idaho, and Latah County are users of both the Grande Ronde and Wanapum aquifers. The city of Pullman, Washington State University and other cities and towns outside Latah County also use the Grande Ronde Aquifer. While the aquifers have been the subject of many studies over the last fifty years, there are still data gaps that need to be filled.

The most current evidence suggests that the Grande Ronde aquifer does not experience significant recharge likely due to the thick basalt layers and sedimentary interbeds between the aquifer and the ground surface. See **Figure 5.2, Hydrogeology of the Palouse Basin**. By contrast, the Wanapum aquifer does experience recharge, but the recharge rates and locations are not yet well understood. Ultimately, the City may need to rely more heavily on the Wanapum aquifer or other sources (yet to be identified and/or developed) for its potable water supply. There have been recent discussions regarding the potential development of a surface water storage reservoir that could be utilized

Figure 5.2:
Hydrogeology of the Palouse Basin



Palouse loess soils are soils composed of fine-grain silt that was deposited in the region by wind.

Sediments of Bovill are subsurface soils composed of clay, silt, sand, and gravel. These deposits can be as much as 40 feet thick.

Basalt layers are relatively solid masses of rock that formed as lava cooled.

Vantage members are subsurface soils composed of interlayered sand, silt, and clay. Coarse grains of quartz and feldspar are common, as are wood fragments. Vantage members are up to 300 feet thick under Moscow, and thin to approximately 20 feet thick under Pullman, Washington.



Figure 5.3:
Water Well



Source: J-U-B Engineers, Inc.

for direct treatment and consumption, or active aquifer recharge enhancement to supplement drinking water supply. A feasibility study for surface water storage was completed in 2013 and the topic continues to be studied.

The City currently obtains water from five groundwater wells with a new well number 10 currently under development. See **Figure 5.3, Water Well**. The three primary wells, No. 6, No. 8, and No. 9, are deep wells that tap the Grande Ronde aquifer (the deeper of the two regional aquifers). Currently, the Grande Ronde wells produce approximately 65 to 70 percent of the City's water. Wells No. 2 and No. 3 are located

within the Wanapum aquifer (the shallower of the two regional aquifers). These wells are 200 feet or more below ground level and produce water generally of lesser quality than that of the Grande Ronde.

The City's current operating wells are capable of producing approximately a combined 5,895 gallons per minute (gpm), or about 8.5 MGD. Individual production rates vary from 825 gpm to 2,300 gpm. See **Table 5.1, Individual Well Production**.

Water demand varies considerably from year to year and does not necessarily correlate with population. The highest demand is in the summer months when a large portion of the water is being used for irrigation. Yearly production has ranged from 822 million gallons per year (MGY) to 878 MGY in the period between 2012 and 2017. Maximum daily demands for the same period ranged from 4.6 MGD to 5.2 MGD. See **Table 5.2, Total Water Production**, (next page).

The City's current production capacity exceeds the maximum daily demand when all wells are operational. During peak irrigation months (July and August), demand is approximately 4.5-5 MGD. At present there are theoretically three

Table 5.1
Individual Well Production

Well	Instantaneous Production (gpm) ¹	Maximum Potential Daily Production (gallons)
Well No. 2	825	1,188,000
Well No. 3	1,000	1,440,000
Well No. 6	920	1,324,800
Well No. 8	850	1,224,000
Well No. 9	2,300	3,312,000
TOTAL WELL PRODUCTION	5,895	8,488,800

¹ Instantaneous production estimated from 2017 production data.



Table 5.2
Total Water Production ¹

Year	Annual Production (MG)	Maximum Daily Production (MG)
2012	861	4.6
2013	851	5.2
2014	864	4.9
2015	878	5.2
2016	844	4.8
2017	822	5.2

¹ Source: City of Moscow production data

MGD of potential excess water production. However, the Idaho Department of Environmental Quality requires capacity to be calculated based on all sources, with the largest source out of service. When well No. 9 (the City's largest source) is removed from production, the production capacity is reduced to 5.17 MGD, leaving only 0.58 MGD of excess production capacity. Therefore, if well No. 9 becomes inoperable, production must be nearly fully utilized to meet current maximum daily demand. To address this production limitation, the City began development of well No. 10 in 2015. Well drilling was completed in 2016 and early production testing indicated a production capacity in excess of 3,200 Gallons per minute making it the highest production well in the City's system.

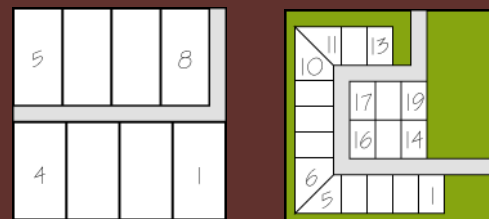
5.3.3 Aquifer Recharge

Although the location of natural recharge areas to the Wanapum aquifer are not yet known, it is anticipated that continuing study may eventually identify these recharge areas. The City should work closely with Latah County to promote development regulations that preserve open space to facilitate natural recharge such as requiring clustered development with preserved common open space and encouraging green infrastructure where appropriate. See [Figure 5.4, Clustering to Preserve Open Space](#).

5.3.4 Storage

Moscow has four storage reservoirs with a combined total storage of 4.8 million gallons. The reservoirs consist of two elevated storage tanks and two ground-level storage reservoirs. See [Figure 5.5, Water Storage](#), (next page). While storage capacity is adequate to meet current demands, a detailed analysis of the storage volume should be completed as part of the comprehensive water master plan.

Figure 5.4:
Clustering to Preserve Open Space



Lawn areas are typically less pervious than natural areas. They are also often treated with fertilizers and pesticides. The clustered development pattern allows for 40 percent of the site to remain in its natural state.

Source: Kendig Keast Collaborative

Figure 5.5:
Water Storage



Source: J-U-B Engineers, Inc.

5.3.5 Treatment

All water produced by the City is disinfected with chlorine. Additionally, the City currently treats water from wells No. 2 and No. 3 to remove high levels of iron and manganese using a sand filter system. A 2004 water quality assessment identified several potential taste and odor contributors including sulfates, iron, and manganese (from wells No. 6, No. 8, and No. 9) and the presence of biofilm in the distribution system.¹ Although the taste and odor problems are not known to present any health risks, their presence does generate some customer complaints. Complaints about taste and odor continue to decline because the City conducts system-wide flushing twice a year, and also has automatic flushing stations throughout the distribution system that flush more frequently to prevent taste issues associated with iron.

5.3.6 Distribution

City water is distributed in mains ranging from 6 to 24 inches in diameter, although the majority of the lines are 6 inches in diameter. A large portion of the system is served by gravity, but there are a number of higher elevation developments that require booster stations to maintain minimum pressure and fire flow requirements.

It is generally preferable to promote the development of areas that can be efficiently and economically served by existing utilities over areas that cannot. As such, when development requires booster stations and other infrastructure enhancements to support water distribution, the cost of those improvements should be borne by the developer. It is also the City's policy to require developers to extend utility lines to the boundaries of adjacent properties to ensure logical and orderly development of the City's utility systems.

5.3.7 Water Rights

The constitution and statutes of the State of Idaho declare that all of the waters of the state, when flowing in their natural channels, are public waters.² The right to the "beneficial use" of water is a property right that can be held by a private

- 1 City of Moscow, Distribution System Water Quality Assessment & Review of Operational Practices, Technical Memorandum No. 1, J-U-B Engineers, Inc. 2004.
- 2 This includes the waters of all natural springs and lakes within the boundaries of the state, and ground waters of the state.



party like any other property right. The so-called “water right” is the right to divert public waters and put them to a beneficial use, in accordance with one’s priority date (the date of the authorized diversion). This doctrine, called prior appropriation or “first in time - first in right,” is the basis for administering water rights in Idaho. Generally, water rights to cities are granted and allocated by the State. The last time the State granted a water right to Moscow was 1980.

5.3.8 Pullman-Moscow Ground Water Management Plan (Palouse Basin Aquifer Committee)

Aquifer water level decline has been observed for decades within the Palouse Basin. Groundwater withdrawals by all users must be managed in order to keep the aquifers available for continued use. To this end, the City has participated in the Palouse Basin Aquifer Committee (PBAC) for over 30 years. The purpose of this group is to share information among major water users and develop groundwater management strategies.

In 1992, PBAC set target limits for its members of one percent growth, compounded yearly, with pumping increases based on a five-year moving average starting with the 1982 to 1986 period, and a cap of 125 percent of the 1981 to 1985 production average. These numbers are set out in the Pullman-Moscow Ground Water Management Plan (1992), which also includes a number of other actions that Moscow agreed to take with regard to water conservation. See [Figure 5.6, Water Action Plan](#).

The 125 percent cap in the action plan is approximately 875 MGY. Over the five-year period between 2010 and 2015, Moscow’s

Figure 5.6:
Water Action Plan

1. Attempt to limit annual aquifer pumping increases to one percent (1.0%) of the pumping volume based on a five (5) year moving average of the pumping starting with 1986 (745mg). Attempt to limit the accumulated total pumping to a targeted maximum of 125% of the 1981-1985 average (increase from 700 mg to 875 mg).
2. Continue a conservation based rate structure for single family residential customers.
3. Promote programs to encourage conservation and sustainable water use by multi-family residential and commercial uses.
4. Continue the formal Conservation Program which includes actions such as offering free water conserving devices to customers and consider adding a toilet replacement rebate program.
5. Continue membership in COMMITTEE with funding for studies and research projects as authorized by the City Council.
6. Continue program to update failing consumer water meters.
7. Continue to participate in education programs (i.e. schools, bill stuffers, cable TV)
8. Encourage water recycling at building permit level for major water users.
9. Continue to make city wastewater treatment plant (WWTP) effluent available to the University of Idaho in accordance with the City’s agreement with the University.
10. Continue use of WWTP effluent for irrigation at WWTP in accordance with the City’s agreement with the University.
11. Continue 24-hour daily recordings of water levels and production.
12. Continue input to the COMMITTEE of City’s monitoring efforts.
13. Comply with all State and Federal regulations pertaining to hazardous materials, storm water disposal, solid waste disposal, sewage sludge disposal, non-point source, household contributions, and well construction and abandonment.
14. Explore possible expansion of WWTP effluent reuse.
15. Continue examination of alternate water supply options as approved by the City Council.

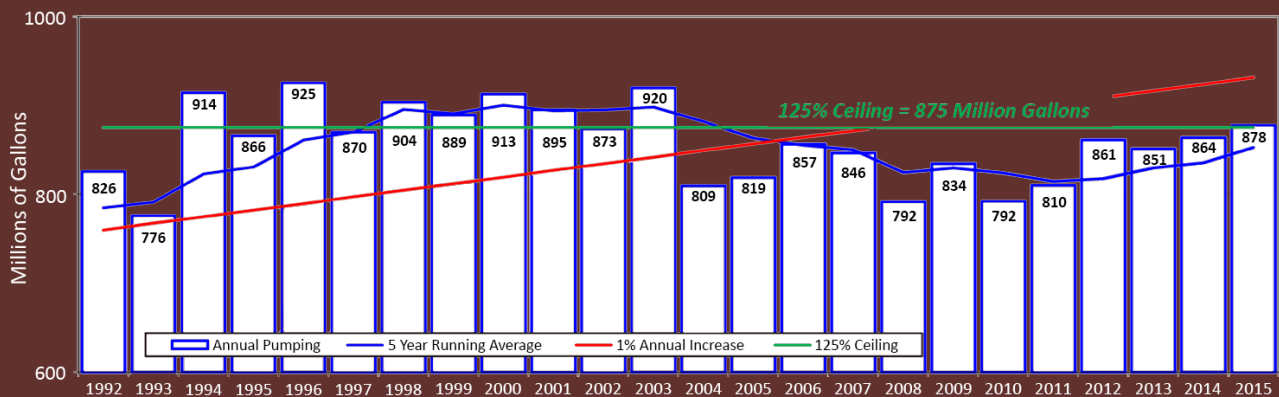
Source: Palouse Basin Aquifer Committee



production exceeded 875 MGY only in 2015, when the City pumped 878 MGY. See **Figure 5.7, Moscow Water Production History**.

While it is anticipated that the City will have sufficient production capacity to meet current and future demands after the development of well No. 10, the City's recent production rates over the last 4 years have been just below the City's PBAC voluntary production limit. Water demand correlates only loosely to population, but 864 million gallons pumped in 2014 served a population of approximately 24,923 people. Of course, some 1,800 or so lived on-campus, and as a result, did not use City water all of the time. To account for the fact that some of the student water demand was drawn from the City, this analysis will use an estimated figure of 23,123 people who were served by City water in 2014. The result is about 37,365 gallons per person per year. At a voluntary production cap of 875 MGY, the City can only reasonably accommodate a limited amount of new residential growth without reducing the per capita water consumption in some manner.

Figure 5.7:
Moscow Water Production History



Source: Palouse Basin Aquifer Committee

Of course, per capita water demand for one year is not an adequate measure for planning purposes due to seasonal changes in irrigation needs, varying commercial and industrial demands, and fire suppression which can have significant impacts on overall water consumption. However, the calculation does suggest that the City should aggressively pursue additional water conservation and the development of supplemental water supplies to meet future needs.

Therefore, if the City wishes to maintain the existing voluntary production limits, providing for future growth will require additional conservation, the expansion of effluent irrigation, and the investigation of alternate supply (such as surface



water sources and/or aquifer storage and recharge) to reduce per capita consumption and maintain a reliable and sustainable source of water.

5.3.9 Water Conservation Strategies

Since the City has agreed to restrict its aquifer withdrawals to levels that are near what it is currently utilizing, perhaps the best and most economical way to increase the capacity of the City to accommodate growth is to use its existing water resources more efficiently.

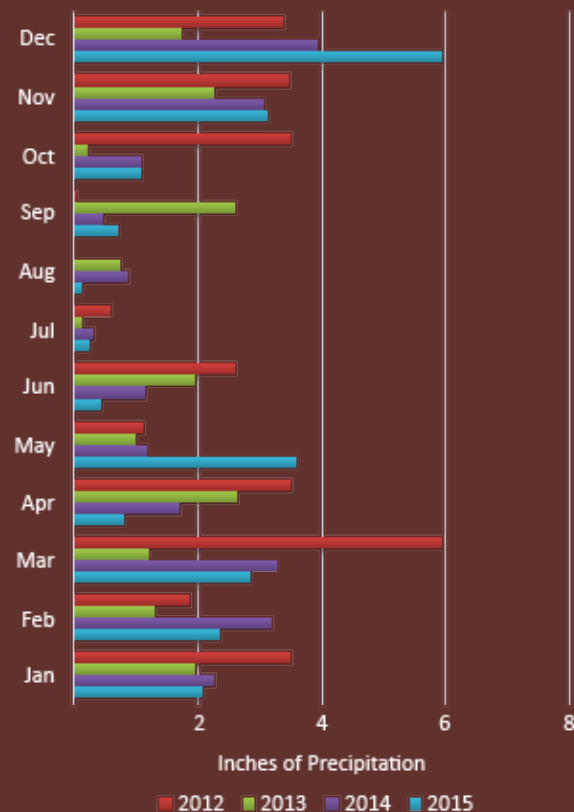
The City currently invests \$140,000 annually to promote water conservation activities within the City including lawn reduction (“irrigation efficient”) and low-flow toilet rebate programs. Additionally, since 2004 a revised City ordinance has limited the permitted times for irrigation activities during the watering season and prohibited water wasting activities such as watering impervious surfaces. The City has also enhanced metering activities and implemented leak detection and repair programs to minimize unaccounted water losses within the system.

Available evidence suggests that during the last four years, total water use in the City has held relatively steady, even in the face of population growth, new development, and declining rainfall during the peak irrigation season. See **Figure 5.8, Moscow Precipitation, 2012-2015**.

While the City has successfully reduced water usage for irrigation in recent years, land development patterns that reduce the need for irrigation could also assist in promoting efficient water use. Clustering suburban and rural development on small lots surrounded by large areas of preserved open space can reduce irrigation demands if the preserved open space is planted with native, drought-tolerant species. The City should consider the development of zoning provisions that allow for residential clustering in rural and suburban districts.

Voluntary Approaches. The City provides tips on indoor and outdoor water conservation, conducts free irrigation audits, formally recognizes water-

Figure 5.8:
Moscow Precipitation, 2012-2015



PRECIPITATION SUMMARY		
Year	Average Monthly Precipitation	Average Monthly Precipitation During Irrigation Season (Apr. 1 to Oct. 31)
2012	2.46 in.	1.62 in.
2013	1.48 in.	1.33 in.
2014	1.87 in.	0.96 in.
2015	1.95 in.	1.01 in.

Source: PRISM database (<http://prism.oregonstate.edu/>)



conserving landscapes, and gives away water-saving devices to municipal water customers -- all in order to reduce water demand. Additionally, rainwater harvesting and grey water reuse for irrigation purposes should be promoted as means to reduce potable water consumption.

Effluent Re-use. Effluent re-use systems are water systems that re-use treated effluent from the wastewater treatment plant for irrigation and other uses that do not require potable water. As a result, groundwater can be used twice before it is returned to the environment at the surface. The increase in efficiency reduces the need to draw water from the aquifer. Along with well designed irrigation systems, effluent re-use can also help to reduce nutrient loads on streams because the wastewater is applied to land (where plants can consume the nutrients) instead of directly into a stream.

The City currently supplies the University of Idaho with effluent for irrigation purposes. However, there is potential to expand this system to reach other areas of the City. As part of the comprehensive water master plan, the City should consider the feasibility of installing a wider network for the effluent re-use distribution system.

Education. The City has beautiful Wisescape demonstration projects which surround public buildings. The City should continue to promote this project to encourage homeowners to landscape in a manner that reduces water demands. Festivals and events should be held several times per year to bring people to the Wisescape Garden and educate them about xeriscape techniques and other water conservation measures.

Public-Private Cooperation. The City should work with developers to identify locations for new wells and storage facilities to serve new development. It should also explore the feasibility of rainwater and snowmelt harvesting for large commercial buildings. This would involve capturing the runoff from building roofs by channeling it into storage tanks that connect to the irrigation system. This may present some challenges as the vast majority of precipitation events in Moscow occur outside of the typical irrigation season, and therefore, such systems may require very large storage systems to be an effective water conservation measure. If deemed feasible, the City could encourage rainwater/snowmelt harvesting through rebates, tiered rate structures that make harvesting economically attractive, and/or direct participation in financing through low-interest loans, rebates, LID's, or other financial devices.

5.4 SANITARY SEWER

5.4.1 Generally

The City provides sanitary sewer service to its residents and businesses through the operation of a single Water Reclamation and Reuse Facility (WRRF) located on the west side of the City along Paradise Creek. After treatment, the City's



waste water effluent is discharged to Paradise Creek under a National Pollutant Discharge Elimination System (NPDES) permit or diverted to the University of Idaho for land application on the campus.

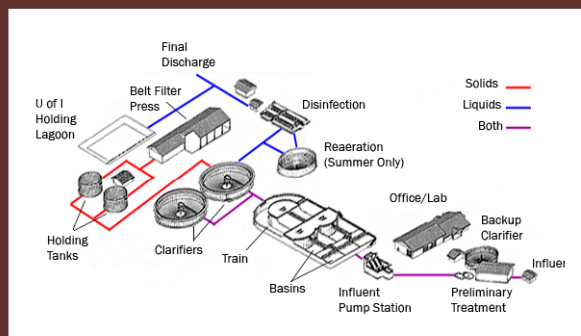
Moscow last prepared a Comprehensive Sewer System Plan in 2011 to plan for improvements at the Water Reclamation and Reuse Facility (WRRF) and water reclamation conveyance system that were needed to meet capacity and regulatory requirements. The plan identified five phases of construction, four of which have been completed with the fifth phase currently under study, pending potential revisions to temperature standards for Paradise Creek.

The Comprehensive Sewer System Plan identified four specific areas that have capacity issues. One of the largest areas of capacity constraint was the parallel trunk lines that lead from the WRRF to the area near the intersection of the Troy Highway and U.S. 95. This section of sewer main was replaced in the fall of 2017.

5.4.2 Water Reclamation and Reuse Facility (WRRF)

Moscow has spent the last 15 years modifying and upgrading the WRRF to meet current needs and plan for future growth. See **Figure 5.9, Water Reclamation and Reuse Facility Diagram**. The design capacity of Moscow's sewer plant is 4 MGD, with a peak capacity of 10 MGD. The current average existing flow received by the plant ranges between 2 and 2.25 MGD or approximately 56 percent of the design capacity. Although the City's stormwater conveyance system is separate from its sewer system, infiltration and inflow of stormwater remains an issue throughout the City as rain and snowmelt enters the sanitary sewer collection system and increases the flow into the WRRF. For example, when a six-inch snowfall is followed by a day of rain, flows into the WRRF have been observed to

Figure 5.9:
Water Reclamation and Reuse Facility Diagram



Influent comes from drains in homes, businesses, and institutions. The treatment process begins at the preliminary treatment building, in which large debris is shredded and removed. The remaining sewage is pumped into basins, where anaerobic bacteria (bacteria that do not "like" oxygen) consume nutrients in the sewage. From the basins, the sewage flows to the train, where aerators add oxygen and aerobic bacteria (bacteria that "like" oxygen) continue to consume nutrients. From the train, the sewage flows to the clarifiers, where the bacteria settle and clear liquid forms at the surface. From the clarifiers, the clear liquid flows to the disinfection facility, where it is disinfected and discharged as effluent.

Source: City of Moscow Public Works Dept.; J-U-B Engineers, Inc.



double – from 2.25 MGD to 5.5 MGD. Continued efforts to reduce infiltration into the sanitary sewers will help extend the plant’s functional capacity to serve Moscow’s residents.

5.4.3 Collection

Sewage collection is accomplished principally by a gravity-fed system, with mains ranging between 6 and 24 inches in diameter. A pump station located south of Palouse River Drive pumps sewage from the area south of Lauder Avenue through a pressure line to Main Street and Taylor Avenue.

Studies in the early and mid 1990s evaluated the inflow and infiltration into the sewer system. At that time, there was significant inflow and infiltration into the collection system after storms and significant snow melts. Numerous improvements were completed based on this evaluation, and the City continues to replace sewer mains and manholes to prevent inflow and infiltration of stormwater. In addition to the problem of inflow and infiltration, there are many miles of old, structurally deficient pipe in the system that is in need of replacement.

According to the 2011 Comprehensive Sewer System Plan, capacity challenges in the collection system include:

- ♦ The trunk line from Eighth and Jackson Street to the WRRF (increased capacity currently under construction); and
- ♦ The collector on White Avenue between Blaine and the Troy Highway; and
- ♦ The collectors leading from the intersection of North Polk and Public Street to Main Street following Van Buren, Morton, Adams, and E Streets; and
- ♦ The collectors on Sweet Avenue between U.S. 95 and Railroad Street.

Some of the future growth areas identified in this Plan will be served by the areas where the collection system currently faces capacity challenges. These challenges must ultimately be resolved in accordance with the Comprehensive Sewer System Plan to accommodate anticipated growth.

5.5 STORMWATER CONVEYANCE AND TREATMENT

5.5.1 Generally

The City collects and conveys stormwater through an extensive system of curbs, gutters, catchment basins, and public storm sewers throughout the City. This storm sewer system collects and conveys stormwater into local waterways, including Paradise Creek and the South Fork of the Palouse River. Newer development is served by similar curb, gutter, and storm sewer systems, but also includes detention facilities that reduce stormwater runoff rate and provide some treatment to the water before it is discharged to local waterways. **Figure 5.10, Stormwater System Statistics**, describes the details of the City’s stormwater system as of October 2018.



The City does not currently have a comprehensive stormwater management plan. In the absence of this plan, the focus of evaluation of stormwater impacts has been generally limited to the area of proposed growth. Existing bottlenecks, stormwater quality regulations, and flood mitigation measures are challenges that must be addressed with regard to stormwater collection and treatment facilities in existing areas, as well as areas of new growth. Therefore, it is recommended that the City develop a comprehensive stormwater management plan.

5.5.2. Problematic Areas

The City has identified two areas that regularly have stormwater drainage issues:

- ♦ Sixth Street from Main Street to the discharge at Paradise Creek in the vicinity of Deakin Street regularly exceeds its hydraulic capacity and causes ponding at the intersections of Sixth Street and Main Street and Sixth Street and Jackson Street.
- ♦ Hogg Creek drains the area between U.S. 95 and Mountain View Road north of the center of town. Improvements to drainage in this area must be considered and addressed as properties to the north are developed.

See [Map 5.1, Potential Stormwater Constraint Areas](#).

Most of the areas identified for growth to the south, east, and northeast of the City are very consistent in nature. These areas are in gentle to relatively steep slopes ranging from 3 to 25 percent grade. Soils are generally silty loam, which tends to have low permeability rates. See [Map 5.2, Growth Areas](#).

Most areas will require moderate earth-moving activities to develop roads and housing sites. Stormwater collection systems should be relatively simple to construct, as most sites are in relatively close proximity to a natural waterway.

The local waterways, Paradise Creek and the South Fork of the Palouse River, are key elements in the City's stormwater system. As the primary drainage way, care needs to be taken not to hydraulically overload the waterways. Both are susceptible to flooding during peak runoff events.

Paradise Creek is the most heavily developed watershed within the City. Homes in many of the older neighborhoods are developed up to the channel's edge thus limiting the possibility of widening the channel to increase capacity. As one of the anticipated future development areas exists upstream from these presently developed areas, stormwater runoff from future development within the Paradise Creek drainage must be detained in accordance with the City's requirements to minimize the potential for increased downstream flooding and property damage.

Figure 5.10: Stormwater System Statistics

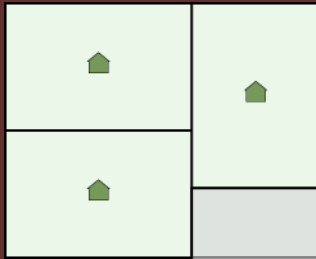
The City owns and operates 54,563.7 miles of stormwater mains, which are accessed by 974 manholes. The drainage system also includes 7.56 miles of other drainage ways, 24 detention facilities and 2,044 catch basins. The City's maintenance facilities include an operations/shop facility, three sweepers, and a flush truck.

Source: City of Moscow Public Works Dept.



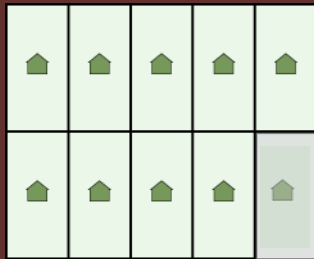
**Figure 5.11:
Density and Stormwater
Runoff**

Community A:
1 Acre, 3 Houses



Stormwater Runoff:
21,400 ft.³ per acre; or
7,133 ft.³ per unit.

Community B:
1 Acre; 9 Houses



Stormwater Runoff:
42,900 ft.³ per acre; or
4,767 ft.³ per unit (better).

Source: U.S. Environmental
Protection Agency.

The City has received notice by the U.S. Environmental Protection Agency (EPA) indicating that the City of Moscow has been listed as a Phase II Stormwater program entity under the Clean Water Act NPDES system. Under this listing, it will require that stormwater quality meet minimum requirements for new and existing discharges to Paradise Creek and the South Fork of the Palouse River.

It is anticipated that the cost of meeting stormwater program requirements will be significant. A comprehensive stormwater management plan for the entire City should include an examination of water quality issues. In order to comply with the Phase II program requirements, the City anticipates the need to expend several million dollars in stormwater infrastructure improvements and supporting facilities, vehicles, and equipment.

5.5.3 Development Patterns and Runoff

The pattern of development affects the total amount of stormwater runoff. **Figure 5.11, Density and Stormwater Runoff**, shows how relatively dense development results in less stormwater runoff on a per-dwelling-unit basis. Although the conventional wisdom is that larger lots are better from a stormwater management perspective because of their comparably larger permeable area, on a large scale, the more important factor is the amount of runoff per dwelling unit.

For example, 100 dwelling units developed at three units per acre results in an average of 713,300 cubic feet of stormwater runoff and consumes just over 33 acres. By comparison, 100 dwelling units at nine units per acre results in an average of 476,700 cubic feet of stormwater runoff and consumes only slightly more than 11 acres. As such, a higher density development pattern is more efficient, it also produces 43 percent less runoff.

Moreover, if only 100 dwelling units are needed to accommodate growth, and those dwelling units use only 11 acres (as opposed to, say, 33), then 22 acres can remain as permeable open space. Not only does the cluster development pattern save potable water compared to large-lot development, it also reduces stormwater runoff.



5.5.4 Detention, Retention, and Treatment

Detention/Retention. Detention and retention are two ways to reduce the flow of stormwater runoff by detaining it temporarily or retaining it in a basin. When stormwater runoff is slowed down, erosion is reduced and pollutants have an opportunity to settle out. Due to the relatively limited permeability of the soils in the area, retention is generally not a feasible option. However, the City does currently require stormwater detention for all new developments and redevelopment projects that include over 5,000 square feet of impermeable surface area. Such detained stormwater must be released at a rate no greater than the predevelopment condition. Stormwater detention should continue to be required either on-site or in a regional facility.

Bioswales and Constructed Wetlands. Bioswales and constructed wetlands are natural approaches to treating stormwater runoff. Both use plants to take up nutrients from the runoff and to trap other pollutants before water is released into streams and rivers. Constructed wetlands can also be built on the edges of retention basin as riparian zones. Trees slow the impact of rain by capturing rainfall in their canopy which can decrease storm water surge. The City should encourage the planting of large trees as part of stormwater mitigation.

5.6 PUBLIC SAFETY

5.6.1 Law Enforcement

The Moscow Police Department is a community-oriented police organization that provides around-the-clock law enforcement in the City and on the University of Idaho campus. The department currently employs 35 commissioned officers (a ratio of 1.4 officers per 1,000 population) and 8 civilian employees, and enjoys the support of many volunteers. The officer-to-citizen ratio is equal to comparably sized communities in western mountain states (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming).³ Moscow has historically enjoyed a very low crime rate.

5.6.2 Fire Protection and Emergency Medical Services

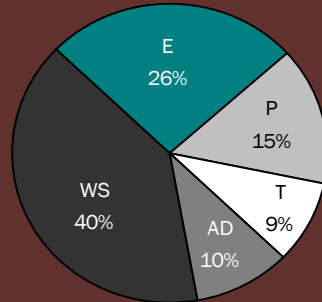
For more than a century, the Moscow Volunteer Fire Department (MVFD) has provided fire protection for the City. In addition, the Moscow Rural Fire Department provides service to approximately 128 square miles of Latah County.

3

See FBI Uniform Crime Report, Crime in the United States, 2006. Table 71, Full-Time Law Enforcement Officers by Geographic Region and Division by Population Group Number and Rate per 1,000 Inhabitants, 2015.



Figure 5.12:
ISO Fire Rating System Factors



The level of service for fire protection is based on national standards set out by the ISO. The ISO fire rating system is complicated, but in general the rating relates to available water supply, equipment, personnel, training, and alarm and dispatch systems.

Of these, water supply ("WS") is the most important single factor. The rating system compares the water supply available at representative areas of the community with the amount of water that would be needed to fight a building fire there. There are also some specific minimum requirements for water delivery that a jurisdiction must meet to achieve certain ratings.

The second most important factor for the fire rating system is fire equipment ("E"). The rating system considers specific minimum equipment requirements, plus additional equipment standards that are based on the numbers and types of structures in the community, plus regular testing of equipment.

The third most important factor is personnel and training ("P" and "T"). This refers to the number of firefighters that are available for an initial response and the speed at which they can respond. It also refers to the initial and ongoing training of the firefighters.

The fourth factor is the alarm and dispatch system ("AD").

Source: League of Minnesota Cities.

The City has a Class Three fire rating,⁴ which translates into greater safety and lower fire insurance premiums than many communities of similar size. See **Figure 5.12, ISO Fire Rating System Factors** (next page). The Department's response time is less than four minutes for 90 percent of its calls. The City's three fire stations are located within 1.5 miles of each other. See **Map 5.3, Public Safety Facilities**.

- ♦ Station No. 1, which includes EMS and training offices, is located at 603 South Main Street.
- ♦ Station No. 2, which includes the Department's training tower and live burn facility, is located at 1300 East White Avenue. The Moscow Rural Fire Department is co-located at this Station.
- ♦ Station No. 3, which opened in 2004, includes the Department's administrative offices. It is located at 229 Pintail Lane. See **Figure 5.13, Moscow Volunteer Fire Department Facilities**, (next page).

To serve new development at the existing level of service, it is anticipated that the Fire Department may have to construct at least one new fire station (equipped with a fire engine and an ambulance) and expand its fire training center in the next ten years.

5.6.3. 911 Dispatch

The City currently contracts its dispatching and E-911 responsibilities to the WhitCom Communications Center in Pullman, Washington that also provides these services throughout Whitman

⁴ The fire rating is ISO's Public Protection Classification (PPCTM) Program. ISO collects information on municipal fire-protection efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data using its Fire Suppression Rating Schedule. It then assigns a Public Protection Classification from one to ten. Class one represents exemplary public protection, and Class ten indicates that the area's fire-suppression program does not meet ISO's minimum criteria.



Figure 5.13:
Moscow Volunteer Fire Department Facilities



Station No. 1
603 South Main Street



Station No. 2
1300 East White Avenue



Station No. 3
229 Pintail Lane

County, Washington and Asotin County, Washington. Although WhitCom does not directly coordinate multi-jurisdictional disaster response, it does have the capability to broadcast to all of the jurisdictions it serves, which allows for such a multi-jurisdictional response.

5.7 SOLID WASTE AND RECYCLING

5.7.1. Solid Waste

Latah Sanitation provides solid waste pickup service by contract for residential and commercial customers on rural and urban routes throughout Latah County, including the City of Moscow. The City also operates the Solid Waste Processing Facility (SWPF), a decommissioned landfill that is located five miles east of Moscow on S.H. 8. The SWPF is home to the transfer station operations, an inert construction/demolition landfill, household hazardous waste collection, composting facility, and scrap metal and tire recycling.⁵ Solid waste that is not recycled or composted is hauled to a regional landfill in Boardman, Oregon, with which the City has a separate disposal contract.

To reduce the amount of material that must be landfilled, the City operates a Waste Reduction Education Program, which is coordinated by Moscow Recycling. This community-wide public education program encourages waste reduction, recycling, composting, and the safe disposal of hazardous waste. The program (which targets both residents and businesses) includes a six-part brochure series, a semi-annual newsletter, presentations, public tours, displays, and announcements in community newsletters, local newspapers, radio, and local television. The program also maintains the Waste Reduction Education Library, which contains periodicals, books, curricula, and videos available for

⁵ Household hazardous waste is collected year-round at the Solid Waste Processing Facility.

loan to students, teachers, and interested individuals.

5.7.2. Recycling

Through another public-private partnership, the City contracts out the operation of a full-service recycling center owned by the City.

Moscow Recycling currently accepts over twenty commodities at its 24-hour drop-off station, as well as via curbside collection services, and also pays for selected materials through a buy-back service.⁶ In 2016 the City began a curbside single-stream recycling program intended to increase waste diversion rates. As a result of this program change, the community participation rate increased from 35 percent to 85 percent and the volume of material collected increased over 135 percent. The single-stream program was extended to apartment units and other commercial entities in 2017. The City's work with Moscow Recycling has resulted in an extraordinary 50 percent diversion of solid waste from containers destined for landfills.

In 2018, China implemented new regulations on the import of low-grade and contaminated recyclables which has impacted the domestic recycling market since China has historically imported over 50% of the World's recyclables. These regulations have required Moscow to make modifications to the single stream recycling program which had resulted in the elimination of some types of low-grade recyclables which were previously accepted.

The City's recycling facility is nearly reaching capacity and expansion has been discussed to improve customer safety and access. As transport and disposal costs are likely to continue to rise into the future, the City should continue to promote and expand waste reduction and diversion programs where feasible. This will require meeting the challenge of balancing the operational costs of a multi-faceted solid waste recycling program with fluctuating regional and national markets for recyclable goods. Additional programs should be considered to further waste reduction including: composting food residuals; encouraging consumers and businesses to reduce the use of 'single use' bags and containers; continue to reduce the distribution of printed materials by giving residents digital options; and consider curbside yard waste collection.

5.8 CAPACITY FOR GROWTH

5.8.1 Available Land Versus Expected Demand

Moscow is generally surrounded by undeveloped agricultural land, however there are some natural and political boundaries that restrict where Moscow can grow. The most significant political boundary is the Idaho-Washington state

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On the commercial side, Moscow Recycling's "Reduce It!" Business Recycling Program has provided collection services for commercial recyclables since 1996. The program collects corrugated cardboard, aluminum cans, newspaper, office pack, and magazines.



line, which is the western boundary of the City. The most significant natural boundary is the local topography which, in limited areas such as the far south and east sides of the City, is too steeply sloped to be efficiently developed.

Additionally, the City's ability to expand is somewhat limited by its current Area of City Impact (ACI). The ACI is the area in which the City is most likely to expand in the future where land use planning is jointly administered by the City and Latah County. Currently, the ACI is 4.4 square miles in area (2,771 acres). That is nearly 65 percent of the land area that is currently within the City limits. Only 9.4 acres in the ACI are located within a mapped 100-year floodplain.

Assuming that residential development in the ACI will have an average density in excess of 3.5 units per acre, and that nonresidential development will make up roughly 35 percent of new development in the ACI, the ACI contains sufficient land area to accommodate development through 2030.

Table 5.3, Land Demand Scenarios, shows the amount of land that will be needed to ensure a healthy land market in 2030 in accordance with the population growth projection identified in *Chapter 1, A Vision for Moscow*. The table assumes an average household size of 2.25 that 70% of the households will be provided

Table 5.3. Land Demand Scenarios			
Growth Scenario	Residential	Nonresidential	Total Demand
2030 Population of 28,760	354 Acres	124 Acres	478 Acres

by multi-family housing and 30% of the households will be provided in single-family dwellings (this percentage is the average for the last 20 years) with average densities of 12 units and 3.5 units per gross acre respectively. The table also assumes no redevelopment that results in density increases, no growth in on-campus student housing, and 50 percent additional land to promote healthy land markets. Of course, all of these factors contribute to a likely over-estimation of the amount of land that will be needed in 2030.

