



Final Environmental Impact Statement

Broadmoor Area Non-Project Draft EIS

City of Pasco, Washington

March 2023



FACT SHEET

PROJECT TITLE	Broadmoor Area Non-Project EIS
PROPOSED ACTION	This Environmental Impact Statement (EIS) evaluates the impacts resulting from the adoption of a Master Plan for a 1,240-acre area in the northwest portion of the City of Pasco and the Pasco Urban Growth Area boundary.
ALTERNATIVES	<p>Alternative 1, No Action Existing Land Use Alternative: This alternative will accommodate the 2018-2038 Comprehensive Plan and the preexisting developments. Alternative #1 will provide a variety of low-density to high-density residential developments but will result in decreased residential capacities due to the existing development in the unincorporated Urban Growth Area. This alternative will result in residential growth below the established growth target.</p> <p>Alternative 2, Mixed Density and Open Space Alternative (preferred): This alternative will allow developments in mixed land use settings and will update open space locations based on recent changes in irrigation water management. Alternative #2 will reallocate planned growth areas to incorporate existing development patterns to meet the established growth target.</p>
LOCATION	The area is generally bound by the Columbia River on the west, Broadmoor Boulevard on the east, Burns Road on the north, and Interstate 182 on the south.
PROPONENT/APPLICANT	City of Pasco
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PERMITS AND APPROVALS	<p>This EIS evaluates the impacts resulting from the adoption of a Master Plan for a 1,240-acre area in the northwest portion of the City of Pasco and the Pasco Urban Growth Area boundary. The Final Non-Project EIS will require approval from the City of Pasco. Other permits/approvals anticipated:</p> <ul style="list-style-type: none">- WSDOT approval <p>City of Pasco approvals:</p> <ul style="list-style-type: none">- Land use approvals- Right-of-way permits <p>Washington State Department of Ecology Fish & Wildlife, US Army Corps</p> <ul style="list-style-type: none">- Shoreline developments
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PREVIOUS ENVIRONMENTAL DOCUMENTS	<p>Pasco Comprehensive Plan and EIS, 2018 - 2038 Pasco Comprehensive Water System Plan, 2019 Pasco Comprehensive Sewer Plan, 2014 City of Pasco 2021 Sewer Plan Addendum Pasco Irrigation Master Plan, 2013 Draft Pasco Transportation System Master Plan, 2022</p>
LOCATION OF BACKGROUND INFORMATION	<p>City of Pasco Community & Economic Development Department</p>

DATE OF DRAFT EIS ISSUANCE	December 16, 2022
WRITTEN COMMENTS	Written comments are required to be submitted to: City of Pasco, Community & Economic Development Department Attn: Rick White Broadmoor Area Non-Project EIS 525 N. 3rd Avenue, Pasco, WA 99301 Email: whiter@pasco-wa.gov BroadmoorPlanning@pasco-wa.gov
DATE DRAFT EIS COMMENTS ARE DUE	January 16, 2023
AVAILABILITY OF THE DRAFT EIS WAS PROVIDED AT THESE LOCATIONS	Physical copies of the Draft EIS can be requested and are available by contacting: BroadmoorPlanning@pasco-wa.gov or (509) 545-3441, at the Community & Economic Development Department www.pasco-wa.gov/149/Community-Economic-Development
FINAL EIS	March 15, 2023
NON-PROJECT EIS	Anticipated Adoption Date: March 2023
NEXT ACTIONS	After the adoption process of the Broadmoor Master Plan and issuance of the final EIS, projects will be reviewed on an individual basis for consistency with the EIS.

TABLE OF CONTENTS

FACT SHEET	i
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vi
LIST OF APPENDICES	vii
1. INTRODUCTION	1
1.1 WHAT IS A NON-PROJECT EIS?	1
1.2 PURPOSE AND OBJECTIVES	1
1.3 PROCEDURES AND PUBLIC INVOLVEMENT	3
1.4 HOW WILL FUTURE ENVIRONMENTAL REVIEWS BE HANDLED?	4
1.5 RELATIONSHIP TO PLANS AND POLICIES	4
2. LOCATION	5
3. ANALYSIS OF ALTERNATIVES	5
3.1 INTRODUCTION	5
3.2 ALTERNATIVE 1 – NO ACTION EXISTING LAND USE	6
3.3 ALTERNATIVE 2 – MIXED DENSITY AND OPEN SPACE	9
3.4 COMPARISON OF ALTERNATIVES	13
4. MAJOR ISSUES AND SUMMARY OF ENVIRONMENTAL IMPACTS	18
4.1 NATURAL ENVIRONMENT	18
4.1.1 EROSION AND STORMWATER	18
4.1.2 GROUNDWATER	18
4.1.3 WILDLIFE AND HABITATS	18
4.2 BUILT ENVIRONMENT	19
4.2.1 AESTHETICS AND VISUAL SETTING	19
4.2.2 TRAFFIC	19
5. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES	21
5.1 EARTH	23
5.1.1 AFFECTED ENVIRONMENT	23
5.1.2 POTENTIAL IMPACTS	29
5.1.3 MITIGATION MEASURES	29
5.2 AIR QUALITY	30
5.2.1 AFFECTED ENVIRONMENT	30
5.2.2 POTENTIAL IMPACTS	34
5.2.3 MITIGATION MEASURES	35
5.3 WATER RESOURCES	36
5.3.1 AFFECTED ENVIRONMENT	36
5.3.2 POTENTIAL IMPACTS	41

5.3.3	MITIGATION MEASURES	42
5.4	FISH AND WILDLIFE AND HABITATS	42
5.4.1	AFFECTED ENVIRONMENT	42
5.4.2	POTENTIAL IMPACTS	49
5.4.3	MITIGATION MEASURES	49
5.5	ENVIRONMENTAL HEALTH	50
5.5.1	AFFECTED ENVIRONMENT	51
5.5.2	POTENTIAL IMPACTS	51
5.5.3	MITIGATION MEASURES	52
5.6	NOISE	53
5.6.1	AFFECTED ENVIRONMENT	53
5.6.2	POTENTIAL IMPACTS	54
5.6.3	MITIGATION MEASURES	54
5.7	LAND AND SHORELINE USE	54
5.7.1	AFFECTED ENVIRONMENT	54
5.7.2	POTENTIAL IMPACTS	55
5.7.3	MITIGATION MEASURES	56
5.8	AESTHETICS AND VISUAL SETTING	56
5.8.1	AFFECTED ENVIRONMENT	56
5.8.2	POTENTIAL IMPACTS	59
5.8.3	MITIGATION MEASURES	60
5.9	POPULATION, HOUSING, AND EMPLOYMENT	61
5.9.1	AFFECTED ENVIRONMENT	61
5.9.2	POTENTIAL IMPACTS	62
5.9.3	MITIGATION MEASURES	62
5.10	TRANSPORTATION	63
5.10.1	AFFECTED ENVIRONMENT	65
5.10.2	POTENTIAL IMPACTS	82
5.10.3	MITIGATION MEASURES	82
5.11	PUBLIC SERVICES AND UTILITIES	88
5.11.1	AFFECTED ENVIRONMENT	88
5.11.2	POTENTIAL IMPACTS	105
5.11.3	MITIGATION MEASURES	107
5.12	HISTORIC AND CULTURAL RESOURCES	109
5.12.1	AFFECTED ENVIRONMENT	109
5.12.2	POTENTIAL IMPACTS	109
5.12.3	MITIGATION MEASURES	110
REFERENCES	111

APPENDICES	116
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LIST OF TABLES

Table 1. Alternative 1 Land Use Areas.....	7
Table 2. Alternative 2 Land Use Areas.....	11
Table 3: Comparison of Alternatives to GMA Goals	13
Table 4: Comparison of Alternatives to Comprehensive Plan Goals and Policies	16
Table 5. SEPA Environment Element Review Status	21
Table 6. Franklin County Soil Associations.....	27
Table 7. National Ambient Air Quality Standards for Six Criteria Pollutants.....	31
Table 8. Species of Primary Concern for the Broadmoor Area.....	45
Table 9. Summary of Habitat Type and Area Affected by Development Associated with Alternatives 1 and 2.....	49
Table 10. Franklin County and City of Pasco Population Projections 2010-2038.....	61
TABLE 11. Summary of the Public Street System in the Vicinity of the Broadmoor Area.....	66
TABLE 12. Summary of the Intersection in the Broadmoor Area	66
TABLE 13. Level of Service Standards.....	68
TABLE 14. Existing Study Intersection Operations (2019 AM & PM Peak Hours).....	69
TABLE 15. prioritized list of roadway locations based on risk factors	72
TABLE 16. Transportation characteristics of the adjacent area.....	72
TABLE 17. FGTS system in Pasco	80
Table 18. City of Pasco Emergency Services Master Plan Recommendations	91
Table 19. City of Pasco Projected Water Treatment System Demands	100
Table 20. City of Pasco Water System And Capital Improvement Projects.....	105

LIST OF FIGURES

Figure 1. Broadmoor Area Vicinity Map	2
Figure 2. Broadmoor Plan Boundary	5
Figure 3. Alternative 1 Land Use	7
Figure 4. Alternative 2 Land Use	10
Figure 5. Broadmoor Area Topography.....	24
Figure 6. Broadmoor Area Generalized Soils Map	26
Figure 7. City of Pasco Critical Areas Map	29
Figure 8. Wetlands IN the Broadmoor Area	38
Figure 9. Wildlife Habitats and Species Located at the Broadmoor Area	44
Figure 10. Panoramic View of Shrub-Steppe Habitat.....	57
Figure 11. View of Shrub-Steppe Habitat and Grassland and Adjacent Residence	57
Figure 12. Panoramic View of American Rock Products Facility.....	57
Figure 13. Panoramic View of Agricultural Crops at the Broadmoor Area.....	58
Figure 14. View of the Columbia River from the Broadmoor Area	58
Figure 15. View of an Orchard Located at the Broadmoor Area	59

Figure 16. View of the on-going Residential Developments	59
Figure 17. Previously approved Low Density development	64
Figure 18: Employer Household distribution.....	70
Figure 19: Reported Collisions	71
Figure 20: Intersection Density	73
Figure 21: Proposed Major Road Network.....	74
Figure 22: Transit System map.....	75
Figure 23: Transit Facilities in pasco (Routes and Stops)	76
Figure 24: Proposed Transit Network of Frequent Services	77
Figure 25: Sidewalk Facilities in Pasco (2021).....	78
Figure 26: Proposed Enhanced Bike Network	79
Figure 27: Freights and Good Transportation System Map	80
Figure 28: Freights activity centers	81
Figure 29. Pasco Fire Department Current Service Area by Response	90
Figure 30. Pasco Fire Department Long-Term Strategy – Proposed Stations	93
Figure 31. City of Pasco Existing Parks and Recreation Map	95
Figure 32: Parks and Trail (proposed)	96
Figure 33: Parks, Trails and OPen Space (proposed).....	98
Figure 34. Broadmoor Area Major Water Service Map.....	101
Figure 35. Broadmoor Area Proposed Sewer Service Map	103

LIST OF APPENDICES

Appendix A: Natural Resources Conservation Service Hydric Rating for the Broadmoor Area

Appendix B: (Cultural and Historic Resources) A Literature Review of the 1,600-2,000 Acre Area in the Northwest Portion of Pasco for the Broadmoor Area Non-Project Environmental Impact Statement

Appendix C: City of Pasco Transportation System Master Plan (TSMP)

1. INTRODUCTION

The City of Pasco has elected to complete a Non-Project Environmental Impact Statement (EIS) using an integrated approach to address future development in the Broadmoor area. This type of approach is approved pursuant to rules governing the preparation of documents under the State Environmental Policy Act (SEPA) as a “Planned Action” under the provisions of the Washington State Administrative Code (WAC) 197-11-164. The preparation of this Non-Project EIS addresses the questions required as part of the SEPA assessment process (WAC 197-11) and the requirements for “Planned Action” as part of WAC 197-11-164.

1.1 WHAT IS A NON-PROJECT EIS?

Use of a Non-Project EIS addresses the potential environmental impacts of land use changes and development at a program, plan, and/or policy level by assessing the impacts in a city- or area-wide context rather than a site-specific analysis. Therefore, information presented in this EIS is generalized for the subject Broadmoor area, rather than addressed in a site-, project-, or property-specific context. The EIS considers alternatives, impacts, and mitigation requirements as determined necessary for the parcels as a combined, aggregated area to address environmental impacts.

1.2 PURPOSE AND OBJECTIVES

The purpose of this Non-Project EIS is to provide a framework for the coordinated development of 1,240 acres east of the Columbia River in the area of Broadmoor Boulevard and I-182. The City of Pasco has experienced rapid and continued growth over the past several decades. According to the Office of Financial Management (OFM) estimate, the 2022 population of 80,180 is a 34% increase from the population in 2010. The City’s population will reach 121,828 in 2038. This will be a 52% increase from the City’s 2022 population. The forecast of such growth requires good stewardship of resources, and conducting this EIS facilitates the necessary environmental analysis, mitigation, long-term planning, and the conformance with the regulations to ensure future developments are aligned. The area subject to this EIS (shown in Figures 1 and 2) will be further referred to as the “Broadmoor area.”

The Broadmoor area includes land in the City limits and in the Urban Growth Area (UGA). Existing uses include a mix of vacant undeveloped land, small family farms, new housing developments, and a gravel mining operation. Additionally, approximately 58 acres of land is owned by the U.S. Army Corps of Engineers (USACE) in the Columbia River shoreline and is designated as Open Space in the Comprehensive Plan. Current Comprehensive Plan land use designations consist of Medium and High Density Residential, Mixed Use, Commercial, Office and Open Space. Current zoning designations (Residential Transition [RT] and Low Density Residential [R-1]) are designated only for

the area within the City limits. Zoning designations are broad and do not well define open spaces or transportation corridors, nor assess environmental impacts of development.

Future development without an area-wide environmental review would be based on current zoning conditions and would require a project-by-project environmental review. Creation of a framework for the coordinated development of the Broadmoor area as discussed in this EIS would promote a more balanced and sustainable path forward, better accommodating open spaces for parks and recreation, roadways and arterials, and a connected multi-modal transportation network for all users. Furthermore, a coordinated development would redefine and simplify current land use and zoning conditions, enabling a more predictable and streamlined process outcome for future development.

Defining the predictability for future development is important to effectively address environmental concerns and to better achieve the visions for Broadmoor area in a comprehensive manner that will also mitigate the environmental impacts.

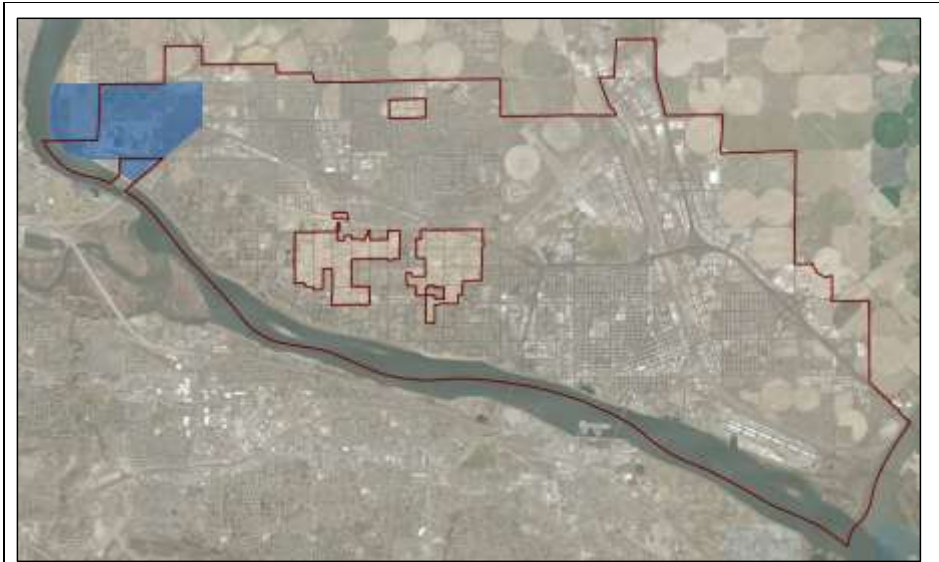


FIGURE 1. BROADMOOR AREA VICINITY MAP

Objectives of this EIS review include:

- Planning for the future development of the Broadmoor area as outlined in the Broadmoor Master Plan
- Fostering economic development and protecting the quality of the Pasco environment

- Planning for an orderly transition from vacant land to mixed, commercial, and residential uses with a land use planned development of the entire Broadmoor area
- Improving mobility options for all users by providing and requiring the necessary roadway and non-motorized connections at existing and planned arterials (e.g. Sandifur Parkway, Burns Road, I-182) with internal connections
- Identifying and completing the necessary mitigations to off-set adverse environmental impacts

1.3 PROCEDURES AND PUBLIC INVOLVEMENT

The Non-Project EIS allows environmental review under SEPA to proceed in advance of specific permit applications for subareas, master planned areas, or phased projects. The basic steps in evaluating the alternatives for development at the Broadmoor area are to:

- Issue a Determination of Significance (DS)
- Issue a scoping notice
- Solicit agency and public input on the scope (areas of review) of the EIS
- Prepare a Draft EIS
- Solicit and address input from the public and agencies
- Issue a Final EIS
- Review permit applications for new projects to ensure conformance with the Broadmoor Master Plan and within the Broadmoor area

In March 2017, the City of Pasco issued a DS and a scoping notice requesting comments on the Broadmoor Area Master Plan. Revision to that scope was made and a revised scoping notice was issued on July 22, 2021. The revised scoping notice was sent to local tribes, adjacent cities and counties, various state and local agencies, and non-profit agencies; notice was also published in a newspaper of record. The revision addresses a changed Broadmoor area boundary from 1,600 acres to 1,240 acres, along with updated land uses. The revised boundary excludes areas south of I-182 and north of Burns Road that were previously within the proposed Broadmoor planning area.

For new projects, the intent is to provide necessary environmental analysis during formulation of planning proposals, rather than at the project permit review stage. Because new projects at the Broadmoor area will require consultation with the City of Pasco to be performed as part of the planning proposal or phased to evaluate consistency with this EIS, this will ensure that adequate environmental review has been completed. It also means that further environmental review under SEPA, for each specific development proposal or phase, will not be necessary if it is determined that each proposal or phase is consistent with the Non-Project EIS. Instead of a detailed environmental review, individual development proposals will include a SEPA checklist accurately and sufficiently indicating if the proposal is consistent with and in conformance with the non-project EIS.

Supplementary analysis may be deemed required if a proposal, as determined by the lead agency does not conform to the non-project EIS.

When a proposed development, or a permit for a project within the Broadmoor planning area, is submitted to the City of Pasco, the Department of Community and Economic Development will evaluate the application and the SEPA checklist to determine if it meets the criteria in the Non-Project EIS and “qualifies” as an implementing project. The criteria to determine consistency are:

- Was this the type of project anticipated in the EIS and meets the vision of the Broadmoor area?
- Does the project meet, address or satisfy the conditions and mitigation requirements specified in the Non-Project EIS?

1.4 HOW WILL FUTURE ENVIRONMENTAL REVIEWS BE HANDLED?

Further environmental review and detailed analysis for locations within the area of this EIS will only be required when it is determined by the Lead Agency that the information provided herein is insufficient, or when significant changes or inconsistencies with what is analyzed in the EIS have occurred that have not been addressed. Additionally, alternatives not considered as part of this EIS would require additional environmental analysis and review.

1.5 RELATIONSHIP TO PLANS AND POLICIES

The City of Pasco is preparing a Master Plan for the Broadmoor area concurrently with this EIS that encompasses approximately 1,240 acres of primarily vacant and open space lands. It is the City of Pasco’s vision that the Broadmoor area become a complete mixed-use, residential community, providing a variety of commercial and housing choices to meet the needs of all residents and their families. Built around community centers, the plan will integrate the built and natural environments in a way that protects the open space yet provides the amenities the community needs such as parks, shops, and schools. The entire development will be constructed to ensure and facilitate access that makes it easy and enjoyable to get around whether by walking, biking, driving, or transit. The goals are to:

- Create a community with a mix of complementary developments
- Adjust the current land use of the Broadmoor area to accommodate higher density mixed-use commercial and residential developments to accommodate the City's future growth
- Provide adequate public facilities and infrastructure for the area to be developed
- Re-allocate open space locations based on recent changes in irrigation water management and an area-wide mitigation strategy for shrub-steppe habitat
- Provide a reliable transportation system that allows for a variety of mobility options for both motorized and non-motorized users
- Provide necessary preservation and mitigation for the natural environment and habitat areas

2. LOCATION

The Broadmoor area is composed of approximately 1,240 acres of property located in the northwest portion of the Pasco City limits and the Pasco UGA. The Broadmoor area includes parcels of land owned by several independent property and business owners. The properties are situated to the north of I-182 directly east of the Columbia River, and west of Broadmoor Boulevard. Figure 2 shows the project vicinity and boundary.



FIGURE 2. BROADMOOR PLAN BOUNDARY

3. ANALYSIS OF ALTERNATIVES

3.1 INTRODUCTION

The City of Pasco issued the EIS scoping notice in July 22, 2021 to agencies with jurisdiction, tribes, and the general public for the Broadmoor Area Master Plan. Based on the scoping process, the impact analysis is to address the following:

- **Natural Environment:** Impacts to existing wildlife and vegetation (plants and animals), earth, water, air quality, environmental health, energy, and natural resources
- **Built Environment:** Land and shoreline uses, population and housing, aesthetics, parks and recreation, historic and cultural preservation, transportation, public services/utilities, and transportation.

As stated in the scoping document, the impacts during construction and for the completed project are analyzed. Reasonable mitigation measures that would significantly mitigate any adverse impacts are also identified.

The current land use designations are shown on Figure 3. The properties could be developed with a variety of uses according to these land use designations. The potential build-out of the properties will be dependent upon market and economic factors, but it is likely that these properties could be developed to full potential within the next 10 to 20 years.

This EIS analyzes two build-out alternatives for potential impacts for a 20-year planning horizon: Alternative 1, a No Action Existing Land Use Alternative, and Alternative 2, Mixed Density and Open Space Alternative.

3.2 ALTERNATIVE 1 – NO ACTION EXISTING LAND USE

Alternative 1 is consistent with the 2018-2038 Comprehensive Plan land use designations. This alternative accommodates a variety of medium to high density residential developments throughout the area with commercial designations along Harris Road and mixed-use and office designations along Broadmoor Boulevard, Sandifur Parkway, and Burns Road. Open space areas would be located along historical irrigation drainage areas, even though this drainage has recently been re-routed to the Columbia River. This alternative will likely result in decreased residential densities in the unincorporated UGA due to County zoning limitations, and previously permitted low density developments in certain portions of the area. Figure 3 indicates the Alternative 1 land uses. Table 1 indicates the distribution of land use acreages in the area.

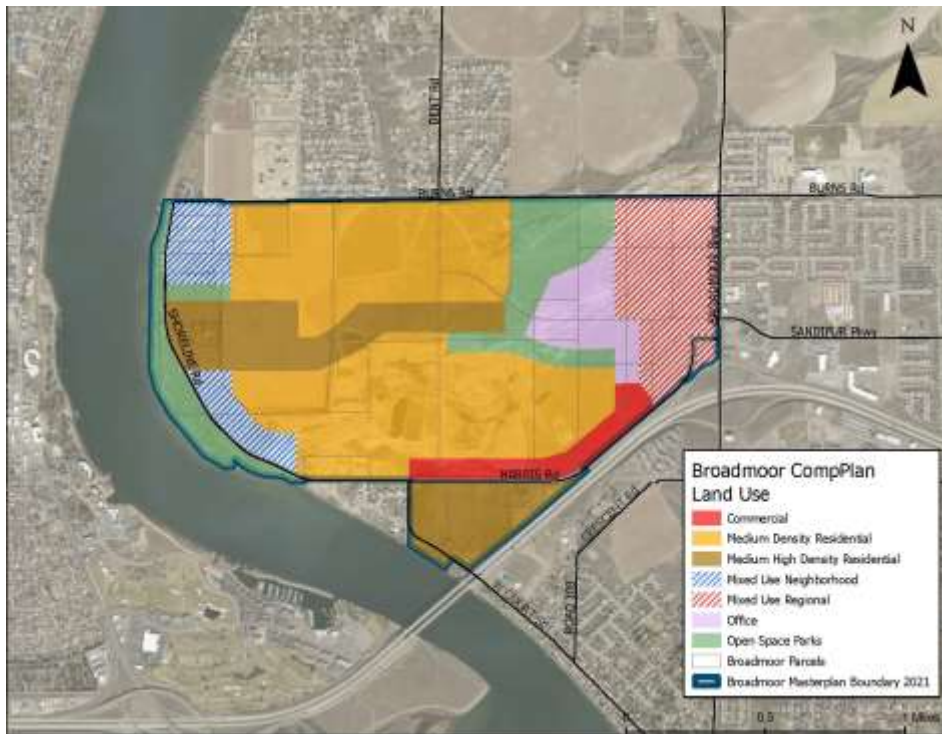


FIGURE 3. ALTERNATIVE 1 LAND USE

TABLE 1. ALTERNATIVE 1 LAND USE AREAS

Land Use	Area (Acres)	Percent
Medium Density Residential	548.5	44%
Medium - High Density Residential	201.0	16%
Office	66.5	5%
Commercial	50.2	4%
Mixed-Use Neighborhood	76.2	6%
Mixed-Use Regional	139.4	11%
Open Space	158.6	13%
Total	1240	100%

*Land use does not include right-of-way (based on parcel geometry).

Below is a description of the land use designations and design guidelines for each land use.

MEDIUM DENSITY RESIDENTIAL

Medium Density Residential land use consists of the major portion of the land use, about 44% (549 acres) of the Broadmoor area. However, about 144 acres of this Medium Density Residential land consists of previously permitted low density residential development. This was approved under a previous low density land use designation. Medium density residential developments are intended to include single-family detached, single-family attached, duplexes, and multifamily residential uses. General standards for development are as follows:

- 6-20 dwelling units per acre allowed in the Comprehensive Plan. However, an average density of 8 units per acre is expected based on medium density in the rest of the City.
- Property size of 4,000 minimum to 7,100 square foot maximum.
- Maximum building height of 35 feet.
- Standards are based on the City's existing R2 and R3 zoning standards.