While a sufficient quantity of land may be available within the ACI, the exact boundaries of the ACI may not accurately encompass all areas where future growth is anticipated to occur. Therefore, there will likely be a need to amend the ACI boundaries to better reflect where growth is anticipated to occur.

5.8.2 Growth Demand

It is anticipated that approximately 1,650 additional housing units will be needed by 2030. **Map 2.2, Future Land Use and Growth Plan**, shows the potential for approximately 8,568 conventional units and an additional 1,584 "urban" apartments and condominiums in redevelopment areas. There is more than sufficient land area designated for the market to meet housing demands



in all sectors through a combination of infill development, redevelopment, and expansion into the ACI. It also shows some land outside of the ACI that could be used for residential purposes. This land is designated in order to ensure that developing land is of reasonable size and shape.

Table 5.4, Growth Scenarios, (next page) shows the amount of development that can be accommodated by the land use designations shown by **Map 2.2, Future Land Use and Growth Plan**.

5.8.3 Growth Staging Plan

Map 5.2, Growth Areas, identifies the undeveloped or underdeveloped land in and around the City that is anticipated to be the areas into which the City will grow over the horizon of this Plan. New development is best accommodated and most economically served where transportation, utility, and other public services are readily available. Development of areas already within the City boundary and closer to developed roadways and public and commercial services should be encouraged prior to development in more outlying areas. Some of the anticipated significant growth areas include:

- Redevelopment of the area located between the University of Idaho campus and downtown should be a priority to provide new commercial and residential development in the core of the community.

**Table 5.4.
Growth Scenarios**

Land Use	Acres			Dwelling Units	Nonresidential Floor Area
	Total	Residential	Nonresidential		
Urban Mixed	18.3	18.3	18.3 (due to vertically mixed uses)	366 (at 20 u/a density)	398,574 sf. (at 0.5 FAR)
Business Park	17.8	-	17.8	N/A	230,000 sf. (at .3 FAR)
Suburban Commercial	9.3	-	9.3	N/A	101,059 sf. (at 0.25 FAR)
Urban Residential	87	87	-	864 (at 9.93 u/a density)	N/A
Auto-Urban Residential	1438	1438	-	5,033 (at 3.5 u/a density)	N/A
Suburban Residential	115	115	-	155.3 (at 1.35 u/a density)	N/A
Auto-Urban Commercial	245.8	-	245.8	N/A	4,282,819 sf. (at 0.4 FAR)
Industrial	143.6	-	143.6	N/A	3,128,043 sf. (at 0.5 FAR)
TOTALS	2,074.8	1,658.3 (includes Urban Mixed)	434.8 (also includes Urban Mixed)	6,418 units	8,140,495 sf.



- ♦ Development of the area between Farm Road and Baker Street north of “A” Street is a logical location for future development in an area with access to existing services that are not constrained by utility system limitations. The completion of “A” Street between Warbonnet Drive and Farm Road would provide the opportunity to serve the university-owned Auto-Urban Commercial property in the western part of the City.
- ♦ Continued development of the area between the Indian Hills subdivisions and east Palouse River Drive between South Main Street and Carmichael Road would provide opportunities for both residential and commercial development.
- ♦ Development of the area east of Mountain View between the Moser and Rolling Hills Additions.
- ♦ Expansion of the industrial park development in the area east of U.S. 95 and south of East Palouse River Drive.

Map 5.4, Potential Sewer Constraint, (previous page) shows the areas where the existing capacity of City stormwater and sewer collection and conveyance systems may be limited. These areas should be studied and addressed, if necessary, before significant new development occurs in areas that are served via these potentially constrained service lines.

5.9 PUBLIC UTILITIES, SERVICES, AND GROWTH CAPACITY

5.9.1 General Goals

- ♦ Provide for sustainable growth while conserving natural resources, protecting natural features and enhancing the character of the community and region.
- ♦ Provide for the orderly and efficient delivery and location of public facilities, utilities and services to the residents and businesses within the community.
- ♦ Advocate and practice the sustainable management and development of local and regional water resources and supplies to meet the needs of both current and future residents.
- ♦ Direct growth to areas that can be most efficiently and economically served with public services and utilities while planning for future capacity needs.

5.9.2 Potable Water

Objective:

Provide for a safe and sustainable water supply that meets the current and future needs of the community.

Implementation Actions:

1. Identify and develop alternative water supplies, such as surface water impoundments or aquifer storage and recovery. See Section 5.3.2, **Supply**.



2. Preserve aquifer recharge areas within the City's jurisdiction if and when they are identified. See [Section 5.3.3, Aquifer Recharge](#).
3. Continue to participate in Palouse Basin Aquifer Committee in the management of the regional resource. See [Section 5.3.8, Pullman-Moscow Ground Water Management Plan \(Palouse Basin Aquifer Committee\)](#).
4. Promote water-conserving development practices such as clustering on small lots with common open space that is not irrigated, the provision of smaller lot sizes and greater development densities where appropriate. See [Section 5.3.9, Water Conservation Strategies](#).
5. Continue and enhance existing water conservation programs and increase awareness of xeriscaping techniques to reduce irrigation demand. See [Section 5.3.9, Water Conservation Strategies](#).
6. Anticipate Department of Environmental Quality (DEQ) rulemaking that will address contaminants of emerging concern.

5.9.3 Sanitary Sewer

Objective:

Plan and provide for the orderly and efficient collection and treatment of waste water services to the community into the future while minimizing adverse impacts to the surrounding natural environment.

Implementation Actions:

1. Continue to implement treatment plant upgrades necessary to meet discharge permit requirements. See [Section 5.4.2, Water Reclamation and Reuse Facility \(WRRF\)](#).
2. Plan for the replacement of sewer mains that are known to have limited excess capacity or are in deteriorated condition and have exceeded service life expectancy. See [Section 5.4.3, Collection](#).
3. Continue the systematic replacement of existing sewer mains and manholes to address structural deficiencies and to reduce inflow and infiltration. See [Section 5.4.3, Collection](#).

5.9.4 Storm Water

Objective:

Provide for the collection, treatment, detention, and conveyance of storm water within the community to minimize the threat of damage to life and property and minimize the impact of the City upon the receiving natural systems and environment.



Implementation Actions:

1. Prepare Comprehensive Stormwater Management Plan that addresses stormwater quality, conveyance capacity, and flood damage mitigation. See [Section 5.5.1, Generally](#).
2. Implement a stormwater management program to meet the National Pollutant Discharge Elimination System (NPDES) Phase II requirements for treatment and conveyance of stormwater in compliance with the Clean Water Act.
3. Develop and implement land use and development standards that reduce stormwater runoff and quantity and improve stormwater quality (such as green roofs, water harvesting, bioswales, riparian areas, and constructed wetlands). See [Section 5.5.4, Detention, Retention, and Treatment](#).
4. Integrate passive stormwater treatment facilities into public street standards where feasible to slow and improve stormwater quality from public streets and similar public facilities.
5. Review the City's current stormwater requirements to examine the feasibility of reducing detention discharge rates. See [Section 5.5.4, Detention, Retention, and Treatment](#).
6. Plan for the replacement of any existing flow-constricting bridges and other flow restrictions to increase hydraulic capacity to meet a minimum of a 100-year flood event. See [Section 5.5.2, Problematic Areas](#).

5.9.5 Emergency Service**Objective:**

Plan for and provide the efficient and effective delivery of emergency police and fire protection and emergency medical services to the Community today and in the future.

Implementation Actions:

1. Locate, plan, and maintain emergency service facilities and resources necessary to meet the needs of current and future residents of the community.
2. Continue to partner with the Moscow Volunteer Fire Department to ensure that the City maintains or exceeds the existing Class Three ISO rating. See [Section 5.6.2, Fire Protection and Emergency Medical Services](#).

5.9.6 Waste Management**Objectives:**

- A. Provide for the orderly, efficient, and sustainable delivery of sanitation services to the community.



- B. Reduce the product of municipal waste through the expansion of education, recycling, composting, reuse, and other waste reducing activities.

Implementation Actions:

1. Expand educational efforts and innovative programs to reduce the generation of solid waste. See [Section 5.7.1, Solid Waste](#).
2. Seek funding for the expansion of the recycling center to increase receiving and storage capacity. See [Section 5.7.2, Recycling](#).
3. Consider expansion of new cost-effective recycling and composting programs such as composting food residuals and yard waste collection. See [Section 5.7.2, Recycling](#).



Potential Stormwater Constraint Areas

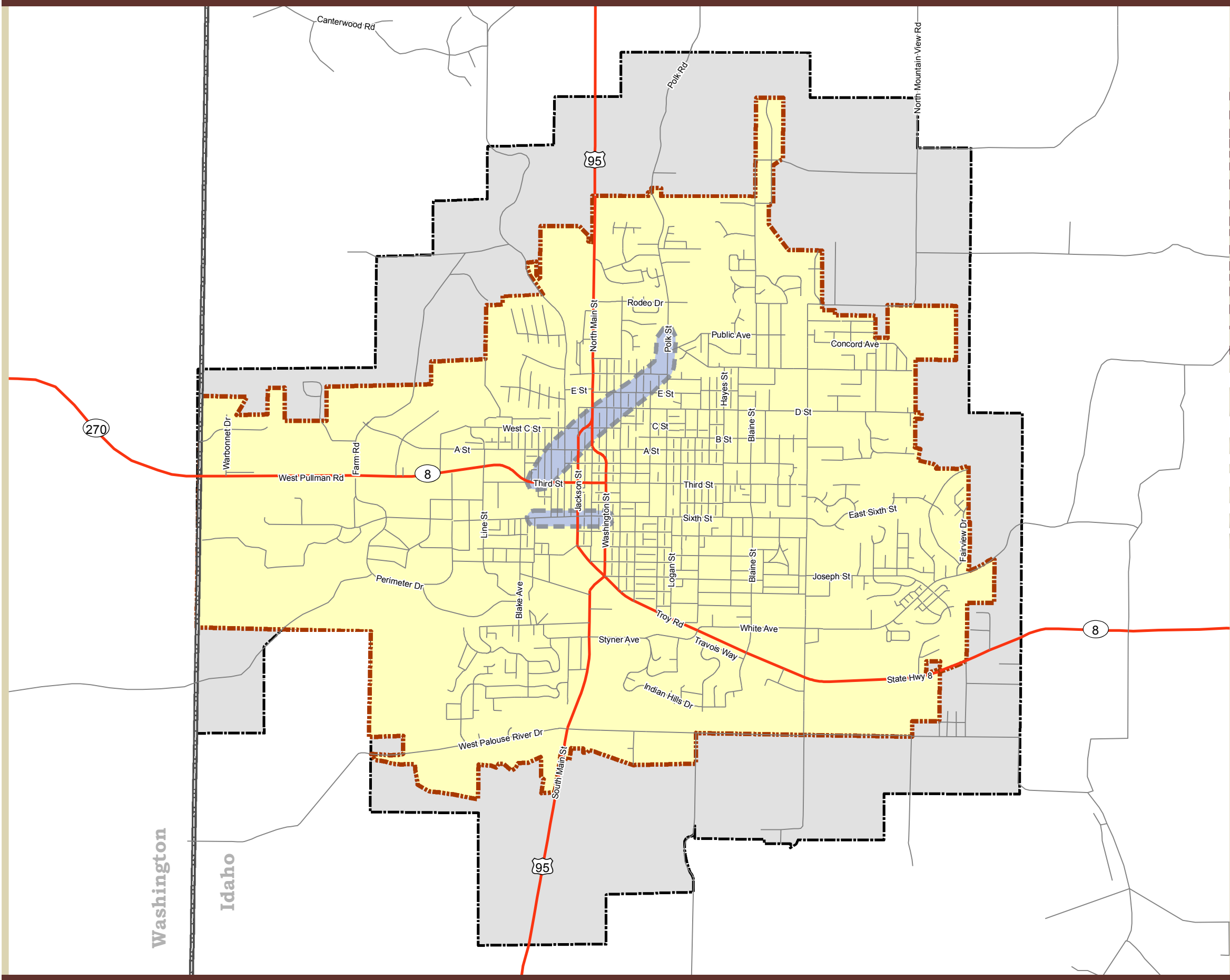
- STORMWATER CONSTRAINT AREAS**
- Potential Constraint Areas
- BOUNDARIES, WATER, & INFRASTRUCTURE**
- City Limits
 - Area of City Impact
 - State Border

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Miles



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comprehensive PLAN

Growth Areas

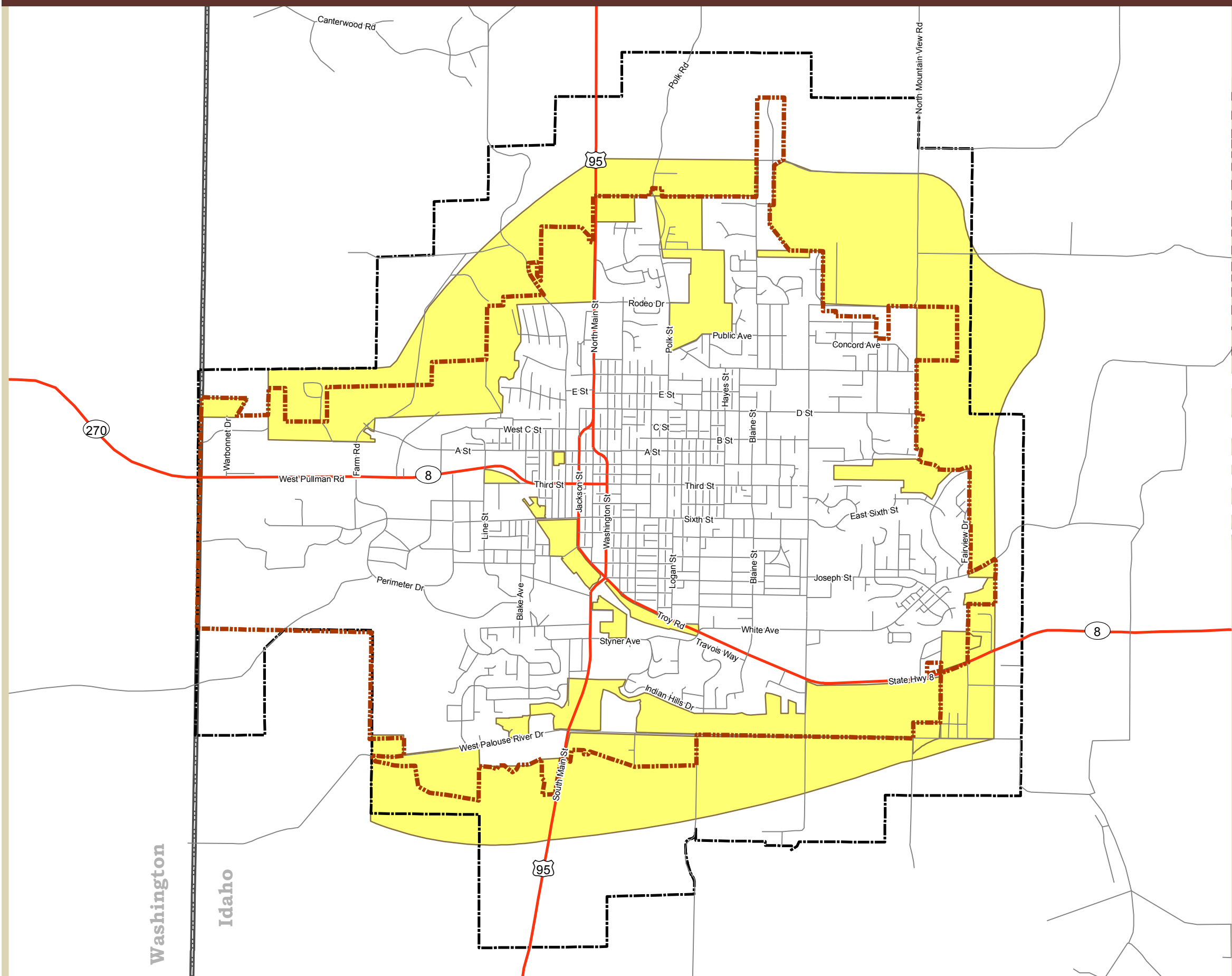
BOUNDARIES, WATER, & INFRASTRUCTURE

-  City Limits
-  Area of City Impact
- GROWTH AREAS**
-  Growth Areas
-  State Border

0 0.125 0.25 0.5 Miles



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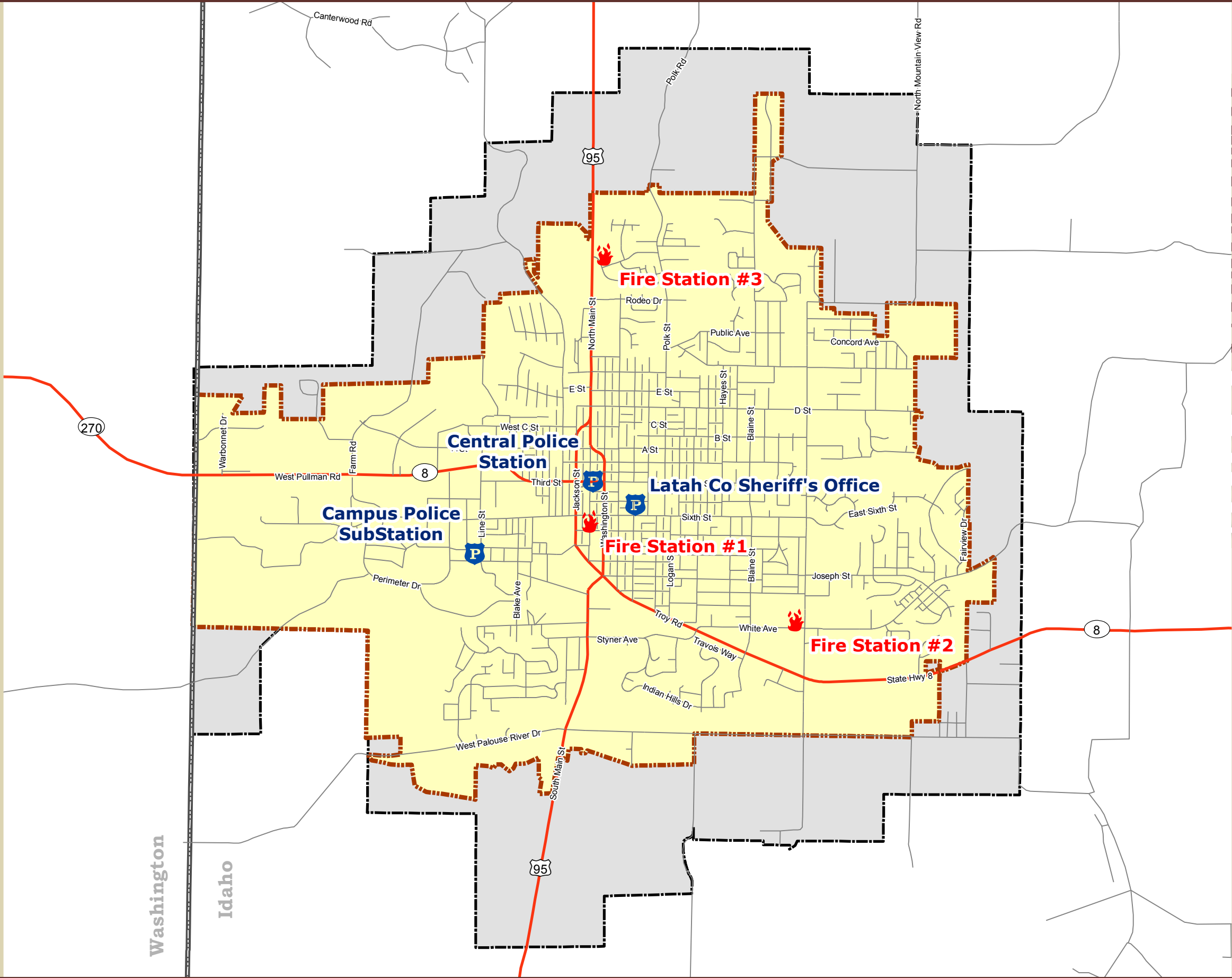
Public Safety Facilities

POLICE & FIRE FACILITIES

-  Police Facilities
-  Fire Facilities

BOUNDARIES, WATER, & INFRASTRUCTURE

-  City Limits
-  Area of City Impact
-  State Border



comprehensive PLAN

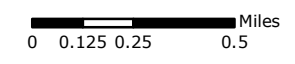
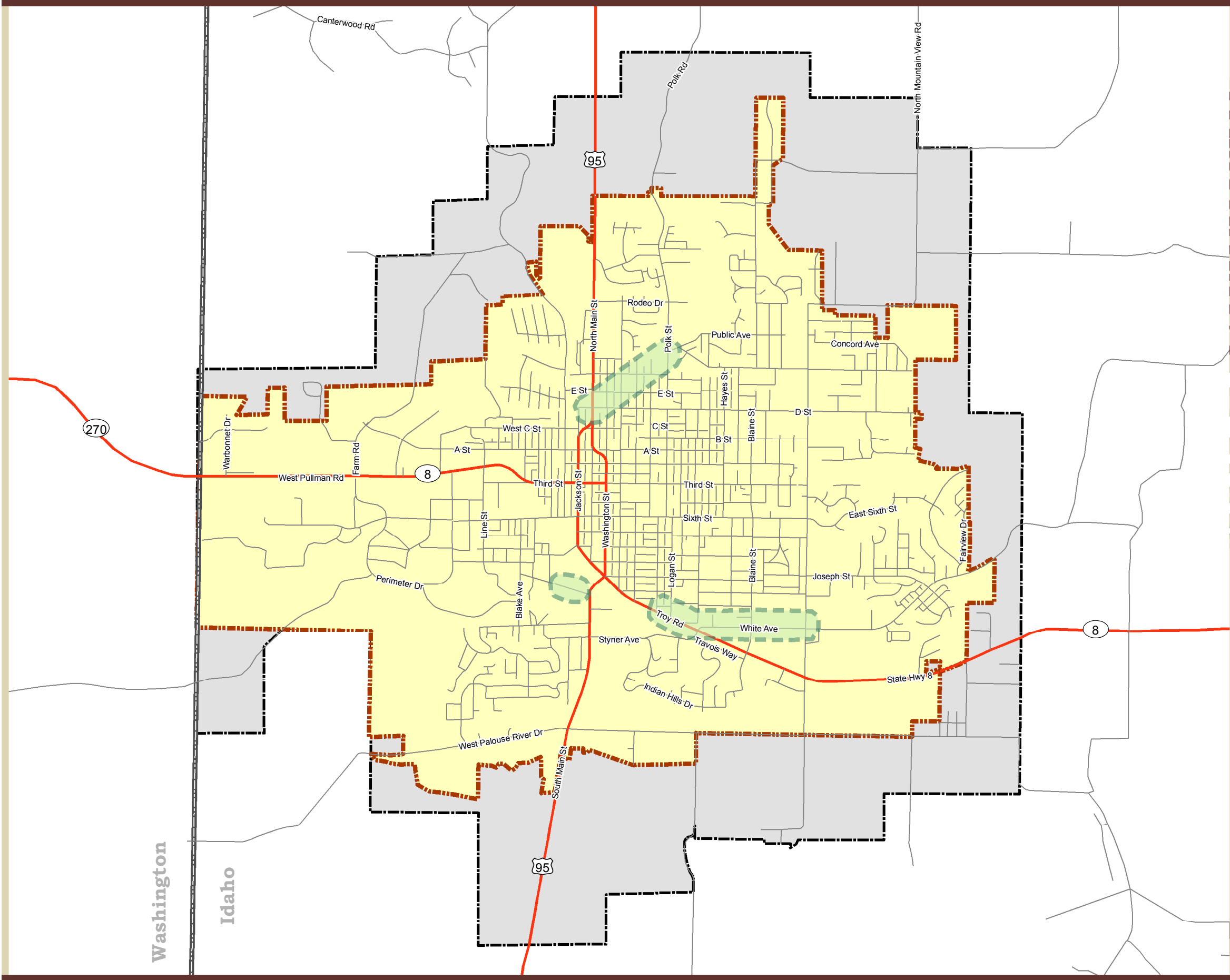
0 0.15 0.3 0.6 Miles



Potential Sewer Constraints

-  Areas of Over 75% Capacity Utilization
- BOUNDARIES, WATER, & INFRASTRUCTURE**
-  City Limits
-  Area of City Impact
-  State Border

comprehensive PLAN



Washington

Idaho

Economic Development

COMPREHENSIVE PLAN

6.1 INTRODUCTION

The phrase “economic development” means different things to different people. For the purposes of this Comprehensive Plan, it means strengthening and diversifying the City’s economy by building upon existing assets, providing business and employment opportunities for City residents, and taking steps to create an environment that offers greater potential for upward mobility. Economic development is not just about “growth.” In fact, “growth”, by itself, does not necessarily mean “development”, which builds capacity and enhances quality of life. In Moscow, growth will certainly occur, but the challenge is to tap the creative energy of the City’s people and leverage the City’s assets and quality of life to enhance the community’s social and economic capacity.

The economic development strategy is set out in detail in the City of Moscow Economic Development Strategy Plan, which is available as a separate document. The strategy is driven by three broad, overarching goals followed by more specific goals for the multiple strategic components listed at the end of this chapter:

- ♦ Provide for sustainable economic growth and employment opportunities where existing and new businesses can thrive, while preserving and enhancing the character of the community.
- ♦ Enhance and strengthen the regional economy utilizing the strengths and assets of the region.
- ♦ Promote and enhance the arts and cultural resources as catalysts for economic development and tourism.

6.2 ECONOMIC CONTEXT¹

6.2.1 The Region

Moscow is a key player in a regional economy. There are significant economic ties among Moscow, Latah County, and Pullman, and Whitman County, Washington. Moscow is not only a participant in a regional economy, but also a

¹ Data used in this Chapter were provided by EMSI an economic consulting firm located in Moscow. See <http://www.economicmodeling.com>



national, and international economy, and each has a varying level of impact upon the City's economic health. However, for the purposes of this Comprehensive Plan, the principal economic context for the City of Moscow will be Moscow, Latah County, the City of Pullman, and Whitman County, Washington.

Regionally, recent research reveals that Moscow is trending toward a role as a residential community for employers located within the region. If this trend continues, Moscow's residential population will increasingly bear the burden of the cost of delivering the infrastructure and services that support the City's exceptional quality of life. As such, a key objective for economic development is to create a better jobs-housing balance within the City.

6.2.2 Major Employers and Industries

Moscow's major employers are heavily represented in the education, healthcare, and government fields. **Table 6.1, Major Employers in Moscow (2017)**, sets out the figures for the number of employees who worked for each of Moscow's major employers in 2017. **Table 6.2, Major Employers in the Region (2017)**, shows prominent employers for Moscow residents located outside of Moscow.

Table 6.1
Major Employers In Moscow (2017)

Employer	Type	Employees
University of Idaho	Education	1,997
Gritman Medical Center	Health Care Services	380
City of Moscow	Government	200
Latah County	Government	160 (not all in Moscow)
Wal-Mart	Department Store	150
Moscow School District	Education	140
Economic Modeling Specialist Inc.	Professional Services	130
Good Samaritan	Health Care Services	110
Winco Foods	Grocer	99
Moscow Family Medicine	Health Care Services	90

Table 6.2
Major Employers in the Region (2017)

Employer	Type	Employees
Washington State University	Education	5,194
Schweitzer Engineering	Professional, Scientific, and Technical Services	2,344



With respect to the overall number of jobs in the community, Moscow's top five industries are government and government enterprises (including the University of Idaho), retail, accommodation and food services, health care and social assistance, and professional and technical services, which together accounted for a total of 14,089 jobs in 2015. With respect to earnings per worker, the top five industries with more than 20 employees are government (including the University of Idaho), wholesale trade, manufacturing, health care and social services, and finance and insurance. With respect to job growth from 2011 to 2015, top industries included educational services, retail trade, construction, accommodation and food services, and professional, scientific and technical services. Altogether, these industries added 926 jobs to the Moscow economy between 2011 and 2015. **Figure 6.1, Employment and Income**, illustrates major employment industries within the latash county.

6.2.3 University of Idaho

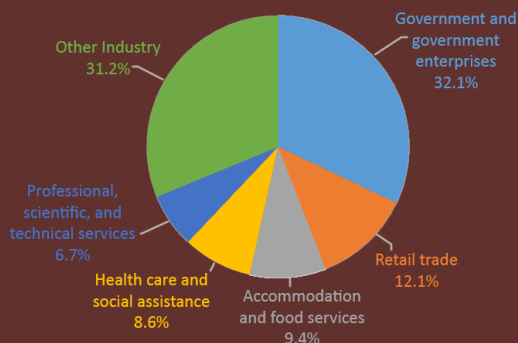
The University of Idaho is the economic engine of the City of Moscow and a study completed by Steven Peterson and Stephen Pool (An Analysis of the Economic Growth of Moscow and the Regional Economy, 2013) concluded that approximately 50 percent of the local economy is supported by the University of Idaho for all sources of spending, and that every student at UI creates \$57,400 in sales, \$31,000 in wage and salary earnings, and three quarters of a job in the community while enrolled.

Consequently, a significant economic indicator for Moscow and Latah County is the size of the University of Idaho's student population. On-campus enrollment at the University of Idaho peaked at 10,992 in 2010 and since that time has fallen to 9,942 in 2016. See **Figure 6.2, UI and WSU Enrollment**, (next page).

As of 2018, the University of Idaho employs 1,997 people, which includes 684 faculty members, 786 classified staff, and 527 administrative/professional.

Figure 6.1
Employment and Income

LATAH COUNTY NON-FARM EMPLOYMENT BY INDUSTRY



LATAH COUNTY NON-FARM WAGES BY INDUSTRY

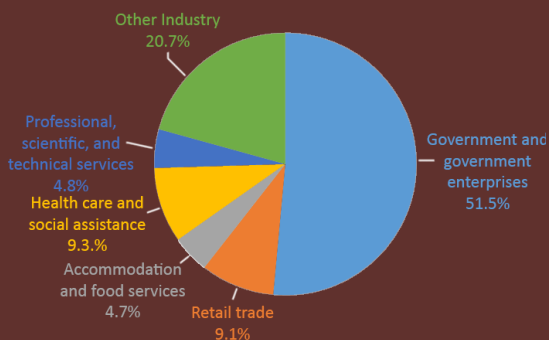
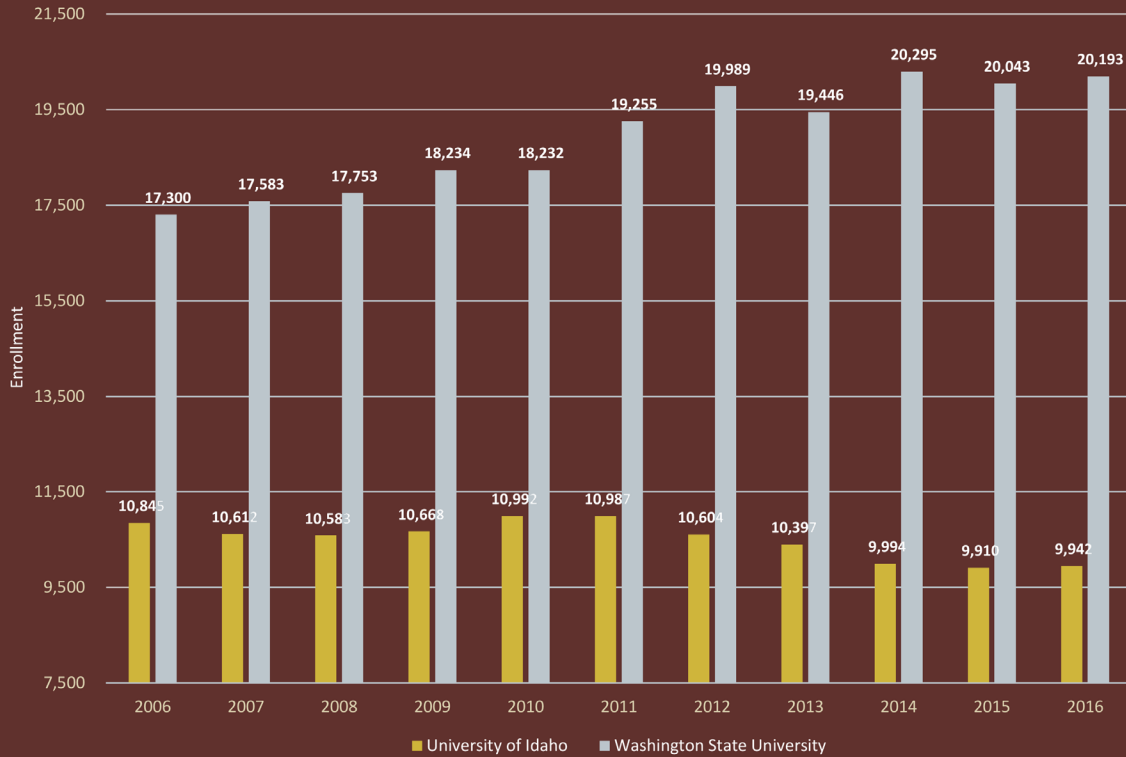


Figure 6.2
UI and WSU Enrollment



Source: University of Idaho Institutional Research Office; Washington State University Institutional Research Office

6.2.4 Washington State University

Washington State University (“WSU”) is eight miles from Moscow. WSU has a 620-acre core campus with 21,193 students enrolled in the 2016-2017 school year. WSU enrollment (head count) has grown steadily between 2006 and 2016, increasing by 2,893 students during the time period. See [Figure 6.2, UI and WSU Enrollment](#).

In addition to its student population, WSU employs 4,418 people, including 1,481 faculty members, 1,546 classified staff, and 1,391 administrative/professional. WSU reports that 730 of its employees live in Moscow as of 2016. As such, WSU Pullman is an important employer for Moscow residents.

WSU brings a source of good jobs to the region, along with notable programs in biotechnology, veterinary medicine, hospitality management, and business.



6.2.5 Healthcare

For more than 100 years, Gritman Medical Center has been the principal health care facility in Moscow. In addition to providing a 25-bed full-service hospital facility to City residents, Gritman Medical Center is an important part of the City's economy. In 2016, Gritman paid \$25.8 million in wages and salaries and another \$6.2 million in benefits. In 2016, the average hourly wage at Gritman was \$32.60, with an additional 24.18 percent of that value provided in benefits. Gritman provides 380 full-time equivalent positions (FTEs) that employ approximately 279 full time employees and 222 part-time employees.

In addition to the hospital, there are three rural clinics located in the unincorporated areas, and a large number of doctors' offices of all types. Gritman Medical Center and several community physicians also established the Palouse Surgery Center on West "A" Street in Moscow in 2004, which provides outpatient surgical services.

In 2016 Gritman constructed an addition 54,000 square foot medical office facility located directly across from the hospital on Main Street which houses CHAS Latah Community Health (a sliding-scale payment clinic), cardiac rehab services, oncology services, and a medical education instructional space for the University of Idaho's WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) medical extension program.

6.2.6 Manufacturing

According to the U.S. Bureau of Economic Analysis, in 2006, 421 people worked in Latah County's manufacturing sector for an average wage of \$38,914. By 2015, employment in the sector grew to 478 people who earned an average wage of \$42,136.

6.2.7 Agriculture

Latah County has extraordinarily productive soils for agriculture. Like many areas of the country (and the State of Idaho) where farms are being consolidated or disappearing altogether, in Latah County the number of farms decreased slightly from 1,104 in 2007 to 1,053 in 2012.² In 2012, 60.5 percent of the total land area in Latah County was used for agriculture.³

The U.S. Bureau of Economic Analysis estimates that an average of 1,123 people were employed in agriculture in Latah County in 2015.³ Agricultural employment peaked in 2011 at 1,130.

² Source: U.S. Census of Agriculture

³ Estimates are for covered and noncovered employment for NAICS categories 111 Crop Production; 112 Animal Production; 1151 Support Activities for Crop Production; and 1152 Support Activities for Animal Production.



- ◆ In 2015, there were 26 forestry and logging businesses in Latah County with an annual average employment of 247 people.

6.2.8 Information

The information sector (NAICS Code 51) includes the publishing industries (software publishing; traditional publishing and publishing exclusively on the Internet); the motion picture and sound recording industries; broadcasting industries (including traditional broadcasting and those broadcasting exclusively over the Internet); telecommunications industries; industries known as Internet service providers and web search portals, data processing industries, and information services industries. U.S. BEA reports there were 209 part-time and full-time jobs in this sector in Latah County in 2015.

6.2.9 Retail

Within the primary trade area of Moscow, defined as a five-mile radius from downtown, it is estimated that in 2016 retailers generated \$302 million in sales while demand (retail potential) for retail products totaled \$309 million. This appears to reflect a relatively balanced supply and demand of retail trade and that Moscow continues to serve as a retail hub on the Palouse. There are several retail sectors that experience significant leakage to outside markets including automobile sales, electronics and appliance stores, lawn, building materials and garden supply stores, gasoline stations, and general merchandise stores. Third quarter 2016 data from the U.S. BLS show that retailers in Latah County employed 1,889 people, with an average weekly wage of \$445, which (assuming 2 weeks of time off) is about \$22,250 annually.

6.2.10 Tourism

Statewide, tourism is Idaho's third largest industry. Within Moscow, the University of Idaho provides cultural opportunities, Division I collegiate sports, and periodic visits by parents (especially at the beginning and end of the semester). Arts attractions (e.g., studios, galleries, art tours, and events) and cultural events (e.g., farmer's market, festivals) provide an additional draw. Additionally, hunting, fishing, river sports, and camping are significant attractions in the areas surrounding Moscow.

6.2.11 Construction

Construction is a highly visible industry that creates wealth in the community. It also has multiplier effects in terms of building materials sales, the provision of housing and commercial, industrial, and civic space, and improvements to existing buildings. Yet, the construction sector is a small component of the City's labor force.

The U.S. BLS reports that the average construction employment in Latah



County in 2015 was 410 people, up from 372 in 2012. Average wages were \$31,991 in 2016 compared to \$29,698 in 2012, or a 7.7% increase during that time period.

6.3 OTHER ECONOMIC INDICATORS

6.3.1 Labor Force

Latah County's labor force is relatively stable in size, fluctuating between 17,003 and 19,631 for the past ten years. In 2016, there were 19,093 people in Latah County's labor force. Of them, 18,443 were employed resulting in a low 3.4% unemployment rate. In Whitman County, the 2016 labor force was 23,979 strong. Of those, 21,834 are employed.

6.3.2 Unemployment

The University of Idaho has a stabilizing effect on Moscow's economy in terms of employment. Indeed, while neighboring counties that do not have a significant university presence have experienced instability in employment, particularly during the 1980s and early 1990s, Latah County and Whitman County have enjoyed low and stable unemployment rates.

6.3.3 Underemployment

In 2013, the "underemployment rate" in Latah County was 14.4 percent, up from 10.3 percent in 2006. See **Table 6.3, Underemployment (2016)**. That number compares favorably with underemployment in adjacent Idaho counties and the state as a whole. The definition for "underemployment" is complex and can vary across disciplines. However, the general rules are:

- ♦ Those already working with skill and educational levels that do not match their current occupations or their fringe or salary compensation can be considered underemployed.
- ♦ If workers' current jobs do not match their desire to work full-time, they can be considered underemployed.

The population of "underemployed" workers is significant in the Moscow economy because:

- ♦ Population growth is slow and unemployment is low, resulting in a relatively small pool of people who are unemployed and actively looking for work; and,

County	Underemployed
Latah County	14.4%
Benewah County	13.7%
Nez Perce County	16.6%
Shoshone County	12.5%
Clearwater County	18.4%
State of Idaho	18.2%
1 Source: State of Idaho Department of Labor, regional statistics.	



- ♦ Reductions in underemployment naturally correspond to increases in income and job responsibilities, which benefit the local economy and provide additional stability in the workforce.

6.3.4 Demographics

Population in the Latah County/Whitman County region (including Moscow) grew by 10.5% between 2006 and 2015 (annual growth of about 827 people, or 1 percent annually). During that same time period Moscow's population grew by 10.3 percent, while Latah County's population (without Moscow) grew by only 4.5 percent. Similarly, Pullman's population grew by 19 percent while Whitman County (without Pullman) grew by only 0.5 percent. These numbers reflect the migration of people from the rural to urban areas and the relatively flat growth rate within the rural county areas. For example, in 1980 approximately 43 percent of the total Latah County population resided outside the City of Moscow, compared to only 35.6 percent in 2015. This trend is reflected in the City of Pullman and Whitman County population counts as well. Additionally, economic development efforts will be impacted by the following anticipated changes to the area's demographics:

- ♦ According to EMSI Inc. forecasts, the 25 to 39 age cohort is anticipated to increase by 657 people or 10.5 percent, and the 65-84 age cohort is also expected to increase by 387 people or 17 percent.
- ♦ Additionally, the 50 to 59 age cohort is expected to fall by 102 people or 5 percent.
- ♦ Household size is expected to remain constant at 2.29 by 2021.
- ♦ EMSI also predicts that per capita income will increase by 9.6 percent, or 1.92 percent annually, between 2016 and 2021 rising from \$20,675 to \$22,656. However, this increase is unlikely to keep pace with inflation, so in real terms, per capita purchasing power will likely decline modestly.

Despite all the above, there is no evidence that changing demographics are affecting one fundamental -- that Moscow's residents are, on the whole, creative and passionate people.

6.3.5 The "Creative Class"

The "creative class" is a group of people that one well-known researcher has concluded are the key to twenty-first century economic development.⁴ The hypothesis is that the creative class provides the ideas and creativity that form the basis for knowledge-based industry. According to the literature, members of the creative class are footloose professionals who are always seeking the "next best thing," and an environment of "Technology, Talent, and Tolerance."⁵

⁴ Richard Florida, Professor of Business and Creativity at the University of Toronto's Rotman School of Management, gained widespread recognition for the "creative class" hypothesis with his book *The Rise of the Creative Class*.

⁵ A more complete analysis of the creative class hypothesis and its relevance to economic



Creative class occupations are well represented in Moscow, and the proportion of creative class workers is increasing slowly. In 2008, 27.8% of Moscow's workers were members of the "creative class," up from 27.3% in 2000.

6.4 COMMUNITY INPUT

6.4.1 Generally

In sum, there is broad agreement that Moscow's economic base of the City should be strengthened and diversified in the following ways:

- ♦ The City should set the stage for spinning off independent, knowledge-based industries from the universities. There are several notable success stories in this regard, including EMSI, Comtech AHA, Alturas Analytics, and Eco-Analysts. These companies offer high-paying jobs and bring dollars in from other places by exporting their products and services.
- ♦ The City should take steps to improve the performance of its principal economic engines. That is, the City should coordinate with the University of Idaho to improve student recruitment and retention rates, and should position itself to be attractive to retirees who will support arts and culture and use the services offered by Gritman Medical Center.
- ♦ Retail and housing construction should be considered secondary to knowledge-based and "high-tech" jobs that bring money to the local economy from sources outside of Moscow and the immediate region. However, while not widely viewed as "economic development" in itself, retail is an important part of the City's economy and quality of life and should not be taken for granted.
- ♦ Light industrial businesses and professional-technical training opportunities (that are not necessarily highly technical in nature) should round out the set of primary jobs that fuel the local economy.

6.5 ECONOMIC DEVELOPMENT STRATEGIES

6.5.1 Generally

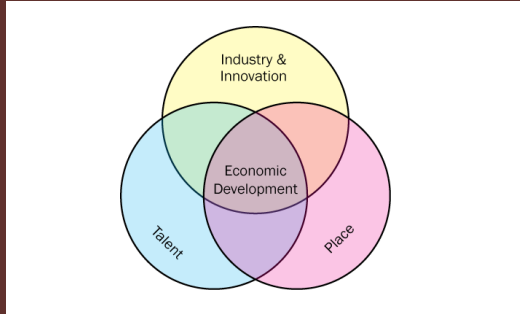
It is the overarching goal of the Plan to "provide for the sustainable economic growth and employment opportunities where existing and new businesses can thrive, while preserving and enhancing the character of the community." To achieve this end, it is recommended that the City implement a comprehensive economic development strategy based upon the following four principal components:

- ♦ Leverage existing assets;
- ♦ Grow industries that are compatible with the City's character and quality of life;
- ♦ Strengthen productive networks; and

development in Moscow is provided in the Economic Development Strategy Plan.



Figure 6.3
Economic Development Model



Economic development occurs where industry and innovation find talent in a place that offers a quality of life that attracts and retains both.

Industry & Innovation. “Industry” considers a full complement of activities, from traditional industrial employers to entrepreneurship, as well as the physical infrastructure (e.g., industrial parks, sites, transportation etc.) and business climate to support those activities.

“Innovation,” refers to opportunities for expanding existing companies, as well as targets for startups or recruitment. All of these things are keys to the economic development plan.

Talent. “Talent” refers to people that have the skills and values to make organizations effective. It is more than a skilled workforce. It is also about cultivating the existing talent pool and bringing talented people to the community. It refers to groups as diverse as students, retirees, and entrepreneurs. It also involves ensuring that the employees and companies continue to have a reason to stay in the area.

Quality of Place. Assessing the “quality of place” involves viewing the assets of the City through the eyes of the talent it wishes to attract and retain. Quality of place considers what is attractive to a range of residents. The idea accommodates growth and recognizes the benefits of change. It recognizes that one person’s “good place to raise a family” might be another’s “there’s nothing to do in this town.” Quality of place is about providing options, not just for current residents, but for future residents as well.

- ♦ Reduce the cost of doing business.

The economic development model is based on the overlap of industry and innovation, human talent, and quality of place. See **Figure 6.3, Economic Development Model**. At the broadest scale, the assets of the City are its highly educated workforce, university and medical infrastructure, a beautiful natural setting, and the generally attractive character of the built environment. The City can help develop its economy by creating a physical and regulatory environment in which the people who are attracted to the City can create and grow new businesses. In some cases, the City or other entities should help new industries to lower overhead costs. Helpful programs include grants for certain purposes, micro-loans, low-interest loans, coordinated marketing strategies, technical assistance with regulatory compliance issues, and, if the risk is justified, additional incubator space, and an industrial park.

6.5.2 Leveraging Existing Assets

Quality of Place

Businesses not dependent on regional agriculture locate in Moscow in large part due to the City’s exceptional quality of life. Among the physical aspects that contribute to the City’s quality of life are its pedestrian-friendly human scale; small-town, historic character, and abundant outdoor recreational opportunities. The social aspects include the City’s civic organizations and social clubs, active citizen participation in local government, and a low crime rate. The cultural aspects include the cultural base of two universities and a vibrant arts community. The quality of place is in many ways exceptional. People stay in Moscow because they want to.



Education, Culture, and the Arts

Education, culture, and the arts are a critical part of Moscow's quality of place. They are also a significant part of the local economy in their own right.

In terms of their contribution to quality of place, educational opportunities and access to arts and cultural opportunities are important considerations for attracting and retaining the "knowledge-based" workforce. Good schools are often one of the most significant considerations for highly-educated parents who are considering relocation. A strong and active public library is essential to attracting and retaining such residents. It is important to ensure that the Moscow Public Library has the necessary physical resources to continue and enhance its services in promotion of literacy and lifelong learning. It is expected that Moscow's growing population of senior citizens would also enjoy access to continuing education, such as University course audits, distinguished speakers, and lecture programs. See [Figure 6.4, Lifelong Learning](#). The local emphasis on education, culture, and the arts provides jobs for educators and artists and promotes tourism.

Downtown

Moscow's historic Downtown extends from First Street to Sixth Street, and centers on Main Street (spanning from Washington Street to the alley between Main Street and Jackson). The heart of Downtown is Friendship Square, a pedestrian mall with amenities that include ample seating, fountain, message board, and a tot lot. Many aspects of Downtown Moscow are addressed in [Chapter 2, Community Character and Land Use, Section 2.4, Downtown](#).

Downtown is a mixed-use district, with offices, institutional and governmental uses, residential units, and ground-floor retail. Although peripheral auto-oriented retail development with national chain tenants has pushed Downtown to adapt, to date it has not significantly undermined the viability and special character of Downtown. That is because the location, character, and quality of Downtown make it an ideal location for dining, entertainment, and specialty

Figure 6.4
Lifelong Learning

Lifelong learning is a way for Universities to reach out to local senior citizens to provide access to the academic resources of the University through course audits and/or a specialized lecture series. In Moscow, such a program would potentially:

1. Help to strengthen the tie between the University of Idaho and the community;
2. Make the City more attractive to retirees by providing an additional educational/cultural opportunity; and
3. Increase the University's donor base.

By way of example, Florida Atlantic University (main campus in Boca Raton, Florida) created a "Lifelong Learning Society" in the 1980s, which now has more than 30,000 members who attend courses, lectures, and cultural events on four campuses in the South Florida region. By 2006, members of FAU's LLS donated more than \$1 million to endowed professorships, graduate fellowships, and undergraduate scholarships; and approximately \$6.5 million to two state-of-the-art lecture halls.

Lifelong learning can be established with relatively low overhead. Operations on the scale of FAU's LLS are not necessary for a successful program.



retail. Indeed, Downtown business owners noted that people come from as far as 100 miles away to the area's unique retail stores and restaurants.

Downtown is a source of community pride that contributes to the City's exceptional quality of life (a "driver" for economic development). In more specific economic development terms, Downtown is a center of gravity for the target industries of financial services, healthcare, real estate, dining, entertainment, and tourism. It is also a potential center for higher-end, residential-over-retail products positioned toward professionals and active seniors who do not want the maintenance responsibilities of single-family housing.

University of Idaho

The University of Idaho is an exceptional asset to the community not only as an employer, but also as an intellectual and cultural resource. As a premier research institution, the University of Idaho provides opportunities for commercialization of intellectual capital and the transfer of technology to private enterprise within the community. The University also brings a wide array of cultural, athletic, and other entertainment and enrichment opportunities that would not otherwise be possible in a community of Moscow's size. As such, the University should be viewed as an asset to utilize and support for the betterment of the local and regional economy.

Local Business Community

Moscow also possesses an active and vibrant local business community. As with the community's residents, the business community is deeply committed and economically and socially invested in the future of the community. This level of commitment within the local business community is an asset and a strong partnership that can be utilized to drive the community forward toward prosperity.

6.5.3 Growing Compatible Target Industries

Generally

The compatible target industries that are described in this section are the broad categories of industries that the City should actively promote due to their compatibility within the community. They are identified based on their physical and resource needs; the availability of a qualified workforce; their likely impact on the local economy; their potential for growth in jobs, earnings, and income; and their relationships to other industries or needs in the community. It is expected that growth in these industries will support other sectors of the economy, including retail, restaurant, entertainment, and construction.



Arts, Entertainment and Recreation

According to the U.S. BEA, employment in arts, entertainment, and recreation grew by 97 jobs, or 27 percent, between 2006 and 2015, and now represents 2.1 percent of the total part-time and full-time jobs in Latah County.

Arts are a key part of the City's culture, its self image (Moscow is the "Heart of the Arts"), and its quality of place. The City should support the arts community by:

- ♦ Ensuring that appropriate areas are zoned for "live work" units that could include artist workspace and galleries in a neighborhood with residential character;
- ♦ Investing in public art and ensure that artistic elements are integrated into new infrastructure investments; and,
- ♦ Creating a program of incentives for artists who relocate to Moscow.

Professional, Scientific and Technical Services

Professional, scientific and technical services are growth industry sectors in Moscow and the region. Between 2006 and 2015, employment in this sector grew by 139 jobs, or over 11 percent, and now represents 6.4 percent of all jobs in Latah County with average annual wages of \$40,417 in 2015.

The College of Engineering is still the third largest at the University and is a nationally recognized research institution for engineering industries. Moreover, with innovation and expansion, engineering businesses have great potential to increase earnings and wages over time.

Healthcare and Social Services

Healthcare is a significant sector of the economy, and will likely grow as the 55+ age cohorts grow. Healthcare is also a "knowledge-based," low-impact, and potentially high-paying industry. Between 2006 and 2015, employment in this sector grew by 100 jobs, or 24.1 percent, with annual average wages of \$33,643. This sector now represents 8.1 percent of all employment and 9.2 percent of all wages in Latah County.

Tourism

Tourism continues to be a growing industry within Latah County. In 2016, the State of Idaho reported \$11.5 million in lodging sales (up 5.4% over 2015), and wages within accommodations and food service and arts, entertainment and recreation industries totaled over \$36 million and represented 5% of all wages within Latah County. Although tourism jobs are not generally high-paying, they do provide opportunities for student employment and supplemental income. Between 2006 and 2015 employment grew within the accommodation and food services sector by 36 jobs, or 1.9 percent, and now represents 8.9



percent of all jobs and 4.6 percent of all wages in Latah County.

Tourists spend money in the local economy without placing extensive service demands on the City. As such, the City should enhance its position regarding tourism by expanding its community events (and the marketing of those events), and highlighting its Downtown, parks, and access to outdoor recreation opportunities in the region.

6.5.4 Zoning and Available Land

The City's historic policy of using "holding zones" for land that is not yet proposed for development has led to, as of 2016, approximately 200 acres within the City limits being zoned FR, Farm, Ranch, Transitional and AF, Agriculture and Forestry. This land is predominately located in areas identified as appropriate for commercial, office, and industrial development.

There are also many acres of the City that are zoned Motor Business (MB) that may be appropriate for light industrial uses. In 2015, the City amended the MB district to allow indoor light industrial uses without a conditional use permit.

Finally, although the Zoning Code currently has many elements that protect and enhance community character, more work should be done in this regard. Moscow appreciates quality, and commercial property owners want assurances that their property will not be devalued by incompatible construction on neighboring property. To this end, the City recently amended requirements for street tree planting, buffer yards, and landscaping.

Finally, the City should take steps to upgrade the character of the industrial zone without overburdening it. First, side and rear setbacks should be established so that the use of adjacent properties is not unfairly restricted by fire codes or other functional considerations. Second, enhanced landscaping and aesthetic development standards should be implemented to improve the physical appearance and compatibility of industrial development.

6.5.5 Strengthening Networks

University Linkages

The University of Idaho and Washington State University represent huge sectors of the City's economy. Strengthening ties between these universities, their host cities, and the private sector will improve opportunities for economic development through technology transfer to the private sector.

By way of example, the University of Idaho received over \$100 million dollars in competitive research awards during 2016. The research areas of emphasis associated with these grants and contracts included:



- ♦ Biomedical and molecular biology research
- ♦ Agricultural and natural resources plant, animal, and fisheries research
- ♦ Environmental and ecological research
- ♦ Energy and water resources research
- ♦ Bioremediation and subsurface science research
- ♦ Nanotechnology and material sciences research
- ♦ Educational program design and assessment research

The University has a number of research centers and institutes that have great potential to spin off related industries in areas such as transportation technology, advanced materials research, nano technology, environmental sciences, and biomolecular research.

Business Networks and Training

There are several entities involved in business networking and assistance in Moscow. They include:

- ♦ The Partnership for Economic Prosperity (“PEP”) is a non-profit organization dedicated to bringing business, government, education and community leadership together for the purpose of strengthening the Latah County economy through the retention and expansion of existing business and industry, the attraction and recruitment of new businesses, and the continuing diversification of Latah County’s economic base.
- ♦ The Clearwater Economic Development Agency (“CEDA”) is a regional economic development organization that manages more than \$2 million in public loan funds; participates in infrastructure planning, grant writing, and contract administration; provides technical assistance, and plans workforce development programs.
- ♦ The Moscow Chamber of Commerce is an organization that is intended to strengthen, promote, and lead the business community, while preserving and enhancing the quality of life in Moscow. The Chamber is involved in promotion, information, education, and networking for local businesses.
- ♦ The Palouse Knowledge Corridor (“PKC”) is a local non-profit organization that focuses on promoting entrepreneurialism and business development in the Latah County-Whitman County region.

The City works closely with all of these entities to provide entrepreneurial training, business networking, publicity, and low-cost facilities for business development.



6.5.6 Business Development Costs

“Hard” Infrastructure

On the whole, the target industries are not (at least not directly) heavily dependent on significant improvements to “hard” public infrastructure such as highways, water supply, or industrial wastewater treatment. However, bottlenecks in the existing water, wastewater, and stormwater systems (addressed in [Chapter 5, Public Utilities, Services, and Growth Capacity](#)) should be resolved in order to improve the capacity of the City to accommodate both residential and nonresidential development.

Another important issue is the alignment of U.S. 95. The future alignment in the southern part of the City is as yet uncertain with a new lawsuit that was filed against the project during the summer of 2017. The final resolution of the new highway alignment must be resolved in order to promote investment in the southern portion of the City. This is particularly important because near-Downtown industries will likely relocate to the southern part of the City. As such, the City should seek to resolve any uncertainty and conflict regarding the alignment as soon as possible.

Water supply is also an important issue for economic development. Although the target industries are not highly water dependent, an increase in the City’s population will likely involve additional pressure on the water supply. As discussed in [Chapter 5, Public Utilities, Services, and Growth Capacity](#), the City must develop a sustainable water supply, which should include a conservation component as strong as reasonably possible.

Palouse River Drive serves more than 60 acres of land that is anticipated to develop as professional office, almost 100 acres of industrial land, and almost 30 acres of auto-urban commercial land. Currently, the property along the road is largely undeveloped, but where there is development, there is no evidence of access management. Future development along Palouse River Drive should be subject to access management standards to preserve the function of the road as a minor arterial, as shown on [Map 3.1, Thoroughfare Plan](#).

“Soft” Infrastructure

High-speed internet access opens the door to developing knowledge-based industries that rely on large data sets and reliable communications among a number of locations. As the speed and reliability of the communications infrastructure improves, the range of opportunity for economic development increases.

Fiber optic lines run between Moscow and Pullman, and from Pullman to the “outside world.” The lines that run from the University of Idaho library into Moscow are owned by the City of Moscow, and the lines that run from the



library to Pullman, Washington are owned by the Port of Whitman. The nearest “point of presence” (that is, location for servers and internet interconnections) is in Pullman, so local internet service providers must generally lease fiber between their Moscow offices and the Pullman point of presence. The challenge for Moscow is that, although the City is internally well wired for high-speed access, the connections to the outside world are somewhat limited, and dedicated access is expensive.

Alturas Technology Park

Alturas Technology Park is located south of S.H. 8/Troy Road and west of Mountain View Road. It was established to provide a location for technology-oriented businesses. Many of the businesses located in Alturas are graduates of the prior University of Idaho Business Technology Incubator.

A special zoning district was formed to encourage a cohesive and consistent district to stimulate economic development. Alturas has fostered economic growth and diversification by establishing a place for research and technology companies to locate and grow in the company of related businesses. Lots are generally built to suit the particular needs of companies that are locating in (or relocating to) Alturas.

Legacy Crossing

The Legacy Crossing district was established in 2008. Its purpose is to guide the development and redevelopment of the agricultural industry corridor along the railroad and Paradise Creek alignment between the University of Idaho and Downtown. The intention of Legacy Crossing is to spur the transition of properties from former agricultural and/or industrial uses to new high intensity mixed-use developments to create a vibrant place for economic activity and to enhance the integration of the University of Idaho and Downtown.

Additional Publicly-Supported Development

Sometimes proactive planning and zoning are not enough to bridge the gap between the cost of development and the ability of businesses to pay those costs. If it turns out that this is the case in Moscow, the City could make targeted investments to support economic development. These may include:

- ♦ Developing an industrial park to the south of Palouse River Drive, east of U.S. 95, to provide space for small businesses to grow and job opportunities to diversify.
- ♦ Encouraging the development of one or more multi-tenant office buildings (or attractive rental office space in a mixed-use building) to provide a transition space for businesses that do not yet have the resources to purchase a building.



6.6 ECONOMIC DEVELOPMENT GOALS AND OBJECTIVES

6.6.1 General Economic Development Goals

- ♦ Provide for sustainable economic growth and employment opportunities where existing and new businesses can thrive, while preserving and enhancing the character of the community.
- ♦ Enhance and strengthen the regional economy utilizing the strengths and assets of the region.
- ♦ Promote and enhance the arts and cultural resources as catalysts for economic development and tourism.

6.6.2 Leveraging Existing Assets

Objectives:

- A. Provide for the diversification of the local economy while maintaining and enhancing the character of Moscow.
- B. Strengthen and enhance the vitality of Downtown as the community's civic core.
- C. Reposition the industrial areas currently located near Downtown to another location so as to allow for Downtown redevelopment with modern mixed-use developments.
- D. Strengthen the physical linkage between Downtown Moscow and the University of Idaho.
- E. Expand and enhance the promotion of education, arts, and culture.

Implementation Actions:

1. Ensure that new commercial development is consistent and compatible with the character of Moscow and contributes to the community's quality of life.
2. Allow for development and redevelopment of mixed-use projects in and around the Downtown area to bring added activity and vitality to the Downtown area.
3. Invest in the public infrastructure (sidewalks, street furnishings, signage, etc.) within the Downtown area to enhance the appearance and character of Downtown.
4. Identify and rezone appropriate areas in the southern part of the City to allow the relocation of current near-Downtown industrial and agricultural support uses.
5. Continue to support the work of the Moscow Arts Commission to develop and promote festivals and cultural events, and integrate public art and artistic elements within public and private developments.
6. Increase the physical capacity of the Moscow Public Library, expanding



its programming, collections and meeting space, and making innovative library uses, such as a makerspace, possible.

6.6.3 Growing Compatible Industries

Objectives:

- A. Increase the supply of land available for modern commercial, office, and light industrial uses.
- B. Make the development review process more “user-friendly” and efficient, without compromising the quality and character of development.
- C. Provide a positive regulatory environment for investment in research, technology, and light industrial uses.

Implementation Actions:

1. Proactively zone land for needed future commercial, office and light industrial uses as identified upon the [Map 2.2, Future Land Use and Growth Plan](#). (The areas designated for nonresidential development on [Map 2.2, Future Land Use and Growth Plan](#), provide enough land to accommodate projected demand, plus a 25 to 30 percent surplus to promote a healthy land market.)

6.6.4 Strengthening Networks

Objectives:

- A. Continue to foster strong relationships among the City of Moscow, the University of Idaho, Latah County, the City of Pullman, Washington State University, and Whitman County.
- B. Promote efforts of local and regional economic development agencies to provide education, training, and networking for local businesses and entrepreneurs.

Implementation Actions:

1. Enhance coordination of economic development activities among the City of Moscow, University of Idaho, City of Pullman, Washington State University, Latah and Whitman Counties, and the economic development organizations within the region.
2. Create better physical linkages between the City and the University of Idaho through the redevelopment of the historic industrial areas near Downtown.
3. Continue to support regional transportation and transit services to enhance regional employment and economic integration.
4. Continue to promote and enhance education, training, and networking programs to support local business development.



6.6.5 Business Development Costs

Objectives:

- A. Ensure capacity for growth in the water, wastewater, and stormwater systems.
- B. Provide a sustainable water supply.
- C. Provide adequate streets to support traffic generated by planned employment and retail centers.
- D. Improve the reliability and speed of internet access in the City, and reduce the cost of access.
- E. Provide increased certainty for investment in industrial uses in the southern part of the City.

Implementation Actions:

- 1. Implement infrastructure and water supply recommendations of **Chapter 5, Public Utilities, Services, and Growth Capacity**.
- 2. Plan for the orderly development of transportation systems as described within **Chapter 3, Community Mobility** and the **Map 3.1, Thoroughfare Plan**.
- 3. Provide an inventory of sites for light industrial uses with varying levels of infrastructure and services, in order to ensure that a portion of the available industrial sites are affordable to emerging businesses with few service needs.
- 4. Support efforts to establish high-speed internet connections to provide faster, more reliable communications between the Moscow-Pullman region and major internet trunks such as the Inland Northwest GigaPop, an advanced fiber-optic network that enables regional, high-speed data exchange.
- 5. Work with industrial landowners within the south portion of the City to resolve engineering and regulatory issues surrounding the area's floodplain designation.



Implementation

COMPREHENSIVE PLAN

7.1 INTRODUCTION

The comprehensive plan should be a “living document,” that is, a document that is frequently referred to for guidance in decision making with regard to land development and public investments in infrastructure and services. It is in that context that this Chapter breathes life into the rest of the Comprehensive Plan by setting out a practical, prioritized, and sequenced implementation program. The key objective of this chapter is to integrate the different elements of the Plan together in such a way as to provide a clear path for sound decision making.

Implementation is not simply a list of action items. It is a challenging process that will require the commitment of the City’s elected and appointed officials, staff, residents, business owners, the University of Idaho, Latah County, Chamber of Commerce, environmental organizations, Partnership for Economic Prosperity, Clearwater Economic Development Association, and other organizations and individuals who will serve as champions of the plan.

7.2 RESPONSIBILITY FOR IMPLEMENTATION

7.2.1 Generally

Simply setting out an implementation framework in this Chapter is not enough to ensure that the action items of this Plan will be carried out. These action items should be consulted frequently, and should be widely used by decision makers as a basis for decisions regarding:

- ♦ The timing and availability of infrastructure improvements;
- ♦ City-initiated and owner-initiated annexations;
- ♦ Proposed development and redevelopment applications;
- ♦ Special use permits;
- ♦ Zone change requests;
- ♦ Expansion of public facilities, services, and programs;
- ♦ Annual capital budgeting;
- ♦ Zoning and subdivision code re-writes and amendments;
- ♦ Intergovernmental (including City-University) coordination and agreements; and,



- ♦ Operations, capital improvements, and programming related to individual City departments.

7.3 PLAN IMPLEMENTATION METHODS

There are five general methods for plan implementation: policy-based decisions; land development regulations and engineering standards; capital improvements; specific plans and studies, and special projects, programs, and initiatives.

7.3.1 Policy-Based Decisions

Land use decisions should be made based on the policies that are set out in this Comprehensive Plan. In some measure, the adoption of new land development regulations (e.g., zoning, subdivision, landscaping, sign controls, etc.) will establish a specific framework for evaluating private development proposals against the City's articulated policies (see [Section 7.3.2, Land Development Regulations and Engineering Standards](#)). However, decisions regarding annexation, infrastructure investment, future character map amendments, and right-of-way acquisition are generally left to the broad discretion of the City Council. This plan provides the common policy threads that should connect those decisions.

7.3.2 Land Development Regulations and Engineering Standards

Land development regulations and engineering standards are fundamentals for plan implementation. It is obvious (but often overlooked) that private investment decisions account for the vast majority of any city's physical form. Consequently, the zoning, subdivision, landscaping, sign control ordinances, as well as technical engineering standards, become the basic keys to ensuring the form, character, and quality of all private development reflects the City's planning objectives. These ordinances should use economic forces to ensure quality, but should not be set up to unnecessarily delay or interfere with appropriate new development.

7.3.3 Capital Improvement Programming

The Capital Improvement Program ("CIP") is a five-year plan that identifies budgeted capital projects including: street infrastructure, water, wastewater, and drainage facilities; parks, trails, and recreation construction and upgrades; construction of public buildings; and, purchase of major equipment. Identifying and budgeting for major capital improvements will be essential to implementing this Plan. The City established capital improvement plans for the City's water and sewer utilities as part of the City's Utility Masterplans and for parks and recreation facilities as part of the Parks and Recreation Master Plan. Capital improvement plans are being established for the City's public safety, stormwater, and street facilities and systems. Decisions regarding capital improvement programming should take into account the policy and management directives of this Plan, particularly [Chapter 5, Public Utilities, Services, and Growth Capacity](#).



7.3.4 Specific Plans and Studies

There are a number of areas where additional planning work is recommended at a “finer grain” level of detail than is appropriate in a comprehensive plan. As such, some parts of this plan will be implemented only after some additional planning or special study.

7.3.5 Special Projects, Programs, and Initiatives

Special projects or initiatives are the last broad category of implementation measures. These projects or initiatives may include establishing an administrative body or communication protocol, initiating or expanding City programs, entering into interlocal agreements, expanding citizen participation programs, providing training, and other special projects.

7.4 PLAN ADMINISTRATION

During the development of initial drafts of the Plan in 2009, community leaders in government, business, civic groups, the University, and others came together to inform the planning process. These leaders, and new ones to emerge over the horizon of this Plan, must maintain their commitment to the ongoing implementation of the Plan’s policies – and the periodic updating of the Plan to adapt to changing conditions and unforeseen events.

7.4.1 Education

Comprehensive plans are relatively general in nature, but they are still complex policy documents that account for interrelationships among various policy choices. As such, educating decision makers and administrators about plan implementation is important. As the principal groups that will implement the Plan, the City Council, the Planning and Zoning Commission, and City department heads should all be knowledgeable with regard to priorities, responsibilities, and interpretations.

7.4.2 Role Definition

As elected officials, the City Council will assume the lead role in implementation of this Plan. The key responsibility of the City Council is to decide and establish the priorities, timeframes by which each action will be initiated and completed, and adoption of the budget. In conjunction with the Mayor and City Administrator, they must also ensure the coordination among the various groups who are responsible for carrying out the Plan’s recommendations.

The City Council will take the lead in the following general areas:

- ♦ Act as a “champion” of the plan.
- ♦ Adopt and amend the plan by resolution, after recommendation by the Planning and Zoning Commission.



- ♦ Adopt new land development regulations to implement the plan.
- ♦ Rezone property proactively.
- ♦ Approve interlocal agreements that implement the plan.
- ♦ Establish the overall action priorities and timeframes by which each action item of the plan will be initiated and completed.
- ♦ Consider and set the required funding commitments.
- ♦ Offer final approval of projects and activities and the associated costs during the budget process, keeping in mind the need for consistency with the Plan and its policies.
- ♦ Provide policy direction to the Planning and Zoning Commission and staff.

The Planning and Zoning Commission will take the lead in the following general areas:

- ♦ Periodically obtain public input to keep the plan up to date, using “citizen meetings, hearings, surveys, or other methods, to obtain advice on the planning process, plan, and implementation.”¹
- ♦ After holding one or more public hearings to discuss potential recommendations, make recommendations to the City Council with regard to plan updates and plan amendments.²

City Staff will take the lead in the following general areas:

- ♦ Manage day-to-day implementation of the plan.
- ♦ Support and implement capital improvement planning efforts.
- ♦ Manage the development of new land development regulations.
- ♦ Conduct studies and develop additional plans (including managing consultant teams, as necessary).
- ♦ Review applications for consistency with the Comprehensive Plan when required by the Idaho Statutes or the City’s land development regulations.
- ♦ Negotiate the specifics of interlocal agreements.
- ♦ Administer collaborative programs and ensure open channels of communication with implementation partners (e.g., the University of Idaho, Latah County, Whitman County, Pullman, and Washington State University).

7.5 PLAN AMENDMENT PROCESS

The process for amending the Comprehensive Plan is set out in Section 67-6509,

1 Section 67-6507, *The Planning Process and Related Powers of the Commission*, Idaho Statutes (2017).

2 Section 67-6509, *Recommendation and Adoption, Amendment, and Repeal of the Plan*, Idaho Statutes (2017).



Idaho Statutes (2017), *Recommendation and Adoption, Amendment, and Repeal of the Plan*. In sum, the process is as follows:

- ♦ Adoption, amendment, or repeal of the Plan requires at least one public hearing of the Planning and Zoning Commission (at which input is taken from interested persons), after which the Commission recommends action to the City Council. The public hearing must be noticed at least 15 days in advance in an official newspaper and other media outlets. The official notice must include the time and place of the meeting and a summary of the plan to be discussed. Notice must also be sent to all political subdivisions that provide services within the planning jurisdiction, including school districts.
- ♦ After the Planning and Zoning Commission hearing, if the Commission recommends a material change to a proposed amendment, the City Council may conduct a hearing on the original amendment or consider the modified amendment. If the Council hears the original amendment, then it must include the Planning and Zoning Commission's recommendation in its public notice. Otherwise, the Planning and Zoning Commission must conduct another public hearing on the modified amendment, and then make a recommendation to the Council. Records must be kept of the hearings, findings, and actions of the Commission and Council.
- ♦ Upon recommendation by the Planning and Zoning Commission, the Council may conduct at least one public hearing using the same notice procedures as the Commission. If the Council makes a material change to the amendment, the Council must hold another noticed public hearing on the amendment as modified. The Council ultimately adopts, amends, or repeals the plan by resolution, and then files the plan and adopting or amending resolution with the City Clerk.
- ♦ Any person may request that the plan be amended by petitioning the Planning and Zoning Commission. The text of the plan may be amended at any time. However, the Planning and Zoning Commission may not recommend amendments to the land use map (Future Character Map) more frequently than once every six months.

When the City annexes unincorporated areas, the City Council must request and receive a recommendation from the Planning and Zoning Commission with regard to the proposed plan and zoning ordinance changes for the area to be annexed. These hearings must be noticed as provided in Section 67-6509, Idaho Statutes (2017). Concurrently or immediately following the adoption of an annexation ordinance, the City Council shall amend the Comprehensive Plan and the Zoning Ordinance.

7.6 EVALUATION AND UPDATING

An evaluation of the Plan and any necessary updates to account for changes in the community should be prepared every five years to ensure that this Plan reflects current community conditions. This update process should be coordinated



by the Community Development Department, with input from various City departments, the Planning and Zoning Commission, the City Council, and other boards and commissions.

DRAFT



The City does not currently have a comprehensive stormwater management plan. In the absence of this plan, the focus of evaluation of stormwater impacts has been generally limited to the area of proposed growth. Existing bottlenecks, stormwater quality regulations, and flood mitigation measures are challenges that must be addressed with regard to stormwater collection and treatment facilities in existing areas, as well as areas of new growth. Therefore, it is recommended that the City develop a comprehensive stormwater management plan.

5.5.2. Problematic Areas

The City has identified two areas that regularly have stormwater drainage issues:

- Sixth Street from Main Street to the discharge at Paradise Creek in the vicinity of Deakin Street regularly exceeds its hydraulic capacity and causes ponding at the intersections of Sixth Street and Main Street and Sixth Street and Jackson Street. *Hog*
- **Hog Creek** drains the area between U.S. 95 and Mountain View Road north of the center of town. Improvements to drainage in this area must be considered and addressed as properties to the north are developed.

See Map 5.1, Potential Stormwater Constraint Areas.

Most of the areas identified for growth to the south, east, and northeast of the City are very consistent in nature. These areas are in gentle to relatively steep slopes ranging from 3 to 25 percent grade. Soils are generally silty loam, which tends to have low permeability rates. See Map 5.2, Growth Areas.

Most areas will require moderate earth-moving activities to develop roads and housing sites. Stormwater collection systems should be relatively simple to construct, as most sites are in relatively close proximity to a natural waterway.

The local waterways, Paradise Creek and the South Fork of the Palouse River, are key elements in the City's stormwater system. As the primary drainage way, care needs to be taken not to hydraulically overload the waterways. Both are susceptible to flooding during peak runoff events.

Paradise Creek is the most heavily developed watershed within the City. Homes in many of the older neighborhoods are developed up to the channel's edge thus limiting the possibility of widening the channel to increase capacity. As one of the anticipated future development areas exists upstream from these presently developed areas, stormwater runoff from future development within the Paradise Creek drainage must be detained in accordance with the City's requirements to minimize the potential for increased downstream flooding and

Figure 5.10:
Stormwater System Statistics

The City owns and operates 54,563.7 miles of stormwater mains, which are accessed by 974 manholes. The drainage system also includes 7.56 miles of other drainage ways, 24 detention facilities and 2,044 catch basins. The City's maintenance facilities include an operations/shop facility, three sweepers, and a flush truck.

Source: City of Moscow Public Works Dept.