MEDIUM-HIGH DENSITY RESIDENTIAL

The Medium-High Density Residential land use consists of 16% (201 acres) of the entire area. Intended uses are single-family residential, townhouses, condominiums, and multifamily. General standards for development are as follows:

- 8-15 dwelling units per acre.
- Minimum property size of 2,500-4,000 square feet.
- Maximum building height of 35-40 feet

COMMERCIAL

Commercial land use borders Harris Road and I-182. It consists of 50 acres, and is intended for retail, wholesale, service, and ancillary office uses, civic, and community uses. Allowed uses include neighborhood, community and regional shopping and specialty centers, business parks, service, and office uses.

General standards for development are as follows:

- Developments have no maximum lot size requirements. Development standards are dictated by the City's C1 zoning code for Retail Business district.
- Maximum building height allowed is 35 feet with some exceptions for greater height limits.
- In C1 zoning, lot coverage is dictated by parking requirements, setbacks, and landscaping.

MIXED-USE REGIONAL

Mixed-Use Regional consists of approximately 140 acres along Broadmoor Boulevard. This is intended for general retail operations and shops, grocery stores, residential above

commercial/office, high density residential, etc. This mixed-use area is intended to have at least 11% of the development.

General standards for development are as follows:

- Residential uses should make up a minimum of 10% of the development.
- Retail commercial use should compose no more than 50% of the development area.

MIXED-USE NEIGHBORHOOD

The Mixed-Use Neighborhood land use is located along the Columbia River, east of the USACE-owned open space land. This land use is designated for townhouses, multifamily developments, neighborhood grocers/markets and drug stores, vertically integrated buildings, live-work spaces, and other neighborhood scale offices and retail uses. In this district, a mix of use should consist of at least 40% residential development at densities ranging from 6 to 12 units per acre. No specific standards currently exist. C-1 zoning would implement mixed use with upper floor residential.

OFFICE

The Office land use district is located between the Open Space and Mixed-Use Regional district, consisting of approximately 67 acres of land. Uses allowed in this district include professional office, personal services, offices and technology resource centers, and daycares. Ancillary commercial uses may be considered (particularly within research and development centers or technological government). The City's Office district zoning standards would be implemented in this land use:

- Maximum building height allowed is 35 feet with some exceptions for greater height limits.
- In Office zoning, lot coverage is dictated by parking requirements, setbacks, and landscaping.

OPEN SPACE

The intent of the Open Space land use is to designate areas for recreational and environmental protection purposes. Allowed land uses include parks, trails, critical areas, and various open spaces. Parks and recreational uses are developed according to standards in the Parks and Recreation Plan. Protection of critical areas is governed by the City's critical areas regulations.

3.3 ALTERNATIVE 2 – MIXED DENSITY AND OPEN SPACE

Alternative 2 will include simplified land-use alternatives derived from Alternative 1 to accommodate a denser retail, commercial, and residential development, often in a mixed-use setting and allow continuation of existing industrial uses until 2035. After this time period, land use amendment will follow with an intended Medium Density Residential use in this land. Alternative 2 will allocate open space locations based on recent changes in irrigation water management and an area-wide mitigation strategy for shrub-steppe habitat. This alternative will update the location of

residential areas to accommodate increased development capacities due to the loss of densities because of previously permitted low density developments. Alternative 2 will maximize the growth and density potential of the area by planning for several development cluster areas connected by open space, public transportation, and a connected street pattern. This alternative is designed to achieve the objectives of the Broadmoor area. Figure 4 indicates Alternative 2 land uses.

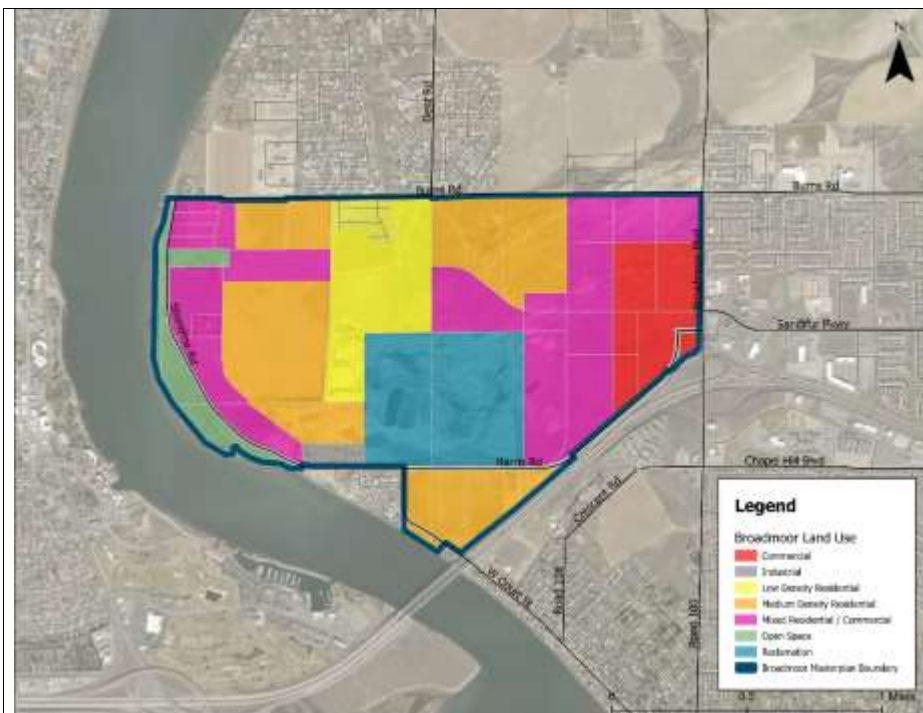


FIGURE 4. ALTERNATIVE 2 LAND USE

Alternative 2 allocates land use areas with a mix of low, medium, medium-high, and high density residential developments while accommodating and incorporating the previously permitted low-density developments. This alternative will accommodate retail, commercial, and residential development, continued production of concrete materials to facilitate development of the Broadmoor Area (including streets, roads, and sidewalks), and accommodate future open spaces based on various ecological functions and future potential.

It will also accommodate open space for parks and recreation, roadways and arterials, a well-connected transportation network for both motorized and non-motorized users that differs from the configuration identified in the No Action Alternative. The associated environmental impacts would also be different along with associated mitigation measures.

A public transportation system, and a bicycle and pedestrian trail system will be utilized to connect the residential and commercial districts within the area and the region. The design guidelines will create a balance of residential and commercial uses that will promote sustainable living and working conditions that provides easy access to amenities from living areas. The Broadmoor Area Master Plan includes detailed development standards for Alternative 2. Table 2 indicates land use distribution in Alternative 2.

TABLE 2. ALTERNATIVE 2 LAND USE AREAS

Land Use	Area (Acres)	Percent
Low Density Residential	144	12%
Medium Density Residential	361	29%
Commercial	104	8%
Mixed Residential / Commercial	370	30%
Open Space	61	5%
Reclamation	187	15%
<u>Industrial</u>	<u>14</u>	<u>1%</u>
Total	1240	100%

*Land use does not include right-of-way (based on parcel geometry).

Below is the description of each land use and locations, with references to Alternative 1 land use descriptions as applicable.

LOW DENSITY RESIDENTIAL

The intent of this land use is to allow single-family detached residential homes. Within the Broadmoor area, low density land use was previously permitted and is located south of Burns Road. Developments are guided by the City's R-1 zoning standards at the time of development (2017-2018).

MEDIUM DENSITY RESIDENTIAL

This use would be similar to that described under Alternative 1 Medium Density Residential. Land use is intended to include single-family detached, single-family attached, duplexes, and multifamily residential uses. However, the minimum density would be higher in Alternative 2 than Alternative 1, at 6 to 29 dwelling units per acre. Lot sizes in this land use range between 1,500 and 6,000 square feet. This land use is located south of Burns Road, and north and south of Harris Road.

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COMMERCIAL

Commercial use is located along Broadmoor Boulevard at the northwest side of the I-182 and Broadmoor Boulevard intersection, covering 104 acres of land. This would allow neighborhood, community and regional shopping and specialty centers, business parks, service, and office uses. Commercial land use will implement the City's C-1 zoning regulations and additional standards in the Broadmoor Area Master Plan.

MIXED RESIDENTIAL / COMMERCIAL

The Mixed Residential/Commercial designation is located along significant or identified transportation corridors and neighborhood centers in the Broadmoor area. Mixed-use districts are intended to create a sense of community by increasing the interaction among different types of uses, such as residential, commercial, and office and promoting pedestrian-friendly environments within neighborhoods. In this district, the mix of residential and commercial should be as follows:

- At least 20% residential development at a minimum density of 21 units per acre for the residential portion of the entire mixed use site,
- Maximum share of a single use, residential or commercial, in the mixed-use area shall be 80%.
- Mix of uses can be on a site or multiple sites in multiple buildings (horizontal), or in an individual building (vertical), or a combination of both.

OPEN SPACE

Open Space consists of 61 acres of land located along the Columbia River shoreline and Shoreline Road. Similar to Alternative 1, the intent of this land use is to designate and reserve areas for recreational and environmental protection purposes. Allowed land uses include parks, trails, critical areas, and various open spaces. Parks and recreational uses are developed according to standards in the Parks and Recreation Plan. Protection of critical areas is governed by the City's critical areas regulations.

RECLAMATION

Reclamation area consists of 187 acres currently used for gravel mining in the area north of Harris Road. Continued and or future reclamation of this area will add private and public recreational uses. A reclamation plan and future studies shall be required to designate appropriate uses in this area.

INDUSTRIAL

The intent of this land use is to allow short term operation of the existing concrete batch plant, equipment maintenance building and yard, office, and building material retailer. These uses will

facilitate the development of the Broadmoor Area by providing essential construction and building materials in close proximity. This use will be terminated in 2035, and the land use will be amended to Medium Density Residential after the industrial use ends.

3.4 COMPARISON OF ALTERNATIVES

As stated previously, the Comprehensive Plan encourages coordinated improvements. However, Alternative 1 does not consider the developments that have already taken place, thus reducing the growth target. Alternative 2 will decrease and address the expected gap between existing and projected developments by reallocating additional density in the rest of the areas.

Alternative 1 does not consider the development challenges on the gravel mining site. The gravel mining and a future reclamation plan would most likely prevent the area from being developed with medium density as shown in this alternative. Alternative 2 designates this area as Reclamation and Industrial and re-allocates future growth in the rest of the planning area.

A fully developed and well-connected transportation network that supports multi-modal travel for all users, along with the necessary development standards and design guidelines are core elements of both alternatives.

Alternative 2 will allow more flexibility and mixed uses along the identified and significant transportation corridors, while Alternative 1 will concentrate mixed uses along the east and west sides of the Broadmoor planning area. Alternative 1 will be implemented through the City's existing zoning codes. The Master Plan development regulations will provide additional implementation tools for Alternative 2.

TABLE 3: COMPARISON OF ALTERNATIVES TO GMA GOALS

Comprehensive Plan Goals and Policies	Alternative 1	Alternative 2
<u>Urban Growth: Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.</u>	<u>Development is planned with urban area.</u>	<u>Development is planned with urban area with higher density.</u>
<u>Reduce Sprawl: Reduce inappropriate conversion of undeveloped land into sprawling, low-density</u>	<u>Growth within the UGA but does not address the already approved low density nature of developments with the area.</u>	<u>Growth within the UGA, planned areas would reduce sprawl.</u>

Comprehensive Plan Goals and Policies	Alternative 1	Alternative 2
<u>development.</u>		
<u>Transportation: Encourage efficient multi-modal transportation systems based on regional priorities and coordinated with the City Plan.</u>	<u>Adds new transportation improvements to improve connectivity and street design that supports urban environment.</u>	<ul style="list-style-type: none"> • <u>Adds new transportation improvements to improve connectivity and street design that supports urban environment.</u> • <u>Adds multi-modal travel options</u> • <u>Could result in shorter trips due to more compact development patterns.</u>
<u>Housing: Encourage the availability of affordable housing to all economic segments of the population, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.</u>	<u>Housing needs are not met in areas where low density developments have already taken place.</u>	<ul style="list-style-type: none"> • <u>Housing meets the 20-year demand with the reallocation of density and through a variety of housing types and residential densities.</u>
<u>Economic Development: Encourage economic development consistent with adopted Plans, promote economic opportunity for all citizens, especially for the unemployed and the disadvantaged, and encourage growth in areas experiencing insufficient economic growth, all within the capacity of the state's</u>	<u>Employment will occur in the commercial and mixed-use areas.</u>	<u>Employment will occur in the commercial and mixed-use areas.</u>

Comprehensive Plan Goals and Policies	Alternative 1	Alternative 2
<u>natural resources, public services, and public facilities.</u>		
<u>Open Space and Recreation: Encourage the retention of open space and development of recreation opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks.</u>	<ul style="list-style-type: none"> • <u>Maintains existing parks and natural open space and adds additional park land to serve future growth.</u> • <u>Designates open space in areas where environmental functions no longer exist (e.g. open space land use in the tailwater pond area that has been non-functional due to rerouted irrigation).</u> 	<ul style="list-style-type: none"> • <u>Maintains existing parks and natural open space and adds additional park land to serve future growth (location of additional parkland is not identified yet).</u> • <u>Open space is proposed in various forms to be integrated with developments, such as plazas, courtyards, greenbelt, streetscape, and neighborhood and community parks.</u>
<u>Environment: Protect the environment and enhance the City's high quality of life, including air and water quality, and the availability of water.</u>	<ul style="list-style-type: none"> • <u>Environmental qualities are protected based on the current regulations and development pattern.</u> • <u>Mitigation shall occur according the mitigation agreement between the City, Ecology and the developers.</u> 	<ul style="list-style-type: none"> • <u>Environmental qualities are protected based on the current regulations and development pattern.</u> • <u>Mitigation shall occur according the mitigation agreement between the City, the Department of Ecology, and the developers.</u>
<u>Public Facilities and Service. Adequate public facilities to serve the development.</u>	<u>Additional public facilities will be required in certain areas for urban development.</u>	<u>Public facilities will be required and are being planned for urban level development.</u>
<u>Historic Preservation. Identify and encourage the preservation of lands, sites and structures that have</u>	<u>Historical or archaeologically significant sites or structures are protected in the planning phase, and also under the current</u>	<u>Historical or archaeologically significant sites or structures are protected in the planning phase, and also under the current</u>

Comprehensive Plan Goals and Policies	Alternative 1	Alternative 2
<u>historical or archaeological significance.</u>	<u>regulations during construction phase.</u>	<u>regulations during construction phase.</u>

TABLE 4: COMPARISON OF ALTERNATIVES TO COMPREHENSIVE PLAN GOALS AND POLICIES

Comprehensive Plan Goals and Policies	Alternative 1	Alternative 2
<u>LU-2-B Policy: Facilitate planned growth within the City limits and UGA</u>	<u>Does not consider the developments that have already taken place, thus reducing the growth target.</u>	<u>Decrease and address the expected gap between existing and projected developments by reallocating additional density in the rest of the areas.</u>
<u>LU-2-A Policy: Maintain sufficient land designated to accommodate residential, commercial, industrial, educational, public facility</u>	<u>Alternative 1 does not consider the development challenges on the gravel mining site. The gravel mining and a future reclamation plan would most likely prevent the area from being developed with medium density as shown in this alternative.</u>	<u>designates this area as Reclamation and Industrial and re-allocates future growth in the rest of the planning area.</u>
<u>LU-4-E Policy: Encourage the orderly development of land by emphasizing connectivity and efficiency of the transportation network</u>	<u>Supports a fully developed and well-connected transportation network that supports multi-modal travel for all users.</u>	<u>Supports a fully developed and well-connected transportation network that supports multi-modal travel for all users.</u>
<u>LU-1-B Policy: Enhance the physical appearance of development within the community through land use regulations, design guidelines, and performance and maintenance standards</u>	<u>Existing zoning code standards and guidelines for implementation</u>	<u>New development regulations for implementation</u>

Comprehensive Plan Goals and Policies	Alternative 1	Alternative 2
<u>LU-4. GOAL: Increase community accessibility through proper land use planning.</u>	<u>Land use does not consider the developments that have already taken place, and unavailable land in the gravel mining area. Accessibility is not clearly identified in some of these areas.</u>	<u>Land use planning make up for the gap of unavailable lands and creates accessibility accordingly.</u>
<u>LU-4-C Policy: Encourage the development of walkable communities by increasing mixed-use (commercial/residential) developments that provide households with neighborhood and commercial shopping opportunities</u>	<u>Concentrate mixed uses along the east and west sides of the Broadmoor planning area</u>	<u>Allows more flexibility and mixed uses along the identified and significant transportation corridors</u>
<u>CF-3-A Policy: Assure land development proposals provide land and/or facilities or other mitigation measures to address impacts on traffic, parks, recreational facilities, schools, and pedestrian and bicycle trails</u>	<u>Mitigation document is prepared.</u> <u>Includes more parks and open space land. However, most of them are built, or partially built, or not functioning as open space (e.g. tailwater pond area)</u>	<u>Mitigation document is prepared.</u> <u>Includes less parks and open space land. Includes regulations for open space; identifies the use of existing open space (USACE property), and trail connectivity.</u>

4. MAJOR ISSUES AND SUMMARY OF ENVIRONMENTAL IMPACTS

4.1 NATURAL ENVIRONMENT

4.1.1 EROSION AND STORMWATER

Runoff from precipitation events and construction could result in erosion and runoff into drainage areas and surface water bodies. Treatment and infiltration of stormwater generated in the Broadmoor area will be managed in compliance with the latest Eastern Washington Stormwater Manual (Ecology 2019) and Pasco Municipal Code (PMC), and will minimize potential impacts to water quality and aquifer recharge. Implementation of appropriate mitigation measures (complying with the existing regulations) and Best Management Practices (BMPs) should result in no significant unavoidable adverse stormwater or erosion impacts associated with either of the alternatives.

4.1.2 GROUNDWATER

Groundwater at the Broadmoor area and in Franklin County is part of the Columbia River Plateau regional aquifer system. The Columbia River Plateau regional aquifer system, made up of four aquifers (i.e., the suprabasalt sediment or overburden aquifer, Saddle Mountain aquifer, Wanapum aquifer, and Grande Ronde aquifer), encompasses approximately 50,600 square miles, extending from northern Idaho to northeastern Oregon and southeastern Washington (USGS, 2015). The aquifer recharge area in Pasco covers the entire city. Aquifer recharge is an essential part of the natural hydrologic cycle and is necessary to maintain water levels in regional aquifers. Land development activities, such as clearing, grading, and stormwater management, may affect the natural hydrologic cycle and subsequently groundwater recharge. Implementing BMPs and spill and release prevention measures and maintaining adequate open space for infiltration should result in no significant and unavoidable adverse groundwater impacts.

4.1.3 WILDLIFE AND HABITATS

At the Broadmoor area, there are State Candidate Species including the black-tailed jackrabbit, sagebrush sparrow, and sagebrush lizard (WDFW 2018b). Burrowing owl, also a State Candidate Species, has been documented in the vicinity of the Broadmoor area (WDFW 2018a). The shrub-steppe habitat, which currently encompasses a large portion of the Broadmoor area, is classified as a Washington Department of Fish and Wildlife (WDFW) priority habitat. Development associated with both alternatives may result in unavoidable adverse effects to some of these species of concern and will directly affect the shrub-steppe habitat, requiring mitigation in accordance with applicable local, state, and federal laws and regulations. Where and when possible, any adverse impacts should be avoided or minimized. Additional care should be taken to prevent disturbance of migratory birds and birds of prey as outlined in Section 5.4. Furthermore, BMPs should be

implemented to prevent runoff from construction and development from entering surface water bodies and degrading water quality and habitat.

4.2 BUILT ENVIRONMENT

4.2.1 AESTHETICS AND VISUAL SETTING

4.2.1.1 ALTERNATIVE 1

Development associated with Alternatives 1 and 2 will substantially alter the current aesthetic and visual character of the area. The visual character of the existing landscape is primarily open space including critical shrub-steppe habitat, farmland and orchards, with rural and low density residential development. Additionally, future roadways, residential construction, commercial and public development will result in changes in topography and slopes in the area in both alternatives.

Open spaces include farmlands and undeveloped shrub-steppe habitat, and artificial wetlands from prior irrigation management facilities and mining operations that have intercepted shallow groundwater. These will be changed under both alternatives to a combination of mixed-use development including low, medium, and medium-high density residential, office, and commercial land use with intermittent open, green, and other public spaces.

Under the Alternative 1, the properties will likely be developed over time without adequate public facilities, and thus the visual impact to the landscape can be piecemeal. Developments will mostly focus on the easterly and westerly edges of the area. Since development in the gravel operation site is not expected within the immediate planning timeframe, this mining site, the designated open space north of it, and the already permitted low density residential will create a physical and visual feel of undeveloped and/or low intensity development, some of which can be without connectivity and circulation.

4.2.1.2 ALTERNATIVE 2

In Alternative 2, developments are expected to be clustered around three major neighborhood and economic activity centers (Sandifur Parkway and Broadmoor Boulevard, Sandifur Parkway and Road 108, and Sandifur Parkway near the USACE open space), and within the mixed-use corridors and districts. The medium density residential and mixed-use districts will be developed with a pedestrian-friendly development pattern. All developments will be in compliance with the design and development regulations of the Broadmoor Area Master Plan. Mixed-use developments will transition to various small-lot attached, detached, and multifamily homes, creating a visual and physical transition between districts and corridors.

4.2.2 TRAFFIC

The City is developing a citywide Transportation System Master Plan (TSMP) that analyzes and determines recommendations for transportation improvements based on future growth. This

includes the Broadmoor area. The traffic analysis considered the highest traffic potential of the build-out scenarios and assessed the traffic characteristics and potential impacts for a development activity. The overall development is proposed to be constructed over a 10- to 20-year period.

The TSMP reviewed the projected long-term traffic conditions to ensure that development and proposed access system are consistent with the general long-term vision and needs of the area.

The descriptions of existing and proposed roadways, intersections, and transportation system are provided in Section 5.10. Under current conditions, the Level of Service (LOS) standards for the six study intersections assessed as part of the traffic study meet the City of Pasco and Washington State Department of Transportation (WSDOT) LOS standard of “D,” except for Harris Road/Broadmoor Boulevard during AM and PM peak hours. Additionally, a majority of the traffic volume and distribution is concentrated toward the southern portion of the Broadmoor area near I-182.

Further mitigation measures specific to Alternative 1 and Alternative 2 are described in detail in Section 5.10.

5. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section considers the affected environment for the SEPA elements as indicated, evaluates potential environmental impacts, and recommends mitigation measures relative to each presented alternative. Recommended mitigation measures identify ways to reduce or eliminate potential impacts associated with each alternative. Table 5 outlines the elements of the environment contained in WAC 197-11-444 which defines the elements to be considered as part of the SEPA process. As noted in the WAC, focus should be given to significant issues; thus, non-significant issues were not reviewed or were considered as part of other elements. New development will primarily visually impact the existing undeveloped areas and agricultural lands at the site.

Under Alternative 1 and Alternative 2, the landscape will be transformed to a variety of land uses as described previously.

TABLE 5. SEPA ENVIRONMENT ELEMENT REVIEW STATUS

ENVIRONMENTAL ELEMENT	STATUS
NATURAL ENVIRONMENT	
Earth	
Geology	Reviewed
Soils	Reviewed
Topography	Reviewed
Mineral Resources	Reviewed
Erosion/Enlargement of Land Area (Accretion)	Reviewed*
Seismology	Reviewed
Air	
Air Quality	Reviewed
Odor	Not Reviewed
Climate	Reviewed
Water	
Surface Water [Movement/Quality/Quantity]	Reviewed**
Groundwater [Movement/Quality/Quantity]	Reviewed**
Runoff/Absorption (Stormwater)	Reviewed
Floods	Reviewed
Public and Private Water Systems	Reviewed

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ENVIRONMENTAL ELEMENT	STATUS
Wildlife and Habitat	
Habitats and Population/Diversity of Species	Reviewed
Unique Species	Reviewed
Fish and Wildlife Migration Routes	Not Reviewed
Energy and Natural Resources	
Amount Required/Rate of Use/Efficiency	Not Reviewed
Source/Availability	Not Reviewed
Nonrenewable Resources	Not Reviewed
Conservation and Renewable Resources	Not Reviewed
Scenic Resources	Not Reviewed
BUILT ENVIRONMENT	
Environmental Health	
Noise	Reviewed
Risk of Explosion	Not Reviewed
Releases or Potential Release to the Environment	Reviewed
Land and Shoreline Use	
Relationship to Land Use Plans	Reviewed
Population	Reviewed
Housing	Reviewed
Light and Glare	Reviewed
Aesthetics	Reviewed
Historic and Cultural Resources	Reviewed
Agricultural Crops	Not Reviewed
Transportation	
Transportation Systems	Reviewed
Vehicular Traffic	Reviewed
Waterborne, Rail, and Air Traffic	Reviewed
Parking	Reviewed
Movement/Circulation of People	Reviewed
Traffic Hazards	Reviewed
Public Services and Utilities	
Fire	Reviewed
Police	Reviewed
Schools	Reviewed
Parks and Other Recreational Facilities	Reviewed
Maintenance	Reviewed
Communications	Reviewed

ENVIRONMENTAL ELEMENT	STATUS
Water/ Stormwater	Reviewed
Sewer/Solid Waste	Reviewed
Other Governmental Services and Utilities	Reviewed

* Enlargement of Land Area (Accretion) was not reviewed because it was determined to be non-significant pursuant to this Non-Project EIS.

**Quality and Quantity of Surface Water and Groundwater was reviewed. However, movement of surface water and groundwater was not reviewed because it was determined to be non-significant pursuant to this Non-Project EIS.
(Source: WAC 197-11-144)

5.1 EARTH

This section describes the existing conditions relative to the topography, geology, seismology, soils, and erosion and geologic hazards at the Broadmoor area. This section includes a description of conditions generalized for Franklin County and also Broadmoor area-specific conditions to represent the environmental baseline from which potential environmental effects are identified and characterized.

5.1.1 AFFECTED ENVIRONMENT

The Broadmoor area is in the north-western part of Pasco adjacent to the Columbia River. Pasco is located in southern Franklin County in the central part of southeastern Washington, which is bordered by Benton, Grant, Adams, Whitman, and Walla Walla Counties. The Columbia River lies on its southern and western border and separates Franklin from Benton County. The Snake River and its tributary lie on its southern and eastern border of the City and separate the City from Walla Walla County. Franklin County is a semi-arid region that receives approximately 6 to 7 inches of rain per year and averages approximately 10.3 days of snow and 7.5 days of rain per year. Median temperatures range from 30.6 to 75.7 degrees Fahrenheit throughout the year. Wind gusts throughout the region can reach as high as 70 miles per hour or higher.