November 2, 2018

Mike Ray, Planning Manager
Moscow Planning & Zoning Commission
221 E. Second St.
Moscow, Idaho 83843

Dear Mike:

I recently viewed the Comprehensive Plan for Moscow, I own 1931 & 1945 Orchard Avenue and to my surprise I found a proposed road across 1945 Orchard Ave. This would put a road over the steepest hill in the area. It is far steeper than any existing road. I find it unbelievable that the city would even draw in a line for a proposed road if they had viewed the contour of the property.

I was told not to worry as the road would not be built. If it would not be built then I insist the temporary line should be removed from the map! If the line remains on the map it impacts the value of my property. Should I decide to sell the property a prospective buyer would not be interested with this tentative line across the property.

There is another proposed connection line further North and the hills are more rolling in that area. It would be a more feasible route.

Several years ago when Pheasant Run was being developed I asked the city to require an access to my property from Pheasant Run and I was told it wasn't possible as the land was too steep for a road. That is nothing compared to the hill on the West side of my property.

Sincerely,



Joy Irving
1931 Orchard Ave.
Moscow, Idaho 83843
208 882 3062
irvingjoy@aim.com

Michael Ray

From: Muneta, Joann (jmuneta@uidaho.edu) <jmuneta@uidaho.edu>
Sent: Tuesday, November 20, 2018 10:52 AM
To: Michael Ray
Subject: Comment on Proposed Comprehensive Plan

Comments on Proposed City of Moscow Comprehensive Plan

From: Citizens for a Livable Community, Amy Ball, Chair

Approved by: CLC Board of Directors – 11.11.2018

Submitted by: Joann Muneta, Board Member

Date Submitted: 11-20-2018

Section: Community Mobility 3.1 Thoroughfare Plan shows 3rd St and 6th St. both as Minor Arterials
We ask that these both be changed to Collector status

Reasons:

- 1- In City Street Systems: Goal #C: "City transportation system supports and relates with surrounding land use and preserves and enhances community character and values."
The surrounding land uses of East 3rd St. are residential, park, community center, church and schools and this would not be preserved or enhance by being cut through by a minor arterial which implies that it is intended to be a conveyor of east-west traffic.
- 2- We have been told that there is no difference between minor arterial and collector, but recently 3rd St., which was originally a collector, was changed from a collector to a minor arterial, and 6th St. was changed from a minor arterial to a collector. Now both are listed as minor arterials. If there is no real difference, why the changes? And if there is no real difference, why not have both as collectors which better suits their character and surrounding land use.

We look forward to a response to this comment and request.

Thank you.

Joann Muneta
208-882-3648
jmuneta@uidaho.edu

Michael Ray

From: Matthew Jeffryes <matt@mjeffryes.net>
Sent: Wednesday, November 21, 2018 9:37 PM
To: Michael Ray
Subject: Comprehensive plan revision comments

Mike,

It's been a pleasure to review the drafts of the updates to the city's comprehensive plan. I'm very grateful for the time and dedication of everyone involved in the update. Overall, it is a very thorough and well thought out document; it was especially nice to see so many action items in the 2009 version being crossed off because they have been completed.

I did have one concern I wanted to raise:

The thoroughfare plan presented in section 3 includes a proposed highway 95 bypass west of town, but I could not find any discussion of the potential impacts of such a major road change on land use/zoning in either section 3 or section 2 (Community Character and Land Use). In fact, the land use maps suggest that the majority of the land around such a bypass would be Rural/Agricultural, which seems unrealistic – It seems very likely that there would be significant pressure from auto-oriented businesses (gas stations, fastfood, strip malls) to develop along the new route, as well as residential developers catering to people who commute to pullman or the university.

Personally, I don't think the bypass is a wise idea at this time, (With only 1% projected population growth, development around the bypass would most likely come at the expense of investment in the rest of the city) but if a bypass is part of the plan, we should acknowledge the way it would shape the land use and growth pattern of the city.

Again, I really appreciate the effort that's gone into the update and baring that one concern, everything seems really well thought out.

Best,

Matthew Jeffryes
521 E 1st St
909-753-2303

Citizen input re draft revision Comp Plan (<https://www.ci.moscow.id.us/686/Comprehensive-Plan-Update>)

Comments submitted via email 11-22-18 by Nancy Chaney, 1333 Ponderosa Dr; (208) 882-9350; nchaney@moscow.com

Public comment may be submitted via email to mray@ci.moscow.id.us through Fri Nov 23.

Preface

p.4, last paragraph: Strike 's' on recognize(s)

Chapter 1

1.1: Advise showing the actual population count from the 2010 US Census, in addition to the 2017 estimate.

1.2.2 Agriculture: Advise rephrasing "Livestock and fruit were once important but are not as predominant today." to "Livestock and fruit were once bigger parts of the region's agricultural production and economy, but today, the principal crops of the region are..."

1.12 Arts & Culture: Rephrase "...on Downtown Main Street" to "...downtown, on Main Street"

1.13 Shouldn't you mention UI's Forge Theatre too? What about community theater productions around town? Last I heard, Rendezvous had been reduced from four days to three.

1.14 WSU has updated 2018 enrollment numbers, which have implications for Moscow and UI. It may be logical to compare 2017 population estimates, but it seems prudent to also describe the big jump in WSU and Pullman since then. Also, it seems wise to show actual Census numbers from 2010, in addition to the estimates for 2017.

1.16 The reference to promoting transit corridors in the context of pollinators is confusing. (It reads: "Pollinator habitats focus on pollinator friendly plants, flowers, and ground areas that promote transit corridors...") Please rephrase for clarity.

1.2.3 Correct grammatical error in sentence that reads, "Projecting forward to the year 2030, indicates a likely future population of Moscow of 28,760 persons." Maybe something like, "Based on the trend line, Moscow's projected population in 2030 is estimated at 28,760." Readers might question the veracity of this paragraph because it fails to identify who made that prediction or why they think the rate of growth will follow the trend, particularly when outside variables like climate change, immigration, and politics can drive population shifts (even by 2030). That last point comes up in the water section that follows. You might consider where it makes the most sense to mention it.

1.3.3 I strongly support adding the new section about climate change.

On the fifth line of the page numbered 1.22, I suggest dropping the "...er" from "...people seek less(er) adversely impacted areas..." You might consider mentioning projected changes in food crops (including varieties of and markets for commodity crops), for good or ill, for short- and long terms. In the section on **water**, use the plural, "sources" as related to Wanapum and GR sources. The GR shows little or no evidence of groundwater recharge, so the sentence about reduced aquifer recharge due to climate change is misleading, and should be rephrased or omitted. In the place you mention the changing demands on water consumption, including, "...lower precipitation in the summer..." please add "earlier

and faster runoff in the spring..." In the sentence that begins: "Providing for future growth will require additional conservation, the expansion of effluent irrigation..." it seems prudent to add, "possible satellite and pre-treatment infrastructure..." Has the Sustainable Environment Commission looked into the likelihood that regulations on treated effluent will become more stringent in the near future? In the section about **Energy Usage**, please consider that Moscow doesn't need to wait and *ought not wait* until 2020 to develop strategies and take action to reduce GHG *more than* the 20% below the 2005 baseline... Also, if memory serves, there was early confusion over conflicting methods for measuring levels (first, through ICLEI, then Cool Cities or some other protocol). Is all of that running smoothly now, since former intern Brady McNall teased-out the problems? That's worth confirming before proposed revisions to this section of the Comp Plan are finalized. In the section about **Transportation**, it's worth noting that efficient route layout matters too. I suggest modifying the sentence that begins, "Expanding SMART Transit routes and schedules while sustaining them at low or no cost to citizen use..." so it reads, "Expanding SMART Transit routes and schedules *and fine-tuning their efficiency*, while sustaining them at low or no cost to citizen use..." Capitalize "Complete Streets" so readers recognize it's an actual "thing." Add "and potentially, scooters" to the bit about a bike share. Simply citing downtown as a potential location for EV charging stations is far too restrictive and shortsighted. Years ago, the City's Economic Development Specialist Jeff Jones proposed one for Alturas. The SE Moscow Industrial Park site will make sense one day too, as will Legacy Crossing, and more. Recommend expanding that language. In the section labeled **Climate Migration**, "widespread" is one word. In the section labeled **Food Security** (p. 1.24), if you're going to capitalize "Farmers Market" (which I'm not sure you should), you should also capitalize "Food Co-Op" (and add a hyphen). The reference to "local restaurants" unto themselves is not necessarily supportive of the local foods movement. For example, fast food chains may have a local presence, but import all of their food from far outside this food-shed. I suggest modifying the language to specify, "local restaurants that feature regionally-sourced ingredients." It is also germane to comment on the political realities of tariffs that adversely affect regional commodity crop exports and food security. In addition, although dryland crops here may benefit from climate change in the near term, they are at risk if varieties are not adapted to changing weather conditions. Ask UI Prof John Abatzoglou about that:

<https://www.uidaho.edu/sci/geography/people/faculty/jabatoglou>.

1.4.2 Natural Resource

Objective E ought not be exclusive to socio-economic impacts. Recommend modifying language to "Incorporate a proactive response to potential local and regional effects of changing climate conditions on natural resources and their impacts on *biological diversity, ecological sustainability*, and socio-economic factors." Page 1.25 Revise Implementation Action item 7B to read, "Developing a systematic program for education, attentive monitoring, and active enforcement of existing ordinances concerning the removal and replanting of ROW trees, *tree disease monitoring and control, and public safety related to tree hazards*." Page 1.26 Item 10: If you plan to ditch the reference to a water budget, adjust the lettering of other itemized objectives. On the item presently labeled 10d, add "Research and consideration of alternative water sources that may be utilized to supplement the current groundwater withdrawals, *while guarding against inadvertent contamination with contaminants of emerging concern*." (Note that item 10C reference to water quality does not get to this point because rulemaking still has a gap for so-called emerging contaminants.)

Chapter 2

Section 2.1.6 Education: Add hyphen to "degree-seeking." It seems prudent to acknowledge the dual locations and enrollment caps for NSA.

Section 2.2.2, Housing Demand: "Enrollment growth should be carefully monitored to ensure the appropriate mix of housing is available." That sounds like a good idea, but in practice, the City has no authority to "ensure" appropriate mixes of housing. Rephrase for accuracy. Ironically, even as enrollment at UI declined, we've seen proliferation of huge student apartment complexes. Suggest modifying the sentence, "Additionally, as the Baby Boomer generation ages, there will be an increased need for additional assisted living and continuing care facilities, **as well as for centrally-located, universally-accessible, comfortably-appointed units for active retirees.**"

Section 2.4 Downtown: Rephrase "Over the past five years..." to something like, "In recent years..." (I doubt someone could put a start date on that reinvestment, although one might legitimately say, "Subsequent to national recovery from the 2008 recession..." as alluded to in section 2.4.1.)

Section 2.5.1 (p. 2.20): Because the Comp Plan is a relatively durable document, it seems prudent to rephrase, "The University has recently developed new entrances..." To "Over the past several years, the University incrementally developed..."

2.5.3: Change "The City should strive to increase the number of trees and areas of public lands throughout the City should be identified for viable, large tree planing efforts." to "The City should strive to increase the number of trees that are suited to this climate zone, and identify publically-owned property throughout the city for large-scale tree planting efforts (efforts to plant more large trees???)". (assuming that's the intent of the proposed, but somewhat confusing language). Change "The downtown street trees provide shading during the summer and add to the aesthetics (*spelling*) of downtown." to "The downtown street trees provide shade *and cooling* during the summer, *filter runoff*, and enhance the *aesthetics* of downtown."

2.7.5 (#4): I hope the City preserves plans to provide for wayfinding.

Chapter 3

Community Mobility 3.1 Thoroughfare Plan shows 3rd St and 6th Streets as minor arterials. Both should be collectors.

3.23 Is it still true that Lewiston's airport is more trafficked than Pullman's? I thought I read otherwise.

3.3 "...just over 24 percent of Moscow's residents either walked or used "other means" (non-automobile) to get to work, and ~~only~~ just over ~~61~~60 percent **OF THOSE** drove alone."

3.4.2 No mention of alleyways?

3.4.3 (p. 3.9) The brown text box on this page should be assigned a figure number. "The City's 2014 Multi-Modal Transportation Plan recommended that the bridge installation be accompanied with traffic calming measures to mitigate potential adverse impacts to existing land uses within the corridor." Should be amended to add "...and provide for safety of non-motorized users." The MTC subcommittee emphasized that point repeatedly.

3.4.12: Change "However, in many neighborhoods and the downtown business district, the city's ROW street trees are aging and under additional stress from increased temperatures and drier conditions." To "However, in many neighborhoods and the downtown business district, the street trees are aging and

under additional stress from increased temperatures, drier conditions, additional impervious surfaces, and inadequate irrigation infrastructure and practices.”

3.5.4 (p.3.22) Rephrase “From 2014 to date, 110 pedestrian ramps have been installed.” To “Between 2014 and 2018...” (although ramp installation began before 2014, so you might double-check the dates).

3.6.4 “The City has recently adopted a bicycle parking incentive whereby a certain percentage of automobile parking spaces can be reduced with the inclusion of bicycle parking.” disregards a previous Council’s efforts to do that and more with a proposed ordinance around 2006, trounced at the 11th hour by Moscow Chamber of Commerce. Surely, those forward-thinking earlier efforts warrant mentioning or at least rephrasing this sentence to reflect the long duration of efforts.

3.8.1 “It continues to provide free ridership throughout the community...” Actually, SMART Transit only provides free ridership on all of its routes. Those routes do not cover the whole community.

3.8.2 Delete “both” in “...all contribute to support transit services within the region *both* through “in-kind” or cash-match contributions.”

3.9.1 Sidewalks have not been installed on Cleveland between F Street and Thatuna Avenue. That SRTS project ran out of money, and only reached from F to Public Ave.

Chapter 4

Does this chapter have updated references to the edible forest, Triangle Park, and Blackbird Station?

4.74 Add “...drinking fountains for people and dogs...” (as a new standard)

4.75 Shouldn’t “West Palouse River Drive Ballfields” be expanded to include “...and nature park,” as previously conceived?

4.81 (p. 4.17) Modify phrasing of “The City should work with land trusts to allow public access through their properties where such access would be beneficial in connecting or extending the City’s linear park and pathway system.” to reflect the reality that some properties held in trust may not be designated or otherwise suited to public access.

4.9 Is the recommendation for the budget split for refurbishment vs development/expansion a formal policy established by the Council or a recommendation of the Parks & Rec Commission or staff or something else? Reasonable though it may be, the basis for that recommendation should be generally agreed upon. Add the words “*maintaining and*” to the sentence, “...it is advisable for 25 to 35 percent of the annual parks and recreation budget to be allocated to *maintaining and* refurbishing the existing system.”

4.10.5 (p. 4.20) The sentence, “Even and equal distribution and further development of park spaces, activities, and facilities to meet the diversity of local areas.” (unintentionally) implies that all parts of town will have comparable acreage dedicated to parks. “Equitable” and/or a caveat about “...of a scale and with amenities that are suited to the site and sought by the public...” might make this objective clearer.

Chapter 5

5.3.3 Consider rephrasing the sentence that begins, "Although the location of natural recharge areas to the Wanapum aquifer are not yet known..." to "Although not all locations of natural recharge areas to the Wanapum Aquifer are ~~not yet~~ known or fully understood..." Add to the sentence that advises, "...promote development regulations that preserve open space to facilitate natural recharge such as requiring clustered development with preserved common open space." so that it also says, "...preserved common space *and encouraging permeable surfaces and similar so-called green infrastructure, where appropriate.*"

Figure 5.6: Point #4 says, in part, "consider adding a toilet replacement rebate program," when, in fact, the City already has one. **Points #5 & 12:** Define "COMMITTEE." Point #6: Suggest referring to "failing consumer water meters" as "customers' failing water meters." Maybe "update" should be "replacing" or "repairing" instead. Point #7: Add "online and other digital educational materials." Points #9 & 10 & 14: WWTP name should be consistent with new monikers, "Water Reclamation Conveyance System and Water Reclamation & Reuse Facility."

5.3.9 (p. 5.10, Education): The City has more than one Wisescape demonstration site. Reword that sentence accordingly.

5.4.1 (p. 5.12): Insert comma in "...with the fifth phase currently under study, pending potential revisions to temperature standards for Paradise Creek."

5.5.2: "Hog Creek drains the area between U.S. 95 and Mountain View Road north of the center of town. **Daylighting, re-meandering, and other** improvements to drainage in this area must be considered and addressed as properties to the north are developed." Also in this section, the following sentence is too restrictive in (exclusively engineered) solutions it offers: "As one of the anticipated future development areas exists upstream from these presently developed areas, stormwater runoff from future development within the Paradise Creek drainage must be ~~carefully managed to~~ detained in accordance with the City's requirements to minimize the potential for increased downstream flooding and property damage." The original language ("carefully managed"), though vague, is preferred in some ways. Alternately, consider saying something like, "...runoff from future development within the Paradise Creek drainage must be detained in accordance with the City's requirements, re-meandered to allow periodic surface-spread and filtration of stormwater within open spaces in the new development, and/or managed with green infrastructure like swales and rain gardens to minimize the potential for increased downstream flooding and property damage." Such solutions are listed in 5.9.4, implementation action item #3. (I'm thinking how much better Blackwood and Picabu developments could have managed seasonal surface water flows and runoff.)

5.7.2 (Recycling): With the recent reduction in allowable materials in single-stream, the statement that the "volume of material collected increased over 135 percent" will be obsolete (or at least misleading) almost immediately. Same with the statement about diversion from the landfill. For fairness and accuracy, this section should be explicit about describing significant changes in the commodity market for recyclables, changes in what is and is not accepted curbside and at the recycling center, and the City's efforts at community outreach and education to mitigate present and future challenges.

5.9.2 (Item #6): I think the preferred term these days is "contaminants of emerging concern."

Chapter 6

6.2.2, Table 6.1: It's not clear what the asterisks mean.

6.2.3 Rephrase "On-campus enrollment at the University of Idaho ~~Enrollment~~ peaked at ~~11,706~~10,992 in ~~2004-05~~2010 and since that time has fallen to 9,942 in 2016." to "On-campus enrollment of degree-seeking students at the University of Idaho peaked at 10,992 in 2010 and fell to 9,942 in 2016." Also in this section, specify the date of this statement: "The University of Idaho employs 1,997 people..." so it starts with, "As of 20___..."

Quite a bit of this section reads like an advertisement for EMSI (though not as blatant as it was previously). Rather than mentioning the data or projection source repeatedly, you might consider adding a numbered footnote or something similar.

6.4.1 Maybe add BioTracking to the list of "independent, knowledge-based industries from the universities?"

6.5.6 The "hard infrastructure" section about the lawsuit (filed against ITD, not the "project" per se) regarding the realignment of Highway 95 needs to be updated. An article just appeared in the Daily News with more up-to-date info than shown in the Comp Plan draft. The "Additional Publically Supported Development" section includes this sentence: "Developing an industrial park to the south of Palouse River Drive, east of U.S. 95, to provide space for small businesses to grow." The prospective site is large enough that one might say, "Developing a light industrial park to the south of Palouse River Drive, east of U.S. 95, to provide space for businesses to grow and job opportunities to diversify."

Chapter 7

7.4 "These leaders, and new ones to emerge over the horizon of this Plan, must maintain their commitment to the ongoing implementation of the Plan's policies..." The Comp Plan is visionary and conceptual, and informs policy, but does not establish it. Please rephrase for accuracy. It's also important to acknowledge that although the City's various strategic plans can be helpful, the reality is that circumstances, budgets, and priorities of elected bodies change, and strategic plans are not set in stone (as parts of this draft Comp Plan seem to suggest).

Thank you for this opportunity to comment. Please contact me if you desire clarification or elaboration on any of my remarks.


Nancy Chaney

Michael Ray

From: Nancy Chaney <nancy.chaney@outlook.com>
Sent: Friday, November 23, 2018 12:54 PM
To: Michael Ray
Cc: 'Steven McGeehan'; fedale@wsu.edu
Subject: NYTimes.com: U.S. Climate Report Warns of Damaged Environment and Shrinking Economy

Mike, I'd like to attach (or at least reference) this article (linked here) from today's New York Times to my comments on the Comp Plan, in the context of my support for the new section on climate change. Thanks.

Nancy C

From The New York Times:

U.S. Climate Report Warns of Damaged Environment and Shrinking Economy

Without major action to rein in global warming, the American economy could lose 10 percent of G.D.P. by 2100, according to a report from 13 federal agencies.

<https://www.nytimes.com/2018/11/23/climate/us-climate-report.html>

The New York Times

U.S. Climate Report Warns of Damaged Environment and Shrinking Economy



By Coral Davenport and Kendra Pierre-Louis

Nov. 23, 2018

Want climate news in your inbox? Sign up here for **Climate Fwd.**, our email newsletter.

WASHINGTON — A major scientific report issued by 13 federal agencies on Friday presents the starkest warnings to date of the consequences of climate change for the United States, predicting that if significant steps are not taken to rein in global warming, the damage will knock as much as 10 percent off the size of the American economy by century's end.

The report, which was mandated by Congress and made public by the White House, is notable not only for the precision of its calculations and bluntness of its conclusions, but also because its findings are directly at odds with President Trump's agenda of environmental deregulation, which he asserts will spur economic growth.

Mr. Trump has taken aggressive steps to allow more planet-warming pollution from vehicle tailpipes and power plant smokestacks, and has vowed to pull the United States out of the Paris Agreement, under which nearly every country in the world pledged to cut carbon emissions. Just this week, he mocked the science of climate change because of a cold snap in the Northeast, tweeting, "Whatever happened to Global Warming?"

But in direct language, the 1,656-page assessment lays out the devastating effects of a changing climate on the economy, health and environment, including record wildfires in California, crop failures in the Midwest and crumbling infrastructure in the South. Going forward, American exports and supply chains could be disrupted, agricultural yields could fall to 1980s levels by midcentury and fire season could spread to the Southeast, the report finds.

"There is a bizarre contrast between this report, which is being released by this administration, and this administration's own policies," said Philip B. Duffy, president of the Woods Hole Research Center.

All told, the report says, climate change could slash up to a tenth of gross domestic product by 2100, more than double the losses of the Great Recession a decade ago.

Scientists who worked on the report said it did not appear that administration officials had tried to alter or suppress its findings. However, several noted that the timing of its release, at 2 p.m. the day after Thanksgiving, appeared designed to minimize its public impact.

Still, the report could become a powerful legal tool for opponents of Mr. Trump's efforts to dismantle climate change policy, experts said.

"This report will weaken the Trump administration's legal case for undoing climate change regulations, and it strengthens the hands of those who go to court to fight them," said Michael Oppenheimer, a professor of geosciences and international affairs at Princeton.

[Here's a summary of what's new in the report.]

The report is the second volume of the National Climate Assessment, which the federal government is required by law to produce every four years. The first volume was issued by the White House last year.

The previous report, issued in May 2014, concluded with nearly as much scientific certainty, but not as much precision on the economic costs, that the tangible impacts of climate change had already started to cause damage across the country. It cited increasing water scarcity in dry regions, torrential downpours in wet regions and more severe heat waves and wildfires.

The results of the 2014 report helped inform the Obama administration as it wrote a set of landmark climate change regulations. The following year, the E.P.A. finalized President Barack Obama's signature climate change policy, known as the Clean Power Plan, which aimed to slash planet-warming emissions from coal-fired power plants. At the end of the 2015, Mr. Obama played a lead role in brokering the Paris Agreement.

But in 2016, Republicans in general and Mr. Trump in particular campaigned against those regulations. In rallies before cheering coal miners, Mr. Trump vowed to end what he called Mr. Obama's "war on coal" and to withdraw from the Paris deal. Since winning the election, his administration has moved decisively to roll back environmental regulations.



An oil refinery in Port Arthur, Tex. President Trump has pushed to roll back regulations on carbon emissions. Brandon Thibodeaux for The New York Times

The report puts the most precise price tags to date on the cost to the United States economy of projected climate impacts: \$141 billion from heat-related deaths, \$118 billion from sea level rise and \$32 billion from infrastructure damage by the end of the century, among others.

COMMENT OF THE MOMENT

K **Kim**
Copenhagen | Nov. 24

Times Pick

I predicted to my European friends and colleagues after Katrina that the US would not take climate change seriously until Americans began to feel the tangible effects themselves. Let's hope that we finally are at that critical mass / tipping point and that politicians and the country (i.e., republicans) will start to take this seriously and finally begin to act! So much time has been wasted.

2 Replies 127 Recommend Share

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The findings come a month after the Intergovernmental Panel on Climate Change, a group of scientists convened by the United Nations, issued its most alarming and specific report to date about the severe economic and humanitarian crises expected to hit the world by 2040.

But the new report also emphasizes that the outcomes depend on how swiftly and decisively the United States and other countries take action to mitigate global warming. The authors put forth three main solutions: putting a price on greenhouse gas emissions, which usually means imposing taxes or fees on companies that release carbon dioxide into the atmosphere; establishing government regulations on how much greenhouse pollution can be emitted; and spending public money on clean-energy research.

A White House statement said the report, which was started under the Obama administration, was “largely based on the most extreme scenario” of global warming and that the next assessment would provide an opportunity for greater balance.

The report covers every region of the United States and asserts that recent climate-related events are signs of things to come. No area of the country will be untouched, from the Southwest, where droughts will curb hydropower and tax already limited water supplies, to Alaska, where the loss of sea ice will cause coastal flooding and erosion and force communities to relocate, to Puerto Rico and the Virgin Islands, where saltwater will taint drinking water.

More people will die as heat waves become more common, the scientists say, and a hotter climate will also lead to more outbreaks of disease.

Two areas of impact particularly stand out: trade and agriculture.

Trade disruptions

Mr. Trump has put trade issues at the center of his economic agenda, placing new tariffs on imports and renegotiating trade deals such as the North American Free Trade Agreement. But climate change is likely to be a disruptive force in trade and manufacturing, the report says.

Extreme weather events driven by global warming are “virtually certain to increasingly affect U.S. trade and economy, including import and export prices and businesses with overseas operations and supply chains,” the report concludes.

Such disasters will temporarily shutter factories both in the United States and abroad, causing price spikes for products from apples to automotive parts, the scientists predicted. So much of the supply chain for American companies is overseas that almost no industry will be immune from the effects of climate change at home or abroad, the report says.

It cites as an example the extreme flooding in Thailand in 2011. Western Digital, an American company that produces 60 percent of its hard drives there, sustained \$199 million in losses and halved its hard drive shipments in the last quarter of 2011. The shortages temporarily doubled

hard drive prices, affecting other American companies like Apple, HP and Dell.



Workers cleaned up after floodwaters receded from a Western Digital factory in Thailand.
Rungroj Yongrit/European Pressphoto Agency

American companies should expect many more such disruptions, the report says.

"Climate change is another risk to the strength of the U.S. trade position, and the U.S. ability to export," said Diana Liverman, a University of Arizona professor and co-author of the report. "It can affect U.S. products, and as it drives poverty abroad we can lose consumer markets."

Agricultural risks

The nation's farm belt is likely to be among the hardest-hit regions, and farmers in particular will see their bottom lines threatened.

"Rising temperatures, extreme heat, drought, wildfire on rangelands and heavy downpours are expected to increasingly disrupt agricultural productivity in the U.S.," the report says. "Expect increases in challenges to livestock health, declines in crop yields and quality and changes in extreme events in the United States and abroad."

By 2050, the scientists forecast, changes in rainfall and hotter temperatures will reduce the agricultural productivity of the Midwest to levels last seen in the 1980s.

The risks, the report noted, depend on the ability of producers to adapt to changes.

During the 2012 Midwestern drought, farmers who incorporated conservation practices fared better, said Robert Bonnie, a Rubenstein Fellow at Duke University who worked in the Agriculture Department during the Obama administration. But federal programs designed to help farmers cope with climate change have stalled because the farm bill, the primary legislation for agricultural subsidies, expired this fall.



Flooding in 2011 forced the Fort Calhoun nuclear power station near Omaha to shut down for years. Nati Harnik/Associated Press

The report says the Midwest, as well as the Northeast, will also experience more flooding when it rains, like the 2011 Missouri River flood that inundated a nuclear power plant near Omaha, forcing it to shut down for years.

Other parts of the country, including much of the Southwest, will endure worsening droughts, further taxing limited groundwater supplies. Those droughts can lead to fires, a phenomenon that played out this fall in California as the most destructive wildfire in state history killed dozens of people.

The report predicts that frequent wildfires, long a plague of the Western United States, will also become more common in other regions, including the Southeast. The 2016 Great Smoky Mountains wildfires, which killed 14 people and burned more than 17,000 acres in Tennessee, may

have been just the beginning. But unlike in the West, “in the Southeast, they have no experience with an annual dangerous fire season, or at least very little,” said Andrew Light, a co-author of the report and a senior fellow at the World Resources Institute.

Climate change is taking the United States into uncharted territory, the report concludes. “The assumption that current and future climate conditions will resemble the recent past is no longer valid,” it says.

There is always some uncertainty in climate projections, but scientists’ estimates about the effects of global warming to date have largely been borne out. The variable going forward, the report says, is the amount of carbon emissions humans produce.

For more news on climate and the environment, follow @NYTClimate on Twitter.

Coral Davenport reported from Washington, and Kendra Pierre-Louis from New York.

Coral Davenport covers energy and environmental policy, with a focus on climate change, from the Washington bureau. She joined The Times in 2013 and previously worked at Congressional Quarterly, Politico and National Journal. @CoralMDavenport • Facebook

Kendra Pierre-Louis is a reporter on the climate team. Before joining The Times in 2017, she covered science and the environment for Popular Science. @kendrawrites

A version of this article appears in print on Nov. 23, 2018, on Page A1 of the New York edition with the headline: U.S. Climate Study Has Grim Warning of Economic Risks

READ 751 COMMENTS

Michael Ray

From: David Hall <david_hall@hotmail.com>
Sent: Friday, November 23, 2018 2:30 PM
To: Michael Ray
Cc: David Hall; Nichole Baker
Subject: Comprehensive Plan comments (Chapter 5)
Attachments: 2018-figure5-6.pdf; 5 Public Utilities - 2018 - comments.pdf

Importance: High

Mike Ray, Planning Manager
Moscow Community Development Department
221 E. Second Street
Moscow, ID 83843

Attached are comments on Chapter Five of the City of Moscow Comprehensive Plan. Most of the comments in the larger file were made on the current version of the Comprehensive plan. I subsequently made the changes to the text that are in the current draft. Most of the comments remain the same.

In figure 5.6 the Comprehensive Plan states, "Encourage water recycling at building permit level for major water users." This must be implemented for all building permits. Water use must be considered seriously from the start. Water-use cancellation should be implemented. Projected water use could be banked (developers pay into a fund based on projected water use similar to parklands development options) which would pay for retrofitting other properties in the City to waterless urinals, low-flow toileting, and implementing the many other conservation measures noted in the City Water Conservation Plan.

The City also should specifically disallow re-sale of City water, or of exporting it at commercial levels. Water use must remain within the Palouse Basin. No bottling of water for resale, no non-incidental transport of water, etc. I don't know where that would fit into the Comprehensive Plan.

David Hall
1334 Wallen Road
Moscow, ID

November 23, 2018

Figure 5.6: Water Action Plan

1. Attempt to limit annual aquifer pumping increases to one percent of the pumping volume based on a five year moving average of the pumping (745 mgy) starting with 1986. Attempt to limit the accumulated total pumping to a targeted maximum of 125% of the 1981-1985 average (increase from 700 mgy to 875 mgy).
2. Continue a conservation-based rate structure for single family residential customers.
3. Promote programs to encourage conservation and sustainable water use by multi-family residential and commercial uses.
4. Continue the formal Conservation Program which includes actions such as offering free water conserving devices to customers and consider adding a toilet replacement rebate program.
5. Continue membership in committee with funding for studies and research projects as authorized by the City Council.
6. Continue program to update failing consumer water meters.
7. Continue to participate in education programs (eg. schools, bill stuffers, cable TV)
8. Encourage water recycling at building permit level for major water users.
9. Continue to make city wastewater treatment plant (WWTP) effluent available to the University of Idaho in accordance with the City's agreement with the University.
10. Continue use of WWTP effluent for irrigation at WWTP in accordance with the City's agreement with the University.
11. Explore possible expansion of WWTP effluent reuse.
12. Continue 24-hour daily recordings of water levels and production.
13. Continue input to the Committee of City's monitoring efforts.
14. Comply with all State and Federal regulations pertaining to hazardous materials, storm water disposal, solid waste disposal, sewage sludge disposal, non-point source, household contributions, and well construction and abandonment.
- 15.
16. Continue examination of alternate water supply options as approved by the City Council.

Comment [Unknown A1]: You use caps (MGD) throughout the body of the report.

Comment [Unknown A2]: This needs to be implemented!!

Comment [Unknown A3]: Update terminology?

Comment [Unknown A4]: Clarify with other effluent reuse items

Source: Palouse Basin Aquifer Committee

Public Utilities, Services, and Growth Capacity

COMPREHENSIVE PLAN

5.1 INTRODUCTION

This Chapter evaluates the City's projected growth in light of its available water supply; public facilities, infrastructure and services; and available land for development and redevelopment.

This effort is guided by the following general goals:

- ❑ Provide for sustainable growth while conserving natural resources and enhancing the character of the community and region.
- ❑ Provide for the orderly and efficient delivery and location of public facilities, utilities and services to the residents and businesses within the community.
- ❑ Advocate and practice the sustainable management and development of local and regional water resources and supplies to meet the needs of both current and future residents.
- ❑ Direct growth to areas that can be most efficiently and economically served with public services and utilities while planning for future capacity needs.

5.2 REGIONAL CONTEXT

5.2.1 Population of Moscow and Latah County

Moscow is the county seat and largest city in Latah County. As of 2017, the U.S. Census estimated that Moscow is home to over 64% percent of the total population of Latah County. Moscow is one of relatively few cities set in a rural context that has consistently increased its share of county population for more than 100 years. In 1900, Moscow's 2,484 residents comprised just over 18% percent of the overall County population of 13,451. Since then, Moscow's population has multiplied by a factor of ten, while the County's population (including the unincorporated County and all cities except Moscow) has grown only 29.4 percent during the last 117 years – an annual growth rate of approximately 0.21 percent. See Figure 5.1, Growth of Moscow Relative to Latah County.

5.2.2 Regional Water and Sewer Infrastructure

Water and sewer services within the region generally are provided via individual private wells and septic systems, or by publicly or privately owned systems. Each of the county's nine municipalities has water and sewer services available to their residents. Several small, privately-owned water and sewer systems operate within the County to serve mobile home parks and other unincorporated developments. The Southeast Moscow Water and Sewer District is the only nearby independent water and sewer district that is connected to the Moscow Water Reclamation Conveyance system and Water Reclamation and Reuse Facility.¹

The first goal of Latah County's comprehensive plan calls for the unincorporated County to preserve its rural character, with most growth to be accommodated in and around incorporated Cities.² As the County's most populated City, Moscow is the logical place for most of the County's growth to occur. Therefore, Moscow's ability to provide water and sewer service to new development is critical to its role as a growth center.

The University of Idaho operates its own water system and sewer collection system, but does not offer service off-campus. Moscow's Water Reclamation and Reuse Facility (WRRF) receives and treats the University's wastewater and returns it to the University for re-use for irrigation during the growing season.

5.3 POTABLE WATER

5.3.1 Generally

The City provides potable water service to its residents and businesses. Groundwater is the sole source of the City's potable water supply which comes from both the Wanapum (shallow) and Grande Ronde (deep) aquifers. These aquifers are currently reached by five operating wells. Combined, these wells currently have the potential to produce up to 7.5 million gallons per day (MGD). Moscow's water consistently meets U.S. Environmental Protection Agency's standards for quality, although some taste and odor issues (i.e. iron) have been identified, especially within the Wanapum aquifer.

In 2012 the City adopted a Comprehensive Water System Plan which details all the components of the drinking water system (supply, treatment, storage and distribution).

Comment [Unknown A1]: Odd wording. "Ut water is not kept separate from "Moscow water" during treatment, is it?"

Comment [Unknown A2]: "wells ...have the potential to produce [7.5 MGD]." But on page 5.4 is stated that the "wells are capable of producing approximately a combined ... 8.7 MGD."

Comment [Unknown A3]: (g?)

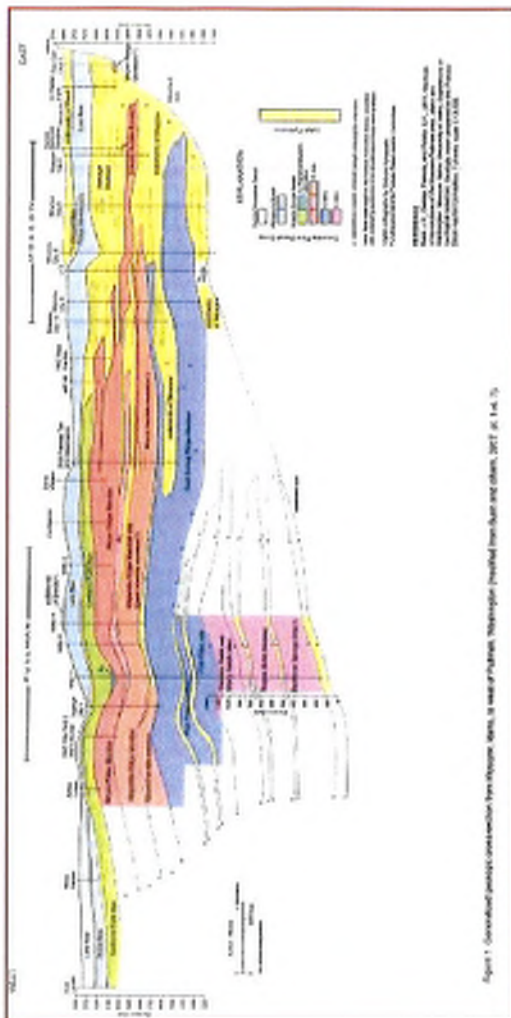
Key water system issues related affecting growth that are general enough to be addressed by this Plan include:

- ii) Moscow relies on groundwater as its sole source of drinking water. The aquifers below Moscow have historically experienced a decline in water levels which might limit growth if additional supply and conservation measures are not implemented.
- iii) Supply, treatment, distribution, and storage facilities are aging and will need to be replaced and new components will need to be added to the water system as Moscow grows.