5.1.1.1 TOPOGRAPHY

Franklin County is part of the Columbia Basin Project, which includes the entire south-central area of Washington State. It is defined as a broad arid lowland that is located between the Okanogan Highlands, the southern Cascade Range, and the Idaho Rockies. It extends through parts of eastern Oregon and northern Nevada.

This area consists of steep river canyons, plateaus, and tall and meandering ridges. It is covered with wind-blown sediment called "loess" and deposits from the catastrophic drainage of Glacial Lake Missoula that swept across much of eastern Washington at the end of the last ice age. These deposits are underlain by thousands of feet of Columbia River Basalt Group lava flows. These flows and most of the sediment above have been altered by deformation by the regional Yakima fold and

thrust belt. Other features of this country include cliffs, canyons, and dunes such as the Palouse and Devils Canyons, and the Juniper Dunes. The County lies at the south end of the Channeled Scablands which are interconnected, relatively barren, and soil free dry flood channels and coulees.

The topological features at the Broadmoor area includes dunes, gradually sloping or flat agricultural areas and residential development, man-made below-water table depressions at the American Rock Products (ARP) facility, and sloped hillsides. Figure 5 illustrates the topography at the Broadmoor area relative to the ARP facility boundary.

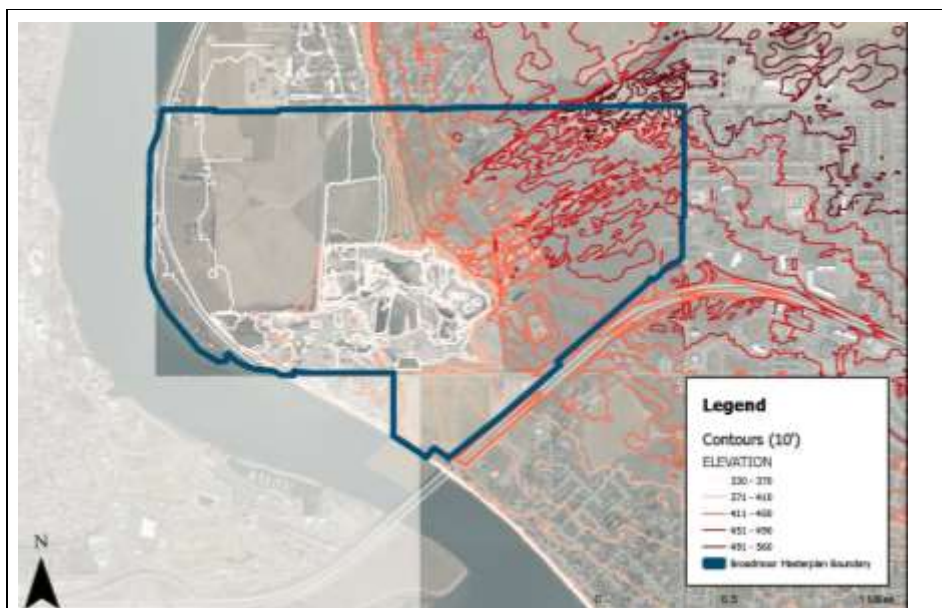


FIGURE 5. BROADMOOR AREA TOPOGRAPHY

5.1.1.2 GEOLOGY

The geology of Franklin County was formed by alternating volcanism and flooding. The Columbia River Flood Basalts are located in Idaho, Washington, and Oregon and cover an area of approximately 164,000 square kilometers from the Cascade Mountain Range to the Rocky Mountains ("Columbia River Flood Basalts," 2015). The Columbia River Flood Basalts are composed of more than 300 different flood events. The geological history of the Columbia River Flood Basalts consists of the following formations:

- The Imnaha Basalt Formation, which is approximately 17.5 to 16.5 million years old, is located in northeastern Oregon, western Idaho, and southeastern Washington. The Imnaha

Basalt Formation makes up approximately 5% of the total volume of the Columbia River basalts.

- The Grande Ronde Basalt Formation, which is primarily found at the eastern border of the county, is approximately 16.5 to 14.5 million years old. Few sedimentary interbeds are found, indicating relatively short periods between eruptions.
- The Wanapum Basalt Formation, which is primarily found in the northeast and along the Snake River, is approximately 14.5 to 13.5 million years old. Sedimentary interbeds were created within and between formations due to the erosion of the surrounding older rock material.
- The Saddle Mountains Basalt Formation, found primarily in the Mesa area extending southeast and northwest, is approximately 13.5 to 6 million years old (Oregon State University, 2018). Continued deposition of flood basalts occurred during the Miocene era and, combined with rising and volcanic activities in the formation of the Cascade Range, formed interbedding sediments within the Columbia River Basalts that are called the Ellensburg Formation.

During the Pleistocene era (~0.01 to 2.6 million years ago), deposition of sedimentary material such as fluvial and lacustrine deposits of silts, sand, and gravel continued in this region. The late Pleistocene Epoch consisted of multiple glacial outwash and flood deposits created from the catastrophic drainage of Glacial Lake Missoula as the ice dams holding the water back broke up and flowed through eastern Washington and northern Idaho. As the flood waters outpoured, they were directed along folds and joints in the bedrock, creating the Channeled Scablands, and scoured the land converging in the area of Wallula Gap where the waters created a large lake. This event is referred to as the Missoula Floods. This flooding deposited thick layers of sands and gravels in wide, flat areas including the Pasco Basin (Lyerla, 1991; Anchor QEA, 2015). Most recently, sediment transported and deposited by wind has created active sand dunes and loess in the western half of the county. These deposits reside on high-relief areas that were not affected by the flooding. Currently, post-glacial fluvial deposits of sands and gravels make up most of the composition of major stream valleys. Additionally, flooding during the Miocene-Pliocene Epochs of fluvial and lacustrine sedimentary rock created the Ringold Formation, which is exposed on the white bluffs near the Columbia River. During the Eocene Epoch, pre-flood intrusive crystalline rocks were present in the northern portion of Franklin County (Grolier and Bingham, 1978; Anchor QEA, 2015).

5.1.1.3 SOILS

Identification of soils is crucial in deciding applicable use of land and costs that are associated with development. Franklin County soils have been studied and mapped by the Soil Conservation Service, and a soil survey was published in 1914 and updated in 2005 (NRCS, 2006). Soils in the Broadmoor area were further delineated and classified as part of a United States Department of Agriculture (USDA) Natural Resources Conservation Service Soil Survey for Franklin County (NRCS,

2006). A study area-focused soil map is shown in Figure 6. Based on site reconnaissance efforts and information provided in Figure 6, the soil types at the Broadmoor area can be best characterized as Sagehill-Quincy-Neppel and Quincy-Hezel-Burbank, described in Table 6.

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FIGURE 6. BROADMOOR AREA GENERALIZED SOILS MAP

TABLE 6. FRANKLIN COUNTY SOIL ASSOCIATIONS

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Soil Classifications	Description
Quincy-Hezel-Burbank	Loamy fine sand to gravelly sand. Soils are very deep, somewhat to excessively drained soils formed in sands on dunes, terraces, basaltic glacial outwash or alluvium, and glaciofluvial sediments. As stated in the Franklin County Growth Management Comprehensive Plan Resolution Number 2008-089: "Permeability ranges from 6 to 20 in/hr. and available water capacity ranges from 0.06 to 0.21 in/in. Soils have an effective rooting depth of greater than 60 inches. This soil association has a Class 7 USDA Soil Conservation Service Land Capability Classification."
Sagehill-Quincy-Neppel	Very fine sandy loam to gravelly sandy loam formed in lacustrine deposits, sands on dunes, terraces, alluvium or glacial outwash from basalt lime-silica cemented material and granite. Soils are deep to very deep, well drained to excessively drained, on nearly level to steep terraces and active dunes. As stated in the Franklin County Growth Management Comprehensive Plan Resolution Number 2008-089: "Permeability ranges from 0.6 to 20 in/hr. and available water capacity ranges from .06 to 0.2 in/in. Soils have an effective rooting depth of greater than 60 inches. This soil association has a Class 6 USDA Soil Conservation Service Land Capability Classification."

Notes:

The USDA Soil Conservation Service Land Capability describes the classification of soil types as follows:

Class 1: Agricultural soils of long-term commercial importance. These soils have slight limitations that restrict their use.

Class 2: Agricultural lands of long-term commercial importance that have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3: Agricultural lands of long-term commercial importance. These soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4: Soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5: Soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6: Soils have severe limitations that make them generally unsuitable for cultivation that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7: Soils have very severe limitations that make them unsuitable for cultivation that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8: Soils and miscellaneous areas have limitations that preclude commercial plant production that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

(Sources: Franklin County Growth Management Comprehensive Plan, 2008; Franklin County Economic Development Plan, 2016; NRCS Soil Survey of Franklin County, Washington; USDA Official Soil Series Descriptions)

5.1.1.4 MINERAL RESOURCES

Sand and gravel mining operations exist in the central south portion of the Broadmoor area at the ARP site. Mining operations have been in place for the past several decades and are expected to continue for the next several years and the site to be reclaimed in or about 2027. But the industrial uses on the ARP site are expected to continue until about 2035. The area is addressed through a Washington State Department of Natural Resources-approved reclamation plan. The plan identifies final grading slopes and elevations to be achieved. Standing water from intercepted groundwater is expected to remain in several locations. Soil conditions in this area are described previously.

5.1.1.5 EROSION AND GEOLOGIC HAZARDS

Geologic hazards are areas that are prone to erosion, sliding, earthquake, or other geologic events. These areas are not suitable for commercial, residential, or industrial development because of health and safety concerns. Landslide hazard areas (steep slope) and liquefaction areas are the main geologic hazards found in the Broadmoor area. Figure 7 depicts geologic hazard areas.

5.1.1.6 SEISMOLOGY

Seismic activity in Franklin County is low to moderate. The Broadmoor area shows a very low to low liquefaction susceptibility (Appendix B; Palmer et al., 2004a). Liquefaction occurs when soil strength and structure degrade quickly and act as quicksand as the result of earthquakes or strong vibrational occurrences. Liquefaction typically occurs in saturated loose sandy soils, usually in low-lying areas along coastal and lake shorelines and river valleys.

The Broadmoor area has mainly a Site Class of B, which is defined a soft rock physical characteristics where earthquake shaking is neither amplified nor reduced by the near-surface geology, and as Site Classes C, D, and E, which are defined as increasing softer soil physical characteristics that result in a progressively increasing amplification of ground shaking (Palmer et al., 2004b). Limited areas along the shoreline show a Site Class E however, this area is outside of the Broadmoor area and is under management as a USACE Habitat Management Unit (HUM) and the City Shoreline Master Program. Figure 7 depicts the shoreline area of the HUM that is susceptible to liquefaction (Class E) shown in red.



FIGURE 7. CITY OF PASCO CRITICAL AREAS MAP

5.1.2 POTENTIAL IMPACTS

Implementation of Alternatives 1 and 2 will result in urban development that will disturb land cover and soils and transform current land use. Thus, the potential for erosion or landslides may exist in the steeper-sloped areas due to earthquakes, high wind events, periods of heavy rain or snow, or during construction. Because of the low precipitation in this area, erosion from runoff after construction in most cases is an intermittent concern. In the event of heavy rain events, runoff may result in erosion of surface soils and surface water siltation if mitigation measures are not appropriately implemented. Additionally, during construction, areas should be watered to mitigate windblown sediment because the loess soils are extremely fine and may cause areas of low visibility and wind-driven erosion. Assuming appropriate mitigation measures (complying with the existing regulations) are implemented and maintained, there are no significant unavoidable adverse earth-related impacts associated with either of the alternatives.

5.1.3 MITIGATION MEASURES

The following mitigation measures and BMPs should be used to reduce erosion, siltation, and landslides:

1. Areas that are disturbed during construction should be watered in accordance with local air quality agency requirements.
2. Steep slopes shall not be disturbed, if possible, except as part of a mining mitigation plan.

3. Soils should be compacted at densities appropriate for planned land uses.
4. Vegetative cover or soil cement should be provided on exposed surfaces.
5. Construction should be staged so that the maximum amount of existing vegetation is left in place.
6. If possible, a vegetation buffer should be left around the site perimeter to stop the transportation of sediment off site.
7. Catch basins should be installed near storm drains.

5.2 AIR QUALITY

5.2.1 AFFECTED ENVIRONMENT

This section describes the existing conditions relative to the air quality for the Broadmoor area. This section includes a generalized and area-specific description of air quality and applicable air quality standards to represent the environmental baseline from which potential adverse environmental impacts are identified and measured.

5.2.1.1 AIR QUALITY STANDARDS AND EXISTING AIR QUALITY

The Clean Air Act (CAA) of 1970, as amended in 1990, identifies air quality standards for several air quality pollutants. These pollutants are identified as “criteria” air pollutants (CAPs) and as such are regulated by the U.S. Environmental Protection Agency (EPA). The CAPs are common pollutants for which the EPA has established a concentration threshold to protect human health based on medical evidence of impacts associated with such pollutants.

The National Ambient Air Quality Standards (NAAQS) (40 Code of Federal Regulations [CFR] Part 50) define levels of air quality to protect human health and public welfare from impacts associated with air quality pollutants that affect visibility, soiling, nuisance, or other forms of damage to the natural and built environment. In the State of Washington, some of the NAAQS have been codified in WAC Title 173 Chapter 476, Ambient Air Quality Standards. The federal NAAQS which designate air quality standards for six “criteria” air pollutants are presented in Table 5. As shown in Table 5, primary and secondary air quality standards protect human health and public welfare, respectively.

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TABLE 7. NATIONAL AMBIENT AIR QUALITY STANDARDS FOR SIX CRITERIA POLLUTANTS

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Air Pollutants	Average Time	Primary		Secondary		Violation Criteria
		ppm	µg/m ³	ppm	µg/m ³	
Carbon Monoxide	8 hours	9	-	-	-	Not to be exceeded more than once per year
	1 hour	35	-	-	-	
Lead (Pb)	Rolling 3-month average	-	0.15 ⁽¹⁾	-	0.15 ⁽¹⁾	Not to be exceeded
Nitrogen Dioxide (NO ₂)	1 hour	0.100	-	-	-	98 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	1 year	0.053 ⁽²⁾	-	0.053 ⁽²⁾	-	Annual mean
Ozone (O ₃)	8 hours	0.070 ⁽³⁾	-	0.070 ⁽³⁾	-	Annual fourth highest daily maximum 8-hour concentration, averaged over 3 years
PM _{2.5}	1 year	-	12.0	-	15.0	Annual mean averaged over 3 years
	24 hours	-	35	-	35	Annual mean averaged over 3 years
PM ₁₀	24 hours	-	150	-	150	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide	1 hour	0.075 ⁽⁴⁾	-	-	-	99 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	3 hours	-	-	0.5	-	Not to be exceeded more than once per year

PM = Particulate Matter ppm = parts per million µg/m³ = micrograms per cubic meter

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m³ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO₂ standard is 0.053 ppm. It is shown here in terms of ppm for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O₃ standards additionally remain in effect in some areas. Revocation of the previous (2008) O₃ standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO₂ standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO₂ standards or is not meeting the requirements of a State Implementation Plan call under the previous SO₂ standards (40 CFR 50.4). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS. (Source: EPA, 2018)

Depending on the meteorological conditions, geographic areas are designated as achieving attainment, non-attainment, or maintenance based on concurrence with established NAAQS for CAPs. Non-attainment areas within states, municipalities, air basins, and counties are required to develop a State Implementation Plan (SIP) which outlines plans and procedures for NAAQS compliance to be achieved over a SIP specified timeframe.

Responsibility for enforcement and regulation of air quality compliance is primarily left to state governments, in this case the Washington State Department of Ecology (Ecology). Washington State has established a comprehensive SIP. The requirements for the State of Washington SIP are detailed as part of 40 CFR Part 52, Subpart WW. This SIP is a compilation of plans, programs, and implementation of local, state, and federal air quality regulations. Franklin County, where the Broadmoor area is located, as well as all of the State of Washington, currently meet NAAQS. However, ground level ozone has been identified as a concern in the Tri-Cities area encompassing Kennewick, Pasco, and Richland. Thus, the Tri-Cities area is currently identified as a higher risk area for potentially exceeding NAAQS for ozone, and thus is being closely monitored for compliance. Ecology and the Benton Clean Air Agency have partnered to identify and implement reduction measures and raise public awareness.

In 2016, Ecology partnered with Washington State University and the Benton Clean Air Agency to conduct the Tri-Cities Ozone Precursor Study (Washington State University, 2017). This study was performed to assess the precursors of ozone, including nitrogen oxides (NO_x) and volatile organic compounds (VOCs). Precursor measurements were taken at multiple locations using a mobile station and two fixed sites located in the Tri-Cities area. The study found the primary ozone production area localized at the immediate urban area of the Tri-Cities and that ozone precursors were primarily attributed to traffic emissions and various VOC sources with other large point or area sources also contributing to ozone formation. While ozone precursor concentrations tended to be lower compared to large urban areas, the airshed conditions result in efficient ozone production, specifically on hot days with calms winds producing stagnant conditions and limited urban emission dispersion. Thus, ozone continues to be monitored in the Tri-Cities areas for compliance with NAAQS.

Hazardous Air Pollutants (HAPs) are also pollutants of concern and are designated by EPA based on associated human health risks. Sources of HAPs include motor vehicle exhaust, industrial processes, commercial operations such as fueling stations and dry cleaners, and cigarette smoke. Motor vehicles contribute to the emission of multiple HAPs. Diesel exhaust emissions contribute to major emissions of particulate matter, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. HAPs are also linked to short-term (acute) and long-term (chronic and carcinogenic) human health effects. Exposure to HAPs is known to cause major health effects including cancer, birth defects, and neurological damage. Risks associated with HAPs are especially concerning for at-risk populations such as young children, the elderly, and those with existing health conditions. Current

residential, agricultural, and industrial development contribute to the emission of HAPs at the Broadmoor area. Specifically, the concrete operations at the ARP complex are expected to continue for the short term, and it is anticipated that any emissions that may emanate from the manufacturing will be offset by a decrease in truck and material transport during construction, attributed to materials being produced and placed in the Broadmoor Area, rather than being transported from distant locations. The sand and gravel mining activity contribute to emissions of particulate matter from dust generated as part of industrial operations and as the result of wind-blown dust. This activity is expected to end by 2025.

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5.2.1.2 GLOBAL CLIMATE CHANGE

Global climate change is defined as the long-term change of the Earth's climate resultant from the summation of anthropogenic sources and natural processes. Global climate change is primarily attributed to the greenhouse effect, which can be described as the heating of the Earth's surface by solar radiation such that certain atmospheric gases (greenhouse gases [GHGs]) prevent heat from escaping the atmosphere. The GHG emissions that primarily contribute to the greenhouse effect include water vapor, carbon dioxide, nitrous oxide, and chlorofluorocarbons (CFCs). The primary sources of GHG emissions in the Broadmoor area include vehicles, trucks, airplanes, boats, and electrical and natural gas energy usage; additional GHG emission sources are present in the Franklin County region.

To address the potential impacts associated with global climate change, federal and state guidance, initiatives, and regulatory actions have been proposed, developed, and/or implemented. In 1997, the Council on Environmental Quality (CEQ) drafted a memorandum address the potential impacts associated with global climate change under the National Environmental Policy Act (NEPA) (CEQ, 1997a). Additionally, the CEQ released informal guidance for considering cumulative effects such as climate change under NEPA, including the development of EISs (CEQ, 1997b). Additionally, in February 2010, the CEQ released an additional memorandum, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, providing guidance on how project-related GHG emissions should be analyzed in NEPA documentation. The CEQ guidance was then revised in December 2014, *Revised Draft Guidance for Federal Departments and Agencies Consideration of the Effects of Greenhouse Gas Emissions and Climate Change in NEPA reviews*, to expand the applicability of draft guidance to land and resource management activities. Furthermore, this guidance was withdrawn in March 2017 pursuant to Executive Order 13783, *Promoting Energy Independence and Economic Growth*. However, the withdrawal of this guidance does not affect applicable regulations, laws, or other legal requirements.

For the State of Washington, Executive Order (EO) 07-02 and 09-05, signed by the governor, have established goals and direction to Ecology for addressing climate change. EO 07-0, *The Washington Climate Change Challenge*, establishes goals for reducing greenhouse emissions and fuels spending

and directs the state to assess potential climate change impacts to agriculture and forestry, public health and water supply, and coastal areas. EO 09-05, *Washington's Leadership on Climate Change*, provides direction to Ecology for working cooperatively and teaming with commercial business and industry and other government agencies to define and develop goals, programs, and resources aimed at reducing GHG and carbon emissions. Furthermore, the State of Washington codified a House Bill (HB), HB 2815, in the Revised Code of Washington (RCW), RCW 70.235, which establishes long-term reductions in GHG emissions.

5.2.2 POTENTIAL IMPACTS

No significant avoidable adverse impacts to the air are expected to result from the Broadmoor Area Non-Project EIS. Construction of new roads and buildings will have short-term impacts to air quality, primarily in the form of dust resulting from construction. Exhaust from heavy equipment used during construction will also have impact. On project completion, traffic on new roads and parking lots will increase exhaust emissions within the local area as people travel to and from the site. Construction dust and emissions will be managed in accordance with BMPs as required by the State of Washington. Given the temporary nature of potential impacts and implementation of BMPs, the air quality effects resultant from construction activities in the Broadmoor area are expected to be not significant.

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Future development is expected to increase traffic and add roadways. When a street is widened or extended, or a new road constructed, air emissions may increase. Localized carbon monoxide impacts could occur at major intersections that experience significant traffic congestion. Additionally, tailpipe emissions from vehicles traveling on public streets are one of the largest sources of air pollutant emissions associated with the growth in the study area. However, ongoing EPA emission control requirements for on-road cars and trucks have dramatically improved per-vehicle tailpipe emission rates. This beneficial trend is expected to continue into the future as drivers gradually replace old vehicles with new, cleaner-burning ones. As a result, the decrease in future per-vehicle emission rates would at least partially offset the likely increase compared to existing levels.

Increased urban expansion through residential and commercial development will result in higher mobile sources of HAP and GHG emissions as area traffic (trips) will increase with increased development and population per capita. Additionally, some area sources associated with commercial development may also result. However, it is expected that the cumulative effects of increased GHG and HAP emissions affecting human health and climate change resultant from development of the alternatives are not significant. Based on projected compliance with existing regulations for NAAQS, attainment will continue to be achieved.

Consistent with CEQ guidance, this EIS considers the cumulative effects of climate change for the alternatives evaluated (CEQ, 1997b). Global impacts are expected as the result of climate change;

such effects are theorized to include erratic weather patterns, increased drought frequency, and rising sea levels. Regional and local effects are also expected and may include reductions in snowpack in mountain regions and increased periods of drought, which could affect aquifer and surface water levels and availability.

Development associated with Alternatives 1 and 2 would result in increases in GHG emissions related to mobile sources, area sources, and indirect sources used for production and use of energy (electricity and natural gas), wastewater processing, and water and energy transportation. The Washington State Legislature adopted RCW 70.235.020, WAC 172-441, and WAC 173-442 which aim to reduce GHG emissions and establish reporting requirements. Emission reporting and associated requirements are mandatory for an owner or operator of any facility located in Washington state with total GHG emissions exceeding 10,000 metric tons carbon dioxide equivalent (CO₂e) per calendar year from applicable sources as listed in WAC 173-441-120. Furthermore, WAC 173-442, Clean Air Rule, establishes baseline GHG emissions compliance thresholds from significant in-state stationary sources, petroleum product producers, importers, and distributors, and natural gas distributors, and other covered parties. Development under Alternatives 1 and 2 is not anticipated to result in generation of significant levels of GHG and should be below the reporting thresholds and fall outside the applicability of emission reduction requirements per WAC 173-442e. However, any proposed facilities subject to this Non-Project EIS that may result in GHG emissions that exceed reporting requirements or Clean Air Rule thresholds shall comply with applicable reporting and/or emission reduction requirements.

5.2.3 MITIGATION MEASURES

Impact on air quality should be mitigated with the following measures:

1. Implementation of Alternatives 1 and 2 will conform with the Clean Air Act and existing federal, state, and local regulations for air quality. City of Pasco adopted Resolution 3853 in 2018 regarding Greenhouse Gas Emissions Reductions Policy. Additionally, BMPs shall be implemented for both alternatives to limit emission of air quality pollutants whenever reasonable and practical. During construction, BMPs will include dust suppression measures to minimize fugitive dust (PM₁₀) and prevent wind erosion for bare and stockpiled soils. Additionally, measures shall be implemented to reduce criteria pollutants, HAPs, and GHGs by ensuring construction equipment utilized in development is properly maintained and through minimization of equipment idling times. Air quality regulations require construction contractors to take all reasonable steps to minimize fugitive dust emissions during construction. These required mitigation measures are designed to reduce localized impacts affecting homes and businesses adjacent to construction sites. Compliance with such measures will be monitored through routine construction inspections.
2. Additionally, exhaust from heavy equipment used during construction will be mitigated by the fact that concrete construction materials produced on the ARP site will be available

through the first 10 years of build-out and minimize exhaust emissions by reducing transportation distances and the number of trips. The ARP facility currently follows best management practices and has in place necessary infrastructure to minimize the potential for environmental impacts arising from the presence of hazardous materials on the ARP site; and continued use shall be conditioned on the continuation of all present practices, with commercially reasonable improvements to best management practices through the life of the use

3. Reductions in traffic congestion through encouraging alternative modes of transportation such as transit and bicycles or walking may help offset any potential localized increase in emissions. Furthermore, on a regional basis, the EPA's vehicle and fuel regulations (coupled with ongoing future fleet turnover) should, over time, cause significant reductions in region-wide air quality levels. Ongoing EPA motor vehicle regulations have caused steady decreases in tailpipe emissions from individual vehicles, and it is possible that those continuing decreases from individual vehicles could offset the increase in vehicle traffic. The Plan will promote transit and other types of transportation that do not contribute to additional air emissions and reduce vehicle traffic.
4. The planning efforts support State and EPA efforts to reduce ozone levels during hot summer days where levels might increase due to limited wind. Continue to support hydropower electrical general facilities in the region that do not contribute to greenhouse gas emissions.
5. No significant unavoidable adverse impacts on regional or local air quality are anticipated. Temporary, localized dust and odor impacts could occur during construction activities. Existing regulations and other mitigation measures described above should be adequate to mitigate any adverse impacts anticipated to occur as a result of the alternatives.

5.3 WATER RESOURCES

This section describes the existing conditions relative to water resources for the Broadmoor area. This section includes a description of surface water, groundwater, stormwater, and existing public and private water systems located in the vicinity of the Broadmoor area. These descriptions serve as an environmental baseline from which potential adverse environmental impacts are identified and measured.

5.3.1 AFFECTED ENVIRONMENT

The Clean Water Act (CWA), 33 U.S.C. Section 1251 et seq. (1972), regulates discharge of pollutants into the waters of the United States and establishes goals and priorities for conserving water resources. The CWA directs states to establish water quality standards and perform triannual reviews of standards for waters within their jurisdiction. The CWA governs discharges of pollutants from both point and non-point sources. Point source discharges require a National Pollutant Discharge Elimination System (NPDES) permit. Residential developments that are connected to a municipal system or individual homes that may use septic systems and do not have any surface

discharges do not require an NPDES permit. Industrial, municipal, and other facilities are required to obtain a permit if they discharge to surface waters directly. Furthermore, the CWA requires that states prepare a listing of all surface waters with beneficial use (i.e., drinking, recreation, aquatic habitat, and industrial use) in their jurisdiction that do not meet water quality standards. Surface water quality standards established by the State of Washington are in WAC 183-201A, *Water Quality Standards for Surface Waters of the State of Washington*.

Surface waters of the State of Washington include “lakes, rivers, ponds, inland waters, saltwaters, wetlands, and all other surface waters and water courses” as defined in WAC 173-201A-010. The surface water bodies located in the vicinity of the Broadmoor area are discussed in Section 5.3.1.1.

5.3.1.1 SURFACE WATER

The Broadmoor area is located in central Washington in the Columbia Basin. The climate is arid to semi-arid with warmer summers and cooler winters. Precipitation for the Tri-Cities (Pasco, Richland, and Kennewick) region averages approximately 6 to 8 inches as rainfall and snow (during the winter months).

The surface water bodies in the Broadmoor area consisted of artificial freshwater emergent wetlands. There was a pond and small stream resultant from trespassing irrigation waters from the South Columbia Basin Irrigation District. This is no longer operational due to a recent change in irrigation water management. Additionally, the Columbia River is adjacent to the site. A map of the freshwater forested/shrub wetland is shown in Figure 8.



FIGURE 8. WETLANDS IN THE BROADMOOR AREA

No surface water bodies within the Broadmoor area have been determined to be jurisdictional Waters of the U.S. under the CWA.

5.3.1.1.1 Wetlands

Wetlands are defined in the Washington State Growth Management Act (GMA; RCW 36.70A.035 [23]) as saturated areas with surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation adapted for saturated soil conditions. Wetlands may include swamps, marshes, bogs, swales, and similar areas. The GMA excludes artificial wetlands, which are “intentionally created from non-wetlands sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities” The wetlands located at the Broadmoor area are artificially constructed wetlands located at or adjacent to the ARP facility. An additional constructed wetland was located near the northeast edge of the Broadmoor area along Burns Road, but no longer exists due to changes in irrigation water management.

Constructed or artificial wetlands are typically designed for mitigation area lost during development and/or are used to treat municipal and industrial wastewater. Constructed wetlands at the site are

in localized topological depressions that are fed by seasonal runoff and high groundwater tables. These wetlands were primarily constructed to treat and hold industrial wastewater and dewatering waters from the ARP operation.

The USACE, Richland Bend Habitat Unit, is approximately 48 acres and located at the southwestern edge of the Broadmoor area. This habitat unit is composed of native wetland and riparian habitats.

Analysis of wetlands as a habitat is discussed in Section 5.4.

5.3.1.1.2 Shoreline

The Columbia River, which runs adjacent to the Broadmoor area, stretches from British Columbia, Canada, down through central Washington through the Tri-Cities area and continues to the border between Washington and Oregon, emptying into the Pacific Ocean. Numerous tributaries, large and small, feed into the Columbia River. These tributaries and associated streams are spawning ground for native steelhead and salmon. The Columbia River is important habitat for both species as well as other fish and wildlife and benthic invertebrates. Protection of critical habitat along its shoreline is important. The USACE owns and manages the shoreline adjacent to the Broadmoor area. The adjacent shoreline is mostly vegetated and is partially developed or undeveloped, with a wetlands and riparian area identified adjacent to the southwest edge of the Broadmoor area as shown in Figure 8. This wetland complex and riparian area encompasses approximately 48 acres.

Shoreline within the City of Pasco and Franklin County is managed as outlined in the Franklin County and City of Pasco Shoreline Master Program Update (Anchor QEA, 2014, 2015). This plan provides a shoreline inventory, regulatory overview, analysis of shoreline jurisdiction, and characterization of ecosystems, and identifies public access goals and policies. All development activities associated with the alternatives will comply with applicable regulations and the management policies implemented and outlined as part of the Shoreline Master Program. Additionally, it is important to maintain required shoreline buffers and consider any necessary mitigation measures when development along shoreline boundaries is considered under the alternatives. Local, state, and federal cultural resources laws apply to shoreline development and require a cultural resource review process for federally funded and/or permitted projects under Section 106 of the National Historic Preservation Act. Because no shoreline development is currently included within the scope of the proposed alternatives, impacts and mitigation for shoreline development and a cultural resource review of the shoreline were not performed as part of this Non-Project EIS for the Broadmoor area.

5.3.1.1.3 Floodplains

Federal agencies are required to evaluate the potential effects of actions taken within floodplains as required by EO 11988. This EO requires determination of whether an action will occur in the floodplain and whether adverse effects or incompatibility will occur. The Federal Emergency

Management Agency (FEMA) determines flood elevations and floodplain boundaries. These are published in Flood Hazard Boundary Maps based on a 100-year flood event. The Broadmoor area is located in Zone C designated by FEMA as “areas of minimal flooding (no shading)” and thus falls outside of the 100-year and 500-year flood event boundaries, which corresponds to a less than 0.2% annual chance of a flood (Flood Insurance Rate Maps for Area No. 53004406758 and 53004406908, 1990).

5.3.1.2 GROUNDWATER

Groundwater at the Broadmoor area and in Franklin County is part of the Columbia River Plateau regional aquifer system, which spans approximately 50,600 square miles, extending from northern Idaho, northeastern Oregon, and southeastern Washington. The aquifer system is made up of four aquifers: the suprabasalt sediment (overburden) aquifer, Saddle Mountain aquifer, Wanapum aquifer, and Grande Ronde aquifer. The Columbia Basin Project, which redistributes water through a series of canals for agricultural use, has impacted water levels within the City as well as Broadmoor area and largely influenced groundwater movement (Anchor QEA, 2015).

Precipitation and irrigation waters (where applicable) are the primary sources of groundwater recharge in the area. Local, state, and federal regulations have been established to minimize adverse impacts to groundwater quality. Such regulations govern water wells, septic tanks, stormwater, etc. Additionally, to protect groundwater supply as required under the Federal Safe Drinking Water Act, the Washington Department of Health requires Group A water systems to implement wellhead protections programs to prevent contamination of groundwater used as a drinking water source (Anchor QEA, 2015).

The Broadmoor area and all of the City of Pasco fall within an aquifer recharge area. Thus, it is critical that BMPs be implemented as part of development and construction activities to prevent degradation of surface water and recharge of groundwater from stormwater runoff.

5.3.1.3 STORMWATER

The Broadmoor area is primarily flat and gently sloped, with some steeper sloped areas and depressions. The area is currently used for agricultural and mining operations and limited residential development. Some of the parcels have structures on them; however, much of the area is currently pervious surface. Stormwater currently collects in depressions or artificial wetland/riparian areas. Increasing non-pervious surface with commercial, residential, and mixed-use development associated with Alternatives 1 and 2 will result in an increase of stormwater runoff. Increased stormwater runoff has the potential to enter and degrade surface waters. Additionally, infiltration of untreated stormwater could degrade groundwater in the uppermost aquifer over time.

5.3.1.4 PUBLIC AND PRIVATE WATER SYSTEMS

The Broadmoor area is expected to be served by the City of Pasco water system. The City of Pasco is currently developing the infrastructure to accommodate this development. Residential and commercial development will also extend water lines from homes and buildings to the new infrastructure planned for the City of Pasco water system.

Numerous water and resource protection wells currently present at the Broadmoor area are likely used for residential, agricultural, and industrial use, as well as for groundwater monitoring at the ARP facility. Such wells may be maintained or decommissioned by future development associated with the proposed alternatives. If wells are decommissioned, they are required to be decommissioned properly in accordance with WAC 173-160-381, when necessary. Well logs and locations of currently existing wells in Washington State are maintained in a database managed by Ecology, accessed online at:

<https://fortress.wa.gov/ecy/waterresources/map/WCLSWebMap/WellConstructionMapSearch.aspx>.

Some already developed areas in the Broadmoor area are already served by the City of Pasco water system. The primary water source for future development will be the City of Pasco water system. There are no significant adverse water system impacts associated with the alternatives.

5.3.2 POTENTIAL IMPACTS

Water quality impacts could occur due to erosion of bare ground during construction and from increased pervious surfaces resulting in increased stormwater runoff. There could also be a risk of accidents or spills of petroleum products from construction equipment. Shallow aquifers are susceptible to contamination from surface sources and could be contaminated if a petroleum spill were to occur.

The change in development patterns from irrigated and vacant to developed lands would also change groundwater and stormwater recharge dynamics from new impervious surfaces, soil compaction, or other soil-disturbing activities. This change would concentrate near stormwater drainage areas to absorb stormwater, as opposed to existing conditions where rain currently falls and is dispersed across agricultural fields and seeps into groundwater aquifers.

Treatment and infiltration of stormwater will be managed in compliance with the latest Ecology stormwater manual, and potential impacts to water quality and aquifer recharge will be appropriately mitigated. Assuming appropriate mitigation measures (complying with the existing regulations) are implemented and maintained, there are no significant unavoidable adverse water resource impacts associated with the alternatives.

The rate of water supply demand would generally be proportionate to the rate of growth anticipated for each alternative.

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5.3.3 MITIGATION MEASURES

The following measures should be used to mitigate the impact on water resources:

1. Treatment and infiltration of stormwater at the site will mitigate adverse impacts to ground and surface water quality and aquifer recharge. The alternatives will require stormwater facilities depending on the amount of impervious surface developed. Due to the increased impervious surface under the two alternatives, larger capacity stormwater facilities will be required to mitigate potential water quality and aquifer recharge impacts. Additionally, on-site sustainable stormwater management BMPs will be utilized as necessary.
2. Additional mitigation measures include bio-filtration, either before or after entry into the various detention ponds, and buffers around wetlands in accordance with the City critical areas code, and standards in the PMC. Stormwater improvements are planned to manage stormwater and protect water quality. The City will evaluate and apply Low Impact Development (LID) stormwater techniques, where appropriate, to maintain dispersed groundwater infiltration.

5.4 FISH AND WILDLIFE AND HABITATS

This section describes existing wildlife and habitat at the Broadmoor area. Certain fish and wildlife and habitats, including Priority Habitats and Species (PHS), are protected and/or monitored as part of state and federal regulations and programs. The WDFW identifies and defines PHS to prioritize conservation of important fish, wildlife, and habitat resources in Washington State. Development in areas where PHS are present will require mitigation for any unavoidable adverse impacts. The assessment of PHS and other habitats and species contained herein is based on limited site reconnaissance and previous site surveys performed by the WDFW, Washington State Department of Natural Resources, and the City of Pasco.

5.4.1 AFFECTED ENVIRONMENT

5.4.1.1 REGULATORY REQUIREMENTS

5.4.1.1.1 Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) are responsible for the enforcement of provisions pursuant to the federal Endangered Species Act (ESA). The ESA prohibits the taking (injury or harassment) of a listed species by private individuals or federal, state or local agencies (50 CFR Sections 17.11 and 17.12). Under the ESA, USFWS and NMFS review projects to evaluate the presence of and any proposed impacts to such species. Habitat loss is considered to be an adverse impact to a species. Thus, review and consideration of listed threatened and endangered species and their habitats will be performed, and any mitigation measures determined, if necessary.

The WDFW classifies additional species native to the state of Washington as Endangered, Threatened, or Sensitive. These designations prioritize conservation, policies, and goals. These species are designated under WAC 232-12 and are also outlined as part of a WDFW Annual Report of Threatened and Endangered Wildlife in Washington (WDFW, 2013) and WDFW Policy POL-M-6001, which includes the following definitions:

State Endangered Species: A species native to the State of Washington that is seriously threatened with extinction throughout all or a significant portion of its range within the state.

State Threatened Species: A species native to the State of Washington that is likely to become endangered within the foreseeable future throughout a significant portion of its range within the state without cooperative management or removal of threats.

State Sensitive Species: A species native to the state of Washington that is vulnerable or declining and is likely to become endangered or threatened in a significant portion of its range within the state without cooperative management or removal of threats.

State Candidate Species: A fish and wildlife species Washington in which sufficient evidence suggests that its status may meet the listing criteria defined for State Endangered, Threatened, or Sensitive as defined in WAC-232-12-297. These species are reviewed by WDFW for possible listing as State Endangered, Threatened, or Sensitive. State Candidate species will be managed by the WDFW, as needed, to ensure the long-term survival of populations in Washington. Currently listed State Threatened or State Sensitive species may also be listed as State Candidate species if evidence suggests that its status may meet criteria for a higher listing of State Endangered or State Threatened.

These species are prioritized for management and conservation by an associated PHS listing. Priority habitats are those habitats with “unique or significant value to many fish or wildlife.”

5.4.1.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) protects migratory birds. Migratory birds protected by the MBTA are listed in 50 CFR 10.13. The MBTA makes it unlawful “to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, or any migratory bird except under a valid permit.” This includes direct injury or death of a migratory bird as the result of construction activities or construction-related disturbances including activities that cause nest or nestling abandonment or forced fledging. Thus, construction-related disturbance shall be minimized by implementation of mitigation measures during the nesting season.

[illegible]

The primary habitats at the site are characteristic of conditions typically associated with south-central Washington State, which include an arid to semi-arid climate with sandy, well-drained soils. Vegetation is typical to the region and includes tall sagebrush (*Artemisia tridentata*), Chinese lettuce (*Lactuca serriola*), crested wheatgrass (*Agropyron cristatum*), non-native cheat grass (*Bromus spp.*), rabbit-brush (*Chrysothamnus spp.*), tumble mustard (*Sisymbrium altissimum*), and Russian thistle (*Salsola iberica*). Vegetation near wetland/riparian areas at the site includes cottonwoods (*Populus balsamifera*), poplars (*Populus spp.*), reed canarygrass (*Phalaris arundinacea*), Russian olives (*Elaeagnus angustifolia*), and willows (*Salix spp.*).

The USFWS and WDFW are the primary regulatory bodies for critical and priority habitats, terrestrial wildlife, and inland fish species. The City also protects these species and habitats through its Critical Areas code. The species of concern as indicated by USFWS and WDFW that are located at the Broadmoor area are outlined in Table 8.

TABLE 8. SPECIES OF PRIMARY CONCERN FOR THE BROADMOOR AREA

Common Name	Scientific Name	Animal Type	Species Status	
			State	Federal
Black-Tailed Jackrabbit	<i>Lepus californicus</i>	Mammal	SC	none
Burrowing Owl	<i>Athene cunicularia</i>	Bird	SC	none
Ord's Kangaroo Rat*	<i>Dipodops ordii</i>	Mammal	Monitored	none
Sagebrush Sparrow	<i>Artemisiospiza nevadensis</i>	Bird	SC	none
Sagebrush Lizard	<i>Sceloporus graciosus</i>	Reptile	SC	none

*Ord's Kangaroo Rat is a Washington State Monitored Species and is listed on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species as Least Concern.

SC = State Candidate

(Sources: WDFW, 2018; Cassola, 2016)

The species listed in Table 6 are either State Candidate or State Monitored species, but are not federally listed as threatened or endangered. Steelhead and bull trout are federally listed as threatened for the mid-Columbia River, but are not expected to be impacted by Broadmoor area development activities.

As part of development associated with both alternatives, the distribution and amount of shrub-steppe and wetland/riparian habitats were determined by WDFW through evaluations in 2018 (2018b) and 2021. These surveys performed by WDFW indicate the presence of the species of concern at certain locations within the Broadmoor area. Information specific to the species of concern identified in Table 6 is provided in the following subsections.

5.4.1.2.1 Black-Tailed Jackrabbit

The black-tailed jackrabbit (*Lepus californicus*) can be identified by black-tipped long ears with long rear legs, and peppery brown fur with a black stripe down the back. They are 18 to 24 inches in length with a weight that ranges from 4 to 8 pounds. The black-tailed jackrabbit's habitat can be found in the semi-arid Columbia Plateau shrub-steppe and grassland of southern-central Washington to South Dakota, southward into Baja California, and well into south-central Mexico (Chapman and Flux, 1990).

Black-tailed jackrabbits mate year-round and can produce around four litters per year. They can live from 1 to 5 years, travel up to 30 to 40 miles per hour, and have a jumping range of approximately 10 to 20 feet. They mostly come out at night and spend their days resting. The diet of the black-

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tailed jackrabbit consists of a wide variety of green plants such as alfalfa, and they eat dried and woody plants during the winter months (AMCELA et al., 2008).

The black-tailed jackrabbit was observed and documented at the Broadmoor area as part of a WDFW Survey of Priority Habitats and Species Report (2018b). They are considered by the State of Washington as a State Candidate species.

5.4.1.2.2 Burrowing Owl

The burrowing owl (*Athene cunicularia*) is a small-bodied owl with a round head that lacks ear tufts. They have yellow eyes and long legs. Feathers are generally sandy brown with white spots on the body. They have white eyebrows and a white chin stripe. The female burrowing owl commonly has darker plumage. They are approximately 7.5 to 11.0 inches long and have a wingspan of 20.0 to 24.0 inches (USFWS, 2022).

True to their name, burrowing owls live in burrows and their primary habitat typically consists of open grassland, steppe, or “desert biomes.” Their burrows generally can be found in gently sloping areas with little or sparse vegetation. The burrowing owl can be found in locations such as Canada, the United States, Central America, islands in the Atlantic Ocean along the U.S. and Mexico Coastline, South America, and the Netherlands (BirdLife International, 2016; USFWS, 2022).

Burrowing owls nest in late March and April. They are primarily monogamous but on occasion have two mates. The females lay multiple eggs through their breeding cycle, laying up to 4 to 12 eggs in total. The diet of the burrowing owl consists of an assortment of insects, invertebrates, and vertebrates such as rodents (BirdLife International, 2016; USFWS, 2022).

The burrowing owl was observed and documented at the Broadmoor area as part of a prior WDFW Survey of Priority Habitats and Species Report (2018a), but current presence has not been documented. The burrowing owl is considered by the State of Washington as a State Candidate species.

5.4.1.2.3 Sagebrush Sparrow

The sagebrush sparrow (*Artemisiospiza nevadensis*) can be identified by its long tail, round greyish head, a white spot in front of its eyes, and a broad white mustache stripe above a dark mustache stripe. They have a white underbelly, buffy-brown back with dusky streaks, and thin white edges on their outer tail feathers (Martin and Carlson, 1998).

The sagebrush sparrow is a range wide breeder that can be found in the sagebrush plains of the Great Basin in Washington, Oregon, California, Nevada, Idaho, Wyoming, western Colorado, and northwestern New Mexico (Allaboutbirds.org 2022).

This species forages mostly on the ground, feeding mostly on insects and seeds from weeds, grasses, and shrubs. They nest in low sagebrush and sometimes on the ground. They are approximately 6 inches in length, with a wingspan of 8.25 inches, and they weigh around 0.58 ounce (McCormick, 2015).

The sagebrush sparrow is considered by the State of Washington as a State Candidate species. The sagebrush sparrow was observed and documented in the southeastern portion of the Broadmoor area adjacent to the eastern boundary of the ARP facility. This species was observed as part of a WDFW Survey of Priority Habitats and Species Report and during a pedestrian survey conducted by WDFW in April 2017 (WDFW, 2018b). They were also observed outside of the Broadmoor area farther to the east.

5.4.1.2.4 Sagebrush Lizard

The sagebrush lizard (*Sceloporus graciosus*) can be identified by its keeled dorsal scales, which are usually gray, tan, brown, or olive. They have hints of blue or green on their dorsal surface and random banding patterns on the body and tail. The predominant color of the sagebrush lizard is broken up by a lighter gray or tan stripe on the back and by one lighter stripe on each side. They frequently have a black bar on the shoulder and have small and granular scales on the rear portion of the thigh. They are approximately 1.9 to 3.5 inches in length from the snout to the vent (iNaturalist, 2018).

The sagebrush lizard can be found in Utah, Nevada, southern Idaho, northern Arizona, northwestern New Mexico, Texas, Wyoming, Oregon, California, Washington, and western Colorado, and in limited populations in North Dakota and Nebraska. The sagebrush lizard's habitat is mainly in sagebrush, but they can also be found living in pine or fir forests, redwood forests, brushlands, and piñon-juniper woodlands (iNaturalist, 2018).

Sagebrush lizards reproduce in the spring, when they will produce one to two clutches of eggs, laying approximately 2 to 10 eggs that will hatch in about 45 to 75 days. Their diet consists of an assortment of insects such as ants, beetles, grasshoppers, flies, hemipterans, lepidopterans, and arachnids (iNaturalist, 2018).

The sagebrush lizard is considered by the State of Washington as a State Candidate species. This species was documented at the Broadmoor area in April 2017 as part of a pedestrian survey (WDFW, 2018b). Sagebrush lizards are commonly found in shrub-steppe habitat such as that present at the site.

5.4.1.2.5 Ord's Kangaroo Rat

Ord's kangaroo rat (*Dipodops ordii*) is a small rodent whose primary habitat consists of sandy soils in semi-arid and mixed grasslands and shrublands like those found in parts of the Broadmoor area.

Kangaroo rats may also inhabit anthropogenically disturbed habitats such as outlying edges of grazed pastures, fallow fields and agricultural fireguards, and roads and trails. This species creates small and simple burrows in the sand for storage of food, hibernation, and protection from predators. Ord's kangaroo rats are nocturnal and solitary and are named for their "bipedal hopping-style of locomotion and long tail." This species has been found to inhabit a geographic range north to southern Alberta and Saskatchewan, Canada, south to Hidalgo, Mexico, southwest to central Oregon and eastern California and east to central Kansas and Oklahoma (Cassola, 2016; Saskatchewan Ministry of Environment, 2014).

Ord's kangaroo rats were observed at the Broadmoor area in sand dunes located toward the northeast corner of the ARP permitted mining area. The Broadmoor area currently contains numerous sand dunes or sandy soils in shrub-steppe habitat as shown in Figure 9. However, this area is generally moderately disturbed by anthropogenic activities related to mine operations and recreation in the area.

Current population trends for the Ord's kangaroo rat are stable with no major threats known to this species. Populations of kangaroo rat are very abundant in protected areas in the United States and in uninhabited areas in Mexico. Additional protections for the kangaroo rat are required in some areas of the United States. This species is not currently a federally listed endangered species nor listed as a species of concern for the State of Washington.

5.4.1.2.6 Aquatic Species and Habitat

The Columbia River makes up the western border of the Broadmoor area. This aquatic habitat supports numerous resident and anadromous fish, aquatic invertebrates, and numerous migratory bird species. Many ESA-listed anadromous salmonid species are found in the Columbia River, including bull trout (*Salvelinus confluentus*), steelhead (*Oncorhynchus mykiss*), sockeye (*Oncorhynchus nerka*), and spring and fall Chinook salmon (*Oncorhynchus tshawytscha*). Pacific lamprey (*Entosphenus tridentatus*) are present but have experienced population decline in recent years. Resident fish include a mix of native and non-native species, such as smallmouth (*Micropterus dolomieu*) and largemouth bass (*Micropterus salmoides*), northern pikeminnow (*Ptychocheilus oregonensis*), sculpin (*Cottidae*), mountain whitefish (*Prosopium williamsoni*), sturgeon (*Acipenseridae*), catfish (*Siluriformes*), sucker (*Catostomidae*), and other species.

The aquatic nearshore and riparian shoreline areas of the Columbia River support concentrations of wintering migratory waterfowl, and primarily serve as resting and feeding areas for Canada goose and ducks. Some waterfowl nesting likely occurs in wider riparian areas along the open space of the Columbia River.

5.4.2 POTENTIAL IMPACTS

Implementation of Alternatives 1 and 2 would alter current habitats for State Candidate and State Monitor species along with habitat listed in Table 9 as land is developed. Development will likely result in unavoidable adverse impacts to the indicated species of concern and their associated habitats.

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TABLE 9. SUMMARY OF HABITAT TYPE AND AREA AFFECTED BY DEVELOPMENT ASSOCIATED WITH ALTERNATIVES 1 AND 2

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Habitat Type	Area of Potential Disturbance
Shrub-steppe habitat, including burrowing owl and other species' habitat	300 acres
Artificial wetland – mining	38 acres
Riparian wetland and habitat along Columbia River	50 acres

(Source: WDFW, 2018a and 2022; Washington Department of Natural Resources, City of Pasco, and Franklin County Geographic Information System (GIS) data sets)

There are no jurisdictional Waters of the U.S. located within the Broadmoor area. The Columbia River and the associated riparian and wetland habitats are located on the western boundary of the Broadmoor area, but they will not be impacted by development because this area is protected under the City's Shoreline Master Program.

Artificial wetlands/riparian areas at the Broadmoor area will be impacted by development. Mitigation measures are not required because these are constructed features and State Candidate and State Monitor species do not inhabit these areas. Thus, there are no avoidable adverse effects to jurisdictional Waters of the U.S. (wetlands/riparian) within the Broadmoor area.

Construction activities associated with the alternatives could result in impacts to nesting birds covered under the Migratory Bird Treaty Act. Implementation of mitigation measures identified in Section 5.4.3, including conducting a preconstruction survey, would reduce the potential adverse effects to active nests of migratory birds and birds of prey potentially present at the Broadmoor area.

5.4.3 MITIGATION MEASURES

The following mitigation measures will be implemented in accordance with applicable local, state, and federal regulations for Alternatives 1 and 2:

1. Avoid impacts to wetlands and riparian habitats and buffers, in accordance with the Shoreline Master Program for the area along the Columbia River designated as shorelands, and maintain fish and wildlife habitat protections in this area.