5.3.2 Supply

The City, University of Idaho, and Latah County are users of both the Grande Ronde and Wanapum aquifers. The City of Pullman, Washington State University, and other cities and towns outside Latah County also use the Grande Ronde Aquifer. While the aquifers have been the subject of many studies over the last fifty years, there are still data gaps that need to be filled.

The most current evidence suggests that the Grande Ronde aquifer does not experience significant recharge likely due to the thick basalt layers and sedimentary interbeds between the aquifer and the ground surface. See Figure 5.2, Hydrogeology of the Palouse Basin. By contrast, the Wanapum aquifer does experience recharge, but the recharge rates and locations are not yet well



Comment [Unknown A4]: Not only is the implied "running out of water" a major concern, it maybe more-so that all those who are pumping from the Grande Ronde aquifer are doing so illegally as Idaho and Washington State both prohibit the mining of aquifers. Moscow is allowed by IDWR to pump from the Grande Ronde for a time while attempting to get off its addiction to the Grande Ronde water. It is unknown when that dispensation will be terminated. But likely it will be before the Grande Ronde aquifer waters are depleted at the depths and locations that Moscow and other entities can access.

Comment [Unknown A5]: Update with new cross section (revealed at the 2017 Palouse Basin Water Summit), with permission by John Bush.

understood. Ultimately, the City will need to rely more heavily on the Wanapum aquifer or other sources (yet to be identified and/or developed) for its potable water supply. There have been recent discussions regarding the potential development of a surface water storage reservoir that could be utilized for direct treatment and consumption, or active aquifer recharge enhancement to supplement drinking water supply. A feasibility study for surface water storage is currently in the planning phase.

The City currently obtains water from five groundwater wells with a new well number 10 currently under development. See [Figure 5.3, Water Well](#). The three primary wells, No. 6, No. 8, and No. 9, are deep wells that tap the Grande Ronde aquifer. Currently, the Grande Ronde wells produce approximately 65 to 70 percent of the City's water. Wells No. 2 and No. 3 are located within the Wanapum aquifer. These wells reach 200 feet or more below ground level and produce water generally of lesser quality than that of the Grande Ronde.

The City's current operating wells are capable of producing approximately a combined 5,895 gallons per minute (gpm), or about 8.5 MGD. Individual production rates vary from 825 gpm to 2,300 gpm. See [Table 5.1, Individual Well Production](#).

Water demand varies considerably from year to year and does not necessarily correlate with population. The highest demand is in the summer months when a large portion of the water is being used for irrigation. Yearly production has ranged from 822 million gallons per year (MGY) to 878 MGY in the period between 2012 and 2016. Maximum daily demands for the same period ranged from 4.6 MGD to 5.2 MGD. See [Table 5.2., Total Water Production](#).

The City's current production capacity exceeds the maximum daily demand

Comment [Unknown A6]: Update

Comment [Unknown A7]: Not a particularly useful figure.

Comment [Unknown A8]: Well, not really. T well reach the surface...

Comment [Unknown A9]: Earlier you say 8.1 MGY.

Comment [Unknown A10]: Awkward positioning of the word "combined"

when all wells are operational. During peak irrigation months (July and August), demand is approximately 4.5-5 MGD. At present there are theoretically three MGD of potential excess water production. However, the Idaho Department of Environmental Quality requires capacity to be calculated based on all sources, with the largest source out of service. When well No. 9 (the City's largest source) is removed from production, the production capacity is reduced to 5.17 MGD, leaving only 0.58 MGD of excess production capacity. Therefore, if well No. 9 becomes inoperable; production must be nearly fully utilized to meet current maximum daily demand. To address this production limitation, the City began development of well No. 10 in 2015 to provide the necessary redundancy. Well drilling was completed in 2016 and early production testing indicated a production capacity in excess of 3,200 Gallons per minute making it the highest production well in the City's system..

Comment [Unknown A11]: Update for new well 10.

Comment [Unknown A12]: Should be a comma

Comment [Unknown A13]: done

5.3.3 Aquifer Recharge

Although the location of natural recharge areas to the Wanapum aquifer are not yet known, it is anticipated that continuing study may eventually identify these recharge areas. The City should work closely with Latah County to promote development regulations that preserve open space to facilitate natural recharge such as requiring clustered development with preserved common open space. See Figure 5.4, Clustering to Preserve Open Space.

5.3.4 Storage

Moscow has four storage reservoirs with a combined total storage of 4.8 million gallons. The reservoirs consist of two elevated storage tanks and two groundlevel storage reservoirs. See Figure 5.5, Water Storage.

A detailed analysis of the storage volume completed as part of the comprehensive water master plan indicates additional storage capacity will be required to meet future demands.

5.3.5 Treatment

All water produced by the City is disinfected with chlorine. Additionally, the City currently treats water from wells No. 2 and No. 3 to remove high levels of iron and manganese using a sand filter system. A 2004 water quality assessment identified several potential taste and odor contributors including sulfates, iron, and manganese (from wells No. 6, No. 8, and No. 9) and the presence of biofilm in the distribution system.² Although the taste and odor problems are not known to present any health risks, their presence does generate some customer complaints. Complaints about taste and odor continue to decline because the City conducts system-wide flushing twice a year, and also has automatic flushing stations throughout the distribution system that flush more frequently to prevent taste issues associated with iron.

5.3.6 Distribution

City water is distributed in mains ranging from 6 to 24 inches in diameter, although the majority of the lines are 6 inches in diameter. A large portion of the system is served by gravity, but there are a number of higher elevation developments that require booster stations to maintain minimum pressure and fire flow requirements.

It is generally preferable to promote the development of areas that can be efficiently and economically served by existing utilities over areas that cannot. As such, when development requires booster stations and other infrastructure enhancements to support water distribution, the cost of those improvements should be borne by the developer. It is also the City's policy to require developers to extend utility lines to the boundaries of adjacent properties to ensure logical and orderly development of the City's utility systems.

5.3.7 Water Rights

The constitution and statutes of the State of Idaho declare that all of the waters of the state, when flowing in their natural channels, are public waters.³ The right

to the "beneficial use" of water is a property right that can be held by a private party like any other property right. The "water right" is the right to divert public waters and put them to a beneficial use, in accordance with one's priority date (the date of the authorized diversion). This doctrine, called "prior appropriation" or "first in time - first in right," is the basis for administering water rights in Idaho. Generally, water rights to cities are granted and allocated by the State. The last time the State granted a water right to Moscow was 1980.

5.3.8 Pullman-Moscow Ground Water Management Plan (Palouse Basin Aquifer Committee)

Aquifer water level decline has been observed for decades within the Palouse Basin. Groundwater withdrawals by all users must be managed in order to keep the aquifers available for continued use. To this end, the City has participated in the Palouse Basin Aquifer Committee (PBAC) for over 30 years. The purpose of this group is to share information among major water users and develop groundwater management strategies.

In 1992, PBAC set target limits for its members of one percent growth, compounded yearly, with pumping increases based on a five-year moving average starting with the 1982 to 1986 period, and a cap of 125 percent of the 1981 to 1985 production average. These numbers are set out in the Pullman-Moscow Ground Water Management Plan (1992), which also includes a number of other actions that Moscow agreed to take with regard to water conservation. See Figure 5.6, Water Action Plan.

The 125 percent cap in the action plan is approximately 875 MGY. Over the five-year period between 2010 and 2015, Moscow's production exceeded 878 MGY only in 2015, when the City pumped 878 MGY. See Figure 5.7, Moscow Water Production History.

While it is anticipated that the City will have sufficient production capacity to meet current and future demands after the development of well No. 10, the City's recent production rates over the last 4 years have been just below the

Figure 5.6:
Water Action Plan

1. At no time shall the accumulated total pumping exceed 875 MGY.
2. Continue summer/winter differential water rates.
3. Require developers to project water use.
4. Participate in programs that offer free water conserving devices.
5. Create a conservation fund with a four cents/1,000 gallon surcharge to customers to pay for those devices, to fund research projects recommended by the Committee, and hire assistance to implement programs.
6. Adopt local codes requiring new water users to utilize water conserving appliances, i.e., smaller toilet tanks, etc.
7. Meter City use of water.
8. Calibrate consumer meters.
9. Address water issue in Comprehensive Plan.
10. Participate in education programs.
11. Encourage recycling at building permit level for major water users.
12. Continue to make City wastewater treatment plant effluent available to the University of Idaho.
13. Continue use of WRRF effluent for irrigation at WRRF.
14. Establish demonstration projects utilizing low water landscaping.
15. Continue 24-hour daily recordings of water levels and pumpage.
16. Continue submitting data to the Committee.
17. Assure the groundwater quality is protected in the Basin by:
18. Reviewing any project with possible recharge to the aquifers;
19. Complying with or exceeding water quality standards.
20. Creating strict standards to prevent contamination of aquifers;
21. Prohibiting chemical dump site over the aquifers;
22. Continuing compliance with EPA regulations regarding underground storage tanks.

Source: Palouse Basin Aquifer Committee

Comment [Unknown A15]: This needs to be implemented

Comment [Unknown A16]: Has this been done?

Comment [Unknown A17]: This needs to be implemented

Comment [Unknown A18]: Update name

Comment [Unknown A19]: Are 18-22 sub-topics of #17?

Comment [Unknown A14]: Which has since been updated or amended

City's PBAC voluntary production limit. Water demand correlates only loosely to population, but 864 million gallons pumped in 2014 served a population of approximately 24,923 people. 1,800 or so lived on-campus, and as a result, did not use City water all of the time. To account for the fact that some of the student water demand was drawn from the City, this analysis will use an estimated figure of 23,123 people who were served by City water in 2014. The result is about 37,365 gallons per person per year. At a voluntary production cap of 875 MGY, the City can reasonably accommodate only a limited amount of new residential growth without reducing the per capita water consumption in some manner.

Of course, per capita water demand for one year is not an adequate measure for planning purposes due to seasonal changes in irrigation needs, varying commercial and industrial demands, and fire suppression, which can have significant impacts on overall water consumption. However, the calculation does suggest that the City should aggressively pursue additional water conservation and the development of supplemental water supplies to meet future needs.

Therefore, if the City wishes to maintain the existing voluntary production limits, providing for future growth will require additional conservation, the expansion of effluent irrigation, and the investigation of alternate supply (such as surface water sources and/or aquifer storage and recharge) to reduce per capita consumption and maintain a reliable and sustainable source of water.

5.3.9. Water Conservation Strategies

Since the City has agreed to restrict its aquifer withdrawals to levels that are near what it is currently utilizing, perhaps the best and most economical way to increase the capacity of the City to accommodate growth is to use its existing water resources more efficiently.

The City currently invests \$140,000 annually to promote water conservation activities within the City including lawn reduction ("irrigation efficient") and low-flow toilet rebate programs. Additionally, since 2004 a revised City ordinance has limited the permitted times for irrigation activities during the watering season and prohibited water wasting activities such as watering impervious surfaces. The City has also enhanced metering activities and implemented leak detection and repair programs to minimize unaccounted water losses within the system.

Available evidence suggests that during the last four years, total water

Comment [Unknown A20]: Keep working on this!

use in the City has held relatively steady, even in the face of population growth, new development, and declining rainfall during the peak irrigation season. See Figure 5.7, Moscow Precipitation, 2012-2015.

While the City has successfully reduced water usage for irrigation in recent years, land development patterns that reduce the need for irrigation could also assist in promoting efficient water use. Clustering suburban and rural development on small lots surrounded by large areas of preserved open space can reduce irrigation demands if the preserved open space is planted with native, drought-tolerant species. The City should consider the development of zoning provisions that allow for residential clustering in rural and suburban districts.

Voluntary Approaches. The City provides tips on indoor and outdoor water conservation, conducts free irrigation audits, formally recognizes water-conserving landscapes, and gives away water-saving devices to municipal water customers – all in order to reduce water demand.

Additionally, rainwater harvesting and grey water reuse for irrigation purposes should be promoted as means to reduce potable water consumption.

Effluent Re-use. Effluent re-use systems are water systems that re-use treated effluent from the wastewater treatment plant for irrigation and other uses that do not require potable water. As a result, groundwater can be used twice before it is returned to the environment at the surface. The increase in efficiency reduces the need to draw water from the aquifer. Along with well designed irrigation systems, effluent re-use can also help to reduce nutrient loads on streams because the wastewater is applied to land (where plants can consume the nutrients) instead of directly into a stream.

The City currently supplies the University of Idaho with effluent for irrigation purposes. However, there is potential to expand this system to reach other areas

Comment [Unknown A21]: Plant (common) areas with native plants.

Comment [Unknown A22]: Irrigation audits are not included in conservation measures offered in the Moscow Water Conservation Plan...

of the City. As part of the comprehensive water master plan, the City should consider the feasibility of installing a wider network for the effluent re-use distribution system.

Education. The City has a beautiful Wiscape demonstration project. The City should continue to promote this project to encourage homeowners to landscape in a manner that reduces water demands. Festivals and events that should be held several times per year to bring people to the Wiscape Garden and educate them about xeriscape techniques and other water conservation measures.

Public-Private Cooperation. The City should work with developers to identify locations for new wells and storage facilities to serve new development. It should also explore the feasibility of rainwater and snowmelt harvesting for large commercial buildings. This would involve capturing the runoff from building roofs by channeling it into storage tanks that connect to the irrigation system. This may present some challenges as the vast majority of precipitation events in Moscow occur outside of the typical irrigation season, and therefore, such systems may require very large storage systems to be an effective water conservation measure. If deemed feasible, the City could encourage rainwater/snowmelt harvesting through rebates, tiered rate structures that make harvesting economically attractive, and/or direct participation in financing through low-interest loans, rebates, LID's, or other financial devices.

5.4 SANITARY SEWER

5.4.1 Generally

The City provides sanitary sewer service to its residents and businesses through the operation of a single Water Reclamation and Reuse Facility (WRRF) plant located on the west side of the City along Paradise Creek. After treatment, the City's waste water effluent is discharged into Paradise Creek under a National Pollutant Discharge Elimination System (NPDES) permit or diverted to the University of Idaho for land application on the campus.

Moscow last prepared a Comprehensive Sewer System Plan in 2011 to plan for improvements at the Water Reclamation and Reuse Facility (WRRF) and water reclamation conveyance system that were needed to meet capacity and regulatory requirements. The plan identified five phases of construction, four of which have been completed with the fifth phase currently under study pending potential revisions to temperature standards for Paradise Creek.

The Comprehensive Sewer System Plan identified four major specific areas that have capacity issues. One of the largest areas of capacity constraint was where the parallel trunk lines that lead from the WRRF to the area near the intersection of the Troy Highway and U.S. 95. This section of sewer main was replaced in the fall of 2017.

5.4.2 Water Reclamation and Reuse Facility (WRRF)

Moscow has spent the last 15 years modifying and upgrading the WRRF to meet current needs and plan for future growth.

See Figure 5-8, Water Reclamation and Reuse Facility

Diagram. The design capacity of Moscow's sewer plant is 4 MGD, with a peak capacity of 10 MGD. The current average existing flow received by the plant ranges between 2 and 2.25 MGD or approximately 56 percent of the design capacity. Although the City's stormwater conveyance system is separate from its sewer system, infiltration and inflow of stormwater remains an issue throughout the City as rain and snowmelt enters the sanitary sewer collection system and increases the flow into the WRRF. For example, when a 6 inch snowfall is followed by a day of rain, flows into the WRRF have been observed to double – from 2.25 MGD to 5.5 MGD. Continued efforts to reduce infiltration into the sanitary sewers will help extend the plant's functional capacity to serve Moscow's residents.

Comment [Unknown A23]: Why and how does stormwater enter the sewer system?

Comment [Unknown A24]: At the current value for cost to treat "wastewater" of \$0.46 per thousand gallons x 2,250 thousand gallons of stormwater treated = \$1,036 cost to treat the stormwater (per day)

5.4.3 Collection

Sewage collection is accomplished principally by a gravity-fed system assisted by four lift stations, with mains ranging between 6 and 24 inches in diameter.

Studies in the early and mid 1990s evaluated the inflow and infiltration into the sewer system. At that time, there was significant inflow and infiltration into the collection system after storms and significant snow melts. Numerous improvements were completed based on this evaluation, and the

City continues to replace sewer mains and manholes to prevent inflow and infiltration of stormwater. In addition to the problem of inflow and infiltration, there are many miles of old, structurally deficient pipe in the system that is in need of replacement.

According to the 2011 Comprehensive Sewer System Plan, capacity challenges in the collection system include:

- The trunk line from Eighth and Jackson Street to the WRRF (increased capacity currently under construction); and
- The collector on White Avenue between Blaine and the Troy Highway; and
- The collectors leading from the intersection of North Polk and Public Street to Main Street following Van Buren, Morton, Adams, and E Streets; and
- The collectors on Sweet Avenue between U.S. 95 and Railroad Street.

Some of the future growth areas identified in this Plan will be served by the areas where the collection system currently faces capacity challenges. These challenges must ultimately be resolved in accordance with the Comprehensive Sewer System Plan to accommodate anticipated growth.

5.5 STORMWATER CONVEYANCE AND TREATMENT

5.5.1 Generally

The City collects and conveys stormwater through an extensive system of curbs, gutters, catchment basins and public storm sewers throughout the City. This storm sewer system collects and conveys stormwater into local waterways, including Paradise Creek and the South Fork of the Palouse River. Newer development is served by similar curb, gutter, and storm sewer systems, but also includes detention facilities that reduce stormwater runoff rate and provide some treatment to the water before it is discharged to local waterways. [Figure 5.10, Stormwater System Statistics](#), describes the details of the City's stormwater system as of October 2018.

The City does not currently have a comprehensive stormwater management plan. In the absence of this plan, the focus of evaluation of stormwater impacts has been generally limited to the area of proposed growth. Existing bottlenecks, stormwater quality regulations, and flood mitigation measures are challenges that must be addressed with regard to stormwater collection and treatment facilities in existing areas, as well

as areas of new growth. Therefore, it is recommended that the City develop a comprehensive stormwater management plan.

5.5.2. Problematic Areas

The City has identified two areas that regularly have stormwater drainage issues:

- l) Sixth Street from Main Street to the discharge at Paradise Creek in the vicinity of Deakin Street regularly exceeds its hydraulic capacity and causes ponding at the intersections of Sixth Street and Main Street and Sixth Street and Jackson Street.
- ll) Hog Creek drains the area between U.S. 95 and Mountain View Road north of the center of town. Improvements to drainage in this area must be considered and addressed as properties to the north are developed. See Map 5.1, Potential Stormwater Constraint Areas.

Most of the areas identified for growth to the south, east, and northeast of the City are very consistent in nature. These areas are in gentle to relatively steep slopes ranging from 3 to 25 percent grade. Soils are generally silty loam, which tends to have low permeability rates. See Map 5.2, Growth Areas.

Most areas will require moderate earth moving activities to develop roads and housing sites. Stormwater collection systems should be relatively simple to construct, as most sites are in relatively close proximity to a natural waterway.

The local waterways, Paradise Creek and the South Fork of the Palouse River, are key elements in the City's stormwater system. As the primary drainage way, care needs to be taken not to hydraulically overload the waterways. Both are susceptible to flooding during peak runoff events.

Paradise Creek is the most heavily developed watershed within the City. Homes in many of the older neighborhoods are developed up to the channel's edge thus limiting the possibility of widening the channel to increase capacity. As one of the anticipated future development areas exists upstream from these presently developed areas, stormwater runoff from future development within the Paradise Creek drainage must be detained in accordance with the City's requirements to minimize the potential for increased downstream flooding and property damage.

The City has received notice by the U.S. Environmental Protection Agency (EPA) indicating that the City of Moscow has been listed as a Phase II Stormwater program entity under the Clean Water Act NPDES system. Under this listing, it will require that stormwater quality meet minimum requirements for new and existing discharges to Paradise Creek and the South Fork of the Palouse River.

It is anticipated that the cost of meeting stormwater program requirements will be significant. A comprehensive stormwater management plan for the entire City should include an examination of water quality issues. In order to comply

5.9 PUBLIC UTILITIES, SERVICES, AND GROWTH CAPACITY

5.9.1 General Goals

- l) Provide for sustainable growth while conserving natural resources, protecting natural features and enhancing the character of the community and region.
- l) Provide for the orderly and efficient delivery and location of public facilities, utilities and services to the residents and businesses within the community.

- Ⓜ Advocate and practice the sustainable management and development of local and regional water resources and supplies to meet the needs of both current and future residents.
- Ⓜ Direct growth to areas that can be most efficiently and economically served with public services and utilities while planning for future capacity needs.

Comment [Unknown A25]: Disallow the sale of water to entities that will resell it, commercially or otherwise; water use must remain in the basin except for small quantities for personal household use.

5.9.2 Potable Water

Objective:

Provide for a safe and sustainable water supply that meets the current and future needs of the community.

Implementation Actions:

1. Prepare a Comprehensive Water Plan that addresses alternative renewable water supplies, analyzes the City's production storage and distribution facilities, expands the effluent reuse for irrigation, and addresses the potential for additional water conservation measures. See Section 5.3.1, Generally.

Comment [Unknown A26]: Done?

2. Prioritize the development of Well No. 10 and the redevelopment of cemetery well to provide adequate redundancy in production capacity. See Section 5.3.2, Supply.

Comment [Unknown A27]: Done?

Comment [Unknown A28]: No longer being considered?

1. Identify and develop alternative water supplies, such as surface water impoundments or aquifer storage and recovery. See Section 5.3.2, Supply.

Comment [Unknown A29]: In process

2. Preserve aquifer recharge areas within the City's jurisdiction if and when they are identified. See Section 5.3.3, Aquifer Recharge.

3. Continue to participate in the Palouse Basin Aquifer Committee in the management of the regional resource. See Section 5.3.8, Pullman-Moscow Ground Water Management Plan (Palouse Basin Aquifer Committee).

Comment [Unknown A30]: Has this been considered at all through planning and zoning?

4. Promote water conserving development practices such as clustering on small lots with common open space that is not irrigated, the provision of smaller lot sizes and greater development densities where appropriate. See Section 5.3.9, Water Conservation Strategies.

5. Continue to enhance existing water conservation programs and increase awareness of xeriscaping techniques to reduce irrigation demand. See Section 5.3.9, Water Conservation Strategies.

Comment [Unknown A31]: The city can be much more aggressive with this. Many of the proposed conservation measures are a negative to the city (costs of avoidance of pumping and treating the water are less than the upfront costs). An additional staff-person might be needed to implement the measures. Only a few of the many measures studied has been added.

6. Anticipate Department of Environmental Quality (DEQ) rulemaking that will address emerging contaminants.

Michael Ray

From: Nils Peterson <nilspete@gmail.com>
Sent: Friday, November 23, 2018 5:24 PM
To: Michael Ray
Subject: Comments on Comp plan

Mike

Page 1.22 there is a section on energy usage related to climate change. It reads "Moscow is currently implementing a 20% by 2020 plan through city operations with a goal of reducing carbon emissions 20% below a 2005 baseline. Upon completion of this goal in 2020, the City should explore expanding that effort to further reduce carbon emissions and fossil fuel consumption."

I appreciate the lengthy process that is involved in revising the Comp Plan, the climate emergency is unfolding at a faster rate.

In October 2018 a special report to the IPCC was released "regarding the impacts of global warming of 1.5C ... [and] strengthening global response to climate change" http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf

Its summary for policymakers Page 14 C.1 says "[To achieve] model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO2 emissions [must] decline by about 45% from 2010 levels by 2030 ..., reaching net zero around 2050.

I think the Comp Plan language above should be strengthened to refer to the recent IPCC report and note that significant additional emissions reductions will be needed in the decade 2020-30 with reductions to net zero by 2050. Further, this challenge must be met by both the municipality and each of its residents.

Thanks

Nils Peterson
(509) 336-1664 (cell)
Pronouns: he, him, his

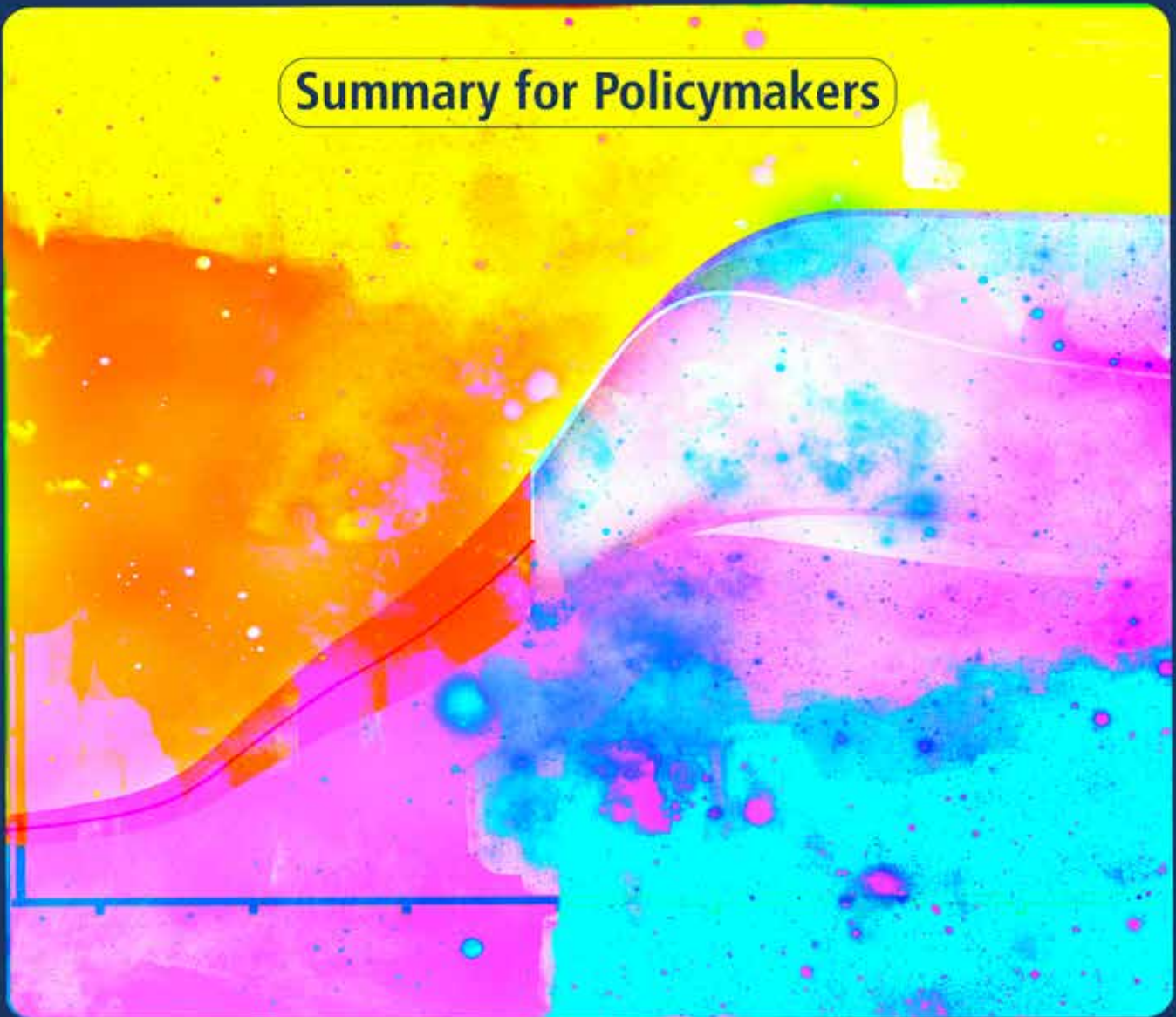
ipcc

INTERGOVERNMENTAL PANEL ON climate change

Global Warming of 1.5°C

An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty

Summary for Policymakers



WG I × WG II × WG III



Global warming of 1.5°C

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Summary for Policymakers

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Summary for Policymakers

SPM

Summary for Policymakers

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This Summary for Policymakers should be cited as:

IPCC, 2018: Summary for Policymakers. In: *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P. R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)]. *World Meteorological Organization, Geneva, Switzerland, 32 pp.*

Acknowledgements

We are very grateful for the expertise, rigour and dedication shown throughout by the volunteer Coordinating Lead Authors and Lead Authors, working across scientific disciplines in each chapter of the report, with essential help by the many Contributing Authors. The Review Editors have played a critical role in assisting the author teams and ensuring the integrity of the review process. We express our sincere appreciation to all the expert and government reviewers. A special thanks goes to the Chapter Scientists of this report who went above and beyond what was expected of them: Neville Ellis, Tania Guillén Bolaños, Daniel Huppmann, Kiane de Kleijne, Richard Millar and Chandni Singh.

We would also like to thank the three Intergovernmental Panel on Climate Change (IPCC) Vice-Chairs Ko Barrett, Thelma Krug, and Youba Sokona as well as the members of the WGI, WGII and WGIII Bureaux for their assistance, guidance, and wisdom throughout the preparation of the Report: Amjad Abdulla, Edvin Aldrian, Carlo Carraro, Diriba Korecha Dadi, Fatima Driouech, Andreas Fischlin, Gregory Flato, Jan Fuglestedt, Mark Howden, Nagmeldin G. E. Mahmoud, Carlos Mendez, Joy Jacqueline Pereira, Ramón Pichs-Madruga, Andy Reisinger, Roberto Sánchez Rodríguez, Sergey Semenov, Muhammad I. Tariq, Diana Ürge-Vorsatz, Carolina Vera, Pius Yanda, Noureddine Yassaa, and Taha Zatari.

Our heartfelt thanks go to the hosts and organizers of the scoping meeting and the four Special Report on 1.5°C Lead Author Meetings. We gratefully acknowledge the support from the host countries and institutions: World Meteorological Organization, Switzerland; Ministry of Foreign Affairs, and the National Institute for Space Research (INPE), Brazil; Met Office and the University of Exeter, the United Kingdom; Swedish Meteorological and Hydrological Institute (SMHI), Sweden; the Ministry of Environment Natural Resources Conservation and Tourism, the National Climate Change Committee in the Department of Meteorological Services and the Botswana Global Environmental Change Committee at the University of Botswana, Botswana; and the government of the Republic of Korea. The support provided by governments and institutions, as well as through contributions to the IPCC Trust Fund, is thankfully acknowledged as it enabled the participation of the author teams in the preparation of the Report. The efficient operation of the Working Group I Technical Support Unit was made possible by the generous financial support provided by the government of France and administrative and information technology support from the Université Paris Saclay (France), Institut Pierre Simon Laplace (IPSL) and the Laboratoire des Sciences du Climat et de l'Environnement (LSCE). We thank the Norwegian Environment Agency for supporting the preparation of the graphics for the Summary for Policymakers. We thank the UNEP Library, who supported authors throughout the drafting process by providing literature for the assessment.

We would also like to thank Abdalah Mokssit, Secretary of the IPCC, and the staff of the IPCC Secretariat: Kerstin Stendahl, Jonathan Lynn, Sophie Schlingemann, Judith Ewa, Mxolisi Shongwe, Jesbin Baidya, Werani Zabula, Nina Peeva, Joelle Fernandez, Annie Courtin, Laura Biagioni and Oksana Ekzarho. Thanks are due to Elhousseine Gouaini who served as the conference officer for the 48th Session of the IPCC.

Finally, our particular appreciation goes to the Working Group Technical Support Units whose tireless dedication, professionalism and enthusiasm led the production of this Special Report. This report could not have been prepared without the commitment of members of the Working Group I Technical Support Unit, all new to the IPCC, who rose to the unprecedented Sixth Assessment Report challenge and were pivotal in all aspects of the preparation of the Report: Yang Chen, Sarah Connors, Melissa Gomis, Elisabeth Lonnoy, Robin Matthews, Wilfran Moufouma-Okia, Clotilde Péan, Roz Pidcock, Anna Pirani, Nicholas Reay, Tim Waterfield, and Xiao Zhou. Our warmest thanks go to the collegial and collaborative support provided by Marlies Craig, Andrew Okem, Jan Petzold, Melinda Tignor and Nora Weyer from the WGII Technical Support Unit and Bhushan Kankal, Suvadip Neogi and Joana Portugal Pereira from the WGIII Technical Support Unit. A special thanks goes to Kenny Coventry, Harmen Gudde, Irene Lorenzoni, and Stuart Jenkins for their support with the figures in the Summary for Policymakers, as well as Nigel Hawtin for graphical support of the Report. In addition, the following contributions are gratefully acknowledged: Jatinder Padda (copy edit), Melissa Dawes (copy edit), Marilyn Anderson (index), Vincent Grégoire (layout) and Sarah le Rouzic (intern).

The Special Report website has been developed by Habitat 7, led by Jamie Herring, and the report content has been prepared and managed for the website by Nicholas Reay and Tim Waterfield. We gratefully acknowledge the UN Foundation for supporting the website development.

Introduction

This Report responds to the invitation for IPCC ‘... to provide a Special Report in 2018 on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways’ contained in the Decision of the 21st Conference of Parties of the United Nations Framework Convention on Climate Change to adopt the Paris Agreement.¹

The IPCC accepted the invitation in April 2016, deciding to prepare this Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

This Summary for Policymakers (SPM) presents the key findings of the Special Report, based on the assessment of the available scientific, technical and socio-economic literature² relevant to global warming of 1.5°C and for the comparison between global warming of 1.5°C and 2°C above pre-industrial levels. The level of confidence associated with each key finding is reported using the IPCC calibrated language.³ The underlying scientific basis of each key finding is indicated by references provided to chapter elements. In the SPM, knowledge gaps are identified associated with the underlying chapters of the Report.

A. Understanding Global Warming of 1.5°C⁴

A.1 Human activities are estimated to have caused approximately 1.0°C of global warming⁵ above pre-industrial levels, with a *likely* range of 0.8°C to 1.2°C. Global warming is *likely* to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate. (*high confidence*) (Figure SPM.1) {1.2}

A.1.1 Reflecting the long-term warming trend since pre-industrial times, observed global mean surface temperature (GMST) for the decade 2006–2015 was 0.87°C (*likely* between 0.75°C and 0.99°C)⁶ higher than the average over the 1850–1900 period (*very high confidence*). Estimated anthropogenic global warming matches the level of observed warming to within ±20% (*likely range*). Estimated anthropogenic global warming is currently increasing at 0.2°C (*likely* between 0.1°C and 0.3°C) per decade due to past and ongoing emissions (*high confidence*). {1.2.1, Table 1.1, 1.2.4}

A.1.2 Warming greater than the global annual average is being experienced in many land regions and seasons, including two to three times higher in the Arctic. Warming is generally higher over land than over the ocean. (*high confidence*) {1.2.1, 1.2.2, Figure 1.1, Figure 1.3, 3.3.1, 3.3.2}

A.1.3 Trends in intensity and frequency of some climate and weather extremes have been detected over time spans during which about 0.5°C of global warming occurred (*medium confidence*). This assessment is based on several lines of evidence, including attribution studies for changes in extremes since 1950. {3.3.1, 3.3.2, 3.3.3}

¹ Decision 1/CP.21, paragraph 21.

² The assessment covers literature accepted for publication by 15 May 2018.

³ Each finding is grounded in an evaluation of underlying evidence and agreement. A level of confidence is expressed using five qualifiers: very low, low, medium, high and very high, and typeset in italics, for example, *medium confidence*. The following terms have been used to indicate the assessed likelihood of an outcome or a result: virtually certain 99–100% probability, very likely 90–100%, likely 66–100%, about as likely as not 33–66%, unlikely 0–33%, very unlikely 0–10%, exceptionally unlikely 0–1%. Additional terms (extremely likely 95–100%, more likely than not >50–100%, more unlikely than likely 0–<50%, extremely unlikely 0–5%) may also be used when appropriate. Assessed likelihood is typeset in italics, for example, *very likely*. This is consistent with AR5.

⁴ See also Box SPM.1: Core Concepts Central to this Special Report.

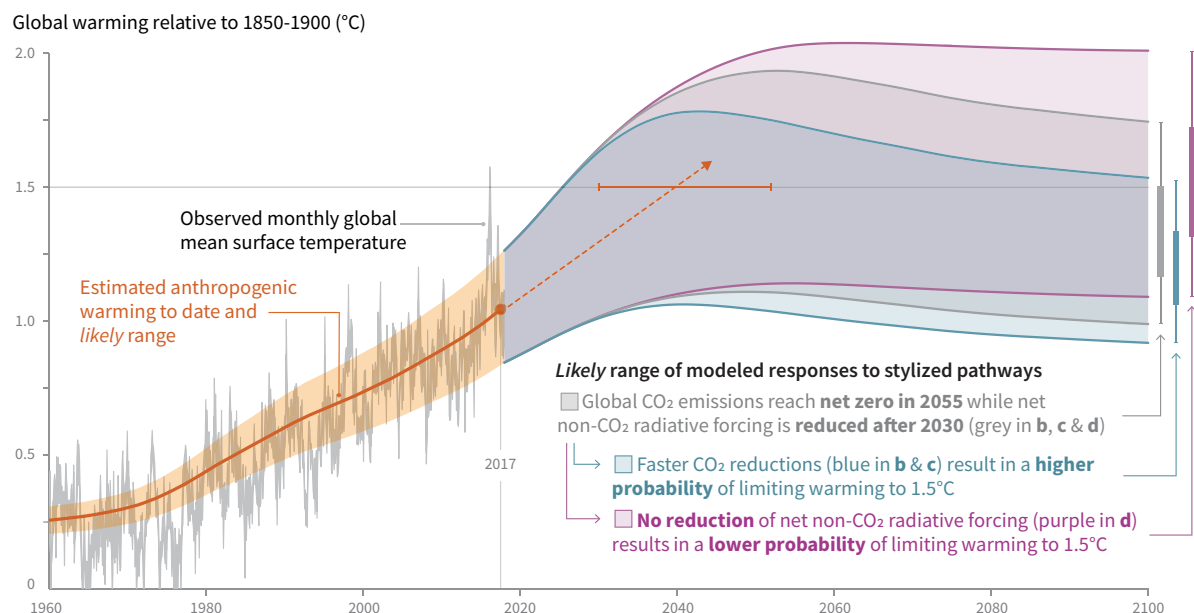
⁵ Present level of global warming is defined as the average of a 30-year period centred on 2017 assuming the recent rate of warming continues.

⁶ This range spans the four available peer-reviewed estimates of the observed GMST change and also accounts for additional uncertainty due to possible short-term natural variability. {1.2.1, Table 1.1}

- A.2 Warming from anthropogenic emissions from the pre-industrial period to the present will persist for centuries to millennia and will continue to cause further long-term changes in the climate system, such as sea level rise, with associated impacts (*high confidence*), but these emissions alone are *unlikely* to cause global warming of 1.5°C (*medium confidence*). (Figure SPM.1) {1.2, 3.3, Figure 1.5}**
- A.2.1 Anthropogenic emissions (including greenhouse gases, aerosols and their precursors) up to the present are *unlikely* to cause further warming of more than 0.5°C over the next two to three decades (*high confidence*) or on a century time scale (*medium confidence*). {1.2.4, Figure 1.5}
- A.2.2 Reaching and sustaining net zero global anthropogenic CO₂ emissions and declining net non-CO₂ radiative forcing would halt anthropogenic global warming on multi-decadal time scales (*high confidence*). The maximum temperature reached is then determined by cumulative net global anthropogenic CO₂ emissions up to the time of net zero CO₂ emissions (*high confidence*) and the level of non-CO₂ radiative forcing in the decades prior to the time that maximum temperatures are reached (*medium confidence*). On longer time scales, sustained net negative global anthropogenic CO₂ emissions and/or further reductions in non-CO₂ radiative forcing may still be required to prevent further warming due to Earth system feedbacks and to reverse ocean acidification (*medium confidence*) and will be required to minimize sea level rise (*high confidence*). {Cross-Chapter Box 2 in Chapter 1, 1.2.3, 1.2.4, Figure 1.4, 2.2.1, 2.2.2, 3.4.4.8, 3.4.5.1, 3.6.3.2}
- A.3 Climate-related risks for natural and human systems are higher for global warming of 1.5°C than at present, but lower than at 2°C (*high confidence*). These risks depend on the magnitude and rate of warming, geographic location, levels of development and vulnerability, and on the choices and implementation of adaptation and mitigation options (*high confidence*). (Figure SPM.2) {1.3, 3.3, 3.4, 5.6}**
- A.3.1 Impacts on natural and human systems from global warming have already been observed (*high confidence*). Many land and ocean ecosystems and some of the services they provide have already changed due to global warming (*high confidence*). (Figure SPM.2) {1.4, 3.4, 3.5}
- A.3.2 Future climate-related risks depend on the rate, peak and duration of warming. In the aggregate, they are larger if global warming exceeds 1.5°C before returning to that level by 2100 than if global warming gradually stabilizes at 1.5°C, especially if the peak temperature is high (e.g., about 2°C) (*high confidence*). Some impacts may be long-lasting or irreversible, such as the loss of some ecosystems (*high confidence*). {3.2, 3.4.4, 3.6.3, Cross-Chapter Box 8 in Chapter 3}
- A.3.3 Adaptation and mitigation are already occurring (*high confidence*). Future climate-related risks would be reduced by the upscaling and acceleration of far-reaching, multilevel and cross-sectoral climate mitigation and by both incremental and transformational adaptation (*high confidence*). {1.2, 1.3, Table 3.5, 4.2.2, Cross-Chapter Box 9 in Chapter 4, Box 4.2, Box 4.3, Box 4.6, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.4.1, 4.4.4, 4.4.5, 4.5.3}

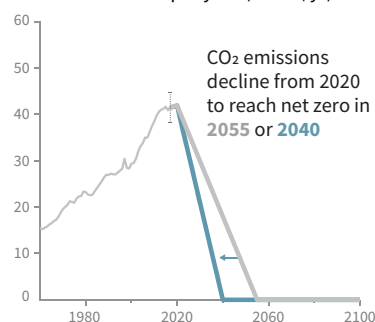
Cumulative emissions of CO₂ and future non-CO₂ radiative forcing determine the probability of limiting warming to 1.5°C

a) Observed global temperature change and modeled responses to stylized anthropogenic emission and forcing pathways



b) Stylized net global CO₂ emission pathways

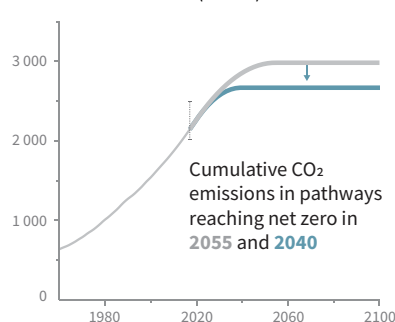
Billion tonnes CO₂ per year (GtCO₂/yr)



Faster immediate CO₂ emission reductions limit cumulative CO₂ emissions shown in panel (c).

c) Cumulative net CO₂ emissions

Billion tonnes CO₂ (GtCO₂)



Maximum temperature rise is determined by cumulative net CO₂ emissions and net non-CO₂ radiative forcing due to methane, nitrous oxide, aerosols and other anthropogenic forcing agents.

d) Non-CO₂ radiative forcing pathways

Watts per square metre (W/m²)

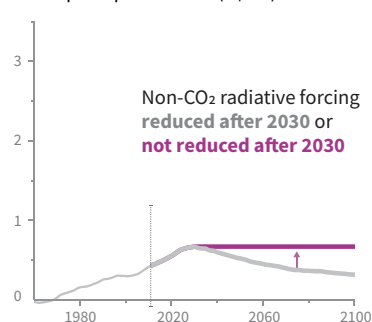


Figure SPM.1 | Panel a: Observed monthly global mean surface temperature (GMST, grey line up to 2017, from the HadCRUT4, GISTEMP, Cowtan–Way, and NOAA datasets) change and estimated anthropogenic global warming (solid orange line up to 2017, with orange shading indicating assessed *likely* range). Orange dashed arrow and horizontal orange error bar show respectively the central estimate and *likely* range of the time at which 1.5°C is reached if the current rate of warming continues. The grey plume on the right of panel a shows the *likely* range of warming responses, computed with a simple climate model, to a stylized pathway (hypothetical future) in which net CO₂ emissions (grey line in panels b and c) decline in a straight line from 2020 to reach net zero in 2055 and net non-CO₂ radiative forcing (grey line in panel d) increases to 2030 and then declines. The blue plume in panel a shows the response to faster CO₂ emissions reductions (blue line in panel b), reaching net zero in 2040, reducing cumulative CO₂ emissions (panel c). The purple plume shows the response to net CO₂ emissions declining to zero in 2055, with net non-CO₂ forcing remaining constant after 2030. The vertical error bars on right of panel a show the *likely* ranges (thin lines) and central terciles (33rd – 66th percentiles, thick lines) of the estimated distribution of warming in 2100 under these three stylized pathways. Vertical dotted error bars in panels b, c and d show the *likely* range of historical annual and cumulative global net CO₂ emissions in 2017 (data from the Global Carbon Project) and of net non-CO₂ radiative forcing in 2011 from AR5, respectively. Vertical axes in panels c and d are scaled to represent approximately equal effects on GMST. [1.2.1, 1.2.3, 1.2.4, 2.3, Figure 1.2 and Chapter 1 Supplementary Material, Cross-Chapter Box 2 in Chapter 1]

B. Projected Climate Change, Potential Impacts and Associated Risks

B.1 Climate models project robust⁷ differences in regional climate characteristics between present-day and global warming of 1.5°C,⁸ and between 1.5°C and 2°C.⁸ These differences include increases in: mean temperature in most land and ocean regions (*high confidence*), hot extremes in most inhabited regions (*high confidence*), heavy precipitation in several regions (*medium confidence*), and the probability of drought and precipitation deficits in some regions (*medium confidence*). {3.3}

B.1.1 Evidence from attributed changes in some climate and weather extremes for a global warming of about 0.5°C supports the assessment that an additional 0.5°C of warming compared to present is associated with further detectable changes in these extremes (*medium confidence*). Several regional changes in climate are assessed to occur with global warming up to 1.5°C compared to pre-industrial levels, including warming of extreme temperatures in many regions (*high confidence*), increases in frequency, intensity, and/or amount of heavy precipitation in several regions (*high confidence*), and an increase in intensity or frequency of droughts in some regions (*medium confidence*). {3.2, 3.3.1, 3.3.2, 3.3.3, 3.3.4, Table 3.2}

B.1.2 Temperature extremes on land are projected to warm more than GMST (*high confidence*): extreme hot days in mid-latitudes warm by up to about 3°C at global warming of 1.5°C and about 4°C at 2°C, and extreme cold nights in high latitudes warm by up to about 4.5°C at 1.5°C and about 6°C at 2°C (*high confidence*). The number of hot days is projected to increase in most land regions, with highest increases in the tropics (*high confidence*). {3.3.1, 3.3.2, Cross-Chapter Box 8 in Chapter 3}

B.1.3 Risks from droughts and precipitation deficits are projected to be higher at 2°C compared to 1.5°C of global warming in some regions (*medium confidence*). Risks from heavy precipitation events are projected to be higher at 2°C compared to 1.5°C of global warming in several northern hemisphere high-latitude and/or high-elevation regions, eastern Asia and eastern North America (*medium confidence*). Heavy precipitation associated with tropical cyclones is projected to be higher at 2°C compared to 1.5°C global warming (*medium confidence*). There is generally *low confidence* in projected changes in heavy precipitation at 2°C compared to 1.5°C in other regions. Heavy precipitation when aggregated at global scale is projected to be higher at 2°C than at 1.5°C of global warming (*medium confidence*). As a consequence of heavy precipitation, the fraction of the global land area affected by flood hazards is projected to be larger at 2°C compared to 1.5°C of global warming (*medium confidence*). {3.3.1, 3.3.3, 3.3.4, 3.3.5, 3.3.6}

B.2 By 2100, global mean sea level rise is projected to be around 0.1 metre lower with global warming of 1.5°C compared to 2°C (*medium confidence*). Sea level will continue to rise well beyond 2100 (*high confidence*), and the magnitude and rate of this rise depend on future emission pathways. A slower rate of sea level rise enables greater opportunities for adaptation in the human and ecological systems of small islands, low-lying coastal areas and deltas (*medium confidence*). {3.3, 3.4, 3.6}

B.2.1 Model-based projections of global mean sea level rise (relative to 1986–2005) suggest an indicative range of 0.26 to 0.77 m by 2100 for 1.5°C of global warming, 0.1 m (0.04–0.16 m) less than for a global warming of 2°C (*medium confidence*). A reduction of 0.1 m in global sea level rise implies that up to 10 million fewer people would be exposed to related risks, based on population in the year 2010 and assuming no adaptation (*medium confidence*). {3.4.4, 3.4.5, 4.3.2}

B.2.2 Sea level rise will continue beyond 2100 even if global warming is limited to 1.5°C in the 21st century (*high confidence*). Marine ice sheet instability in Antarctica and/or irreversible loss of the Greenland ice sheet could result in multi-metre rise in sea level over hundreds to thousands of years. These instabilities could be triggered at around 1.5°C to 2°C of global warming (*medium confidence*). (Figure SPM.2) {3.3.9, 3.4.5, 3.5.2, 3.6.3, Box 3.3}

⁷ Robust is here used to mean that at least two thirds of climate models show the same sign of changes at the grid point scale, and that differences in large regions are statistically significant.

⁸ Projected changes in impacts between different levels of global warming are determined with respect to changes in global mean surface air temperature.

B.2.3 Increasing warming amplifies the exposure of small islands, low-lying coastal areas and deltas to the risks associated with sea level rise for many human and ecological systems, including increased saltwater intrusion, flooding and damage to infrastructure (*high confidence*). Risks associated with sea level rise are higher at 2°C compared to 1.5°C. The slower rate of sea level rise at global warming of 1.5°C reduces these risks, enabling greater opportunities for adaptation including managing and restoring natural coastal ecosystems and infrastructure reinforcement (*medium confidence*). (Figure SPM.2) {3.4.5, Box 3.5}

B.3 On land, impacts on biodiversity and ecosystems, including species loss and extinction, are projected to be lower at 1.5°C of global warming compared to 2°C. Limiting global warming to 1.5°C compared to 2°C is projected to lower the impacts on terrestrial, freshwater and coastal ecosystems and to retain more of their services to humans (*high confidence*). (Figure SPM.2) {3.4, 3.5, Box 3.4, Box 4.2, Cross-Chapter Box 8 in Chapter 3}

B.3.1 Of 105,000 species studied,⁹ 6% of insects, 8% of plants and 4% of vertebrates are projected to lose over half of their climatically determined geographic range for global warming of 1.5°C, compared with 18% of insects, 16% of plants and 8% of vertebrates for global warming of 2°C (*medium confidence*). Impacts associated with other biodiversity-related risks such as forest fires and the spread of invasive species are lower at 1.5°C compared to 2°C of global warming (*high confidence*). {3.4.3, 3.5.2}

B.3.2 Approximately 4% (interquartile range 2–7%) of the global terrestrial land area is projected to undergo a transformation of ecosystems from one type to another at 1°C of global warming, compared with 13% (interquartile range 8–20%) at 2°C (*medium confidence*). This indicates that the area at risk is projected to be approximately 50% lower at 1.5°C compared to 2°C (*medium confidence*). {3.4.3.1, 3.4.3.5}

B.3.3 High-latitude tundra and boreal forests are particularly at risk of climate change-induced degradation and loss, with woody shrubs already encroaching into the tundra (*high confidence*) and this will proceed with further warming. Limiting global warming to 1.5°C rather than 2°C is projected to prevent the thawing over centuries of a permafrost area in the range of 1.5 to 2.5 million km² (*medium confidence*). {3.3.2, 3.4.3, 3.5.5}

B.4 Limiting global warming to 1.5°C compared to 2°C is projected to reduce increases in ocean temperature as well as associated increases in ocean acidity and decreases in ocean oxygen levels (*high confidence*). Consequently, limiting global warming to 1.5°C is projected to reduce risks to marine biodiversity, fisheries, and ecosystems, and their functions and services to humans, as illustrated by recent changes to Arctic sea ice and warm-water coral reef ecosystems (*high confidence*). {3.3, 3.4, 3.5, Box 3.4, Box 3.5}

B.4.1 There is *high confidence* that the probability of a sea ice-free Arctic Ocean during summer is substantially lower at global warming of 1.5°C when compared to 2°C. With 1.5°C of global warming, one sea ice-free Arctic summer is projected per century. This likelihood is increased to at least one per decade with 2°C global warming. Effects of a temperature overshoot are reversible for Arctic sea ice cover on decadal time scales (*high confidence*). {3.3.8, 3.4.4.7}

B.4.2 Global warming of 1.5°C is projected to shift the ranges of many marine species to higher latitudes as well as increase the amount of damage to many ecosystems. It is also expected to drive the loss of coastal resources and reduce the productivity of fisheries and aquaculture (especially at low latitudes). The risks of climate-induced impacts are projected to be higher at 2°C than those at global warming of 1.5°C (*high confidence*). Coral reefs, for example, are projected to decline by a further 70–90% at 1.5°C (*high confidence*) with larger losses (>99%) at 2°C (*very high confidence*). The risk of irreversible loss of many marine and coastal ecosystems increases with global warming, especially at 2°C or more (*high confidence*). {3.4.4, Box 3.4}

⁹ Consistent with earlier studies, illustrative numbers were adopted from one recent meta-study.

- B.4.3 The level of ocean acidification due to increasing CO₂ concentrations associated with global warming of 1.5°C is projected to amplify the adverse effects of warming, and even further at 2°C, impacting the growth, development, calcification, survival, and thus abundance of a broad range of species, for example, from algae to fish (*high confidence*). {3.3.10, 3.4.4}
- B.4.4 Impacts of climate change in the ocean are increasing risks to fisheries and aquaculture via impacts on the physiology, survivorship, habitat, reproduction, disease incidence, and risk of invasive species (*medium confidence*) but are projected to be less at 1.5°C of global warming than at 2°C. One global fishery model, for example, projected a decrease in global annual catch for marine fisheries of about 1.5 million tonnes for 1.5°C of global warming compared to a loss of more than 3 million tonnes for 2°C of global warming (*medium confidence*). {3.4.4, Box 3.4}
- B.5 Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C. (Figure SPM.2) {3.4, 3.5, 5.2, Box 3.2, Box 3.3, Box 3.5, Box 3.6, Cross-Chapter Box 6 in Chapter 3, Cross-Chapter Box 9 in Chapter 4, Cross-Chapter Box 12 in Chapter 5, 5.2}**
- B.5.1 Populations at disproportionately higher risk of adverse consequences with global warming of 1.5°C and beyond include disadvantaged and vulnerable populations, some indigenous peoples, and local communities dependent on agricultural or coastal livelihoods (*high confidence*). Regions at disproportionately higher risk include Arctic ecosystems, dryland regions, small island developing states, and Least Developed Countries (*high confidence*). Poverty and disadvantage are expected to increase in some populations as global warming increases; limiting global warming to 1.5°C, compared with 2°C, could reduce the number of people both exposed to climate-related risks and susceptible to poverty by up to several hundred million by 2050 (*medium confidence*). {3.4.10, 3.4.11, Box 3.5, Cross-Chapter Box 6 in Chapter 3, Cross-Chapter Box 9 in Chapter 4, Cross-Chapter Box 12 in Chapter 5, 4.2.2.2, 5.2.1, 5.2.2, 5.2.3, 5.6.3}
- B.5.2 Any increase in global warming is projected to affect human health, with primarily negative consequences (*high confidence*). Lower risks are projected at 1.5°C than at 2°C for heat-related morbidity and mortality (*very high confidence*) and for ozone-related mortality if emissions needed for ozone formation remain high (*high confidence*). Urban heat islands often amplify the impacts of heatwaves in cities (*high confidence*). Risks from some vector-borne diseases, such as malaria and dengue fever, are projected to increase with warming from 1.5°C to 2°C, including potential shifts in their geographic range (*high confidence*). {3.4.7, 3.4.8, 3.5.5.8}
- B.5.3 Limiting warming to 1.5°C compared with 2°C is projected to result in smaller net reductions in yields of maize, rice, wheat, and potentially other cereal crops, particularly in sub-Saharan Africa, Southeast Asia, and Central and South America, and in the CO₂-dependent nutritional quality of rice and wheat (*high confidence*). Reductions in projected food availability are larger at 2°C than at 1.5°C of global warming in the Sahel, southern Africa, the Mediterranean, central Europe, and the Amazon (*medium confidence*). Livestock are projected to be adversely affected with rising temperatures, depending on the extent of changes in feed quality, spread of diseases, and water resource availability (*high confidence*). {3.4.6, 3.5.4, 3.5.5, Box 3.1, Cross-Chapter Box 6 in Chapter 3, Cross-Chapter Box 9 in Chapter 4}
- B.5.4 Depending on future socio-economic conditions, limiting global warming to 1.5°C compared to 2°C may reduce the proportion of the world population exposed to a climate change-induced increase in water stress by up to 50%, although there is considerable variability between regions (*medium confidence*). Many small island developing states could experience lower water stress as a result of projected changes in aridity when global warming is limited to 1.5°C, as compared to 2°C (*medium confidence*). {3.3.5, 3.4.2, 3.4.8, 3.5.5, Box 3.2, Box 3.5, Cross-Chapter Box 9 in Chapter 4}
- B.5.5 Risks to global aggregated economic growth due to climate change impacts are projected to be lower at 1.5°C than at 2°C by the end of this century¹⁰ (*medium confidence*). This excludes the costs of mitigation, adaptation investments and the benefits of adaptation. Countries in the tropics and Southern Hemisphere subtropics are projected to experience the largest impacts on economic growth due to climate change should global warming increase from 1.5°C to 2°C (*medium confidence*). {3.5.2, 3.5.3}

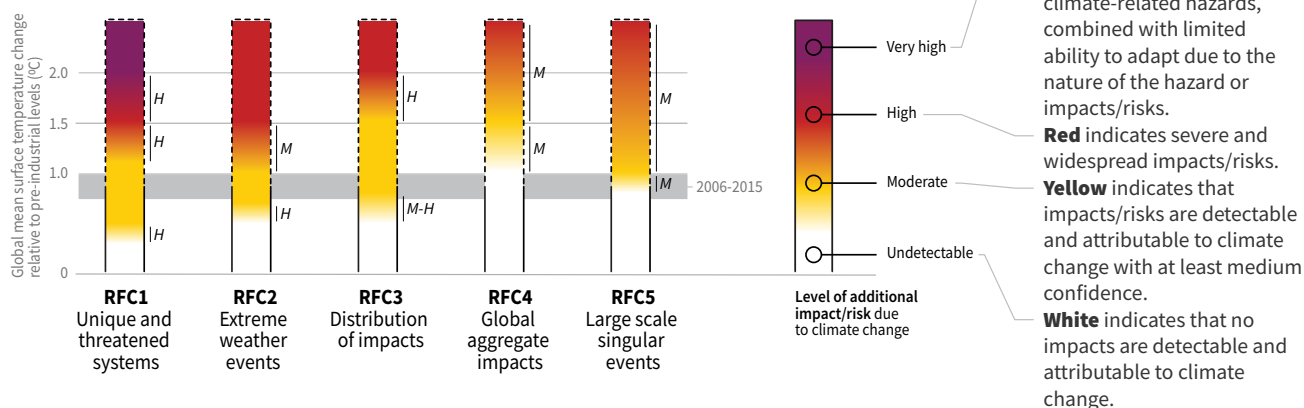
¹⁰ Here, impacts on economic growth refer to changes in gross domestic product (GDP). Many impacts, such as loss of human lives, cultural heritage and ecosystem services, are difficult to value and monetize.

- B.5.6 Exposure to multiple and compound climate-related risks increases between 1.5°C and 2°C of global warming, with greater proportions of people both so exposed and susceptible to poverty in Africa and Asia (*high confidence*). For global warming from 1.5°C to 2°C, risks across energy, food, and water sectors could overlap spatially and temporally, creating new and exacerbating current hazards, exposures, and vulnerabilities that could affect increasing numbers of people and regions (*medium confidence*). {Box 3.5, 3.3.1, 3.4.5.3, 3.4.5.6, 3.4.11, 3.5.4.9}
- B.5.7 There are multiple lines of evidence that since AR5 the assessed levels of risk increased for four of the five Reasons for Concern (RFCs) for global warming to 2°C (*high confidence*). The risk transitions by degrees of global warming are now: from high to very high risk between 1.5°C and 2°C for RFC1 (Unique and threatened systems) (*high confidence*); from moderate to high risk between 1°C and 1.5°C for RFC2 (Extreme weather events) (*medium confidence*); from moderate to high risk between 1.5°C and 2°C for RFC3 (Distribution of impacts) (*high confidence*); from moderate to high risk between 1.5°C and 2.5°C for RFC4 (Global aggregate impacts) (*medium confidence*); and from moderate to high risk between 1°C and 2.5°C for RFC5 (Large-scale singular events) (*medium confidence*). (Figure SPM.2) {3.4.13; 3.5, 3.5.2}
- B.6 Most adaptation needs will be lower for global warming of 1.5°C compared to 2°C (*high confidence*). There are a wide range of adaptation options that can reduce the risks of climate change (*high confidence*). There are limits to adaptation and adaptive capacity for some human and natural systems at global warming of 1.5°C, with associated losses (*medium confidence*). The number and availability of adaptation options vary by sector (*medium confidence*). {Table 3.5, 4.3, 4.5, Cross-Chapter Box 9 in Chapter 4, Cross-Chapter Box 12 in Chapter 5}**
- B.6.1 A wide range of adaptation options are available to reduce the risks to natural and managed ecosystems (e.g., ecosystem-based adaptation, ecosystem restoration and avoided degradation and deforestation, biodiversity management, sustainable aquaculture, and local knowledge and indigenous knowledge), the risks of sea level rise (e.g., coastal defence and hardening), and the risks to health, livelihoods, food, water, and economic growth, especially in rural landscapes (e.g., efficient irrigation, social safety nets, disaster risk management, risk spreading and sharing, and community-based adaptation) and urban areas (e.g., green infrastructure, sustainable land use and planning, and sustainable water management) (*medium confidence*). {4.3.1, 4.3.2, 4.3.3, 4.3.5, 4.5.3, 4.5.4, 5.3.2, Box 4.2, Box 4.3, Box 4.6, Cross-Chapter Box 9 in Chapter 4}.
- B.6.2 Adaptation is expected to be more challenging for ecosystems, food and health systems at 2°C of global warming than for 1.5°C (*medium confidence*). Some vulnerable regions, including small islands and Least Developed Countries, are projected to experience high multiple interrelated climate risks even at global warming of 1.5°C (*high confidence*). {3.3.1, 3.4.5, Box 3.5, Table 3.5, Cross-Chapter Box 9 in Chapter 4, 5.6, Cross-Chapter Box 12 in Chapter 5, Box 5.3}
- B.6.3 Limits to adaptive capacity exist at 1.5°C of global warming, become more pronounced at higher levels of warming and vary by sector, with site-specific implications for vulnerable regions, ecosystems and human health (*medium confidence*). {Cross-Chapter Box 12 in Chapter 5, Box 3.5, Table 3.5}

How the level of global warming affects impacts and/or risks associated with the Reasons for Concern (RFCs) and selected natural, managed and human systems

Five Reasons For Concern (RFCs) illustrate the impacts and risks of different levels of global warming for people, economies and ecosystems across sectors and regions.

Impacts and risks associated with the Reasons for Concern (RFCs)



Impacts and risks for selected natural, managed and human systems

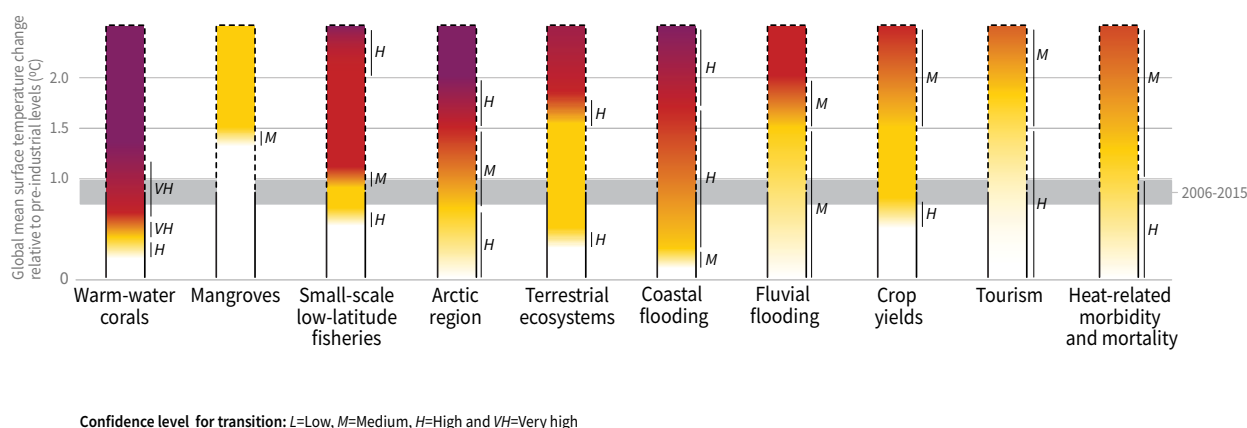


Figure SPM.2 | Five integrative reasons for concern (RFCs) provide a framework for summarizing key impacts and risks across sectors and regions, and were introduced in the IPCC Third Assessment Report. RFCs illustrate the implications of global warming for people, economies and ecosystems. Impacts and/or risks for each RFC are based on assessment of the new literature that has appeared. As in AR5, this literature was used to make expert judgments to assess the levels of global warming at which levels of impact and/or risk are undetectable, moderate, high or very high. The selection of impacts and risks to natural, managed and human systems in the lower panel is illustrative and is not intended to be fully comprehensive. {3.4, 3.5, 3.5.2.1, 3.5.2.2, 3.5.2.3, 3.5.2.4, 3.5.2.5, 5.4.1, 5.5.3, 5.6.1, Box 3.4}

RFC1 Unique and threatened systems: ecological and human systems that have restricted geographic ranges constrained by climate-related conditions and have high endemism or other distinctive properties. Examples include coral reefs, the Arctic and its indigenous people, mountain glaciers and biodiversity hotspots.

RFC2 Extreme weather events: risks/impacts to human health, livelihoods, assets and ecosystems from extreme weather events such as heat waves, heavy rain, drought and associated wildfires, and coastal flooding.

RFC3 Distribution of impacts: risks/impacts that disproportionately affect particular groups due to uneven distribution of physical climate change hazards, exposure or vulnerability.

RFC4 Global aggregate impacts: global monetary damage, global-scale degradation and loss of ecosystems and biodiversity.

RFC5 Large-scale singular events: are relatively large, abrupt and sometimes irreversible changes in systems that are caused by global warming. Examples include disintegration of the Greenland and Antarctic ice sheets.

C. Emission Pathways and System Transitions Consistent with 1.5°C Global Warming

C.1 In model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO₂ emissions decline by about 45% from 2010 levels by 2030 (40–60% interquartile range), reaching net zero around 2050 (2045–2055 interquartile range). For limiting global warming to below 2°C¹¹ CO₂ emissions are projected to decline by about 25% by 2030 in most pathways (10–30% interquartile range) and reach net zero around 2070 (2065–2080 interquartile range). Non-CO₂ emissions in pathways that limit global warming to 1.5°C show deep reductions that are similar to those in pathways limiting warming to 2°C. (*high confidence*) (Figure SPM.3a) {2.1, 2.3, Table 2.4}

C.1.1 CO₂ emissions reductions that limit global warming to 1.5°C with no or limited overshoot can involve different portfolios of mitigation measures, striking different balances between lowering energy and resource intensity, rate of decarbonization, and the reliance on carbon dioxide removal. Different portfolios face different implementation challenges and potential synergies and trade-offs with sustainable development. (*high confidence*) (Figure SPM.3b) {2.3.2, 2.3.4, 2.4, 2.5.3}

C.1.2 Modelled pathways that limit global warming to 1.5°C with no or limited overshoot involve deep reductions in emissions of methane and black carbon (35% or more of both by 2050 relative to 2010). These pathways also reduce most of the cooling aerosols, which partially offsets mitigation effects for two to three decades. Non-CO₂ emissions¹² can be reduced as a result of broad mitigation measures in the energy sector. In addition, targeted non-CO₂ mitigation measures can reduce nitrous oxide and methane from agriculture, methane from the waste sector, some sources of black carbon, and hydrofluorocarbons. High bioenergy demand can increase emissions of nitrous oxide in some 1.5°C pathways, highlighting the importance of appropriate management approaches. Improved air quality resulting from projected reductions in many non-CO₂ emissions provide direct and immediate population health benefits in all 1.5°C model pathways. (*high confidence*) (Figure SPM.3a) {2.2.1, 2.3.3, 2.4.4, 2.5.3, 4.3.6, 5.4.2}

C.1.3 Limiting global warming requires limiting the total cumulative global anthropogenic emissions of CO₂ since the pre-industrial period, that is, staying within a total carbon budget (*high confidence*).¹³ By the end of 2017, anthropogenic CO₂ emissions since the pre-industrial period are estimated to have reduced the total carbon budget for 1.5°C by approximately 2200 ± 320 GtCO₂ (*medium confidence*). The associated remaining budget is being depleted by current emissions of 42 ± 3 GtCO₂ per year (*high confidence*). The choice of the measure of global temperature affects the estimated remaining carbon budget. Using global mean surface air temperature, as in AR5, gives an estimate of the remaining carbon budget of 580 GtCO₂ for a 50% probability of limiting warming to 1.5°C, and 420 GtCO₂ for a 66% probability (*medium confidence*).¹⁴ Alternatively, using GMST gives estimates of 770 and 570 GtCO₂, for 50% and 66% probabilities,¹⁵ respectively (*medium confidence*). Uncertainties in the size of these estimated remaining carbon budgets are substantial and depend on several factors. Uncertainties in the climate response to CO₂ and non-CO₂ emissions contribute ±400 GtCO₂ and the level of historic warming contributes ±250 GtCO₂ (*medium confidence*). Potential additional carbon release from future permafrost thawing and methane release from wetlands would reduce budgets by up to 100 GtCO₂ over the course of this century and more thereafter (*medium confidence*). In addition, the level of non-CO₂ mitigation in the future could alter the remaining carbon budget by 250 GtCO₂ in either direction (*medium confidence*). {1.2.4, 2.2.2, 2.6.1, Table 2.2, Chapter 2 Supplementary Material}

C.1.4 Solar radiation modification (SRM) measures are not included in any of the available assessed pathways. Although some SRM measures may be theoretically effective in reducing an overshoot, they face large uncertainties and knowledge gaps

11 References to pathways limiting global warming to 2°C are based on a 66% probability of staying below 2°C.

12 Non-CO₂ emissions included in this Report are all anthropogenic emissions other than CO₂ that result in radiative forcing. These include short-lived climate forcers, such as methane, some fluorinated gases, ozone precursors, aerosols or aerosol precursors, such as black carbon and sulphur dioxide, respectively, as well as long-lived greenhouse gases, such as nitrous oxide or some fluorinated gases. The radiative forcing associated with non-CO₂ emissions and changes in surface albedo is referred to as non-CO₂ radiative forcing. {2.2.1}

13 There is a clear scientific basis for a total carbon budget consistent with limiting global warming to 1.5°C. However, neither this total carbon budget nor the fraction of this budget taken up by past emissions were assessed in this Report.

14 Irrespective of the measure of global temperature used, updated understanding and further advances in methods have led to an increase in the estimated remaining carbon budget of about 300 GtCO₂ compared to AR5. (*medium confidence*) {2.2.2}

15 These estimates use observed GMST to 2006–2015 and estimate future temperature changes using near surface air temperatures.

as well as substantial risks and institutional and social constraints to deployment related to governance, ethics, and impacts on sustainable development. They also do not mitigate ocean acidification. (*medium confidence*) {4.3.8, Cross-Chapter Box 10 in Chapter 4}

Global emissions pathway characteristics

General characteristics of the evolution of anthropogenic net emissions of CO₂, and total emissions of methane, black carbon, and nitrous oxide in model pathways that limit global warming to 1.5°C with no or limited overshoot. Net emissions are defined as anthropogenic emissions reduced by anthropogenic removals. Reductions in net emissions can be achieved through different portfolios of mitigation measures illustrated in Figure SPM.3b.

Global total net CO₂ emissions

Billion tonnes of CO₂/yr

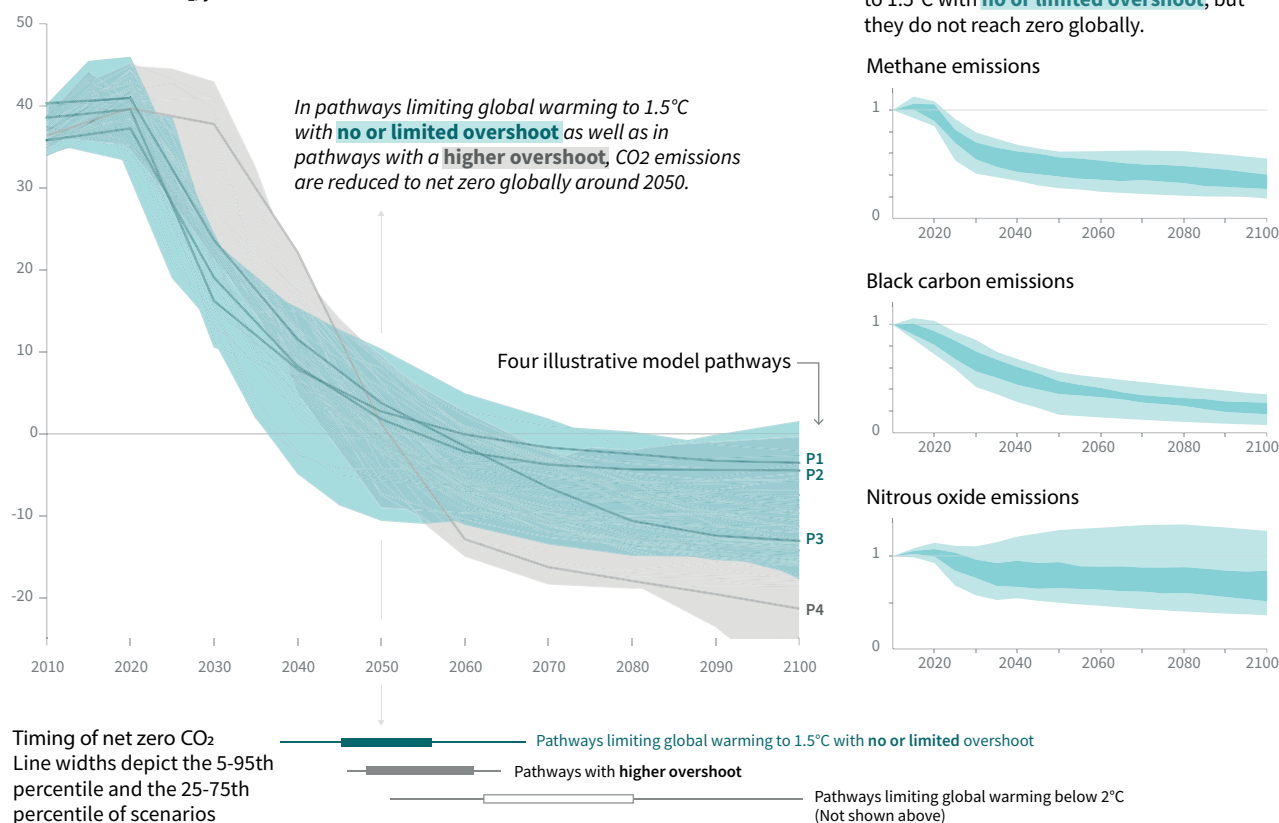


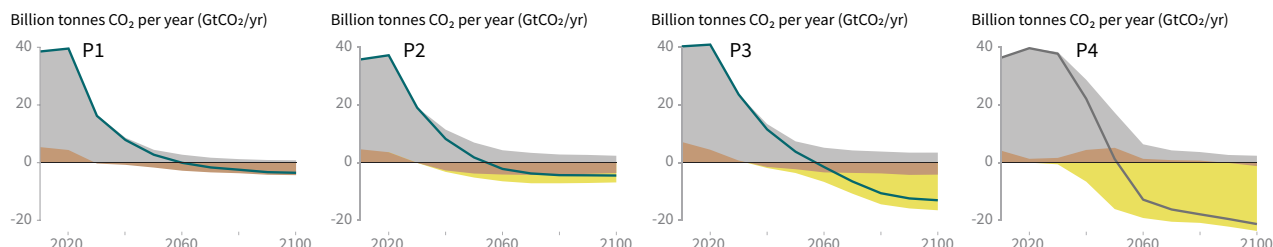
Figure SPM.3a | Global emissions pathway characteristics. The main panel shows global net anthropogenic CO₂ emissions in pathways limiting global warming to 1.5°C with no or limited (less than 0.1°C) overshoot and pathways with higher overshoot. The shaded area shows the full range for pathways analysed in this Report. The panels on the right show non-CO₂ emissions ranges for three compounds with large historical forcing and a substantial portion of emissions coming from sources distinct from those central to CO₂ mitigation. Shaded areas in these panels show the 5–95% (light shading) and interquartile (dark shading) ranges of pathways limiting global warming to 1.5°C with no or limited overshoot. Box and whiskers at the bottom of the figure show the timing of pathways reaching global net zero CO₂ emission levels, and a comparison with pathways limiting global warming to 2°C with at least 66% probability. Four illustrative model pathways are highlighted in the main panel and are labelled P1, P2, P3 and P4, corresponding to the LED, S1, S2, and S5 pathways assessed in Chapter 2. Descriptions and characteristics of these pathways are available in Figure SPM.3b. {2.1, 2.2, 2.3, Figure 2.5, Figure 2.10, Figure 2.11}

Characteristics of four illustrative model pathways

Different mitigation strategies can achieve the net emissions reductions that would be required to follow a pathway that limits global warming to 1.5°C with no or limited overshoot. All pathways use Carbon Dioxide Removal (CDR), but the amount varies across pathways, as do the relative contributions of Bioenergy with Carbon Capture and Storage (BECCS) and removals in the Agriculture, Forestry and Other Land Use (AFOLU) sector. This has implications for emissions and several other pathway characteristics.