2. Include landscaping with native plants in streetscapes, buffers for stormwater swales, rain gardens, and other habitat features, as well as setting aside open space areas within developed areas.
3. For the shrub-steppe habitat, which also includes the historically documented burrowing owl breeding areas and habitat for other species, an off-site mitigation strategy will be used. This strategy includes developers in the Broadmoor area paying into a mitigation fund to preserve shrub-steppe habitat in Franklin County on a 2:1 ratio to offset habitat impacts. Analysis conducted by WDFW in coordination with the City determined that 300 acres (53%) of actual shrub-steppe habitat exists within the originally identified PHS-designated habitat area (560 acres). The total mitigation amount is 600 acres (300 acres x 2), per the 2:1 mitigation ratio. Each parcel developed in the PHS mapped area will be required to mitigate for 53% shrub-steppe habitat at 2:1 ratio. For example, if a 40-acre parcel develops in the PHS-designated area, the mitigation acreage would be 40 acres x 0.53 x 2, or 42.4 acres of cost for shrub-steppe habitat protection. The developer would pay at a determined rate, and this funding would be used to permanently protect other shrub-steppe lands within Franklin County. The Franklin Conservation District will administer the program, and each developer will be required by the City to execute a mitigation agreement that includes the terms and conditions for paying for the permanently protected acreage.
4. Install and use stormwater BMPs to include control structures (silt fencing, etc.) (refer to Stormwater Management Manual for Eastern Washington, August 2019; <https://apps.ecology.wa.gov/publications/documents/1810044.pdf>) to prevent the likelihood of construction and stormwater runoff degrading surface waters and adjacent wetlands/riparian habitats. Control structures shall be properly maintained and inspected on a regular basis to ensure the integrity of BMPs.
5. If construction activities are planned to occur during the nesting season for migratory birds and birds of prey, a qualified biologist shall conduct a preconstruction survey in accordance with the MBTA. The nesting season has been determined to be between February 15 and September 15. The preconstruction survey shall be performed within 100 feet of the vicinity of construction activities to identify any active nests and shall be performed within 14 days before the commencement of construction activities. If nests are not present, no mitigation is required. If active nests are identified, 100-foot buffers shall be established around nests and then subsequently monitored during construction to evaluate nesting disturbance.

5.5 ENVIRONMENTAL HEALTH

This section describes existing environmental conditions for the Broadmoor area relating to hazardous materials. Hazardous materials are materials that may pose a risk to human health and the environment. These materials are subject to numerous laws and regulations pertaining to storage, handling, transportation, cleanup, and disposal. The assessment of hazardous materials contained herein is based on limited site reconnaissance and consideration of current land use, and

thus may not address all potential risks, situations, and locations for which hazardous materials may be present.

5.5.1 AFFECTED ENVIRONMENT

Land use in the Broadmoor area consists of agriculture, residential development, industrial development (ARP facility), and recreational areas. There are no known hazardous materials spills, violations, or instances of recorded contamination with the proposed development area for the Broadmoor area.

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Hazardous materials typically associated with agriculture may include (but are not limited to) pesticides, herbicides, petroleum products, and solvents used for equipment operation and maintenance. Limited site reconnaissance of agricultural areas has shown no visible signs of hazardous materials or gross contamination.

Hazardous materials associated with residential development are typically limited to household goods and services. Thus, potential hazardous material risks associated with residential development are limited.

Industrial operations at the ARP facility may use and/or generate hazardous materials and waste, such as petroleum products and other chemicals and solvents necessary to maintain and operate equipment and facilitate industrial operations. Current ARP operations include concrete recycling and resource extraction, processing, stockpiling, and product transport from the site. Current extraction occurs within a disturbed area in the northern and western locations of the permitted ARP area, with stockpiling and processing taking place in the southern and western portions of the disturbed area.

Some studies have shown minimal lead contamination in surface soils associated with concrete recycling operations. Lead contamination in soils is linked to the recycling of concrete that has been painted with lead-based paints. Investigation of surface soils in the vicinity of concrete recycling operations has not been completed to either confirm or deny the presence of lead contamination. Considerations for the type and age of concrete materials being recycled and investigative sampling would be necessary to make a determination as to the presence, location, and concentration of any such contamination.

5.5.2 POTENTIAL IMPACTS

No significant adverse effects would result from development of the Broadmoor area under both alternatives. However, there are some limited risks associated with construction and land use development for hazardous materials. During development and construction, hazardous materials may be used and could include petroleum products, hydraulic fluid, solvents, cleaners, various lubricants, paint, paint thinner, sealants, welding flux, and other typical chemicals and products. These materials may be used for the operation and maintenance of equipment and used directly in

construction activities. Potential for small spills and incidental dripping from equipment does exist. However, construction BMPs are used to limit such spills and drips to minimize the risk of an inadvertent release.

There is also a limited possibility that construction activities may uncover previously unknown soil and/or groundwater contamination due to hazardous materials usage presented in Section 5.5.1. Encountering such contamination is not anticipated, but if encountered could pose a risk to human health and the environment and would require additional mitigation measures.

5.5.3 MITIGATION MEASURES

To minimize hazardous materials risks associated with construction and development of the Broadmoor area, the following BMPs will be implemented for both alternatives:

1. For refueling and maintenance of construction equipment and vehicles:
 - Petroleum products and other hazardous fluid shall be transferred directly from a service vehicle to the equipment.
 - Catch basins or drip pans will be placed beneath equipment to catch potential spills during service and maintenance.
 - Refueling will be conducted only with approved refueling equipment including pumps, hoses, and nozzles.
 - Smoking, open flames, or welding shall not be permitted during or in the vicinity of refueling operations.
 - Vehicle engines shall not be operated during refueling.
 - Refueling shall be performed away from surface waters.
 - Appropriate spill containment kits and fire extinguishers shall be present at refueling locations and/or during refueling and vehicle/equipment maintenance.
 - All hazardous materials stored on site shall be regularly inspected, at least weekly, to ensure containers are in good condition and not leaking. Inspection shall be logged in a log book.
 - If a spill is to occur, soil and other contaminated materials shall be stored and disposed of in accordance with applicable local, state, and federal regulations.
2. If contaminated soil or other media are encountered during construction and development, all work shall be halted until qualified individual(s) or a professional hazardous materials specialist can assess the extent of contamination and determine any appropriate mitigation measures. If contaminated hazardous materials are confirmed, all contaminated soils and media will be disposed of in accordance with local, state, and federal regulations as they apply.

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5.6 NOISE

5.6.1 AFFECTED ENVIRONMENT

Humans may experience physical or behavioral effects as the result of increased noise. Environmental noise may result in the following effects: physiological effects such as hearing loss; subjective effects of annoyance and nuisance; and speech, sleep, and learning effects. Noise pollution in the Broadmoor area is currently present as the result of agricultural operations, recreation, vehicular traffic, and industrial operations at the ARP facility. Limited increases in noise pollution are expected as the result of implementation of the alternatives.

Construction as part of development under Alternatives 1 and 2 would result in increased noise. Construction equipment such as graders, tractors, power nailers, generators, air compressors, excavators, etc. would generate noise. Construction-related noise would be temporary. Noise generated from construction and development is governed as part of WAC 173-60, which establishes maximum permissible environmental noise levels. Noise levels at the Broadmoor area are not expected to exceed maximum permissible levels as part of construction or development associated with the proposed alternatives.

Increased traffic at the Broadmoor area would generate additional ambient noise. Traffic-related noise depends on 1) the volume of the traffic; 2) the speed of the traffic; and 3) the number of trucks in the flow of traffic. Because a traffic study has not been performed for the Broadmoor Area, traffic and ambient noise impacts are discussed generally.

Potential noise impacts related to traffic at the Broadmoor area would be primarily present along major arterials and commercial developments. The Federal Highway Administration has established Noise Abatement Criteria related to traffic. Likewise, WSDOT has also implemented a traffic noise policy, and motor vehicle noise is regulated by WAC 173-62, "Motor Vehicle Noise Performance Standards." The standards relative to traffic noise are based on peak-hour traffic and establish criteria based on maximum sound levels.

Increased noise pollution would likely be the greatest under Alternative 1 and reduced noise pollution likely to be associated with Alternative 2. Alternatives 1 and 2 both will result in increased development densities, subsequently resulting in increased traffic in Alternate 2 compared to Alternative 1. However, Alternatives 1 and 2 are not expected to exceed maximum noise levels pursuant to federal and state regulations. Additionally, under Alternatives 1 and 2, some increased ambient noise is expected with increased development densities. Increased ambient noise may include, but is not limited to, noise related to landscape maintenance (e.g., lawn mowers, leaf blowers) and increased population, commercial activities, and recreation.

5.6.2 POTENTIAL IMPACTS

For both alternatives, increased noise pollution over time is likely as properties are developed, including temporary impacts during construction and then more permanent effects to ambient noise levels from traffic and increased population in the area. Additionally, industrial noise at ARP facility is expected to continue, and operations are expected to follow the present days and hours of operation.

5.6.3 MITIGATION MEASURES

The following measures should be used to mitigate the noise impacts:

1. Construction-related noise impacts may be mitigated through the use of construction hour limitations and noise suppression improvements on construction equipment. Trees, fences, and other development features can help reduce ambient noise levels.
2. The continued operations of the ARP site shall be permitted through a special use permit and shall require best management practices to limit noise emanating from its operations to neighboring uses, and that hours of operation remain consistent with existing operations

5.7 LAND AND SHORELINE USE

This section identifies conditions related to the Broadmoor area's current land and shoreline use and future land use expected with implementation of the alternatives.

5.7.1 AFFECTED ENVIRONMENT

5.7.1.1 LAND USE

The Broadmoor area encompasses approximately 1,240 acres in the northwest portion of the City of Pasco and the Pasco UGA boundary. The current land use of the Broadmoor area includes farmlands and orchards with intermittent residences, an industrial complex at the ARP facility, undeveloped shrub-steppe habitat used for recreation, and a few medium density and low density housing developments. Much of the undeveloped shrub-steppe habitat, agricultural fields, and orchards is zoned for low density residential and residential transition. New low and medium density housing developments are being constructed along the north (south of Burns Road) and south (south of Harris Road) sides of the Broadmoor area.

Development is likely to continue under Alternative 1 because there is an increased demand for additional housing as the City of Pasco and Tri-Cities area population continues to grow. Coordinated development under Alternative 2 would better enable development to occur systematically with adequate public facilities, roads, and utilities, rather than in a segmented manner under Alternative 1. Traffic flow and accessibility, and efficient and effective land use at the Broadmoor area, would be improved by implementation of a coordinated development as part of a Master Plan for the site.

In both alternatives, land use patterns will be changed. Alternative 1 does not consider the development challenges on the gravel mining site. It designates medium density residential for the area. Alternative 2 designates this area as Reclamation and re-allocates future growth in the rest of the planning area. The Open Space designation in Alternative 1 along the tailwater pond is no longer functional due to the change in irrigation management. Alternative 2 designates this area as medium density residential and mixed use. While there would be a loss of growth potential due to the low density residential land use in Alternative 1, Alternative 2 will reallocate development to meet the growth target for this area.

5.7.1.2 SHORELINE

Much of the shoreland abutting the Columbia River is undeveloped with Open Space land use designation and is owned by the USACE. There are some private residential property owners within the shoreline jurisdiction. Shoreline on the south side is privately owned. The shoreline environment designations are a mix of Natural, Recreation, Shoreline Residential, and Urban Conservancy. These designations allow various shoreline-based uses such as docks and trails, as well as protecting the environment. Docks and informal trails exist in various segments of the shoreline. Shoreline Road runs within the shoreline on the northern portion.

5.7.2 POTENTIAL IMPACTS

Both Alternatives 1 and 2 will result in urban development that will transform the current land use pattern. Since part of the area is still under the UGA, both alternatives may result in decreased residential densities in the unincorporated UGA due to County zoning limitations and previously permitted low density developments in certain portions of the area.

In Alternative 1, the northerly portion is designated as Open Space. Because of the medium density designation of the gravel mining site, a large portion of land (open space and the gravel mining site) will remain undeveloped or unchanged. Similar to Alternative 1, about 187 acres of the gravel mining site will remain unchanged under the Reclamation designation in Alternative 2. However, the northerly Open Space in Alternative 1 is changed to Medium Density Residential and Mixed Use with Alternative 2, changing the development pattern in this area. Alternative 2 will accommodate increased development capacities overall for the Broadmoor area due to the loss of densities from previously permitted low density developments in the area. This will also maintain the industrial use of the ARP site for approximately 13.5 acres of land. This use is intended to be terminated in approximately 2035, and the land use will be amended to Medium Density Residential.

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Alternative 1 will add inconsistencies in terms of development corridors. For instance, the Medium-High Density Residential land use may not have adequate road access as Sandifur Parkway extension is planned on the north side of this area. Land use in Alternative 2 focuses development along the major corridors and centers with mixed use along Sandifur Parkway and Shoreline Road.

5.7.3 MITIGATION MEASURES

Both alternatives will comply with the City's Comprehensive Plan, development regulations including zoning and complete street policies. The following mitigation measures should be used:

1. Meet population growth targets and housing demand in new developments that will prevent sprawl.
2. Improve the built environment through designing new structures and development per PMC.
3. Implementation of, and conformance with the adopted design and development standards according to the Broadmoor Area Master Plan in Alternative 2.
4. Implement street design, classification, and connectivity standards according to the Broadmoor Area Master Plan in Alternative 2.
5. Reduce local traffic volumes by creating a live-work environment.
6. Protect shoreline areas according to the City's shoreline regulations under Title 29.
7. Provide shoreline public access according to the Rivershore Linkage and Amenity Plan.
8. Allow adequate parks, open space, and public facilities.
9. Maintain land use compatibility to mitigate adverse impacts between different land uses.

5.8 AESTHETICS AND VISUAL SETTING

5.8.1 AFFECTED ENVIRONMENT

The Broadmoor area is adjacent to the Columbia River, I-182, Broadmoor Boulevard, and Burns Road and features river views, shrub-steppe habitat, and various agricultural fields and orchards with intermittent residential development. I-182 to the southeast, Broadmoor Boulevard to the east, and Burns Road to the north provide a viewshed to much of the site. The intersection of Broadmoor Boulevard and Burns Road currently provides the primary entrance to the Broadmoor area, and paved and gravel access roads, private drives, and frontage roads interconnect throughout the site. Harris Road is the access to the ARP facility.

Undeveloped portions of the Broadmoor area characterized as shrub-steppe habitat include small sand dunes and grassland. Other undeveloped lands at the site are used for seasonally planted and harvested agricultural crops and orchards. The area west of the shrub-steppe habitat is visually impacted by ARP industrial operations. The topography of the ARP facility has been transformed by mining operations, which have required dewatering due to the high water table and created artificial wetlands. Additionally, northern areas of the site have been visually impacted by construction of residential developments. Figures 10 to 16 present photographs of the current aesthetic and visual setting of the area.



FIGURE 10. PANORAMIC VIEW OF SHRUB-STEPPE HABITAT



FIGURE 11. VIEW OF SHRUB-STEPPE HABITAT AND GRASSLAND AND ADJACENT RESIDENCE



FIGURE 12. PANORAMIC VIEW OF AMERICAN ROCK PRODUCTS FACILITY



FIGURE 13. PANORAMIC VIEW OF AGRICULTURAL CROPS AT THE BROADMOOR AREA



FIGURE 14. VIEW OF THE COLUMBIA RIVER FROM THE BROADMOOR AREA



FIGURE 15. VIEW OF AN ORCHARD LOCATED AT THE BROADMOOR AREA



FIGURE 16. VIEW OF THE ON-GOING RESIDENTIAL DEVELOPMENTS

5.8.2 POTENTIAL IMPACTS

Development associated with both alternatives will substantially alter the current aesthetic and visual character of the area. The visual character of the existing landscape will change from open, orchard, and partially developed character to an urban setting. These will be changed under both alternatives to a combination of mixed-use development including low, medium, and medium-high density residential, office, and commercial developments with intermittent open, green, and other public spaces. The visual character of the industrial use will remain the same for a period of

approximately 10 years. These developments and future roadways will result in changes in topography and slopes in both alternatives.

Alternative 1 will change the visual and aesthetic character of the eastern and western sides of the Broadmoor area with mixed-use development clusters. The central portion of the area with mining operations will not change immediately. This mining site, along with the open space, will create a physical and visual character of undeveloped and/or low intensity development. Developments under this alternative will implement the City's existing zoning regulations, therefore creating a visual pattern similar to the rest of the City.

Alternative 2 will cluster developments around three major centers (Sandifur Parkway and Broadmoor Boulevard, Sandifur Parkway and Road 108, and Sandifur Parkway near the USACE open space), and within mixed-use districts. The mixed-use and medium density residential districts will be developed with a compact and pedestrian-friendly development pattern with a variety of housing types, mixed-use buildings, wide sidewalks, and street landscaping. Similar to Alternative 1, the central portion of the area with mining operations will not change immediately. All developments will be in compliance with the design and development regulations of the Broadmoor Area Master Plan. Mixed-use developments will transition to various small-lot attached, detached, and multifamily homes, creating a visual and physical transition between districts and corridors. The visual character will be altered with more intense development throughout the Broadmoor area compared to Alternative 1.

Implementation of Alternatives 1 and 2 will also likely result in increased light pollution (e.g., light and glare from homes, parking areas, and buildings).

5.8.3 MITIGATION MEASURES

Both alternatives will comply with the City's Comprehensive Plan and zoning regulations. The following mitigation measures should be used:

1. Maintain quality design in new developments by implementing and ensuring proposals are in conformance with design and development standards identified in the Broadmoor Area Master Plan in Alternative 2.
2. Improve the built environment through designing new structures and development per PMC.
3. Create a pedestrian- and transit-friendly street environment by implementing street design standards according to the Broadmoor Area Master Plan in Alternative 2 and compliance with Pasco's Complete Street Policy.
4. Provide for adequate parks, open space, and public facilities.
5. Design parks and open spaces according to the standards in the Broadmoor Area Master Plan in Alternative 2 and Draft Parks and Recreation Master Plan 2022.

6. Meet design standards specified in the Broadmoor Area Master Plan and the City's residential design standards.
7. Protect shoreline areas according to the City's shoreline regulations under Title 29.
8. Provide shoreline public access (physical and visual) according to the Rivershore Linkage and Amenity Plan.
9. Maintain design compatibility between different developments.
10. Implement a reclamation plan to add recreational facilities and open spaces in the gravel mining area.
11. Additional mitigation measures could include installation of no-glare directed or night sky compliant light fixtures, and the use of plantings and berms and other green spaces to improve viewsheds in the area.

5.9 POPULATION, HOUSING, AND EMPLOYMENT

5.9.1 AFFECTED ENVIRONMENT

The population for the City of Pasco was 59,781 in 2010, based on the 2010 Census. The 2021 population of 78,700 is a 32% increase from the population in 2010. The City of Pasco population represents approximately 80% of the Franklin County population. According to the Office of Financial Management (OFM) estimates, the City's population will reach 121,828 in 2038. This will be a 55% increase from the City's 2021 population. According to the 2018-2038 Comprehensive Plan, from 2018 to 2038, the City will need to accommodate 15,217 additional housing units. Approximately 7,000 housing units are anticipated to be located in the Broadmoor area.

The OFM projections for Franklin County and estimated City of Pasco populations are shown in Table 10.

TABLE 10. FRANKLIN COUNTY AND CITY OF PASCO POPULATION PROJECTIONS 2010-2038

Year	Franklin County Population	Pasco Population	Pasco % Increase
2010	78,163	59,781	--
2021	98,350	78,700	32%
2038	152,285	121,828	55%

Source: Estimated population from State of Washington Office of Financial management; City of Pasco Comprehensive Plan 2018-2038.

Current housing will need to be expanded to accommodate a growing City population. Alternatives 1 and 2 provide land use zoning that enables denser housing development to accommodate a greater number of housing units and individuals. Alternative 1 maximizes the growth and density potential of the Broadmoor area by developing multiple dense areas of development. However, certain areas were pre-approved for low density residential development according to the previous land use designation. Additionally, development density designated in the

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gravel mining site is not expected to occur as planned. These issues will reduce the growth target anticipated in Alternative 1. Alternative 2 will update the location of residential areas to accommodate increased development capacities due to the loss of densities because of previously permitted low density developments and the gravel mining operation. This will maximize the growth and density potential of the area by planning for several development cluster areas connected by open space, public transportation, and a connected street pattern.

Employment in the Tri-Cities region increased from 2006 to 2015 by more than 22,000 jobs, with an average annual growth rate of 2%. There are roughly 116,000 jobs in the region. Pasco is expected to represent a large share of jobs in Franklin County in the future, as it does today (approximately 76%). Pasco's expected employment forecast would increase by over 15,000 by 2038 for about 41,795 jobs. (City of Pasco, 2020)

A significant portion of these jobs will be accommodated in the Broadmoor area. The area will add employment in the commercial and mixed-use designations in both alternatives. In Alternative 1, 67 acres of office and 50 acres of commercial uses will increase the number of jobs in Pasco. Additional jobs will be added in the mixed-use areas. In Alternative 2, 104 acres of commercial land and 370 acres of mixed-use land will increase the job base for Pasco (see Tables 1 and 2).

5.9.2 POTENTIAL IMPACTS

Significant impacts associated with implementation of Alternatives 1 and 2 are the result of increased development densities associated with changed land use. Housing and employment growth are expected and would be accommodated under each alternative consistent with future population growth trends, but at varying levels. Impacts to population, housing, and employment would occur from inadequate existing facilities or insufficient future development opportunities to accommodate growth. An increase in population will require more intensified commercial, business, and other public facilities than would be possible under current development and population conditions. An intensification of urban uses and densities will increase traffic congestion, park requirements, police and fire requirements, and other public service demands and fiscal impacts.

5.9.3 MITIGATION MEASURES

The following mitigation measures should be used to reduce impacts associated with population, housing, and employment:

1. Meet population growth targets and housing demand in new developments.
2. Develop adequate infrastructure.
3. Implement design and development standards according to the Broadmoor Area Master Plan in Alternative 2.

4. Maintain or ensure conformance with established minimum housing density in the Broadmoor Area Master Plan and the Comprehensive Plan.
5. Allow various housing types according to the Master Plan.
6. Train labor force consistent with job market in the area.
7. Provide easy access to employment and reduce local traffic volumes by creating a live-work environment.

5.10 TRANSPORTATION

This section describes the existing transportation conditions for the Broadmoor area. The general City of Pasco and Broadmoor area specific description of transportation contained herein serves as an environmental baseline for identifying possible impacts from transportation changes associated with implementation of Alternatives 1 (No Action) and Alternative 2 (Comprehensive Plan Growth Target Implementation). An overview and description of each alternative is available in Section 3.

The transportation impacts of each alternative are the outcomes of the types and locations of the various land uses and their intensity. The results reflect the potential interactions and characteristics of travel behavior based on the relationships of each land use scenario, and the opportunities for multimodal and nonmotorized trips, or, single vehicle occupancy trips.

The transportation analysis conducted for this effort reflects the changing conditions in the Broadmoor Area which have occurred both prior, and since the adoption of the Pasco 2018-2038 Comprehensive Plan (June 2021). The No-Action (Alternative 1) scenario is consistent with the 2018-2038 Comprehensive Plan Land Use designations, however, is inconsistent with permitted residential development that has resulted in significantly lower densities than forecasted and planned for in the 2018-2038 Comprehensive Plan.

See Figure 17 for an example, which shows an area of approximately 144 acres designated as Medium Density Residential Land Use in the Comprehensive Plan, with an expected residential density of 5-6 dwellings per acre. A large portion of the area highlighted below was permitted with low-density residential development at a density of 2-3 dwelling units per acre, resulting in about a 50% decrease in density and total units.



FIGURE 17. PREVIOUSLY APPROVED LOW DENSITY DEVELOPMENT

Due to the variations and differences of the forecasted and planned densities of existing development with the 2018-2038 Comprehensive Plan, Alternative 2 is not expected to increase the traffic potential more than the Alternative 1 scenario due to the following land use considerations:

- **Residential Uses** – Although the Alternative 2 scenario accommodates broader residential density ranges (from low to medium), it does so at a higher overall density with more efficient use of lands. Alternative 1 has more residential acreage (approximately 232 more acres). It should be noted that there is existing low-density residential development that was permitted prior to the Broadmoor Master Plan completion that is not represented accurately in the existing land use table or Comprehensive Plan. The range of total residential dwellings for Alternative 2 is approximately 6,000 units.
- **Mixed Use, Commercial and Employment Uses** – The combined mixed use, commercial, and employment uses would increase by approximately 140 acres with Alternative 2. This increase offsets the decrease in outright residential use designation and would focus a mix

of uses (residential and commercial) in close proximity, providing for, and encouraging opportunities for short, multimodal trips.

- Open Space and Reclamation – In general, these designations would support surrounding uses and would contain very limited amounts of development.

5.10.1 AFFECTED ENVIRONMENT

There are three main highways that connect Pasco to the surrounding area: US Highway 395, US Highway 12, and US Interstate 182. Pasco is connected to its neighboring communities by four bridges. US Highway SR-12 crosses the Snake River and allows access to Walla Walla County; the Cable Bridge crosses the Columbia River and allows access to downtown Kennewick; the Highway 395 Blue Bridge also crosses the Columbia River and connects Pasco to Kennewick; and the I-182 eastbound and westbound bridges cross the Columbia River and connect Pasco to Richland. The Broadmoor area is generally bound by Broadmoor Boulevard, Burns Road, Interstate I-182 and the Columbia River.

Transportation facilities and services in and around the study area include public streets, public transit, sidewalks, and trails. These elements of the City's transportation system are described in the following subsections. Where relevant, this review of the affected environment focuses on the existing roadway segments and intersections within and directly adjacent to the study area that may be affected by the growth targeted under the proposal.

5.10.1.1 PUBLIC STREET SYSTEM

The street system provides the primary means of transportation for travel modes and trips, including driving, walking, biking, and transit in the study area. The review of the existing conditions focuses on the roadway segments and intersections that have been identified for inclusion in the analysis, encompassing federal, state, and local facilities. For the Broadmoor study area, primary transportation facilities include Interstate I-182, Broadmoor Blvd (North of I-182) and Road 100 (South of I-182), Sandifur Parkway, Burns Road, and Harris Road. This network helps connect the site to and with the rest of the community. Outside of the study area, Pasco is connected to the Tri-Cities Metropolitan Area and the surrounding region via US Highway 395, US Highway 12, US Interstate I-182 and State Route 397.

Tables [11](#) and [12](#) provide a summary of public streets and intersections that may be affected by the proposal. Public transportation facilities, freight, and goods movement, and non-motorized (bicycle and pedestrian) transportation will be addressed in following subsections.