Breakdown of contributions to global net CO₂ emissions in four illustrative model pathways

● Fossil fuel and industry ● AFOLU ● BECCS



P1: A scenario in which social, business and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A downsized energy system enables rapid decarbonization of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

P2: A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

P3: A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.

P4: A resource- and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas-intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.

Global indicators	P1	P2	P3	P4	Interquartile range
Pathway classification	No or limited overshoot	No or limited overshoot	No or limited overshoot	Higher overshoot	No or limited overshoot
CO ₂ emission change in 2030 (% rel to 2010)	-58	-47	-41	4	(-58,-40)
↳ in 2050 (% rel to 2010)	-93	-95	-91	-97	(-107,-94)
Kyoto-GHG emissions* in 2030 (% rel to 2010)	-50	-49	-35	-2	(-51,-39)
↳ in 2050 (% rel to 2010)	-82	-89	-78	-80	(-93,-81)
Final energy demand** in 2030 (% rel to 2010)	-15	-5	17	39	(-12,7)
↳ in 2050 (% rel to 2010)	-32	2	21	44	(-11,22)
Renewable share in electricity in 2030 (%)	60	58	48	25	(47,65)
↳ in 2050 (%)	77	81	63	70	(69,86)
Primary energy from coal in 2030 (% rel to 2010)	-78	-61	-75	-59	(-78,-59)
↳ in 2050 (% rel to 2010)	-97	-77	-73	-97	(-95,-74)
from oil in 2030 (% rel to 2010)	-37	-13	-3	86	(-34,3)
↳ in 2050 (% rel to 2010)	-87	-50	-81	-32	(-78,-31)
from gas in 2030 (% rel to 2010)	-25	-20	33	37	(-26,21)
↳ in 2050 (% rel to 2010)	-74	-53	21	-48	(-56,6)
from nuclear in 2030 (% rel to 2010)	59	83	98	106	(44,102)
↳ in 2050 (% rel to 2010)	150	98	501	468	(91,190)
from biomass in 2030 (% rel to 2010)	-11	0	36	-1	(29,80)
↳ in 2050 (% rel to 2010)	-16	49	121	418	(123,261)
from non-biomass renewables in 2030 (% rel to 2010)	430	470	315	110	(245,436)
↳ in 2050 (% rel to 2010)	833	1327	878	1137	(576,1299)
Cumulative CCS until 2100 (GtCO ₂)	0	348	687	1218	(550,1017)
↳ of which BECCS (GtCO ₂)	0	151	414	1191	(364,662)
Land area of bioenergy crops in 2050 (million km ²)	0.2	0.9	2.8	7.2	(1.5,3.2)
Agricultural CH ₄ emissions in 2030 (% rel to 2010)	-24	-48	1	14	(-30,-11)
↳ in 2050 (% rel to 2010)	-33	-69	-23	2	(-47,-24)
Agricultural N ₂ O emissions in 2030 (% rel to 2010)	5	-26	15	3	(-21,3)
↳ in 2050 (% rel to 2010)	6	-26	0	39	(-26,1)

NOTE: Indicators have been selected to show global trends identified by the Chapter 2 assessment. National and sectoral characteristics can differ substantially from the global trends shown above.

* Kyoto-gas emissions are based on IPCC Second Assessment Report GWP-100
 ** Changes in energy demand are associated with improvements in energy efficiency and behaviour change

Figure SPM.3b | Characteristics of four illustrative model pathways in relation to global warming of 1.5°C introduced in Figure SPM.3a. These pathways were selected to show a range of potential mitigation approaches and vary widely in their projected energy and land use, as well as their assumptions about future socio-economic developments, including economic and population growth, equity and sustainability. A breakdown of the global net anthropogenic CO₂ emissions into the contributions in terms of CO₂ emissions from fossil fuel and industry; agriculture, forestry and other land use (AFOLU); and bioenergy with carbon capture and storage (BECCS) is shown. AFOLU estimates reported here are not necessarily comparable with countries' estimates. Further characteristics for each of these pathways are listed below each pathway. These pathways illustrate relative global differences in mitigation strategies, but do not represent central estimates, national strategies, and do not indicate requirements. For comparison, the right-most column shows the interquartile ranges across pathways with no or limited overshoot of 1.5°C. Pathways P1, P2, P3 and P4 correspond to the LED, S1, S2 and S5 pathways assessed in Chapter 2 (Figure SPM.3a). {2.2.1, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.4.1, 2.4.2, 2.4.4, 2.5.3, Figure 2.5, Figure 2.6, Figure 2.9, Figure 2.10, Figure 2.11, Figure 2.14, Figure 2.15, Figure 2.16, Figure 2.17, Figure 2.24, Figure 2.25, Table 2.4, Table 2.6, Table 2.7, Table 2.9, Table 4.1}

C.2 Pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems (*high confidence*). These systems transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and imply deep emissions reductions in all sectors, a wide portfolio of mitigation options and a significant upscaling of investments in those options (*medium confidence*). {2.3, 2.4, 2.5, 4.2, 4.3, 4.4, 4.5}

- C.2.1 Pathways that limit global warming to 1.5°C with no or limited overshoot show system changes that are more rapid and pronounced over the next two decades than in 2°C pathways (*high confidence*). The rates of system changes associated with limiting global warming to 1.5°C with no or limited overshoot have occurred in the past within specific sectors, technologies and spatial contexts, but there is no documented historic precedent for their scale (*medium confidence*). {2.3.3, 2.3.4, 2.4, 2.5, 4.2.1, 4.2.2, Cross-Chapter Box 11 in Chapter 4}
- C.2.2 In energy systems, modelled global pathways (considered in the literature) limiting global warming to 1.5°C with no or limited overshoot (for more details see Figure SPM.3b) generally meet energy service demand with lower energy use, including through enhanced energy efficiency, and show faster electrification of energy end use compared to 2°C (*high confidence*). In 1.5°C pathways with no or limited overshoot, low-emission energy sources are projected to have a higher share, compared with 2°C pathways, particularly before 2050 (*high confidence*). In 1.5°C pathways with no or limited overshoot, renewables are projected to supply 70–85% (interquartile range) of electricity in 2050 (*high confidence*). In electricity generation, shares of nuclear and fossil fuels with carbon dioxide capture and storage (CCS) are modelled to increase in most 1.5°C pathways with no or limited overshoot. In modelled 1.5°C pathways with limited or no overshoot, the use of CCS would allow the electricity generation share of gas to be approximately 8% (3–11% interquartile range) of global electricity in 2050, while the use of coal shows a steep reduction in all pathways and would be reduced to close to 0% (0–2% interquartile range) of electricity (*high confidence*). While acknowledging the challenges, and differences between the options and national circumstances, political, economic, social and technical feasibility of solar energy, wind energy and electricity storage technologies have substantially improved over the past few years (*high confidence*). These improvements signal a potential system transition in electricity generation. (Figure SPM.3b) {2.4.1, 2.4.2, Figure 2.1, Table 2.6, Table 2.7, Cross-Chapter Box 6 in Chapter 3, 4.2.1, 4.3.1, 4.3.3, 4.5.2}
- C.2.3 CO₂ emissions from industry in pathways limiting global warming to 1.5°C with no or limited overshoot are projected to be about 65–90% (interquartile range) lower in 2050 relative to 2010, as compared to 50–80% for global warming of 2°C (*medium confidence*). Such reductions can be achieved through combinations of new and existing technologies and practices, including electrification, hydrogen, sustainable bio-based feedstocks, product substitution, and carbon capture, utilization and storage (CCUS). These options are technically proven at various scales but their large-scale deployment may be limited by economic, financial, human capacity and institutional constraints in specific contexts, and specific characteristics of large-scale industrial installations. In industry, emissions reductions by energy and process efficiency by themselves are insufficient for limiting warming to 1.5°C with no or limited overshoot (*high confidence*). {2.4.3, 4.2.1, Table 4.1, Table 4.3, 4.3.3, 4.3.4, 4.5.2}
- C.2.4 The urban and infrastructure system transition consistent with limiting global warming to 1.5°C with no or limited overshoot would imply, for example, changes in land and urban planning practices, as well as deeper emissions reductions in transport and buildings compared to pathways that limit global warming below 2°C (*medium confidence*). Technical measures

and practices enabling deep emissions reductions include various energy efficiency options. In pathways limiting global warming to 1.5°C with no or limited overshoot, the electricity share of energy demand in buildings would be about 55–75% in 2050 compared to 50–70% in 2050 for 2°C global warming (*medium confidence*). In the transport sector, the share of low-emission final energy would rise from less than 5% in 2020 to about 35–65% in 2050 compared to 25–45% for 2°C of global warming (*medium confidence*). Economic, institutional and socio-cultural barriers may inhibit these urban and infrastructure system transitions, depending on national, regional and local circumstances, capabilities and the availability of capital (*high confidence*). {2.3.4, 2.4.3, 4.2.1, Table 4.1, 4.3.3, 4.5.2}

- C.2.5 Transitions in global and regional land use are found in all pathways limiting global warming to 1.5°C with no or limited overshoot, but their scale depends on the pursued mitigation portfolio. Model pathways that limit global warming to 1.5°C with no or limited overshoot project a 4 million km² reduction to a 2.5 million km² increase of non-pasture agricultural land for food and feed crops and a 0.5–11 million km² reduction of pasture land, to be converted into a 0–6 million km² increase of agricultural land for energy crops and a 2 million km² reduction to 9.5 million km² increase in forests by 2050 relative to 2010 (*medium confidence*).¹⁶ Land-use transitions of similar magnitude can be observed in modelled 2°C pathways (*medium confidence*). Such large transitions pose profound challenges for sustainable management of the various demands on land for human settlements, food, livestock feed, fibre, bioenergy, carbon storage, biodiversity and other ecosystem services (*high confidence*). Mitigation options limiting the demand for land include sustainable intensification of land-use practices, ecosystem restoration and changes towards less resource-intensive diets (*high confidence*). The implementation of land-based mitigation options would require overcoming socio-economic, institutional, technological, financing and environmental barriers that differ across regions (*high confidence*). {2.4.4, Figure 2.24, 4.3.2, 4.3.7, 4.5.2, Cross-Chapter Box 7 in Chapter 3}
- C.2.6 Additional annual average energy-related investments for the period 2016 to 2050 in pathways limiting warming to 1.5°C compared to pathways without new climate policies beyond those in place today are estimated to be around 830 billion USD₂₀₁₀ (range of 150 billion to 1700 billion USD₂₀₁₀ across six models¹⁷). This compares to total annual average energy supply investments in 1.5°C pathways of 1460 to 3510 billion USD₂₀₁₀ and total annual average energy demand investments of 640 to 910 billion USD₂₀₁₀ for the period 2016 to 2050. Total energy-related investments increase by about 12% (range of 3% to 24%) in 1.5°C pathways relative to 2°C pathways. Annual investments in low-carbon energy technologies and energy efficiency are upscaled by roughly a factor of six (range of factor of 4 to 10) by 2050 compared to 2015 (*medium confidence*). {2.5.2, Box 4.8, Figure 2.27}
- C.2.7 Modelled pathways limiting global warming to 1.5°C with no or limited overshoot project a wide range of global average discounted marginal abatement costs over the 21st century. They are roughly 3–4 times higher than in pathways limiting global warming to below 2°C (*high confidence*). The economic literature distinguishes marginal abatement costs from total mitigation costs in the economy. The literature on total mitigation costs of 1.5°C mitigation pathways is limited and was not assessed in this Report. Knowledge gaps remain in the integrated assessment of the economy-wide costs and benefits of mitigation in line with pathways limiting warming to 1.5°C. {2.5.2; 2.6; Figure 2.26}

¹⁶ The projected land-use changes presented are not deployed to their upper limits simultaneously in a single pathway.

¹⁷ Including two pathways limiting warming to 1.5°C with no or limited overshoot and four pathways with higher overshoot.

- C.3 All pathways that limit global warming to 1.5°C with limited or no overshoot project the use of carbon dioxide removal (CDR) on the order of 100–1000 GtCO₂ over the 21st century. CDR would be used to compensate for residual emissions and, in most cases, achieve net negative emissions to return global warming to 1.5°C following a peak (*high confidence*). CDR deployment of several hundreds of GtCO₂ is subject to multiple feasibility and sustainability constraints (*high confidence*). Significant near-term emissions reductions and measures to lower energy and land demand can limit CDR deployment to a few hundred GtCO₂ without reliance on bioenergy with carbon capture and storage (BECCS) (*high confidence*). {2.3, 2.4, 3.6.2, 4.3, 5.4}**
- C.3.1 Existing and potential CDR measures include afforestation and reforestation, land restoration and soil carbon sequestration, BECCS, direct air carbon capture and storage (DACCS), enhanced weathering and ocean alkalization. These differ widely in terms of maturity, potentials, costs, risks, co-benefits and trade-offs (*high confidence*). To date, only a few published pathways include CDR measures other than afforestation and BECCS. {2.3.4, 3.6.2, 4.3.2, 4.3.7}
- C.3.2 In pathways limiting global warming to 1.5°C with limited or no overshoot, BECCS deployment is projected to range from 0–1, 0–8, and 0–16 GtCO₂ yr⁻¹ in 2030, 2050, and 2100, respectively, while agriculture, forestry and land-use (AFOLU) related CDR measures are projected to remove 0–5, 1–11, and 1–5 GtCO₂ yr⁻¹ in these years (*medium confidence*). The upper end of these deployment ranges by mid-century exceeds the BECCS potential of up to 5 GtCO₂ yr⁻¹ and afforestation potential of up to 3.6 GtCO₂ yr⁻¹ assessed based on recent literature (*medium confidence*). Some pathways avoid BECCS deployment completely through demand-side measures and greater reliance on AFOLU-related CDR measures (*medium confidence*). The use of bioenergy can be as high or even higher when BECCS is excluded compared to when it is included due to its potential for replacing fossil fuels across sectors (*high confidence*). (Figure SPM.3b) {2.3.3, 2.3.4, 2.4.2, 3.6.2, 4.3.1, 4.2.3, 4.3.2, 4.3.7, 4.4.3, Table 2.4}
- C.3.3 Pathways that overshoot 1.5°C of global warming rely on CDR exceeding residual CO₂ emissions later in the century to return to below 1.5°C by 2100, with larger overshoots requiring greater amounts of CDR (Figure SPM.3b) (*high confidence*). Limitations on the speed, scale, and societal acceptability of CDR deployment hence determine the ability to return global warming to below 1.5°C following an overshoot. Carbon cycle and climate system understanding is still limited about the effectiveness of net negative emissions to reduce temperatures after they peak (*high confidence*). {2.2, 2.3.4, 2.3.5, 2.6, 4.3.7, 4.5.2, Table 4.11}
- C.3.4 Most current and potential CDR measures could have significant impacts on land, energy, water or nutrients if deployed at large scale (*high confidence*). Afforestation and bioenergy may compete with other land uses and may have significant impacts on agricultural and food systems, biodiversity, and other ecosystem functions and services (*high confidence*). Effective governance is needed to limit such trade-offs and ensure permanence of carbon removal in terrestrial, geological and ocean reservoirs (*high confidence*). Feasibility and sustainability of CDR use could be enhanced by a portfolio of options deployed at substantial, but lesser scales, rather than a single option at very large scale (*high confidence*). (Figure SPM.3b) {2.3.4, 2.4.4, 2.5.3, 2.6, 3.6.2, 4.3.2, 4.3.7, 4.5.2, 5.4.1, 5.4.2; Cross-Chapter Boxes 7 and 8 in Chapter 3, Table 4.11, Table 5.3, Figure 5.3}
- C.3.5 Some AFOLU-related CDR measures such as restoration of natural ecosystems and soil carbon sequestration could provide co-benefits such as improved biodiversity, soil quality, and local food security. If deployed at large scale, they would require governance systems enabling sustainable land management to conserve and protect land carbon stocks and other ecosystem functions and services (*medium confidence*). (Figure SPM.4) {2.3.3, 2.3.4, 2.4.2, 2.4.4, 3.6.2, 5.4.1, Cross-Chapter Boxes 3 in Chapter 1 and 7 in Chapter 3, 4.3.2, 4.3.7, 4.4.1, 4.5.2, Table 2.4}

D. Strengthening the Global Response in the Context of Sustainable Development and Efforts to Eradicate Poverty

D.1 Estimates of the global emissions outcome of current nationally stated mitigation ambitions as submitted under the Paris Agreement would lead to global greenhouse gas emissions¹⁸ in 2030 of 52–58 GtCO₂eq yr⁻¹ (*medium confidence*). Pathways reflecting these ambitions would not limit global warming to 1.5°C, even if supplemented by very challenging increases in the scale and ambition of emissions reductions after 2030 (*high confidence*). Avoiding overshoot and reliance on future large-scale deployment of carbon dioxide removal (CDR) can only be achieved if global CO₂ emissions start to decline well before 2030 (*high confidence*). {1.2, 2.3, 3.3, 3.4, 4.2, 4.4, Cross-Chapter Box 11 in Chapter 4}

D.1.1 Pathways that limit global warming to 1.5°C with no or limited overshoot show clear emission reductions by 2030 (*high confidence*). All but one show a decline in global greenhouse gas emissions to below 35 GtCO₂eq yr⁻¹ in 2030, and half of available pathways fall within the 25–30 GtCO₂eq yr⁻¹ range (interquartile range), a 40–50% reduction from 2010 levels (*high confidence*). Pathways reflecting current nationally stated mitigation ambition until 2030 are broadly consistent with cost-effective pathways that result in a global warming of about 3°C by 2100, with warming continuing afterwards (*medium confidence*). {2.3.3, 2.3.5, Cross-Chapter Box 11 in Chapter 4, 5.5.3.2}

D.1.2 Overshoot trajectories result in higher impacts and associated challenges compared to pathways that limit global warming to 1.5°C with no or limited overshoot (*high confidence*). Reversing warming after an overshoot of 0.2°C or larger during this century would require upscaling and deployment of CDR at rates and volumes that might not be achievable given considerable implementation challenges (*medium confidence*). {1.3.3, 2.3.4, 2.3.5, 2.5.1, 3.3, 4.3.7, Cross-Chapter Box 8 in Chapter 3, Cross-Chapter Box 11 in Chapter 4}

D.1.3 The lower the emissions in 2030, the lower the challenge in limiting global warming to 1.5°C after 2030 with no or limited overshoot (*high confidence*). The challenges from delayed actions to reduce greenhouse gas emissions include the risk of cost escalation, lock-in in carbon-emitting infrastructure, stranded assets, and reduced flexibility in future response options in the medium to long term (*high confidence*). These may increase uneven distributional impacts between countries at different stages of development (*medium confidence*). {2.3.5, 4.4.5, 5.4.2}

D.2 The avoided climate change impacts on sustainable development, eradication of poverty and reducing inequalities would be greater if global warming were limited to 1.5°C rather than 2°C, if mitigation and adaptation synergies are maximized while trade-offs are minimized (*high confidence*). {1.1, 1.4, 2.5, 3.3, 3.4, 5.2, Table 5.1}

D.2.1 Climate change impacts and responses are closely linked to sustainable development which balances social well-being, economic prosperity and environmental protection. The United Nations Sustainable Development Goals (SDGs), adopted in 2015, provide an established framework for assessing the links between global warming of 1.5°C or 2°C and development goals that include poverty eradication, reducing inequalities, and climate action. (*high confidence*) {Cross-Chapter Box 4 in Chapter 1, 1.4, 5.1}

D.2.2 The consideration of ethics and equity can help address the uneven distribution of adverse impacts associated with 1.5°C and higher levels of global warming, as well as those from mitigation and adaptation, particularly for poor and disadvantaged populations, in all societies (*high confidence*). {1.1.1, 1.1.2, 1.4.3, 2.5.3, 3.4.10, 5.1, 5.2, 5.3, 5.4, Cross-Chapter Box 4 in Chapter 1, Cross-Chapter Boxes 6 and 8 in Chapter 3, and Cross-Chapter Box 12 in Chapter 5}

D.2.3 Mitigation and adaptation consistent with limiting global warming to 1.5°C are underpinned by enabling conditions, assessed in this Report across the geophysical, environmental-ecological, technological, economic, socio-cultural and institutional

¹⁸ GHG emissions have been aggregated with 100-year GWP values as introduced in the IPCC Second Assessment Report.

dimensions of feasibility. Strengthened multilevel governance, institutional capacity, policy instruments, technological innovation and transfer and mobilization of finance, and changes in human behaviour and lifestyles are enabling conditions that enhance the feasibility of mitigation and adaptation options for 1.5°C-consistent systems transitions. (*high confidence*) {1.4, Cross-Chapter Box 3 in Chapter 1, 2.5.1, 4.4, 4.5, 5.6}

D.3 Adaptation options specific to national contexts, if carefully selected together with enabling conditions, will have benefits for sustainable development and poverty reduction with global warming of 1.5°C, although trade-offs are possible (*high confidence*). {1.4, 4.3, 4.5}

D.3.1 Adaptation options that reduce the vulnerability of human and natural systems have many synergies with sustainable development, if well managed, such as ensuring food and water security, reducing disaster risks, improving health conditions, maintaining ecosystem services and reducing poverty and inequality (*high confidence*). Increasing investment in physical and social infrastructure is a key enabling condition to enhance the resilience and the adaptive capacities of societies. These benefits can occur in most regions with adaptation to 1.5°C of global warming (*high confidence*). {1.4.3, 4.2.2, 4.3.1, 4.3.2, 4.3.3, 4.3.5, 4.4.1, 4.4.3, 4.5.3, 5.3.1, 5.3.2}

D.3.2 Adaptation to 1.5°C global warming can also result in trade-offs or maladaptations with adverse impacts for sustainable development. For example, if poorly designed or implemented, adaptation projects in a range of sectors can increase greenhouse gas emissions and water use, increase gender and social inequality, undermine health conditions, and encroach on natural ecosystems (*high confidence*). These trade-offs can be reduced by adaptations that include attention to poverty and sustainable development (*high confidence*). {4.3.2, 4.3.3, 4.5.4, 5.3.2; Cross-Chapter Boxes 6 and 7 in Chapter 3}

D.3.3 A mix of adaptation and mitigation options to limit global warming to 1.5°C, implemented in a participatory and integrated manner, can enable rapid, systemic transitions in urban and rural areas (*high confidence*). These are most effective when aligned with economic and sustainable development, and when local and regional governments and decision makers are supported by national governments (*medium confidence*). {4.3.2, 4.3.3, 4.4.1, 4.4.2}

D.3.4 Adaptation options that also mitigate emissions can provide synergies and cost savings in most sectors and system transitions, such as when land management reduces emissions and disaster risk, or when low-carbon buildings are also designed for efficient cooling. Trade-offs between mitigation and adaptation, when limiting global warming to 1.5°C, such as when bioenergy crops, reforestation or afforestation encroach on land needed for agricultural adaptation, can undermine food security, livelihoods, ecosystem functions and services and other aspects of sustainable development. (*high confidence*) {3.4.3, 4.3.2, 4.3.4, 4.4.1, 4.5.2, 4.5.3, 4.5.4}

D.4 Mitigation options consistent with 1.5°C pathways are associated with multiple synergies and trade-offs across the Sustainable Development Goals (SDGs). While the total number of possible synergies exceeds the number of trade-offs, their net effect will depend on the pace and magnitude of changes, the composition of the mitigation portfolio and the management of the transition. (*high confidence*) (Figure SPM.4) {2.5, 4.5, 5.4}

D.4.1 1.5°C pathways have robust synergies particularly for the SDGs 3 (health), 7 (clean energy), 11 (cities and communities), 12 (responsible consumption and production) and 14 (oceans) (*very high confidence*). Some 1.5°C pathways show potential trade-offs with mitigation for SDGs 1 (poverty), 2 (hunger), 6 (water) and 7 (energy access), if not managed carefully (*high confidence*). (Figure SPM.4) {5.4.2; Figure 5.4, Cross-Chapter Boxes 7 and 8 in Chapter 3}

D.4.2 1.5°C pathways that include low energy demand (e.g., see P1 in Figure SPM.3a and SPM.3b), low material consumption, and low GHG-intensive food consumption have the most pronounced synergies and the lowest number of trade-offs with respect to sustainable development and the SDGs (*high confidence*). Such pathways would reduce dependence on CDR. In modelled pathways, sustainable development, eradicating poverty and reducing inequality can support limiting warming to 1.5°C (*high confidence*). (Figure SPM.3b, Figure SPM.4) {2.4.3, 2.5.1, 2.5.3, Figure 2.4, Figure 2.28, 5.4.1, 5.4.2, Figure 5.4}

Indicative linkages between mitigation options and sustainable development using SDGs (The linkages do not show costs and benefits)

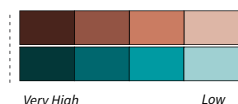
Mitigation options deployed in each sector can be associated with potential positive effects (synergies) or negative effects (trade-offs) with the Sustainable Development Goals (SDGs). The degree to which this potential is realized will depend on the selected portfolio of mitigation options, mitigation policy design, and local circumstances and context. Particularly in the energy-demand sector, the potential for synergies is larger than for trade-offs. The bars group individually assessed options by level of confidence and take into account the relative strength of the assessed mitigation-SDG connections.

Length shows strength of connection



The overall size of the coloured bars depict the relative potential for synergies and trade-offs between the sectoral mitigation options and the SDGs.

Shades show level of confidence



The shades depict the level of confidence of the assessed potential for Trade-offs/Synergies.

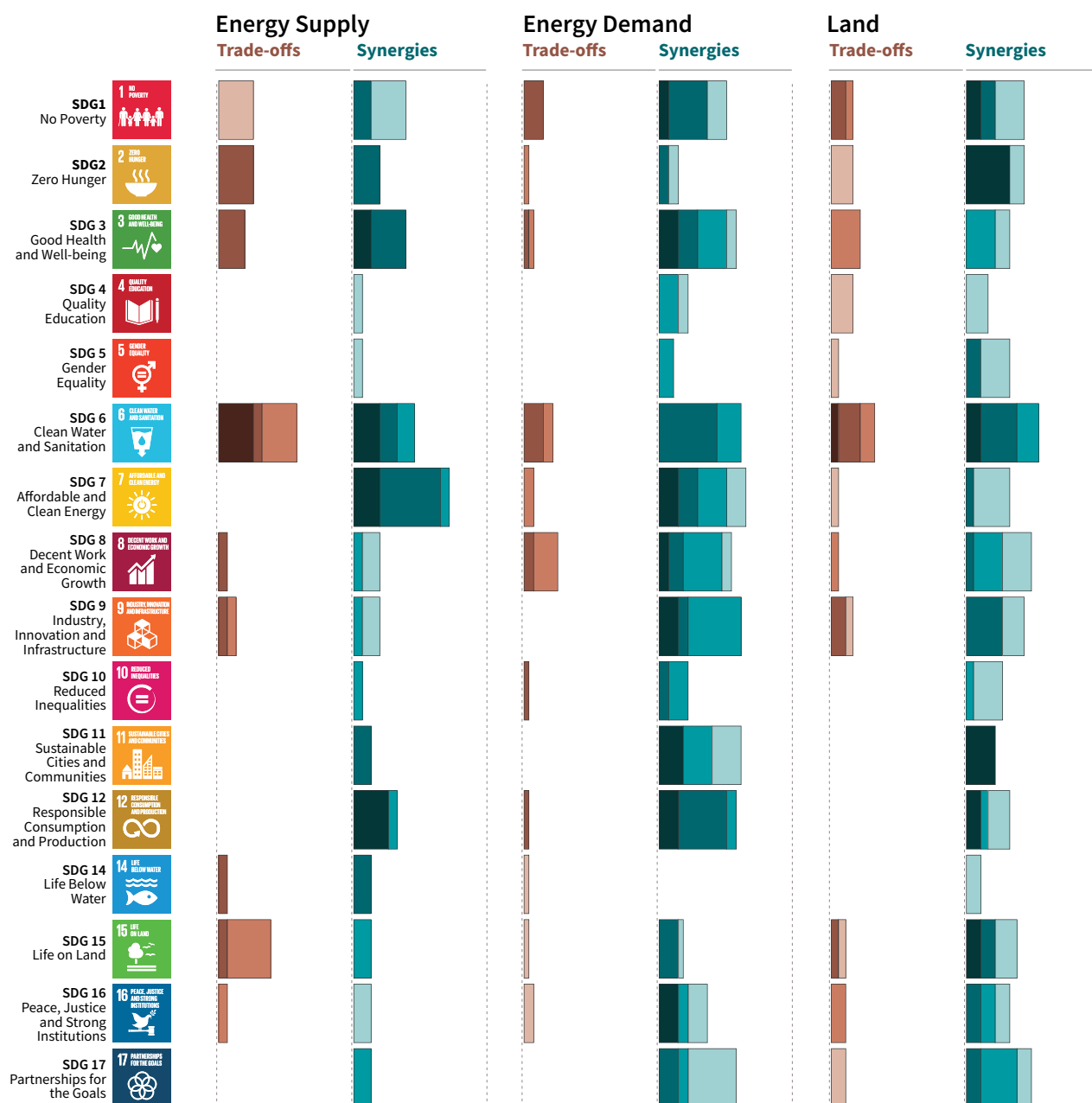


Figure SPM.4 | Potential synergies and trade-offs between the sectoral portfolio of climate change mitigation options and the Sustainable Development Goals (SDGs). The SDGs serve as an analytical framework for the assessment of the different sustainable development dimensions, which extend beyond the time frame of the 2030 SDG targets. The assessment is based on literature on mitigation options that are considered relevant for 1.5°C. The assessed strength of the SDG interactions is based on the qualitative and quantitative assessment of individual mitigation options listed in Table 5.2. For each mitigation option, the strength of the SDG-connection as well as the associated confidence of the underlying literature (shades of green and red) was assessed. The strength of positive connections (synergies) and negative connections (trade-offs) across all individual options within a sector (see Table 5.2) are aggregated into sectoral potentials for the whole mitigation portfolio. The (white) areas outside the bars, which indicate no interactions, have *low confidence* due to the uncertainty and limited number of studies exploring indirect effects. The strength of the connection considers only the effect of mitigation and does not include benefits of avoided impacts. SDG 13 (climate action) is not listed because mitigation is being considered in terms of interactions with SDGs and not vice versa. The bars denote the strength of the connection, and do not consider the strength of the impact on the SDGs. The energy demand sector comprises behavioural responses, fuel switching and efficiency options in the transport, industry and building sector as well as carbon capture options in the industry sector. Options assessed in the energy supply sector comprise biomass and non-biomass renewables, nuclear, carbon capture and storage (CCS) with bioenergy, and CCS with fossil fuels. Options in the land sector comprise agricultural and forest options, sustainable diets and reduced food waste, soil sequestration, livestock and manure management, reduced deforestation, afforestation and reforestation, and responsible sourcing. In addition to this figure, options in the ocean sector are discussed in the underlying report. {5.4, Table 5.2, Figure 5.2}

Information about the net impacts of mitigation on sustainable development in 1.5°C pathways is available only for a limited number of SDGs and mitigation options. Only a limited number of studies have assessed the benefits of avoided climate change impacts of 1.5°C pathways for the SDGs, and the co-effects of adaptation for mitigation and the SDGs. The assessment of the indicative mitigation potentials in Figure SPM.4 is a step further from AR5 towards a more comprehensive and integrated assessment in the future.