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TABLE 11. SUMMARY OF THE PUBLIC STREET SYSTEM IN THE VICINITY OF THE BROADMOOR AREA

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Name	Type	No. of Lanes	Direction of Travel	Connection(s)
I-182	Urban Interstate	3 (6 total)	East - West	Broadmoor Blvd
Broadmoor Blvd	Collector	4 (2 turn lanes)	North - South	Harris Rd, Iris Ln, Dent Rd, Sandifur Pkwy, Burns Rd, Saint Thomas Dr, and Crescent Rd
Burns Rd	Collector	2	East - West	Shoreline Rd, Kohler Road, and Dent Rd
Sandifur Pkwy	Collector (Broadmoor Blvd to Road 68); Minor Arterial (east of Road 68)	2	East - West	Planned extension to Broadmoor Site for Alternative 1
Shoreline Rd	Collector	2	North – South – East - West	Burns Rd, West Court St, and Harris Rd
West Court St	Collector	2	East - West	Shoreline Rd and Harris Rd
Dent Rd	Collector	2	East - West	Burns Road, Byers Road, Iris Ln, Pelican Road, Goose Hollow Rd, Quail Run Rd, and Broadmoor Blvd
Harris Rd	Collector	2	East - West	West Court St and Broadmoor Blvd
Kohler Rd	Not Classified	2	North - South	Burns Rd, Ramsey Dr, Jayleen Way, Ricky Ct, Ricky Rd, Scenic View Dr, Hill Crest Dr
Nocking Point Rd	Not Classified	2	North - South	Point Rd

TABLE 12. SUMMARY OF THE INTERSECTION IN THE BROADMOOR AREA

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Intersection	Method of Control	Approach Description
I-182 and Broadmoor Blvd	Four-way signalized intersection, the intersection that connects Broadmoor Blvd to I-182 contains three on-ramps to I-182 and two off-ramps from I-182.	Approach lanes from I-182 to Broadmoor Blvd are from the east and west.
Harris Rd and Broadmoor Blvd	Unsignalized "T" intersection with stop control.	Approach lane from west on Harris Rd to Broadmoor Blvd is a one lane road. Traveling west on Harris Rd turns into Shoreline Rd.
Harris Rd and Shoreline Rd	None	Traveling west on Harris Rd turns into Shoreline Rd.

Shoreline Rd and Dent Rd	None	Traveling north on Shoreline Rd turns into Dent Rd.
Dent Rd and Kohler Rd	Southbound approach from Kohler Rd is unsignalized "T" intersection with stop control.	Approach lane from Kohler Rd to Dent Rd is a left or right turn.
Dent Rd and Burns Rd	Southbound from Dent Rd to the intersection of Dent Rd and Burns Rd is unsignalized "T" intersection with stop control.	Approach lane from Dent Rd to Burns Rd is a left or right turn.
Burns Rd and Nocking Point Rd	Southbound from Nocking Point Rd to the intersection of Nocking Point Rd and Burns Rd is unsignalized "T" intersection with stop control.	Approach lane from Nocking Point Rd to Burns Rd is a left or right turn.
Broadmoor Blvd and Sandifur Pkwy	Three-way signalized intersection with left hand turn lanes traveling south on Broadmoor Blvd and traveling west on Sandifur Pkwy. Traveling north on Broadmoor Blvd has a free right turn.	Approach lanes are from the north, south, and east.

Existing Traffic Conditions

The Broadmoor Master Plan area includes parcels of land owned by several independent property and business owners. The properties are situated to the North of Interstate I-182, south of Burns Road, east of the Columbia River and west of Broadmoor Blvd.

The system performance evaluation applied several technical methods consistent with transportation planning practices. Traffic operations at study intersections were reported using Synchro 10 and HCM 6th Edition Methodology based on recent traffic counts and new counts collected December 2019 and January 2020. Since traffic counts are typically lower during the winter, these counts were factored to represent average traffic conditions in Pasco. Intersection geometry and traffic control types were collected using Google Street View and field verified, if necessary. Traffic signal timings were provided by both the City of Pasco and WSDOT. Signalized intersection v/c ratios were post-processed at signalized intersections based on HCM 6th Edition Chapter 192. If HCM 6th Edition results could not be reported for signals, v/c ratios were reported using HCM 2000. Mainline through movement v/c ratios were postprocessed at unsignalized intersections consistent with the Highway Capacity Manual 3 (Appendix C).

Level of Service Standards and Analysis

Level of Service (LOS) is a general measure of traffic operating conditions whereby a letter grade, from A to F, is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving as well as speed, travel time, traffic interruptions and freedom to maneuver. The Washington State Department of Transportation has

adopted a LOS “D” standard for Highways of Statewide Significance (HSS). The Metropolitan / Regional Transportation Plan has adopted a LOS “D” standard for all non-HSS routes, such as SR 397.

The City of Pasco has adopted a Level of Service (LOS) “D” or better standard for its roadways, facilities, and intersections per the 2018-2038 Comprehensive Plan. A description of these standards is included in Table 13. WSDOT has also adopted a LOS “D” standard for Highways of Statewide Significance (HSS). I-182, US 12, and US 395 are designated as HSS facilities, thus requiring all on-/off-ramp intersections for these highways to conform to the LOS “D” standard. Additionally, the Regional Transportation Plan has adopted a LOS “D” standard for all non-HSS routes, such as SR 397. The City of Pasco is consistent and supportive of the state and regional standards.

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TABLE 13. LEVEL OF SERVICE STANDARDS

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Category	Definition
LOS A	Describes a condition of free flow with low volumes and higher speeds. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high. Stopped delay at intersections is minimal
LOS B	Represents reasonably unimpeded traffic flow operations at average travel speeds. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tensions
LOS C	In the range of stable flow but speeds and maneuverability are more closely controlled by the higher volumes. The selection of speed is now significantly affected by interactions with others in the traffic stream and maneuvering within the traffic stream requires substantial vigilance on the part of the driver. The general level of comfort and convenience declines noticeably at this level
LOS D	Represents high-density, but stable flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level
LOS E	Represents operating conditions at or near the maximum capacity level. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to “give way” to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver or pedestrian frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor disturbances within the traffic stream will cause breakdowns
LOS F	Describes forced flow operation at very low speeds and long delays.

	Volumes exceed theoretical capacity. Vehicles may progress at reasonable speeds for several hundred feet or more, and then be required to stop in a cyclic fashion. Operations within a queue are characterized by stop and go waves and are extremely unstable
(Source: Pasco Comprehensive System Plan Volume 2, 2021. Adopted from Transportation Research Board)	

As part of the Transportation System Master Plan (TSMP) traffic analysis (Appendix C) was performed to analyze the existing traffic patterns and operations in the study area and overall region of Pasco. A Level of Service analysis was performed for four study intersections along Broadmoor Boulevard as shown in Table 14 derived from Table 1 and Table 2 in Appendix C. All four study intersections meet the City of Pasco LOS "D" standard during the AM and PM 2-hour peak traffic periods.

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TABLE 14. EXISTING STUDY INTERSECTION OPERATIONS (2019 AM & PM PEAK HOURS)

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Intersection	Mobility Standard	AM Peak			PM Peak		
		Delay	LOS	V/C	Delay	LOS	V/C
I-182 Eastbound Ramp / Broadmoor Blvd	D	17	B	0.68	21	C	0.86
I-182 Westbound Ramp / Broadmoor Blvd	D	16	B	0.40	9	A	0.72
Sandifur Pkwy / Broadmoor Blvd	D	N/A	N/A	N/A	12	B	0.50
Dent Rd / Broadmoor Blvd	D	N/A	N/A	N/A	8/26	A / D	0.13 / 0.35
(Source: Pasco TSMP Existing Conditions, 2020 [Appendix C])							

Traffic Volumes

Traffic volumes on the City of Pasco streets are tracked by traffic counts collected at various times of the year. Traffic counts indicate that traffic volumes in the central core of the community have remained constant or in some cases have declined whereas volumes have increased in areas experiencing significant growth, such as the Interstate I-182 corridor west of US Highway 395.

Historic records of traffic volume along Broadmoor Boulevard in the vicinity of the Broadmoor Site can be found in the City of Pasco Transportation System Master Plan. Traffic counts were collected on a weekday morning and evening during an assumed AM and PM 2-hour peak travel periods. These peak hour traffic periods were determined based on historic traffic counts and indicated that approximately 52 percent of the AM peak hour traffic occurring from 7:15 to 8:15 AM and 54 percent of the PM peak hour traffic occurring from 4:30 to 5:30 PM. Traffic volumes were found to be concentrated in the area of I-182 Interchanges with much lower traffic volumes occurring in the northern end of the traffic study area.

Local Traffic Distribution

Based on the Pasco TSMP, local trip distribution patterns were based on the regional travel demand model. A majority of traffic along the Broadmoor Boulevard corridor is travel between the interstate (I-182) to and from existing residential developments that are located south of the Interstate I-182 interchange and east of Broadmoor Boulevard and Sandifur Parkway.

At the city level, data from the US Census Bureau and the Longitudinal Employer-Household Dynamics program indicated that approximately 76.6% of all residents living within Pasco City Limits were employed outside of the city. See Figure 18 for an illustration.



FIGURE 18: EMPLOYER HOUSEHOLD DISTRIBUTION

Traffic Safety

The City of Pasco has adopted a Local Road Safety Plan that provides data-driven collision reduction strategies to meet the Washington State Target Zero effort. To assess current traffic safety levels on the study segments and at intersections, collision data collected by the Washington State Department of Transportation (WSDOT) was evaluated. Figure 19 shows the locations of all reported collisions on public streets between 2016-2020.



Source: Pasco 2022 Local Road Safety Plan

FIGURE 19: REPORTED COLLISIONS

Because the Broadmoor study area is still relatively undeveloped, there is limited data on collisions within the proposal study site. Data on corridors adjacent to, and near the Broadmoor study area are provided below. The Pasco 2022 Local Road Safety Plan identified a prioritized list of roadway locations based on risk factors and collision attributes. A summary of these is provided in Table 15.

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TABLE 15. PRIORITIZED LIST OF ROADWAY LOCATIONS BASED ON RISK FACTORS

Priority Type	Intersection / Location	Approx. Distance from Study Area*
Intersection Safety	N Road 68 and Burden Blvd	2.3 mi
Intersection Safety	N Road 68 and Sandifur Parkway	1.7 mi
Intersection Safety	N Road 68 and EB I-182 (WSDOT)	2.3 mi
Intersection Safety	Road 90 and Sandifur Parkway	1.0 mi
Intersection Safety	Broadmoor Blvd and Burns Road	In study area
Intersection Safety	Broadmoor Blvd and Sandifur Parkway	In study area
Intersection Safety	Burns Road and N Road 68	2.0 mi
Intersection Safety	Burns Road and Road 90	1.1 mi
Corridor Safety	Broadmoor Blvd (Between Sandifur Parkway and Chapel Hill Blvd)	In study area
Safety Study - Intersections	Broadmoor Blvd and Burns Road	In study area
Safety Study – Corridor	Broadmoor Blvd (Between Sandifur Parkway and Chapel Hill Blvd)	In study area

Source: 2022 Pasco Local Road Safety Plan

*Measured from the Intersection of Broadmoor Blvd and Sandifur Parkway

Local Transportation Characteristics

Due to the limited amount of current development that exists within the Broadmoor study area, transportation characteristics for the adjacent area, and the citywide level have been provided (Table 16).

TABLE 16. TRANSPORTATION CHARACTERISTICS OF THE ADJACENT AREA

Measurement	Block Group (530210206063)	Citywide
Annual VMT per Household	25,637	22,776
Transit Ridership % of Workers	1%	3%
Annual Transportation Costs	\$16,393	\$14,528
Annual GHG per Household	11.79 tonnes	9.96 tonnes

Source: Center for Neighborhood Technology

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The Pasco Transportation System Master Plan identified multimodal system connectivity as a challenge for new and growing areas of the city. Pasco's existing roadway network is arranged largely on a grid system which establishes a system of arterial and collector streets. Within central Pasco and the downtown core, the existing functional classification system establishes a traditional urban arterial and collector street system that adheres to the recommended spacing standards. The roadway system in areas outside of central Pasco and the downtown core have limited opportunities for developing an arterial and collector street system and is constrained by the development style featuring longer block lengths and limited access points.

The figure below illustrates intersection densities across the entire City of Pasco. The Environmental Protection Agency describes intersection density as an objective method of assessing one aspect of a community's built environment. The density of walkable intersections relays information about street design and connectivity, both of which impact walkability. High intersection density may correspond to a more walkable and therefore health-promoting environment. As seen in Figure 20, the intersection densities of central Pasco correspond to the results of the Transportation System Master Plan, indicating that there is more system connectivity (and access) provided for when intersection densities are higher.

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FIGURE 20: INTERSECTION DENSITY

Figures 21 indicates proposed road network in the Broadmoor area for Alternative 2.

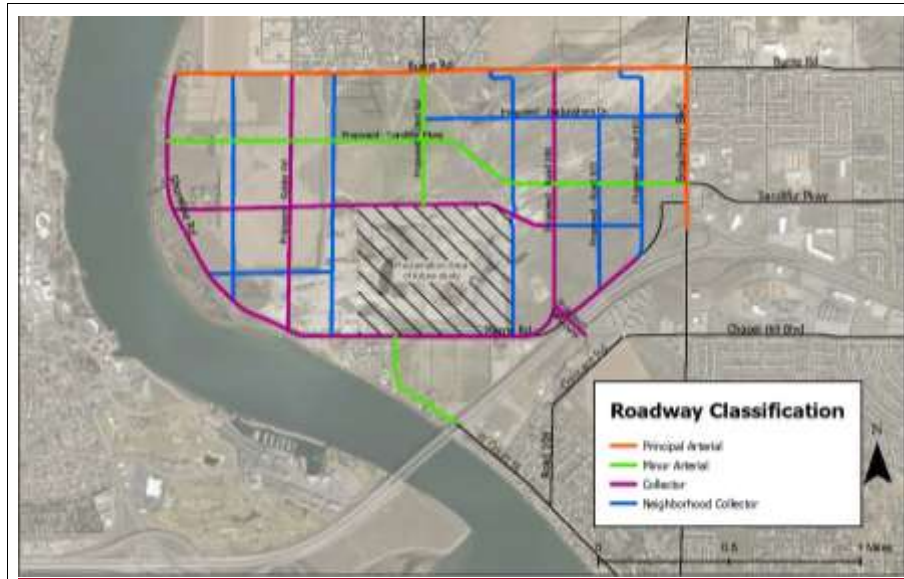


FIGURE 21: PROPOSED MAJOR ROAD NETWORK

5.10.1.2 PUBLIC TRANSPORTATION SERVICES

Public transportation is an integral component of the Pasco City Council, and the implementation of a multi-modal transportation system was specifically identified in the 2022-2023 Pasco City Council Goals. Ben Franklin Transit (BFT) is the public transportation system provider for the metropolitan area of Benton and Franklin Counties. Services include fixed bus-routes, Dial-A-Ride, vanpool, and general demand. In 2020, a new, on-demand service called Connect was introduced by BFT. Figure 22 shows the fixed route bus routes and stops for the Tri-Cities Metropolitan Area for Monday-Saturday service.

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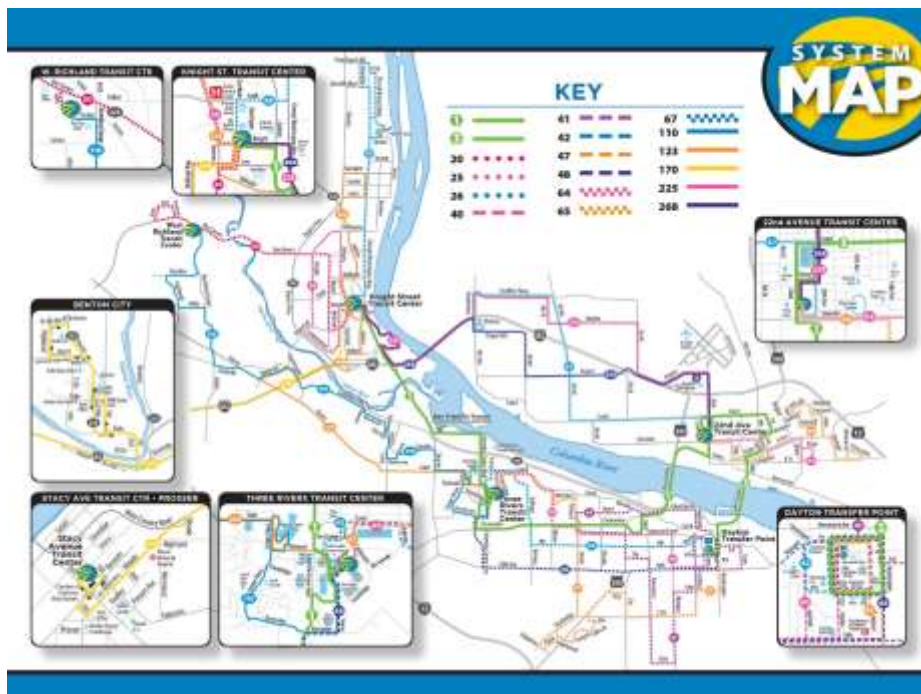


FIGURE 22: TRANSIT SYSTEM MAP

Ben Franklin Transit operates approximately 260 individual bus stops, and five routes within the City of Pasco. These routes typically run on 30-minute headways. Routes 1 and 3 have 15-minute headways beyond 5 hours per day. Portions of Routes 225 and 268 have 15-minute headways beyond 5 hours per day, near Columbia Basin College, and along Argent from 20th Ave to Road 44. Additionally, BFT has one dedicated transit center (22nd Avenue Transit Center) located in Central Pasco at the intersection of 22nd Avenue and Sylvester, and numerous formal and informal park and ride locations for riders to connect with the vanpool program.

Figure 23 shows BFT facilities (routes and stops) in the City of Pasco, illustrating the types of bus stops, along with current and proposed future routes.

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FIGURE 23: TRANSIT FACILITIES IN PASCO (ROUTES AND STOPS)

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The agency Comprehensive Service Plan includes an expansion of the public transportation network and features two new mobility hubs in Pasco. These mobility hubs will be located in near the central business district in Downtown Pasco, and the other within the Broadmoor study area. Figure 24 from the Ben Franklin Transit Development Plan (2020-2025) illustrates the development of a frequent service route network featuring 15 minutes frequency corridors.

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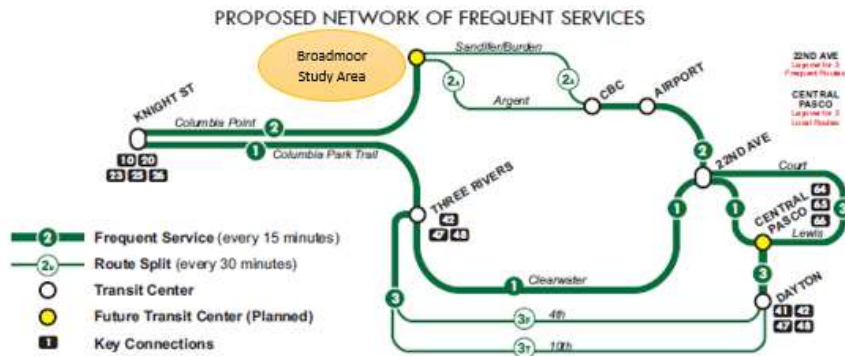


FIGURE 24: PROPOSED TRANSIT NETWORK OF FREQUENT SERVICES

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The Transportation System Master Plan identified two key challenges for public transportation operations:

- Limited access from new residential development to transit facilities
- Limited, safe crossing opportunities near transit route stops

5.10.1.3 NON-MOTORIZED TRANSPORTATION FACILITIES (BICYCLE & PEDESTRIAN NETWORK)

Non-motorized Transportation (also known as *active transportation*) includes travel modes via walking, biking, and other variations, such as scooters, wheelchairs, and other accessibility devices. These modes provide options to travel for recreation and general transportation (they provide access to goods and activities), although users may consider a particular trip to serve both objectives.

In total, the City of Pasco maintains over 360 miles of sidewalks. There are over 35 miles of walking trails in the Pasco area including both separated asphalt paths and City sidewalks. They consist of a 6.4-mile Sacajawea Heritage Trail, a one-mile trail around the Road 68 softball complex, a 6.2-mile trail along the north side of I-182, a .80-mile trail along the south side of Burden Boulevard, and a 2.2-mile trail at the cross-country course off Road 36 (Figure 25).

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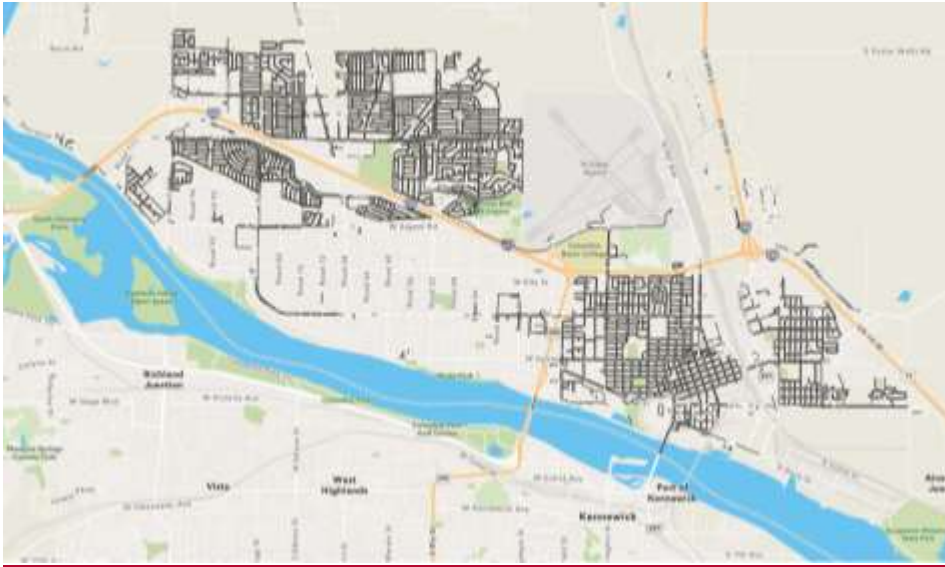


FIGURE 25: SIDEWALK FACILITIES IN PASCO (2021)

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As noted in the Transportation System Master Plan, in many areas of the city, the transportation system does not support travel for Pasco residents without access to a private vehicle. Notable corridors (identified in the TSMP) Burns Road and Sandifur Parkway, both of which are adjacent to, and provide primary connections to the Broadmoor study area. Additionally, the following corridors were identified for not having adequate pedestrian or bicyclist connections (TSMP, Appendix A (pg. 20):

Corridors without adequate pedestrian or bicyclist connections:

- Court Street (Road 44 to Road 108)
- Wernett Road (Road 48 to Road 76)
- Argent Road (Road 48 to Road 100)
- Chapel Hill Boulevard (Road 68 to Road 100) *
- Burden Boulevard (Road 36 to Road 60)
- Sandifur Parkway (Porto Lane to Road 90) *
- Road 44 (Laredo Drive to Porto Lane)
- Burns Road (Road 68 to Road 100; Dent Road to Kohler Road) *
- Clark Road (Road 36 to Lentz Road/Janet Street)

Corridors with asterisk are within close proximity or adjacent to the Broadmoor study area

Figures 26 indicates proposed bike network in the Broadmoor area for Alternative 2.



FIGURE 26: PROPOSED ENHANCED BIKE NETWORK

5.10.1.4 FREIGHT TRANSPORTATION

The movement of freights and goods plays an important role in the transportation system of the City and the regional economy. The Washington State Department of Transportation (WSDOT) has developed a classification system for the statewide Freight and Goods Transportation System (FGTS). This is a classification system for roadways, railways and waterways based on freight tonnage. The 2021 Freights and Good Transportation System Map for the Tri-Cities Metropolitan Area is shown in Figure 27.

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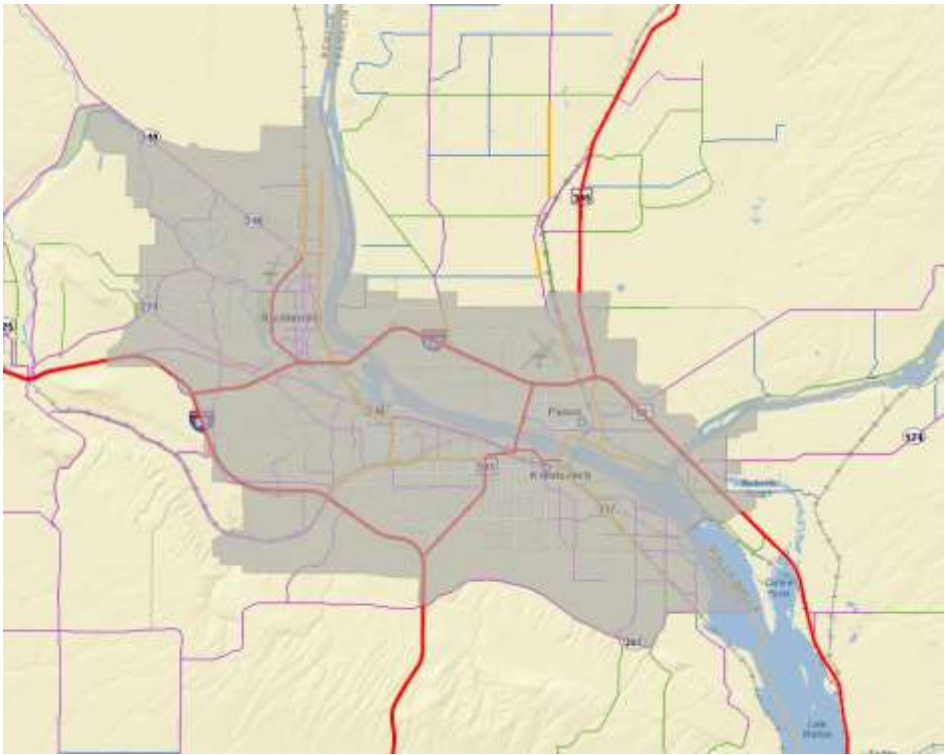


FIGURE 27. FREIGHTS AND GOOD TRANSPORTATION SYSTEM MAP

A summary of the FGTS system in Pasco is shown in Table 17.

TABLE 17. FGTS SYSTEM IN PASCO

Route	Start Location	End Location	Classification
Ainsworth Ave & Dock Street	SR 397	Sacajawea Park Road	T-2
Broadmoor Blvd*	I-182	Harris Road	T-2
N 4 th Avenue	I-182/US 12/US 395	North City Limits	T-2
Road 68 *	I-182/US 12	North City Limits	T-2
W A Street	S 20 th Ave	S 1 st Ave	T-3
E Lewis Street	SR 397 (Oregon Ave)	US 12	T-3

* Indicates streets within close proximity or adjacent to the Broadmoor study area

Figure 28 from the Transportation System Master Plan displays freight activity centers within Pasco. The map illustrates these locations and the estimated percentage of heavy vehicles on public roadways using Street Light Data from 2018.