- D.4.3 1.5°C and 2°C modelled pathways often rely on the deployment of large-scale land-related measures like afforestation and bioenergy supply, which, if poorly managed, can compete with food production and hence raise food security concerns (*high confidence*). The impacts of carbon dioxide removal (CDR) options on SDGs depend on the type of options and the scale of deployment (*high confidence*). If poorly implemented, CDR options such as BECCS and AFOLU options would lead to trade-offs. Context-relevant design and implementation requires considering people's needs, biodiversity, and other sustainable development dimensions (*very high confidence*). (Figure SPM.4) {5.4.1.3, Cross-Chapter Box 7 in Chapter 3}
- D.4.4 Mitigation consistent with 1.5°C pathways creates risks for sustainable development in regions with high dependency on fossil fuels for revenue and employment generation (*high confidence*). Policies that promote diversification of the economy and the energy sector can address the associated challenges (*high confidence*). {5.4.1.2, Box 5.2}
- D.4.5 Redistributive policies across sectors and populations that shield the poor and vulnerable can resolve trade-offs for a range of SDGs, particularly hunger, poverty and energy access. Investment needs for such complementary policies are only a small fraction of the overall mitigation investments in 1.5°C pathways. (*high confidence*) {2.4.3, 5.4.2, Figure 5.5}
- D.5 Limiting the risks from global warming of 1.5°C in the context of sustainable development and poverty eradication implies system transitions that can be enabled by an increase of adaptation and mitigation investments, policy instruments, the acceleration of technological innovation and behaviour changes (*high confidence*). {2.3, 2.4, 2.5, 3.2, 4.2, 4.4, 4.5, 5.2, 5.5, 5.6}**
 - D.5.1 Directing finance towards investment in infrastructure for mitigation and adaptation could provide additional resources. This could involve the mobilization of private funds by institutional investors, asset managers and development or investment banks, as well as the provision of public funds. Government policies that lower the risk of low-emission and adaptation investments can facilitate the mobilization of private funds and enhance the effectiveness of other public policies. Studies indicate a number of challenges, including access to finance and mobilization of funds. (*high confidence*) {2.5.1, 2.5.2, 4.4.5}
 - D.5.2 Adaptation finance consistent with global warming of 1.5°C is difficult to quantify and compare with 2°C. Knowledge gaps include insufficient data to calculate specific climate resilience-enhancing investments from the provision of currently underinvested basic infrastructure. Estimates of the costs of adaptation might be lower at global warming of 1.5°C than for 2°C. Adaptation needs have typically been supported by public sector sources such as national and subnational government budgets, and in developing countries together with support from development assistance, multilateral development banks, and United Nations Framework Convention on Climate Change channels (*medium confidence*). More recently there is a

growing understanding of the scale and increase in non-governmental organizations and private funding in some regions (*medium confidence*). Barriers include the scale of adaptation financing, limited capacity and access to adaptation finance (*medium confidence*). {4.4.5, 4.6}

- D.5.3 Global model pathways limiting global warming to 1.5°C are projected to involve the annual average investment needs in the energy system of around 2.4 trillion USD2010 between 2016 and 2035, representing about 2.5% of the world GDP (*medium confidence*). {4.4.5, Box 4.8}
- D.5.4 Policy tools can help mobilize incremental resources, including through shifting global investments and savings and through market and non-market based instruments as well as accompanying measures to secure the equity of the transition, acknowledging the challenges related with implementation, including those of energy costs, depreciation of assets and impacts on international competition, and utilizing the opportunities to maximize co-benefits (*high confidence*). {1.3.3, 2.3.4, 2.3.5, 2.5.1, 2.5.2, Cross-Chapter Box 8 in Chapter 3, Cross-Chapter Box 11 in Chapter 4, 4.4.5, 5.5.2}
- D.5.5 The systems transitions consistent with adapting to and limiting global warming to 1.5°C include the widespread adoption of new and possibly disruptive technologies and practices and enhanced climate-driven innovation. These imply enhanced technological innovation capabilities, including in industry and finance. Both national innovation policies and international cooperation can contribute to the development, commercialization and widespread adoption of mitigation and adaptation technologies. Innovation policies may be more effective when they combine public support for research and development with policy mixes that provide incentives for technology diffusion. (*high confidence*) {4.4.4, 4.4.5}.
- D.5.6 Education, information, and community approaches, including those that are informed by indigenous knowledge and local knowledge, can accelerate the wide-scale behaviour changes consistent with adapting to and limiting global warming to 1.5°C. These approaches are more effective when combined with other policies and tailored to the motivations, capabilities and resources of specific actors and contexts (*high confidence*). Public acceptability can enable or inhibit the implementation of policies and measures to limit global warming to 1.5°C and to adapt to the consequences. Public acceptability depends on the individual's evaluation of expected policy consequences, the perceived fairness of the distribution of these consequences, and perceived fairness of decision procedures (*high confidence*). {1.1, 1.5, 4.3.5, 4.4.1, 4.4.3, Box 4.3, 5.5.3, 5.6.5}
- D.6 Sustainable development supports, and often enables, the fundamental societal and systems transitions and transformations that help limit global warming to 1.5°C. Such changes facilitate the pursuit of climate-resilient development pathways that achieve ambitious mitigation and adaptation in conjunction with poverty eradication and efforts to reduce inequalities (*high confidence*). {Box 1.1, 1.4.3, Figure 5.1, 5.5.3, Box 5.3}**
- D.6.1 Social justice and equity are core aspects of climate-resilient development pathways that aim to limit global warming to 1.5°C as they address challenges and inevitable trade-offs, widen opportunities, and ensure that options, visions, and values are deliberated, between and within countries and communities, without making the poor and disadvantaged worse off (*high confidence*). {5.5.2, 5.5.3, Box 5.3, Figure 5.1, Figure 5.6, Cross-Chapter Boxes 12 and 13 in Chapter 5}
- D.6.2 The potential for climate-resilient development pathways differs between and within regions and nations, due to different development contexts and systemic vulnerabilities (*very high confidence*). Efforts along such pathways to date have been limited (*medium confidence*) and enhanced efforts would involve strengthened and timely action from all countries and non-state actors (*high confidence*). {5.5.1, 5.5.3, Figure 5.1}
- D.6.3 Pathways that are consistent with sustainable development show fewer mitigation and adaptation challenges and are associated with lower mitigation costs. The large majority of modelling studies could not construct pathways characterized by lack of international cooperation, inequality and poverty that were able to limit global warming to 1.5°C. (*high confidence*) {2.3.1, 2.5.1, 2.5.3, 5.5.2}

- D.7 Strengthening the capacities for climate action of national and sub-national authorities, civil society, the private sector, indigenous peoples and local communities can support the implementation of ambitious actions implied by limiting global warming to 1.5°C (*high confidence*).** International cooperation can provide an enabling environment for this to be achieved in all countries and for all people, in the context of sustainable development. International cooperation is a critical enabler for developing countries and vulnerable regions (*high confidence*). {1.4, 2.3, 2.5, 4.2, 4.4, 4.5, 5.3, 5.4, 5.5, 5.6, 5, Box 4.1, Box 4.2, Box 4.7, Box 5.3, Cross-Chapter Box 9 in Chapter 4, Cross-Chapter Box 13 in Chapter 5}
- D.7.1 Partnerships involving non-state public and private actors, institutional investors, the banking system, civil society and scientific institutions would facilitate actions and responses consistent with limiting global warming to 1.5°C (*very high confidence*). {1.4, 4.4.1, 4.2.2, 4.4.3, 4.4.5, 4.5.3, 5.4.1, 5.6.2, Box 5.3}.
- D.7.2 Cooperation on strengthened accountable multilevel governance that includes non-state actors such as industry, civil society and scientific institutions, coordinated sectoral and cross-sectoral policies at various governance levels, gender-sensitive policies, finance including innovative financing, and cooperation on technology development and transfer can ensure participation, transparency, capacity building and learning among different players (*high confidence*). {2.5.1, 2.5.2, 4.2.2, 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.5.3, Cross-Chapter Box 9 in Chapter 4, 5.3.1, 5.5.3, Cross-Chapter Box 13 in Chapter 5, 5.6.1, 5.6.3}
- D.7.3 International cooperation is a critical enabler for developing countries and vulnerable regions to strengthen their action for the implementation of 1.5°C-consistent climate responses, including through enhancing access to finance and technology and enhancing domestic capacities, taking into account national and local circumstances and needs (*high confidence*). {2.3.1, 2.5.1, 4.4.1, 4.4.2, 4.4.4, 4.4.5, 5.4.1, 5.5.3, 5.6.1, Box 4.1, Box 4.2, Box 4.7}.
- D.7.4 Collective efforts at all levels, in ways that reflect different circumstances and capabilities, in the pursuit of limiting global warming to 1.5°C, taking into account equity as well as effectiveness, can facilitate strengthening the global response to climate change, achieving sustainable development and eradicating poverty (*high confidence*). {1.4.2, 2.3.1, 2.5.1, 2.5.2, 2.5.3, 4.2.2, 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.5.3, 5.3.1, 5.4.1, 5.5.3, 5.6.1, 5.6.2, 5.6.3}

Box SPM.1: Core Concepts Central to this Special Report

Global mean surface temperature (GMST): Estimated global average of near-surface air temperatures over land and sea ice, and sea surface temperatures over ice-free ocean regions, with changes normally expressed as departures from a value over a specified reference period. When estimating changes in GMST, near-surface air temperature over both land and oceans are also used.¹⁹ {1.2.1.1}

Pre-industrial: The multi-century period prior to the onset of large-scale industrial activity around 1750. The reference period 1850–1900 is used to approximate pre-industrial GMST. {1.2.1.2}

Global warming: The estimated increase in GMST averaged over a 30-year period, or the 30-year period centred on a particular year or decade, expressed relative to pre-industrial levels unless otherwise specified. For 30-year periods that span past and future years, the current multi-decadal warming trend is assumed to continue. {1.2.1}

Net zero CO₂ emissions: Net zero carbon dioxide (CO₂) emissions are achieved when anthropogenic CO₂ emissions are balanced globally by anthropogenic CO₂ removals over a specified period.

Carbon dioxide removal (CDR): Anthropogenic activities removing CO₂ from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical sinks and direct air capture and storage, but excludes natural CO₂ uptake not directly caused by human activities.

Total carbon budget: Estimated cumulative net global anthropogenic CO₂ emissions from the pre-industrial period to the time that anthropogenic CO₂ emissions reach net zero that would result, at some probability, in limiting global warming to a given level, accounting for the impact of other anthropogenic emissions. {2.2.2}

Remaining carbon budget: Estimated cumulative net global anthropogenic CO₂ emissions from a given start date to the time that anthropogenic CO₂ emissions reach net zero that would result, at some probability, in limiting global warming to a given level, accounting for the impact of other anthropogenic emissions. {2.2.2}

Temperature overshoot: The temporary exceedance of a specified level of global warming.

Emission pathways: In this Summary for Policymakers, the modelled trajectories of global anthropogenic emissions over the 21st century are termed emission pathways. Emission pathways are classified by their temperature trajectory over the 21st century: pathways giving at least 50% probability based on current knowledge of limiting global warming to below 1.5°C are classified as ‘no overshoot’; those limiting warming to below 1.6°C and returning to 1.5°C by 2100 are classified as ‘1.5°C limited-overshoot’; while those exceeding 1.6°C but still returning to 1.5°C by 2100 are classified as ‘higher-overshoot’.

Impacts: Effects of climate change on human and natural systems. Impacts can have beneficial or adverse outcomes for livelihoods, health and well-being, ecosystems and species, services, infrastructure, and economic, social and cultural assets.

Risk: The potential for adverse consequences from a climate-related hazard for human and natural systems, resulting from the interactions between the hazard and the vulnerability and exposure of the affected system. Risk integrates the likelihood of exposure to a hazard and the magnitude of its impact. Risk also can describe the potential for adverse consequences of adaptation or mitigation responses to climate change.

Climate-resilient development pathways (CRDPs): Trajectories that strengthen sustainable development at multiple scales and efforts to eradicate poverty through equitable societal and systems transitions and transformations while reducing the threat of climate change through ambitious mitigation, adaptation and climate resilience.

¹⁹ Past IPCC reports, reflecting the literature, have used a variety of approximately equivalent metrics of GMST change.

Michael Ray

From: Nils Peterson <nilspete@gmail.com>
Sent: Friday, November 23, 2018 7:52 PM
To: Michael Ray
Subject: More to my Comp Plan comments

Mike, the Fed's released this report today (Black Friday). It's a 2nd reference for my comments suggesting stronger language is needed for what the City does post 20 by 2020.

<https://nca2018.globalchange.gov/>

the news story https://www.huffingtonpost.com/entry/trump-climate-assessment_us_5bf5b31fe4b0771fb6b57ccb

"The 13-agency consensus, authored by more than 300 researchers, found in the second volume of the Fourth National Climate Assessment makes it clear the world is barreling toward catastrophic — perhaps irreversible — climate change. The report concluded that warming "could increase by 9°F (5°C) or more by the end of this century" without significant emissions reductions."

"The 13-agency consensus, authored by more than 300 researchers, found in the second volume of the Fourth National Climate Assessment makes it clear the world is barreling toward catastrophic — perhaps irreversible — climate change. The report concluded that warming "could increase by 9°F (5°C) or more by the end of this century" without significant emissions reductions."

Thanks

Nils Peterson
(509) 336-1664 (cell)
Pronouns: he, him, his

FOURTH NATIONAL CLIMATE ASSESSMENT

Volume II: Impacts, Risks, and Adaptation in the United States

The National Climate Assessment (NCA) assesses the science of climate change and variability and its impacts across the United States, now and throughout this century.

[SUMMARY FINDINGS](#)[REPORT CHAPTERS](#)[OVERVIEW](#)[DOWNLOADS](#)

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FOURTH NATIONAL CLIMATE ASSESSMENT

Summary Findings

These Summary Findings represent a high-level synthesis of the material in the underlying report. The findings consolidate Key Messages and supporting evidence from 16 national-level topic chapters, 10 regional chapters, and 2 chapters that focus on societal response strategies (mitigation and adaptation). Unless otherwise noted, qualitative statements regarding future conditions in these Summary Findings are broadly applicable across the range of different levels of future climate change and associated impacts considered in this report.

1. Communities

Climate change creates new risks and exacerbates existing vulnerabilities in communities across the United States, presenting growing challenges to human health and safety, quality of life, and the rate of economic growth.

The impacts of climate change are already being felt in communities across the country. More frequent and intense extreme weather and climate-related events, as well as changes in average climate conditions, are expected to continue to damage infrastructure, ecosystems, and social systems that provide essential benefits to communities. Future climate change is expected to further disrupt many areas of life, exacerbating existing challenges to prosperity posed by aging and deteriorating infrastructure, stressed ecosystems, and economic inequality. Impacts within and across regions will not be distributed equally. People who are already vulnerable, including lower-income and other marginalized communities, have lower capacity to

prepare for and cope with extreme weather and climate-related events and are expected to experience greater impacts. Prioritizing adaptation actions for the most vulnerable populations would contribute to a more equitable future within and across communities. Global action to significantly cut greenhouse gas emissions can substantially reduce climate-related risks and increase opportunities for these populations in the longer term.

2. Economy

Without substantial and sustained global mitigation and regional adaptation efforts, climate change is expected to cause growing losses to American infrastructure and property and impede the rate of economic growth over this century.

In the absence of significant global mitigation action and regional adaptation efforts, rising temperatures, sea level rise, and changes in extreme events are expected to increasingly disrupt and damage critical infrastructure and property, labor productivity, and the vitality of our communities. Regional economies and industries that depend on natural resources and favorable climate conditions, such as agriculture, tourism, and fisheries, are vulnerable to the growing impacts of climate change. Rising temperatures are projected to reduce the efficiency of power generation while increasing energy demands, resulting in higher electricity costs. The impacts of climate change beyond our borders are expected to increasingly affect our trade and economy, including import and export prices and U.S. businesses with overseas operations and supply chains. Some aspects of our economy may see slight near-term improvements in a modestly warmer world. However, the continued warming that is projected to occur without substantial and sustained reductions in global greenhouse gas emissions is expected to cause substantial net damage to the U.S. economy throughout this century, especially in the absence of increased adaptation efforts. With continued growth in emissions at historic rates, annual losses in some economic sectors are projected to reach hundreds of billions of dollars by the end of the century—more than the current gross domestic product (GDP) of many U.S. states.

3. Interconnected Impacts

Climate change affects the natural, built, and social systems we rely on individually and through their connections to one another. These interconnected systems are increasingly vulnerable to cascading impacts that are often difficult to predict, threatening essential services within and beyond the Nation's borders.

Climate change presents added risks to interconnected systems that are already exposed to a range of stressors such as aging and deteriorating infrastructure, land-use changes, and population growth. Extreme weather and climate-related impacts on one system can result in increased risks or failures in other critical systems, including water resources, food production and distribution, energy and transportation, public health, international trade, and national security. The full extent of climate change risks to interconnected systems, many of which span regional and national boundaries, is often greater than the sum of risks to individual sectors. Failure to anticipate interconnected impacts can lead to missed opportunities for effectively managing the risks of climate change and can also lead to management responses that increase risks to other sectors and regions. Joint planning with stakeholders across sectors, regions, and jurisdictions can help identify critical risks arising from interaction among systems ahead of time.

4. Actions to Reduce Risks

Communities, governments, and businesses are working to reduce risks from and costs associated with climate change by taking action to lower greenhouse gas emissions and implement adaptation strategies. While mitigation and adaptation efforts have expanded substantially in the last four years, they do not yet approach the scale considered necessary to avoid substantial damages to the economy, environment, and human health over the coming decades.

Future risks from climate change depend primarily on decisions made today. The integration of climate risk into decision-making and the implementation of adaptation activities have significantly increased since the Third National Climate Assessment in 2014, including in areas of financial risk reporting, capital investment planning, development of engineering standards, military planning, and disaster risk management. Transformations in the energy sector—including the displacement of coal by natural gas and increased deployment of renewable energy—along with policy actions at the national, regional, state, and local levels are reducing greenhouse gas emissions in the United States. While these adaptation and mitigation measures can help reduce damages in a number of sectors, this assessment shows that more immediate and substantial global greenhouse gas emissions reductions, as well as regional adaptation efforts, would be needed to avoid the most severe consequences in the long term. Mitigation and adaptation actions also present opportunities for additional benefits that are often more immediate and localized, such as improving local air quality and economies through investments in infrastructure. Some benefits, such as restoring ecosystems and increasing community vitality, may be harder to quantify.

5. Water

The quality and quantity of water available for use by people and ecosystems across the country are being affected by climate change, increasing risks and costs to agriculture, energy production, industry, recreation, and the environment.

Rising air and water temperatures and changes in precipitation are intensifying droughts, increasing heavy downpours, reducing snowpack, and causing declines in surface water quality, with varying impacts across regions. Future warming will add to the stress on water supplies and adversely impact the availability of water in parts of the United States. Changes in the relative amounts and timing of snow and rainfall are leading to mismatches between water availability and needs in some regions, posing threats to, for example, the future reliability of hydropower production in the Southwest and the Northwest. Groundwater depletion is exacerbating drought risk in many parts of the United States, particularly in the Southwest and Southern Great Plains. Dependable and safe water supplies for U.S. Caribbean, Hawai'i, and U.S.-Affiliated Pacific Island communities are threatened by drought, flooding, and saltwater contamination due to sea level rise. Most U.S. power plants rely on a steady supply of water for cooling, and operations are expected to be affected by changes in water availability and temperature increases. Aging and deteriorating water infrastructure, typically designed for past environmental conditions, compounds the climate risk faced by society. Water management strategies that account for changing climate conditions can help reduce present and future risks to water security, but implementation of such practices remains limited.

6. Health

Impacts from climate change on extreme weather and climate-related events, air quality, and the transmission of disease through insects and pests, food, and water increasingly threaten the health and well-being of the American people, particularly populations that are already vulnerable.

Changes in temperature and precipitation are increasing air quality and health risks from wildfire and ground-level ozone pollution. Rising air and water temperatures and more intense extreme events are expected to increase exposure to waterborne and foodborne diseases, affecting food and water safety. With continued warming, cold-related deaths are projected to decrease and heat-related deaths are projected to increase; in most regions, increases in heat-related deaths are expected to outpace reductions in cold-related deaths. The frequency and severity of allergic illnesses, including asthma and hay fever, are expected to increase as a result of a changing climate. Climate change is also projected to alter the geographic range and distribution of disease-carrying insects and pests, exposing more people to ticks that carry Lyme disease and mosquitoes that transmit viruses such as Zika, West Nile, and dengue, with varying impacts across regions. Communities in the Southeast, for example, are particularly vulnerable to the combined health impacts from vector-borne disease, heat, and flooding. Extreme weather and climate-related events can have lasting mental health consequences in affected communities, particularly if they result in degradation of livelihoods or community relocation. Populations including older adults, children, low-income communities, and some communities of color are often disproportionately affected by, and less resilient to, the health impacts of climate change. Adaptation and mitigation policies and programs that help individuals, communities, and states prepare for the risks of a changing climate reduce the number of injuries, illnesses, and deaths from climate-related health outcomes.

7. Indigenous Peoples

Climate change increasingly threatens Indigenous communities' livelihoods, economies, health, and cultural identities by disrupting interconnected social, physical, and ecological systems.

Many Indigenous peoples are reliant on natural resources for their economic, cultural, and physical well-being and are often uniquely affected by climate change. The impacts of climate change on water, land, coastal areas, and other natural resources, as well as infrastructure and related services, are expected to increasingly disrupt Indigenous peoples' livelihoods and economies, including agriculture and agroforestry, fishing, recreation, and tourism. Adverse impacts on subsistence activities have already been observed. As climate changes continue, adverse impacts on culturally significant species and resources are expected to result in negative physical and mental health effects. Throughout the United States, climate-related impacts are causing some Indigenous peoples to consider or actively pursue community relocation as an adaptation strategy, presenting challenges associated with maintaining cultural and community continuity. While economic, political, and infrastructure limitations may affect these communities' ability to adapt, tightly knit social and cultural networks present opportunities to build community capacity and increase resilience. Many Indigenous peoples are taking steps to adapt to climate change impacts structured around self-determination and traditional knowledge, and some tribes are pursuing mitigation actions through development of renewable energy on tribal lands.

8. Ecosystems and Ecosystem Services

Ecosystems and the benefits they provide to society are being altered by climate change, and these impacts are projected to continue. Without substantial and sustained reductions in global greenhouse gas emissions, transformative impacts on some ecosystems will occur; some coral reef and sea ice ecosystems are already experiencing such transformational changes.

Many benefits provided by ecosystems and the environment, such as clean air and water, protection from coastal flooding, wood and fiber, crop pollination, hunting and fishing, tourism, cultural identities, and more will continue to be degraded by the impacts of climate change. Increasing wildfire frequency, changes in insect and disease outbreaks, and other stressors are expected to decrease the ability of U.S. forests to support economic activity, recreation, and subsistence activities. Climate change has already had observable impacts on biodiversity, ecosystems, and the benefits they provide to society. These impacts include the migration of native species to new areas and the spread of invasive species. Such changes are projected to continue, and without substantial and sustained reductions in global greenhouse gas emissions, extinctions and transformative impacts on some ecosystems cannot be avoided in the long term. Valued aspects of regional heritage and quality of life tied to ecosystems, wildlife, and outdoor recreation will change with the climate, and as a result, future generations can expect to experience and interact with the natural environment in ways that are different from today. Adaptation strategies, including prescribed burning to reduce fuel for wildfire, creation of safe havens for important species, and control of invasive species, are being implemented to address emerging impacts of climate change. While some targeted response actions are underway, many impacts, including losses of unique coral reef and sea ice ecosystems, can only be avoided by significantly reducing global emissions of carbon dioxide and other greenhouse gases.

9. Agriculture

Rising temperatures, extreme heat, drought, wildfire on rangelands, and heavy downpours are expected to increasingly disrupt agricultural productivity in the United States. Expected increases in challenges to livestock health, declines in crop yields and quality, and changes in extreme events in the United States and abroad threaten rural livelihoods, sustainable food security, and price stability.

Climate change presents numerous challenges to sustaining and enhancing crop productivity, livestock health, and the economic vitality of rural communities. While some regions (such as the Northern Great Plains) may see conditions conducive to expanded or alternative crop productivity over the next few decades, overall, yields from major U.S. crops are expected to decline as a consequence of increases in temperatures and possibly changes in water availability, soil erosion, and disease and pest outbreaks. Increases in temperatures during the growing season in the Midwest are projected to be the largest contributing factor to declines in the productivity of U.S. agriculture. Projected increases in extreme heat conditions are expected to lead to further heat stress for livestock, which can result in large economic losses for producers. Climate change is also expected to lead to large-scale shifts in the availability and prices of many agricultural products across the world, with corresponding impacts on U.S. agricultural producers and the U.S. economy. These changes threaten future gains in commodity crop production and put rural livelihoods at risk. Numerous adaptation strategies are available to cope with adverse impacts of climate variability and change on agricultural production. These include altering what is produced, modifying the inputs used for production, adopting new technologies, and adjusting management strategies. However, these strategies have limits under severe climate change impacts and would require sufficient long- and short-term investment in changing practices.

10. Infrastructure

Our Nation's aging and deteriorating infrastructure is further stressed by increases in heavy precipitation events, coastal flooding, heat, wildfires, and other extreme events, as well as changes to average precipitation and temperature. Without adaptation, climate change will continue to degrade infrastructure performance over the rest of the century, with the potential for cascading impacts that threaten our economy, national security, essential services, and health and well-being.

Climate change and extreme weather events are expected to increasingly disrupt our Nation's energy and transportation systems, threatening more frequent and longer-lasting power outages, fuel shortages, and service disruptions, with cascading impacts on other critical sectors. Infrastructure currently designed for historical climate conditions is more vulnerable to future weather extremes and climate change. The continued increase in the frequency and extent of high-tide flooding due to sea level rise threatens America's trillion-dollar coastal property market and public infrastructure, with cascading impacts to the larger economy. In Alaska, rising temperatures and erosion are causing damage to buildings and coastal infrastructure that will be costly to repair or replace, particularly in rural areas; these impacts are expected to grow without adaptation. Expected increases in the severity and frequency of heavy precipitation events will affect inland infrastructure in every region, including access to roads, the viability of bridges, and the safety of pipelines. Flooding from heavy rainfall, storm surge, and rising high tides is expected to compound existing issues with aging infrastructure in the Northeast. Increased drought risk will threaten oil and gas drilling and refining, as well as electricity generation from power plants that rely on surface water for cooling. Forward-looking infrastructure design, planning, and operational measures and standards can reduce exposure and vulnerability to the impacts of climate change and reduce energy use while providing additional near-term benefits, including reductions in greenhouse gas emissions.

11. Oceans & Coasts

Coastal communities and the ecosystems that support them are increasingly threatened by the impacts of climate change. Without significant reductions in global greenhouse gas emissions and regional adaptation measures, many coastal regions will be transformed by the latter part of this century, with impacts affecting other regions and sectors. Even in a future with lower greenhouse gas emissions, many communities are expected to suffer financial impacts as chronic high-tide flooding leads to higher costs and lower property values.

Rising water temperatures, ocean acidification, retreating arctic sea ice, sea level rise, high-tide flooding, coastal erosion, higher storm surge, and heavier precipitation events threaten our oceans and coasts. These effects are projected to continue, putting ocean and marine species at risk, decreasing the productivity of certain fisheries, and threatening communities that rely on marine ecosystems for livelihoods and recreation, with particular impacts on fishing communities in Hawai'i and the U.S.-Affiliated Pacific Islands, the U.S. Caribbean, and the Gulf of Mexico. Lasting damage to coastal property and infrastructure driven by sea level rise and storm surge is expected to lead to financial losses for individuals, businesses, and communities, with the Atlantic and Gulf Coasts facing above-average risks. Impacts on coastal energy and transportation infrastructure driven by sea level rise and storm surge have the potential for cascading costs and disruptions across the country. Even if significant emissions reductions occur, many of the effects from sea level rise over this century—and particularly through mid-century—are already locked in due to historical emissions, and many communities are already dealing with the consequences. Actions to plan for and adapt to more frequent, widespread, and severe coastal flooding, such as shoreline protection and conservation of

coastal ecosystems, would decrease direct losses and cascading impacts on other sectors and parts of the country. More than half of the damages to coastal property are estimated to be avoidable through well-timed adaptation measures. Substantial and sustained reductions in global greenhouse gas emissions would also significantly reduce projected risks to fisheries and communities that rely on them.

12. Tourism and Recreation

Outdoor recreation, tourist economies, and quality of life are reliant on benefits provided by our natural environment that will be degraded by the impacts of climate change in many ways.

Climate change poses risks to seasonal and outdoor economies in communities across the United States, including impacts on economies centered around coral reef-based recreation, winter recreation, and inland water-based recreation. In turn, this affects the well-being of the people who make their living supporting these economies, including rural, coastal, and Indigenous communities. Projected increases in wildfire smoke events are expected to impair outdoor recreational activities and visibility in wilderness areas. Declines in snow and ice cover caused by warmer winter temperatures are expected to negatively impact the winter recreation industry in the Northwest, Northern Great Plains, and the Northeast. Some fish, birds, and mammals are expected to shift where they live as a result of climate change, with implications for hunting, fishing, and other wildlife-related activities. These and other climate-related impacts are expected to result in decreased tourism revenue in some places and, for some communities, loss of identity. While some new opportunities may emerge from these ecosystem changes, cultural identities and economic and recreational opportunities based around historical use of and interaction with species or natural resources in many areas are at risk. Proactive management strategies, such as the use of projected stream temperatures to set priorities for fish conservation, can help reduce disruptions to tourist economies and recreation.



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ENVIRONMENT 11/23/2018 02:02 pm ET | Updated 2 days ago

Federal Climate Report Predicts At Least 3 Degrees Of Warming By 2100

The White House's decision to release the report over the holiday weekend is likely to bury the sobering new findings.

By Alexander C. Kaufman and Chris D'Angelo



JOHN LOCHER/THE ASSOCIATED PRESS

The scorched remnants of Paradise, California.

The United States already warmed on average 1.8 degrees Fahrenheit over the past century and will warm at least 3 more degrees by 2100 unless fossil fuel use is dramatically curtailed, scientists from more than a dozen federal

agencies concluded in their latest in-depth assessment.

The 13-agency consensus, authored by more than 300 researchers, found in the second volume of the Fourth National Climate Assessment makes it clear the world is barreling toward catastrophic — perhaps irreversible — [climate change](#). The [report](#) concluded that warming “could increase by 9°F (5°C) or more by the end of this century” without significant emissions reductions.

“Observations of global average temperature provide clear and compelling evidence the global average temperature is much higher and is rising more rapidly than anything modern civilization has experienced,” said David Easterling, chief of the scientific services division at the National Oceanic and Atmospheric Administration’s National Climatic Data Center in Asheville, North Carolina. “This warming trend can only be explained by human activities, especially emissions of greenhouse gases into the atmosphere.”

It’s the sort of staggering reality the [Trump administration](#) seems eager to minimize. Ahead of the Thanksgiving holiday, Trump antagonized climate scientists by tweeting, [once again](#), that he believes cold weather disproves long-term trends of a warming climate.

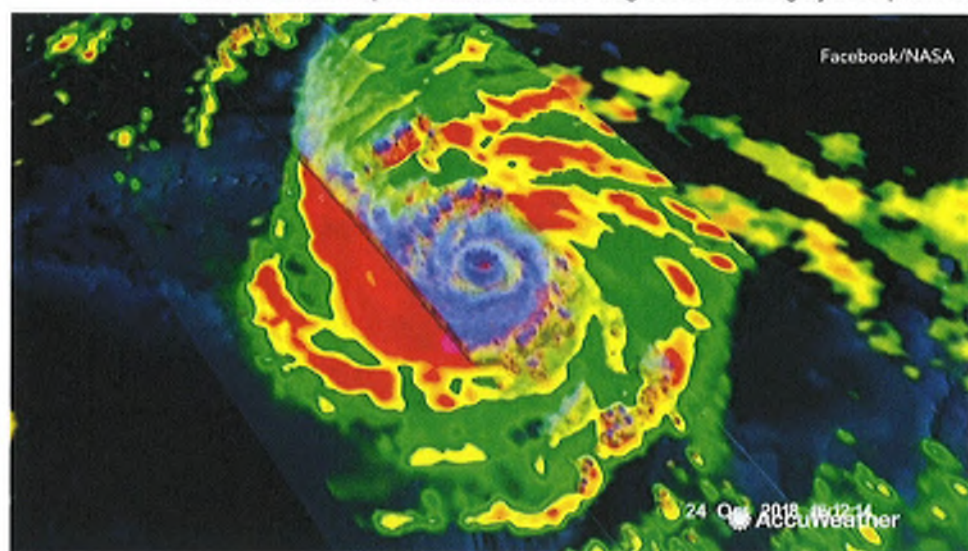
“Brutal and Extended Cold Blast could shatter ALL RECORDS - Whatever happened to Global Warming?” he posted Wednesday on Twitter.

That the White House opted to release the long-awaited update on climate change — which Congress mandates the administration provide every four years — on Black Friday, a popular shopping holiday the day after the Thanksgiving holiday, indicates it wanted fewer people to see the news about the findings. Monica Allen, a spokeswoman for NOAA, repeatedly pushed back against questions about when the White House decided to move up the release of the report.

“The decision was made in the last week or so,” she said. “Please, I ask you to focus on the content of the report. The substance.”

The report adds to an ever-growing, all-but-irrefutable body of scientific research that shows climate change is real and driven by human carbon emissions — a reality that President Donald Trump and his team refuse to accept as they pursue a fossil fuel-focused “energy dominance” agenda.

Last year, the U.S. Global Change Research Program [released a special report](#) — the first volume of the Fourth National Climate Assessment — that found Earth has entered the warmest period “in the history of modern civilization,” with global average air temperatures having increased by 1.8 degrees Fahrenheit over the last 115 years. And in October, the Intergovernmental Panel on Climate Change, the leading United Nations consortium of researchers studying human-caused climate change, issued a report warning world governments must cut global emissions in half over the next 12 years to avoid warming of 2.3 degrees Fahrenheit, beyond which climate change is forecast to cause a cataclysmic \$54 trillion in damages.



ACCUWEATHER

NASA satellite imaging of Typhoon Yutu before it struck the Northern Mariana Islands in October.

This New World

The current capitalist system is broken. Get updates on our progress toward building a fairer world.

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A series of devastating natural disasters, worsened by rising temperatures, made those findings tangible. In October, Typhoon Yutu, the most powerful storm all year, struck the Northern Mariana Islands, plunging the U.S. territory into chaos just a year after Hurricane Maria left thousands dead in Puerto Rico and the U.S. Virgin Islands. California, meanwhile, is suffering its deadliest and most destructive wildfire on record during what was once the state's rainy season.

Last year was the United States' second-hottest in history, and the costliest in terms of climate-related disasters, with a record \$306 billion in damages. Sixteen of the last 17 years have been the warmest on record globally.

In January, the Trump administration unveiled a proposal to open nearly all U.S. waters to oil and gas development. It has since worked to roll back safeguards adopted after the catastrophic 2010 Deepwater Horizon oil spill in the Gulf of Mexico. In October, the Department of the Interior approved the development of the first oil production facility in Arctic waters off Alaska, but the company behind the project has since had to extend its construction timeline due to dwindling sea ice brought on by Arctic warming, as NPR reported.

The latest findings are likely to bolster the growing protests and legal battles over climate change. Over the past two weeks, activists in the United States and United Kingdom staged major demonstrations. In Washington, youth activists with the climate justice group Sunrise Movement stormed Democratic leaders' offices demanding support for the so-called Green New Deal, the only policy to emerge in the American political mainstream that comes close

to the scale of economic change needed to make a serious dent in national emissions. British activists stopped traffic this week as part of the so-called Extinction Rebellion.

The assessment could have weight in some critical court cases. The Supreme Court is likely at some point to weigh a suit brought by 21 plaintiffs between the ages of 11 and 22, who accuse the federal government of violating their civil rights to a safe climate by pursuing fossil fuel-focused energy policies. And various states and cities are suing big oil companies over climate damages, a number that could grow since Democrats scored victories in a number of attorney general seats in the midterm elections.

This article has been updated with comments from a climate scientist and a response from a NOAA spokeswoman.

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Manning & Implementation
Need to inform
residents of what is being
planned, grants & other budget
change in timely manner!

Name (optional): before it happens



2018 COMPREHENSIVE PLAN UPDATE
COMMENT CARD



Washington & Jackson Streets: Increase
bike & pedestrian safety at crosswalks
w/ flashing lights to stop all lanes
of traffic

Name (optional): Helen Stroebel



2018 COMPREHENSIVE PLAN UPDATE
COMMENT CARD



Downtown Devel
Encouraging &
increasing parking
vs- maintaining
character of downtown

Name (optional): Muneta



2018 COMPREHENSIVE PLAN UPDATE
COMMENT CARD



City Mobility
Thoroughfare
plan still has east 3rd
as minor arterial
- In conflict with
City St System # C - Character
& Values of
neighborhoods

Name (optional): Muneta



2018 COMPREHENSIVE PLAN UPDATE
COMMENT CARD



A nice path, trail & bike way map as
a handout would be great! Somewhat like
a roadmap - with large scale that is easy
to read.

Name (optional): Win Heen



2018 COMPREHENSIVE PLAN UPDATE
COMMENT CARD



Muneta

Econ Development
Growing Compatible
Industries - What does
"user friendly" mean -
How about community
information & input!

Name (optional): information & input!



2018 COMPREHENSIVE PLAN UPDATE
COMMENT CARD



Housing: Encourage increased
diversity in housing to include
single story housing appropriate for
seniors in new residential
developments to mix age groups

Name (optional): Helen Stroebel



2018 COMPREHENSIVE PLAN UPDATE
COMMENT CARD



Building Codes: Encourage/regulate
down lighting to preserve
night sky

Name (optional): Helen Stroebel



2018 COMPREHENSIVE PLAN UPDATE
COMMENT CARD



3rd Street: Convert 3rd St from
1912 Center/High School to Haynes St
to be a pedestrian/bike boulevard w/
option for future street car/rail
- Maintain 3rd St bridge as nonmotor only.

Name (optional): Helen Stroebel

Michael Ray

From: Kathy Dawes <kdawes208@gmail.com>
Sent: Friday, November 23, 2018 3:51 PM
To: Michael Ray
Subject: Input for Moscow Comprehensive Plan

Mr. Ray,

I would like to submit the following suggestion for including the statement in red as one of the goals in Chapter 5 of the Comprehensive Plan:

5.9.1 General Goals

- Provide for sustainable growth while conserving natural resources, protecting natural features and enhancing the character of the community and region.
- Provide for the orderly and efficient delivery and location of public facilities, utilities and services to the residents and businesses within the community.
- Advocate and practice the sustainable management and development of local and regional water resources and supplies to meet the needs of both current and future residents.
- Direct growth to areas that can be most efficiently and economically served with public services and utilities while planning for future capacity needs.
- **Promote creative, innovative, housing plans and/or developments that focus on meeting the needs of low-income families, youth, the elderly, etc. in order to reduce homelessness in the community and region.**

Michael Ray

From: Kathy Dawes <kdawes208@gmail.com>
Sent: Monday, November 26, 2018 2:01 PM
To: Michael Ray
Subject: Fwd: Input on Moscow's Comprehensive Plan
Attachments: Moscow Comprehensive Plan input on recycling.docx

Mike,

I am forwarding you the email message that I had sent on Nov. 21st regarding input about recycling on the comprehensive plan.

Kathy

----- Forwarded message -----

From: Kathy Dawes <kdawes208@gmail.com>
Date: Wed, Nov 21, 2018 at 3:37 PM
Subject: Input on Moscow's Comprehensive Plan
To: <mray@ci.moscow.id.us>

Mr. Ray,

I have attached my suggestions for a revision of the part of the Comprehensive Plan dealing with Recycling. My changes are highlighted in yellow and bold print. Thank you for your serious consideration of these changes to the plan.

Kathy Dawes
1018 E. E St.
Moscow, ID 83843
208-310-2922

5.7.2. Recycling Through another public-private partnership, the City contracts out the operation of a full-service recycling center owned by the City. Moscow Recycling currently accepts over twenty commodities at its 24-hour drop-off station, as well as via curbside collection services, and also pays for selected materials through a buy-back service.⁶ In 2016 the City began a curbside single-stream recycling program intended to increase waste diversion rates. As a result of this program change, the community participation rate increased from 35 percent to 85 percent and the volume of material collected increased over 135 percent. The single-stream program was extended to apartment units and other commercial entities in 2017. The City's work with Moscow Recycling has resulted in an extraordinary 50 percent diversion of solid waste from containers destined for landfills. The City's recycling facility is nearly reaching capacity and expansion **is necessary to** improve customer safety and increase the number of commodities that can be received and processed. As transport and disposal costs are likely to continue to rise into the future, the City should continue to promote and expand waste reduction and diversion programs where feasible. This will require meeting the challenge of balancing the operational costs of a multi-faceted solid waste recycling program with fluctuating regional and national markets for recyclable goods. Additional programs that could be implemented to further waste reduction include **1) composting food residuals, 2) encouraging local businesses to reduce 'single use' containers, bags, and packaging, 3) encouraging consumers to use reusable containers and bags, 4) reduce distribution of printed materials by giving residents digital options, and 5) and curbside yard waste collection.**

Footnote 6: On the commercial side, Moscow Recycling's "Reduce It!" Business Recycling Program has provided collection services for commercial recyclables since 1996. The program collects corrugated cardboard, aluminum cans, newspaper, office pack, and magazines. **Future efforts should be made to increase the number and kinds of commodities that can be received and processed from businesses.**