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FIGURE 28: FREIGHTS ACTIVITY CENTERS

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The Big Pasco Industrial Center which is owned and managed by the Port of Pasco, can facilitate operational needs for container-handling such as a terminal for loading and unloading cargo. The terminal also has connections to truck routes and railways and provides docking, loading, and unloading of grains and petroleum barges. The City of Pasco Port-owned rail spur allows for connection to the Burlington Northern Santa Fe (BNSF) railroad.

The rail industry has operated in Pasco for over a century and has classification yards located in the Big Pasco Industrial Center. The classification yards allow the railcars to be separated into blocks where they will make up trains. These trains are then used to move goods across the country. As of 2015, over 1.5 million carloads of freight are moved each year through the Pasco.

5.10.2 POTENTIAL IMPACTS

5.10.2.1 POTENTIAL IMPACTS

The Broadmoor Area is currently largely undeveloped with minimal traffic services in place around the perimeter. An increase in transportation demand is expected with both alternatives and any new development in the area. New transportation facilities and improvements to existing facilities will be required to meet the needs of the increased demand and mitigate the negative impacts that can come with increased demand, i.e., an increase in congestion, noise, pollution, risk of injuries/fatalities, and inequality. A primary contributor to each of these negative impacts is a transportation system designed for automobiles that does not provide and encourage viable alternative options for individual's transportation needs.

Alternative 2 has been adapted to meet the realities of the existing conditions of the Broadmoor Area by accounting for the low-density residential development already underway. Alternative 2 is not expected to increase the traffic potential more than the Alternative 1 for the reasons stated in Section 5.10.1.

The potential impacts of developing the Broadmoor Area associated with development under Alternatives 1 were assessed as part of the Pasco TSMP (Appendix C). Projected traffic conditions were forecasted using the Benton Franklin Council of Governments (BFCG) travel demand model. Projected intersection operations for Year 2040 were analyzed for Alternative 1 for the AM and PM peak hour using the Highway Capacity Manual (HCM) 6th Edition capacity method. The results of this analysis indicated that in PM peak hour conditions, all four intersections fail to meet the City of Pasco and regional mobility standards. Major traffic controls will be necessary to achieve the appropriate LOS standards.

An intersection operations analysis was not completed for Alternative 2. Although Alternative 2 is not expected to increase the traffic potential more than the Alternative 1 for the reasons stated in Section 5.10.1. It can be assumed that Alternative 2 will produce increased traffic potential of a similar magnitude as Alternative 1. Thus the traffic improvements applicable to Alternative 1 as detailed in Appendix C would be beneficial to address future traffic conditions for any development to occur in the area.

5.10.3 MITIGATION MEASURES

The following mitigation measures should be used:

1. Ensuring a well-designed, reliable, and efficient transportation system, in a mixed-use environment with appropriate density, that allows for a variety of mobility options for both motorized and non-motorized users is the best way to mitigate the potential negative impacts of increased transportation demand produced by the development of the Broadmoor Area.

2. The Washington State Department of Transportation states “A transportation system that accommodates all forms of transportation is more efficient in the travel space provided, more accessible, safer, more economical and sustainable.” (WSDOT, 2022). The Washington State Department of Transportation’s Active Transportation Plan (WSDOT, 2021) lists the following benefits accessible active transportation
 - a. Low-cost and flexible access to services and opportunities.
 - b. Enhanced quality of life.
 - c. More livable streets and roads.
 - d. Improved personal and community health.
 - e. Increased capacity on roads due to less driving.
 - f. Reduced greenhouse gas emissions and other transportation-related pollutants.
 - g. Improved connections to other modes such as transit, ferries, and trains.
 - h. Reduced “chauffeur” burdens, particularly for parents.
 - i. Reliable options when other modes of transportation fail.

The Broadmoor Master Plan and Development Regulations were created to define standards for the Broadmoor Area that work in coordination with the PMC, TSMP, and Council Goals. Transportation related impacts shall be mitigated by adhering to the regulations of these documents, which are summarized below. This summary is not inclusive of every applicable regulation of the above documents.

3. The Pasco City Council 2022-2023 Goals (4182 Resolution, adopted 5/16/2022) outline the following principles relating to transportation:
 - a. Promote a high-quality of life through quality programs, services and appropriate investment and re- investment in community infrastructure including, but not limited to:
 - i. Completion of Transportation System Master Plan and design standard updates to promote greater neighborhood cohesion in new and re-developed neighborhoods through design elements, e.g.; connectivity, walkability, aesthetics, sustainability, and community gathering spaces
 - b. Promote a highly functional multi-modal transportation system including, but not limited to:
 - i. Application of the adopted Transportation System Master Plan including development of policies, regulations, programs, and projects that provide for greater connectivity, strategic investment, mobility, multi-modal systems, accessibility, efficiency, and safety
4. The Broadmoor Master Plan and Development Regulations outlines the following principles relating to transportation:

- a. Encourage Pedestrian Friendly Transit Environment - Developments should consider design standards that promote walkability.
 - b. Establish a connected community with ample choices in the circulation network - Create an efficient pedestrian and vehicular circulation network within the area and with connections to the rest of the City. A public transportation system will be utilized to connect residential and commercial districts with each other as well as with the region.
5. The Broadmoor Master Plan and Development Regulations promotes connectivity, multi-modal options, mixed-use land uses, and appropriate densities. Some of those regulations include:
- a. Connectivity
 - i. Shorter Block Lengths
 - ii. Mid-block pedestrian connections
 - iii. Continuous and safe bicycle and pedestrian infrastructure
 - iv. Prohibit cul-de-sacs and dead-end roads
 - v. An interconnected grid block and street network
 - b. Multi-Modal Options
 - i. Complete streets that include bike and pedestrian facilities
 - ii. Building types and standards that promote walkability such as
 - o bringing buildings closer to the street
 - o concealing parking from the street
 - o having active ground level uses and designs with windows and human-scaled features
 - iii. Community Centers with public spaces, plazas, or outdoor seating
 - iv. Landscaping, lighting, and furniture that promotes walkability
 - c. Mixed-Use
 - i. 370 acres of mixed-use land use which promotes walkability and “park once” multi-stop trips.
 - d. Density
 - i. Residential and commercial densities that promote walkability.
6. Based on the recommendations of the Pasco TSMP (Appendix C) and the City of Pasco 2023-2028 Transportation Improvement Program, it is recommended that intersection and roadway improvements and solutions be implemented to address existing and projected high-volume demand and achieve LOS standards under future growth. TSMP recommendations include:

- a. (Broadmoor Blvd Widening I-182 Westbound Ramp Terminal to Dent Road) - Widen to 5 lanes between I-182 Westbound Ramp Terminal and Burns Road; widen to 3 lanes between Burns Road and Dent Road; install traffic signal at Broadmoor Boulevard/Burns Road and widen eastbound approach to include dedicated left and right turn lanes; install traffic signal at Broadmoor Boulevard/Dent Road
 - b. (Clark Road/Dent Road Improvements Burns Road to Road 52) - Widen to 3 lanes
 - c. (Future North-South Connection (Halfway between Broadmoor Boulevard and Dent Road) Harris Road to Dent Road) - Construct a 3-lane roadway; install two-way stop control at Future North-South Connection/Harris Road and Future North-South Connection/Dent Road; install a traffic signal at Future North-South Connection/Burns Road
 - d. (Dent Road Extension Burns Road to Harris Road) - Construct a 3-lane roadway; install a traffic signal at Dent Road/Burns Road
 - e. (Sandifur Parkway Extension - Phase 1 Road 100 to Future North-South Connection (Between Road 100 and Dent Road)) - Construct a 5-lane roadway; realign Harris Road to Sandifur Parkway Extension as 2-lane road and close the existing Harris Road/Road 100 intersection; construct a 2-lane roundabout at Sandifur Parkway Extension/Harris Road and a 1-lane roundabout at Sandifur Parkway/Future North-South Connection (Between Road 100 and Dent Road) with a westbound right turn slip lane
 - f. (Sandifur Parkway Extension - Phase 2 Future North-South Connection (Between Road 100 and Dent Road) and Shoreline) - Construct a 3-lane roadway; construct a 1-lane roundabout at Sandifur Parkway/ Dent Road; install two-way stop control at Sandifur Parkway/Shoreline
 - g. (182/Broadmoor Blvd Interchange Improvements) - Construct a 1-lane loop ramp from eastbound I-182 to northbound Road 100 within existing right of way; widen westbound approaches at I-182 westbound and eastbound ramp terminals to include dual right turn lanes
 - h. (Road 100/Sandifur Parkway Intersection Improvements) - Widen approaches as needed to construct new dual northbound left turn lanes, a westbound through lane, a channelized southbound right turn lane, and dual eastbound right turn lanes; widen to add an additional southbound receiving lane on Road 100 between Sandifur Parkway and the old Harris Road intersection
 - i. (Broadmoor Park and Ride Location) - Construct a park-and-ride facility in the Broadmoor Area
7. The following projects were included in the City of Pasco 2023-2028 Transportation Improvement Plan (4194 Resolution, adopted 6/20/2022):

Deleted: Figures 27 and 28 indicated proposed road and bike network in the Broadmoor area for Alternative 2. ¶



- a. I-182/Broadmoor Blvd I/C Improvements – This project will add an eastbound deceleration lane and exit loop ramp from I-182 to a new roundabout at Broadmoor Blvd (Road 100).
- b. I-182/Broadmoor Blvd I/C Multiuse Pathway/Bridge – This project provides bicycle and pedestrian facilities across I-182 at Broadmoor Blvd/Road 100 through the construction of a bridge.
- c. Broadmoor Blvd Improvements – This project will widen Broadmoor Blvd to 5 lanes from I-182 Westbound Ramp to Burns Road. This project is under consideration for Tax Increment Financing (TIF). Large commercial and residential developments in the area have driven the need for infrastructure improvements to accommodate the increase in vehicular and pedestrian traffic.
- d. Buckingham Dr Extension & Signal – This project will install a traffic signal at the intersection of Buckingham Drive and Broadmoor Boulevard and extend Buckingham Drive, as a 3-lane commercial collector, west of Broadmoor Boulevard to the extension of Dent Road. A portion of this project is under consideration for Tax Increment Financing (TIF).
- e. Burns Rd/Broadmoor Blvd Intersection Improvements – This project will install a traffic signal at the intersection of Burns Road and Broadmoor Blvd. Sidewalks and any necessary ADA improvements will be included.
- f. Burns Rd Widening – This project will widen Burns Road to be a 3-lane minor arterial and include sidewalk and multi-use pathway.
- g. Dent Rd Extension – This project will extend Dent Road, as a 3-lane commercial collector, from Burns Road to the extension of Sandifur Parkway and install a traffic signal at Dent Road and Burns Road intersection. This project will provide a connection between the extension of Sandifur Parkway and Burns Road through the proposed Medium & Low Density Residential land uses of the Broadmoor Area and will connect these residential areas to the Mixed Residential/Commercial land use and Burns Road. It will also connect the residential developments north of Burns Road to the commercial services of the Broadmoor area as they develop.
- h. Harris Rd / Crescent Rd Overpass – This project will construct an overpass over I-182 to connect Harris Road and Crescent Road. This project will connect the communities north and south of I-182 and relieve some of the demand at Broadmoor Boulevard and the I-182 interchange.
- i. New Road 103 – This project will construct a north-south oriented 2-lane neighborhood collector road from Harris Road to Burns Road. It will include street parking and sidewalks. This project will provide a connection between Burns Road and Harris Road through the proposed Commercial and Mixed Residential/Commercial land uses of the Broadmoor Area.
- j. New Road 105 – This project will construct a north-south oriented 2-lane neighborhood collector road from Harris Road to Burns Road. It will include street

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parking and sidewalks. This project will provide a connection between Burns Road and Harris Road through the proposed Commercial and Mixed Residential/Commercial land uses of the Broadmoor Area.

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- k. New Road 108 – This project will construct a north-south oriented 3-lane minor arterial road from Harris Road to Burns Road. It will include a multi-use pathway and sidewalk. A portion of this project is under consideration for Tax Increment Financing (TIF). This project will provide a connection between the Harris Road and Burns Road through the proposed Commercial and Mixed Residential/Commercial land uses of the Broadmoor Area, providing an important resource to spur development.

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- l. New Road (Bridger Rd) – This project will construct an east-west oriented 2-lane neighborhood collector road from new Road 108 to new Road 103 south of Sandifur Parkway. It will include street parking and sidewalks. This project will provide a connection between new Road 108 and Road 103 in the proposed Commercial and Mixed Residential/Commercial land uses of the Broadmoor Area.

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- m. Sandifur Pkwy Improvements & Extension – This project will improve and expand Sandifur Parkway from Bedford Street to Broadmoor Boulevard and extend Sandifur from Broadmoor Boulevard to Shoreline Road. A portion of this project is under consideration for Tax Increment Financing (TIF).

- n. Sandifur Pkwy/Broadmoor Blvd Intersection Improvements – This project will improve the intersection of Sandifur Parkway and Broadmoor Boulevard to meet the capacity and multimodal needs for future development in the Broadmoor area. This project is under consideration for Tax Increment Financing (TIF). This project will extend Sandifur Parkway through the proposed Commercial and Mixed Residential/Commercial land uses of the Broadmoor Area, providing an important resource to spur development and then extend on to Shoreline Road.

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- o. Shoreline Rd Realignment – This project will study the possible realignment of Shoreline Road from Shoreline Court to Burns Road. A planning analysis, environmental study, and preliminary design will be included. Shoreline Road, in its current location, does not allow for an efficient or effective use of property along an important stretch of the shoreline. Realignment to the east will provide for additional riverfront land for development. The realignment is anticipated as part of a larger private development.

- 8. The street design of these projects will incorporate comfortable bicycle and pedestrian facilities and be designed to encourage and accommodate a walkable mixed-use neighborhood, which, when properly executed, increases access to services, catalyzes economic growth, maintains or increases property values, enhances connectedness and the quality of life of its residents and visitors.

In addition to the above listed projects, other measures will need to be evaluated such as

- a. construction of additional local access streets to meet connectivity standards,
 - b. enhanced access points and protected pedestrian crossings at key uses like schools and parks
 - c. additional intersection improvements
9. The following mitigation measures are recommended to best accommodate bike and pedestrian travel within the Broadmoor site as part of future development:
- a. Including multiuse pathways separated from the roadway on arterials and select collectors.
 - b. Including roadways with built-in bicycle lanes on collectors and select local access streets.
 - c. Painting of bike lanes on roadways.
 - d. Ensuring that walkways are continuous and unobstructed.
 - e. Protected pedestrian-friendly intersections and crossings that minimize crossing distance, are well designated, lit, and signalized, and meet ADA design standards. Design considerations such as raised crossings, pedestrian head starts at signalized intersections, and curb bulbs should be evaluated.
 - f. Pedestrian scaled signage, lighting, landscaping and other pedestrian amenities such as benches, trashcans, etc. should be incorporated into the public ROW and private development to promote walkability.

5.11 PUBLIC SERVICES AND UTILITIES

This section identifies existing conditions related to the Broadmoor area's water resources and includes descriptions of domestic water, sewer, stormwater, irrigation water, and reclaimed water resources. This section serves as an environmental baseline for identifying possible impacts associated with the proposed alternatives. Additional detail regarding existing and planned public services and utilities can be found in the City of Pasco 2021 Comprehensive Sewer Plan Addendum (City of Pasco, 2021), City of Pasco Comprehensive Water System Plan (City of Pasco, 2019), and City of Pasco Comprehensive Plan 2018-2038 (City of Pasco, 2020).

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5.11.1 AFFECTED ENVIRONMENT

Development in the Broadmoor area associated with Alternatives 1 and 2 would require extension of public services and utilities to newly developed areas consistent with existing infrastructure and planned infrastructure expansion requirements in accordance with applicable local, state, and federal laws and regulations.

5.11.1.1 PUBLIC SERVICES

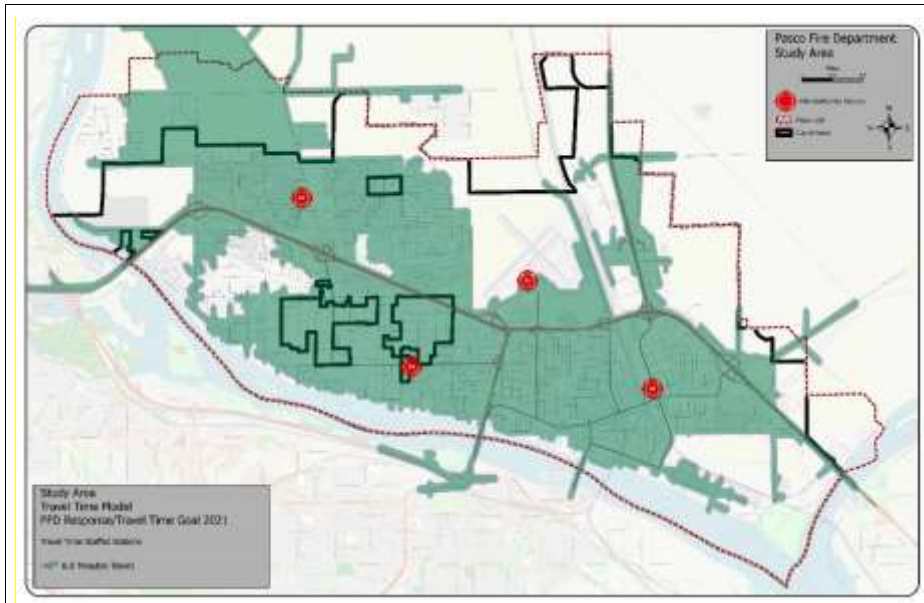
The City of Pasco provides various public services to its residents in protection of life, property, and resources, and to promote educational and recreational opportunities. The City of Pasco owns and maintains numerous facilities and equipment on behalf of fire protection and emergency services and well as for public education and parks and recreation. These services are currently provided and managed in accordance with existing plans, policies, and through community involvement. Current plans and policies strive to project and accommodate for future needs and development, including projected development at the Broadmoor area.

5.11.1.2 FIRE PROTECTION AND EMERGENCY SERVICES

The levels of service provided for fire protection and emergency services are assessed as part of the Pasco Fire Department Emergency Services Master Plan. The Pasco Fire Department (PFD) provides fire suppression, advanced life support, emergency medical services, ambulance transport services, technical rescue services, and hazardous materials services (through a regional partnership) to its service area community. The PFD, through a contract with the Port of Pasco, also provides Aircraft Rescue and Firefighting services to the Pasco airport (City of Pasco, 2020).

Furthermore, the Emergency Services Master Plan assesses future community conditions, service demands, and fire protection risks based on projected community growth and interpretation of the associated impacts on emergency service planning and delivery. Recommendations are outlined to address projected development and population growth and increased systems demands through short-term, mid-term, and long-term strategies (Pasco Fire Department, 2016).

As indicated in the Emergency Services Master Plan, increased demand for emergency services at the Broadmoor area is expected along with development of the area. The current service map is shown in Figure 29.



(Source: City of Pasco, 2022)

FIGURE 29. PASCO FIRE DEPARTMENT CURRENT SERVICE AREA BY RESPONSE

Based on the assessment provided in the Emergency Services Master Plan, the recommendations in Table 18 were made to support increased service demands, to improve communication pathways, and to ensure efficient use of resources:

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TABLE 18. CITY OF PASCO EMERGENCY SERVICES MASTER PLAN RECOMMENDATIONS

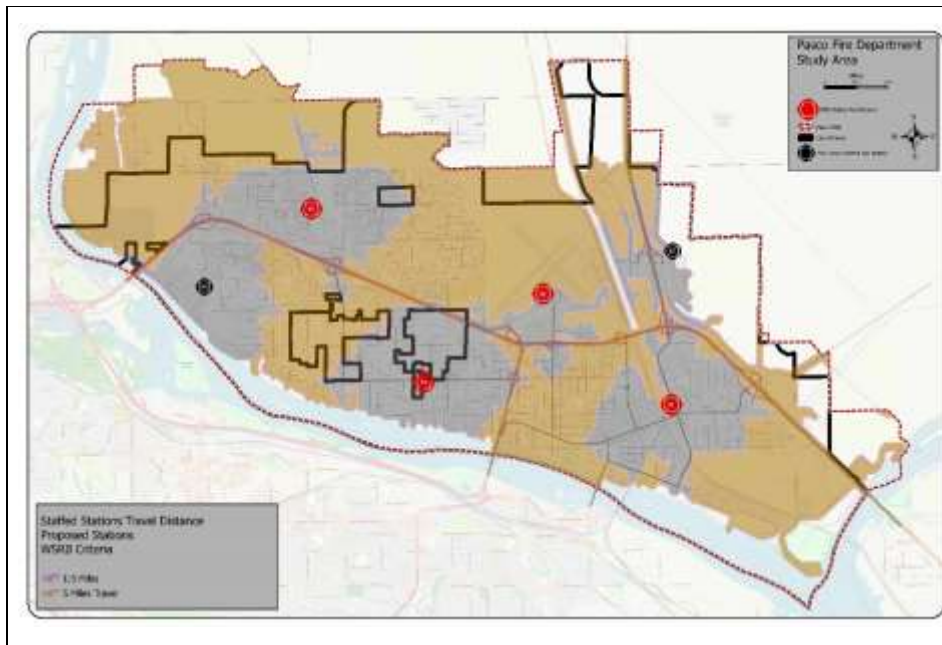
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Component	Recommendation(s)
Organizational, Management & Economic Conditions	<ul style="list-style-type: none"> Consider implementation of improvements in hydrant flow testing, resource deployment, and staffing to achieve a Public Protection Class 4 rating. Review and update all regulatory documents on at least a 3-year cycle. Ensure the sensitive files are properly secured. Redesign or relocate administrative offices to provide adequate space for occupants and allow for separation from operational areas. Develop a plan that ensures all administrative functions to have a “back-up” provider.
Emergency Medical Services (EMS)	<ul style="list-style-type: none"> Complete existing efforts that combine emergency communication from both Franklin and Benton Counties into a single Public Safety Answering Point (PSAP). Deploy a shared agency Peak Activity Unit (PAU) during periods of increased EMS demand to be staffed by multiple Tri-Cities area fire departments promoting response efficiency and cost effectiveness. Consider alternative deployment options to meet increased service demands, including consideration of a shared agency Alternative Response Unit (ARU). Standardize EMS purchases of equipment and supplies through a group purchasing and distribution model. Consider the practice of a flat rate utility fee structure in support of ambulatory services. Perform an update of the ambulance utility cost analysis and cost of service regularly. Deploy the use of a Smartphone application that notifies CPR trained individuals of Sudden Cardiac Arrest incidents.
Hazardous Materials & Technical Rescue	<ul style="list-style-type: none"> Maintain a comprehensive inventory of the PFD-owned and/or maintained equipment. Establish and maintain minimum staffing requirements for hazardous materials technicians and the Technical Rescue Team. Perform periodic reviews of the City of Pasco’s financial responsibility and a cost to benefit analysis for the participation in regional hazardous material response and technical rescue efforts. Request that the Franklin County emergency manager coordinate a Commodity Flow Study for the City of Pasco and other stakeholders.
Airport Impacts	<ul style="list-style-type: none"> Ensure PFD incident commanders and pertinent personnel are familiar with and have working knowledge of the Pasco Tri-Cities Airport Emergency Plan and have regulator interactions with airport personnel and terminal tenants.
Training	<ul style="list-style-type: none"> Construct or acquire access to a centrally located fire training center, develop a common training manual for Tri-Cities fire agencies, and define outcomes for required training.
Fire Prevention	<ul style="list-style-type: none"> As part of construction plan review and inspection, ensure commercial tenant improvement applications are reviewed, conduct tours of large building projects during construction, and distribute a summary of active construction project to PFD personnel. Develop a comprehensive Community Risk Reduction plan. Create procedures for developing pre-incidents and establish associated goals and objectives for completion of such plans.

Component	Recommendation(s)
	<ul style="list-style-type: none"> Complete formalization of the fire investigation and incident analysis process. Expand upon the current database of all “maximum” or “significant” facilities in the PFD service area. Identify all non-facility risks including transportation systems and extreme weather conditions and develop associated target response plans for high level risks. Develop and publish a PFC specific Standards of Cover. Consider conducting a strategic plan at the conclusion of the master planning process.
Capital Assets & Assessment of Current Infrastructure	<p><u>Station 81</u></p> <ul style="list-style-type: none"> Relocate the administrative offices out of Station 81. Consider co-locating the administration with a new fire station designed to accommodate both a functioning fire station and the administrative offices. Remodel Station 81 to convert the existing administrative offices into more living quarters. <p><u>Station 82</u></p> <ul style="list-style-type: none"> Evaluate exterior wall cracks to determine potential settling issues. Interior dividing wall in apparatus bay impedes rapid turnout by crews. Breaching this wall to facilitate rapid turnout should be explored. Complete the installation of the apparatus exhaust system slated for 2017. Focus on facility security as required by FAA regulations. <p><u>Station 83</u></p> <ul style="list-style-type: none"> Relocate Station 83 with additional training room and additional living space. <p><u>Station 84</u></p> <ul style="list-style-type: none"> Consider temporary use of this facility for deployment of a peak activity unit. Relocate Station 84 as per recommendations in the Service Delivery & Performance section.
Service Delivery & Performance	<ul style="list-style-type: none"> Improve street networks for improved response time performance in areas where compliance is not achieved due to poor circulation (such as east-west of State Route 395). Add Emergency Vehicle Preemption technology to signalized intersections for improved response times.

(Source: Pasco Fire Department, 2016)

As urban level development occurs in both alternatives, the police and fire services will need to be extended to the Broadmoor area. The 2016 Pasco Emergency Services Master Plan proposes a reconfiguration of stations and an extended service area as shown in Figure 30. Additional station locations need to be determined in the northwest area of the City.



(Source: City of Pasco, 2022)

FIGURE 30. PASCO FIRE DEPARTMENT LONG-TERM STRATEGY – PROPOSED STATIONS

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A majority of the Broadmoor area falls within the current service area of the PFD. As part of recommendations made as part of the Emergency Services Master Plan as shown in Table 13, more efficient service and support of increased service demands could be provided to the Broadmoor area with the proposed five staffed station deployment as shown in Figure 30.

Law enforcement services for the City are provided by the City Police Department. Unincorporated areas of the UGA are served by the County Sheriff. The City and County law enforcement agencies cooperate readily when the need arises. As the population increases, additional patrol districts and mini-stations will be established to maintain quality service levels (City of Pasco, 2020).

5.11.1.2.1 Schools

As of 2019, the Pasco School District reportedly served 17,891 students, an increase of 14% since 2011. As of 2019, the Pasco School District owns and operates 15 elementary schools serving grades K-6, one elementary school serving grades K-2, and one elementary school serving grades 3-6. There are also three middle schools, two high schools, and one alternative high school in the district. The schools that currently serve the majority of the Broadmoor area (based on school

boundaries) are Markham Elementary School, McLoughlin Middle School, and Chiawana High School (Office of Superintendent of Public Instruction, 2018; Pasco School District, 2016).

One of the most significant issues facing the Pasco School District is providing classroom capacity to accommodate existing and project demands. Steady residential development within the district, including the Broadmoor area, results in increased classroom capacity demands and necessary improvements to serve the forecasted growth. Under the Supreme Court's McCleary decision and recent changes implemented by the State Legislature to address this decision, state-wide funding for K-12 basic education has increased in recent years. Although funding has continued to increase as the result of the McCleary decision, improvements and classroom capacity are still needed to address existing and projected demands (Pasco School District, 2016).

In both alternatives, the need for school sites, buildings, and supporting facilities will continue to grow as population expands. The City continues to work with the school district to ensure that the impacts of development on the school district are minimized. The school district currently owns about 70 acres directly north of the Broadmoor area. The school district continues to assess the need for and location of schools.

5.11.1.2.2 Parks and Recreation

The City of Pasco Parks and Recreation Department provides physical facilities and operates a variety of programs to facilitate parks and recreational opportunities to meet the community's needs. This includes the establishment of a neighborhood park system and other park facilities, providing organized recreation programs for all age groups, and performing maintenance to maximize the service life of existing parks and recreation facilities. Figure 31 shows the location of community and neighborhood parks, large urban and regional parks, and trails and other special use areas that service Pasco.

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Within Broadmoor area, the USACE property abutting the Columbia River is designated as Open Space. Additional open space land owned by USACE exists along the proposed Sandifur Parkway extension. Alternative 1 indicates open space near the tailwater pond, which is not functional due to the change in irrigation management. Alternative 2 designates the gravel mining area as Reclamation that will be available as part of the reclamation plan once the mining operation ceases. This area may be developed with recreational opportunities and related low intensity developments.



(Source: City of Pasco, 2020)

FIGURE 31. CITY OF PASCO EXISTING PARKS AND RECREATION MAP

Figure 32 indicates proposed park and trail facilities on the west side of the Broadmoor area on the Army Corps property. It also includes proposed bike facilities throughout the Broadmoor area. Proposed trail along the shoreline is intended to connect with the Sacajawea Heritage trail. The following short and long terms plans are proposed in the Army Corps area according to the Rivershore Linkage Plan.



FIGURE 32: PARKS AND TRAIL (PROPOSED)

Short term plans

1. Work with Army Corps to design and build a continuation of the Sacajawea Trail along the river to City Limits line. Work with County and property owners to design and build a continuation of the Sacajawea Trail to the northernmost Urban Growth Boundary line.
2. Include bona fide river access points/future parks along this section of trail which connect to Shoreline Road.
3. Begin negotiations with Army Corps to establish park facilities/raised view decks along river.

4. With Property owner approval (and covenant) Begin irrigation and tree planting along proposed greenbelt.

Long term plans

5. Improve area for waterfowl and elevated bird watching along the rivershore trail, adding nature trails as needed.
6. Greenbelt/park/pocket wildlife preserve areas along river and along main boulevard;
7. Boat basin and launch; Possible restricted, non-motorized only boating area near wildlife reserve area.
8. Rivershore commercial development scaled to pedestrian/bicycle traffic.

In both alternatives, additional population in the Broadmoor area will result in the need for additional park and recreational facilities. The City's 2022 draft Parks, Recreation and Open Space (PROS) Plan indicates level of service (LOS) standards for various parks and recreational facilities. The LOS goal is 2 acres of neighborhood parks and 2.1 acres of community parks per 1,000 population. Based on the existing inventory, the City is currently providing 1.3 acres of neighborhood parks and 1.4 acres of community parks per 1,000, which is around 70% of its goal. According to the City of Pasco's 2018-2038 Comprehensive Plan, Broadmoor area needs to accommodate approximately 22,000 people. To achieve the LOS goal for future population, the City will need approximately 44 acres of land for neighborhood parks and approximately 46 acres of land for community parks in the Broadmoor area. Currently, the Comprehensive Plan anticipates 40 acres of additional land needed for parks and recreational facilities. The federally owned property on the west side of the Broadmoor area contains approximately 61 acres of land.

Open space throughout the area shall be provided during the developments of the area to create a network of open space, parks, and bike and pedestrian trails. They will be in the form of neighborhood and community parks, street corner plazas, courtyards, trails, streetscape, greenbelts etc. To ensure equitable park access, the planning team uses a ¼-mile walking distance from park access points. A greenbelt is proposed along the current gravel mining operation site which is expected to be reclaimed after the operation ends in 2025. See Figure 33.

Deleted: The City is developing a Park, Recreation, and Open Space Plan that will assess the need for additional park land to serve the Broadmoor area.

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FIGURE 33: PARKS, TRAILS AND OPEN SPACE (PROPOSED)

5.11.1.5 UTILITIES

The City of Pasco current infrastructure provides potable water, reclaimed water, irrigation water, and treatment of wastewater (e.g., sanitary sewer and stormwater). The City of Pasco provides water and sewer services to the City's residents by operating a water filtration plant, a water distribution and storage system, and a wastewater collection system and treatment facility. Taxes, utility rates, fees, and grants provide the necessary resources to maintain operation of these facilities and, when necessary, expand infrastructure and facilities.

Existing infrastructure would need to be upgraded to meet increasing demands associated with projected population increases and associated development.

5.11.1.3.1 Domestic Water

The City of Pasco's most important utility service is to provide safe drinking water to its citizens. This includes ensuring the availability of the water to urban level residential, commercial, and industrial growth. Some of this water is used in fire suppression systems that help mitigate

structure fires. The City has an advanced storage and distribution system that includes two water treatment plants, pump stations and pipelines, and three water reservoirs. These systems currently serve the City limits and a portion of the UGA. (City of Pasco, 2020)

The City currently holds surface water rights for 13,269.25 acre-feet of annual withdrawal and 20,149 gallons per minute (gpm) (29 million gallons per day [MGD]) of instantaneous withdrawal from the McNary Pool of the Columbia River. As defined in the Comprehensive Water System Plan (CWSP), the City is currently in compliance with water right quantities by borrowing the surplus from the Quad Cities water right, at a current consumption of 14,424 acre-feet by volume and 18,456 gpm instantaneous. The City also holds individual groundwater rights sourced by various wells for separate irrigation purposes (City of Pasco, 2019).

The river water is treated in two treatment plants before supplying potable water to users:

- Butterfield Water Filtration Plant – capacity 26.8 MGD
- West Pasco Water Treatment Plant (WPWTP) – 6 MGD with capital improvements planned to expand system capacity to 18 MGD

The City of Pasco has been divided into three service zones for supplying water through their water distribution system. Service Zone 1 is located just south of I-182 and west of the railroad yard. Service Zone 2 is located to the east of the railroad yard, the southern portion of the airport and a strip south of I-182 between Service Zone 1 and Service Zone 3. Service Zone 3 is located approximately north of I-182 and includes most of the northern part of the city (City of Pasco, 2019).

The Butterfield Water Filtration Plant is the main domestic water supply provided by the City of Pasco. The water supply for the Butterfield Water Filtration Plant is from the Columbia River. This plant was built and placed in service in 1948 and is located at A Street and 12th Avenue in Pasco. The plant's maximum supply capacity is 26.8 MGD and the maximum treatment capacity is 34.2 MGD. The plant utilizes conventional filtration including coagulation, flocculation, sedimentation, and filtration. Chlorine gas is used as the primary disinfectant, and aluminum sulfide and polymer are used for coagulation. Improvements and upgrades are planned as part of capital projects as outlined in the Comprehensive Water System Plan (City of Pasco, 2019).

The WPWTP is located near West Court Street and I-182. The WPWTP was completed in phased construction that was initiated in 2009 and the plant went operational in 2011 (City of Pasco, 2019). This facility is a Pressure Membrane Direct Micro-Filtration Plant. The current capacity of the plant is 6 MGD and is designed for expansion up to 18 MGD in 6 MGD increments. The WPWTP is planned for further expansion to reach full treatment capacity of 18 MGD (USACE, 2014). Expansion and operation and maintenance of current water treatment and storage facilities is pertinent to meeting the water supply demands of continued development and increasing population. Table 19

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indicates the projected water treatment system demands for the City of Pasco based on the Comprehensive Water System Plan (City of Pasco, 2019).

TABLE 19. CITY OF PASCO PROJECTED WATER TREATMENT SYSTEM DEMANDS

Year	Projected Supply		Residential Consumption		Non-Residential Consumption		Other ^a
	(MG/yr)	(MGD)	(MG/yr)	(MGD)	(MG/yr)	(MGD)	
2014 ^{b,c}	4,598	12.6	2,484	6.8	1,952	5.3	162
2022 ^d	5,360	14.7	2,896	7.9	2,276	6.2	188
2027 ^d	6,092	16.7	3,291	9.0	2,586	7.1	214
2036 ^d	7,289	20.0	3,938	10.8	3,095	8.5	256

^a Distribution system leakage

^b Residential and non-residential consumption ratios were calculated from 2014 consumption data.

^c 2014 estimates were based on measured data.

^d Future projections were calculated using the 2014 ratios (residential/non-residential water use).

(Source: City of Pasco, 2019)

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Pump stations and booster stations supply the water system from the Butterfield Water Filtration Plant and WPWTP. The City of Pasco pump and booster stations include:

- Eastside Booster Station – 6 pumps, 100 Total Dynamic Head (TDH)
- Riverview Heights Booster Station – 5 pumps, 162 TDH
- Broadmoor Boulevard Booster Station – 3 pumps, 188 TDH
- Butterfield High Service Pumping Station – 5 pumps, 230 TDH
- WPWTP High Service Pumping Station – 2 pumps, 205 TDH
- Buren/Road 36 Booster Station – 2 pumps, 150 TDH
- Note: TDH based on Certified Performance Curve

The City of Pasco's water storage system consists of three reservoirs located throughout the water service area in addition to the storage capacity of the Butterfield Water Filtration Plant and the WPWTP (Figure 34). The three existing reservoirs are:

- Riverview Heights reservoir – 10 MG
- Road 68– 2.5 MG
- Broadmoor Boulevard reservoir – 1 MG

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Additional water storage reservoirs are being planned as part of capital improvement projects. The water distribution system consists of more than 330 miles of water main ranging in size ranging from 2-inch to 36-inch in diameter, 6 booster stations, and 20 pressure reducing valve (PRV) stations.



(Source: City of Pasco GIS, 2022)

FIGURE 34. BROADMOOR AREA MAJOR WATER SERVICE MAP

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The Broadmoor area will be served by the WPWTP and reservoirs at Broadmoor Boulevard and Harris Road. Portions of the Broadmoor area fall outside the areas currently serviced by the City's domestic water system. The City of Pasco domestic water supply lines and service will need to be expanded concurrent with development of the Broadmoor area associated with Alternatives 1 and 2. The existing domestic water treatment and collection systems will likely be able to support the increased demand associated with phased development in the short term. However, as the City of Pasco is projected to continue to grow in population and future development is planned, existing water treatment and collection systems will not be adequate to meet the increased demand over the long term. Planned capital projects such as expansion of the WPWTP and improvement of the Butterfield Water Filtration Plant will aid in meeting these increasing demands.

5.11.1.3.2 Sanitary Sewer

The City of Pasco owns and operates a wastewater collection and treatment system to facilitate domestic wastewater management for the community. The City's sewer system includes a gravity collection and conveyance system, a wastewater treatment plant, 14 sewer lift stations, and approximately 270 combined miles of gravity collection and force main pipes (City of Pasco, 2021). The Waste Water Treatment Plant was constructed in 1954, and was upgraded multiple times after that with the latest update occurring in 2016 and 2017. This system is operated under a NPDES

Permit issued by Ecology. The sewer service area policies are defined in Titles 03, 13, 14 and 16 of the PMC. Additionally, the City of Pasco's 2021 Comprehensive Sewer Plan Addendum (City of Pasco, 2021) analyzes the current wastewater collection and treatment system to determine deficiencies and plan for future capabilities to meet the needs of projected population growth. The current and proposed sewer facilities for the City of Pasco are shown in Figure 34. Based on the analysis of systems as part of the Comprehensive Sewer Plan, the following findings were identified:

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- The current collection system is in good condition and has the capacity to meet current and future needs with few system upgrades and improvements over the planning period.
- The current condition of the existing wastewater treatment plant is good. The plant continues to perform well and has the capability to expand current processes to meet future flow and regulatory requirements. A facility plan for upgrades and expansion of the facility is nearing completion with a series of improvements planned for the immediate future.
- The wastewater flows assessed for the planning period are within the current capacity of the wastewater treatment plant. However, 10-year planning period Peak Hour Flow (PHF) analysis indicates that significant gravity main capacity deficiencies are anticipated as a result of the projected 10-year and 20-year growth. This would need improvements.
- Expansion of the collection system in the Broadmoor area can be accommodated by the existing collection system and wastewater treatment plant to serve future service areas not currently served or developed.

The City of Pasco plans to provide sewer services to the areas that are currently not served. Through the local improvement district (LID) process, the City is able to provide sewer service to areas that currently do not have sewer services. Sewer service will also be expanded as necessary to accommodate new development, such as development under the alternatives for the Broadmoor area. The Broadmoor area is encompassed by the Broadmoor Boulevard Interceptor and North Court Street Area basins as shown in Figure 37 of the 2014 Comprehensive Sewer Plan (City of Pasco, 2014). Based on the analyses, the Broadmoor Boulevard Interceptor basin and North Court Street basin are projected to have increased population and flow over time. The current sewer collection system and wastewater treatment plant have the capacity to serve the Broadmoor area development under Alternatives 1 and 2, with minimal improvements or upgrades; however, sewer lines would need to be extended concurrent with development (City of Pasco, 2014; City of Pasco, 2007). Currently, sewer infrastructure is being extended to serve the southern portion of the Broadmoor area. Figure 35 indicates proposed extension of services in the Broadmoor area as of March 2022.

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FIGURE 35. BROADMOOR AREA PROPOSED SEWER SERVICE MAP

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Reclaimed water is supplied as part of the primary wastewater treatment plant completed in 1954. Since completion of the primary wastewater treatment plant, the City of Pasco has been actively discharging treated wastewater in the Columbia River watershed. The City's secondary-treated effluent wastewater is recycled into the Columbia River. This recycled water is used for multiple purposes such as domestic (public water supply), non-domestic (irrigation, industrial use, hydropower generation), and environmental (maintaining in-stream flows, fish habitat, etc.) (City of Pasco, 2019). This secondary-treated effluent discharge meets the standards as set forth in WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington. As stated in the City of Pasco's Comprehensive Sewer System Plan, "In compliance with Class A (Excellent) surface water criteria, the wastewater effluent from the treatment plant avoids any potential restrictions to downstream uses and avoids the high capital and operating costs associated with additional treatment, pumping, and transport needed to support direct reuse of treated effluent" (City of Pasco, 2014). Additionally, industrial wastewater from food processors is treated by land application in City-owned agricultural farm circles.

5.11.1.3.3 Irrigation Water

Non-potable irrigation water in the City of Pasco is provided by Franklin County Irrigation District (FCID) for properties along the I-182 corridor. The FCID provides irrigation water to approximately 7 square miles of land within the Pasco UGA. The FCID is a municipal corporation whose mission is to provide irrigation to farm fields and to urban areas and residential properties. The FCID irrigation water is supplied from the Columbia River by a series of pumps, lift stations, canals, and trunk lines. The FCID has ample water rights to serve future development. New subdivisions served by the FCID irrigation water must install irrigation lines, and subsequent FCID system expansion will be implemented concurrently with development.

The City's existing irrigation system is supplied by water from 11 groundwater wells and water pumped from the Columbia River and distributed via 135 miles of PVC, ductile iron, and steel distribution pipes ranging from 3 to 24 inches in diameter.

The City of Pasco irrigation system does not provide service to the majority of the Broadmoor area. Both the FCID and City's irrigation system could be extended to provide irrigation waters to the Broadmoor area. Domestic water and irrigation systems should be kept separate and expanded concurrently with developments. The City of Pasco Irrigation System Master Plan (2013) outlines recommendations for improvements to wells and the irrigation system and opportunities for further planning and study, which includes short-term and long-term improvements and planning for areas near or at the Broadmoor area. Also, because much of the land in the Broadmoor area is currently in agricultural use where irrigation is already provided via existing irrigation systems or private water wells, irrigation water is available to accommodate future development. Connection to the City's Water Utility from private water systems or wells may require transfer of the owners' water rights to the City if the owners' intent is to relinquish use of the private wells (City of Pasco, 2013; City of Pasco, 2007).

5.11.1.3.4 Stormwater

The City of Pasco manages stormwater runoff through a storm sewer system, catch basins, infiltration galleries, collection ponds, on-site collection and dissipation systems, and grassy swales along roadways. Older stormwater systems located in the southeastern portions of the City convey roadway runoff to outfalls. There is ongoing effort to retrofit those systems to on-site stormwater management systems and eliminate outfalls.

Currently and for the foreseeable future, the City of Pasco requires development to mitigate the effects of stormwater collection, which reduces the need for an extensive storm sewer system. All new developments and redevelopments are required to design and install stormwater systems that retain runoff on site for the established design storm event.

Development of the Broadmoor area for Alternatives 1 and 2 will require on-site management of stormwater collection. On-site stormwater collection should be implemented by project and may utilize on-site catch basins, infiltration galleries, collection ponds, on-site collection and dissipation system, grassy swales, or other acceptable methods, which function such that stormwater does not leave the project or development, function effectively, and avoid impacts to the Columbia River or native wetlands or riparian areas.

5.11.2 POTENTIAL IMPACTS

Development of the Broadmoor area based on Alternatives 1 and 2 will enable the City of Pasco to further accommodate a growing and projected City population. Planning, funding, and construction of utilities and public service facilities concurrent with development are crucial to meeting the demand of projected growth. Implementation of both Alternatives 1 and 2 will require additional public services and utilities infrastructure necessary to facilitate expansion of services to new development. The City of Pasco's population, UGA and utility service area, and flow demands are projected to increase in the next 20 years (City of Pasco, 2020).

Current emergency, fire, parks, and recreational services and facilities would need to be modified, expanded, and considered as part of development to meet the community's needs.

The City of Pasco's main water service distribution and transmission system has adequate capacity and pressure to provide for the required flows under existing and future conditions. In undeveloped and partially developed areas there is currently inadequate fire service and/or domestic water service. The current domestic water treatment facilities need to be expanded to meet future peak demands. These demands could be accommodated at the WPWTP. At this time, water quality is high without the need for additional treatment. The 2014 Comprehensive Sewer Plan and the 2021 Addendum for the City of Pasco recommend continued development of the water system mapping with associated hydraulic modeling and water usage demand information to better design and plan for future needs. Additionally, the 2019 Comprehensive Water System Plan outlines the planned future capital improvements to address other water system deficiencies. These capital improvements include upgrades and expansion of existing water treatment plants and water lines and piping, replacement of existing water lines, expansion of water storage through new reservoirs, and performance of various water studies (City of Pasco, 2019). The capital facilities and future service piping projects for the development of the Broadmoor area are shown in Table 20. This is provided only with available data, and the actual cost of the entire area is expected to be higher, different, and/or subject to change.

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TABLE 20. CITY OF PASCO WATER SYSTEM AND CAPITAL IMPROVEMENT PROJECTS

Capital Facilities	Estimated Cost (\$)
Water	
West Pasco Water Treatment Plant expansion – Phase 1 and 2 ¹	2,700,000

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Capital Facilities	Estimated Cost (\$)
West Pasco Water Treatment Plant expansion upgrade ¹	910,000
New Storage Reservoir: 3.5 MG - Zone 3 ¹	7,469,000
Water transmission line (Transmission Main from West Pasco Water Treatment Plant to Broadmoor area) - 24 in ²	3,221,000
Water transmission line (Transmission Main from West Pasco Water Treatment Plant to Broadmoor area) - 18 in ²	1,985,000
Backbone Transmission Main (12,16,24 inch) ²	6,961,000
	3,174,000
	4,832,000
Subtotal	31,252,000
Sewer	
West Broadmoor Sewer Main ³	6,116,000
West Broadmoor Lift Station ³	2,935,000
Sewer trunk line from Sandifur Parkway Extension to Desiree Street	4,598,000
Regional/Broadmoor Area Lift Station (includes the force main) ²	3,500,000
Gravity Sewer Main – Extension of Harris Rd Sewer ²	9,169,000
Gravity Sewer Main – Regional Lift Station Basin ²	
8 inch	5,315,000
12 inch	7,138,000
15 inch	6,167,000
Subtotal	44,938,000
Street, Park, and Fire Improvements	
Harris Road/Road 108 ⁴	9,909,450
Sandifur Parkway Extension from Broadmoor Boulevard to future Road 108 ⁴	7,363,350
Sandifur Parkway Extension from future Road 108 to future Dent Road ⁴	5,146,450
Broadmoor Boulevard improvements ⁴	2,676,300
Broadmoor Intersections ⁴	1,927,000
Future Buckingham Drive ⁴	4,804,900
Burns Road from Broadmoor Boulevard to future Road 108 ⁴	2,718,950
Burns Road from future Road 108 to future Dent Road ⁴	2,725,750
Harris Road extension and east west road between Harris Road and Road 108 ⁴	7,274,850
Subtotal	44,547,000
I-82 Loop Ramp ⁴	6,000,000
Parks ⁵	6,100,000
Fire Station ⁵	500,000

Capital Facilities	Estimated Cost (\$)
Subtotal	9,900,000
Total	143,237,000

Sources:

1. Pasco Comprehensive Water System Plan 2019
2. Technical memorandum from Murraysmith on November 18, 2019; updated January 6, 2020 – 6 year planning horizon; this includes an expanded study area outside of the Broadmoor boundary
3. City of Pasco 2021 Comprehensive Sewer Plan Addendum
4. Tax Increment Financing estimates from the City
5. Pasco CIP 2020- 2025

Funding for capital projects is obtained through utility rates and applicable grants and loans. Ecology issues grants and loans such as the Centennial Clean Water Fund Grant that helps with the costs of design, acquisition, construction, and improvement of water pollution control facilities and related activities. These grants and loans are to ensure that the water pollution control facilities meet state and federal requirements for the protection of water quality. Future funding for these grants and loans cannot be reliably forecasted.

Also, Ecology administers low-interest loans and loan guarantees such as a state revolving fund loan. These loans are used for wastewater pollution control projects and are available at low interest rates. The potential impact for the City of Pasco is whether they can show they have a water quality need, a facility plan for water quality treatment, and ability to repay a loan through a dedicated source of funding and conform to other state and federal requirements.

Property taxes and/or services and utility user fees implemented by the City government could be considered by voters with voter-approved initiatives or levies. Such voter-approved levies or property tax increases could aid in supporting operating costs and other expenses such as construction, maintenance, and operation of domestic water collection and treatment and other expanded utility services. Obtaining capital funding by such means is limited by voters who may not authorize additional fees or increase in existing fees or property taxes. The City is also assessing ways to finance projects with tax revenue, bonds, and TIF.

5.11.3 MITIGATION MEASURES

The City of Pasco could mitigate current public services and infrastructure limitations that may impact development associated with both alternatives by the following measures:

1. Use current capital funds to expand City infrastructure to bring services and utilities to sites of planned development in the Broadmoor area. This would enable developers to concurrently expand and provide services and utilities as part of planned development.
2. Expand and modify current emergency and fire services to address areas currently underserved to meet necessary response time requirements and services provided.

3. Promote the incorporation of neighborhood parks and recreational facilities and infrastructure as part of design and evaluation of proposed projects at the Broadmoor area.
4. Ensure equitable park access based on the current City standards of a ¼-mile walking distance from park access points.
5. Implement short and long term measures in the Army Corps land for park use, river access and trail connections.
6. Implement Broadmoor areawide bike and trail network and connect trail with the Sacajawea heritage trail.
7. Require various types of open space such as plazas, courtyards, landscaping etc. during developments.
8. Obtain grants or loans, or increase taxes and fees, or TIF financing to fund additional capital projects that provide the necessary resources to maintain current operation of existing water treatment facilities and expansion of the City's infrastructure.
9. Expand or make improvements to the existing domestic water treatment and distribution facilities. This will help with current and future demand as well as fire safety provisions. This could include further development of the WPWTP to expand the system's current capacity. Expansion of the WPWTP would also reduce the impact of the City's water dependency on a single water treatment plant.

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5.12 HISTORIC AND CULTURAL RESOURCES

This section describes existing historical and cultural resources for the Broadmoor area. Cultural sites within the area demonstrate previous systems of land use, including habitation, subsistence, and spirituality practiced by the region's Native peoples. Settlement in this area was sparse throughout the nineteenth century. During the early 1900s, Euro-American population increased, and farmers moved into Pasco and began irrigating the land, leading to increased farming.

Columbia Point South contains extensive amounts of historic artifacts. The southern part of the Broadmoor area is located directly opposite Columbia Point South and is culturally sensitive. This area contains sand dunes that are also culturally sensitive and are located along the Franklin bank of the Columbia River. Due to the proximity of the river, the fishing settlements, and the location of the sand dunes, it can be inferred that this area is culturally sensitive to the local Native Tribes such as the Yakama Indian Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and Wanapum.

5.12.1 AFFECTED ENVIRONMENT

Northwest Anthropology LLC (NWA) conducted a file and literature search for the Broadmoor area (see Appendix B). NWA reviewed the WISAARD database, Franklin County Historical Museum, historical maps, ethnographic sources, and local literature sources. A search of the WISAARD database was conducted to identify all sites within 1 mile of the Broadmoor area to better understand the types of sites that might be found within the Broadmoor area. Based on this review, no sites were identified directly within the Broadmoor area. Thirteen archaeological sites fall within a mile of the Broadmoor project boundary; some sites fall in Benton County, while others are in Franklin County. Eight of these sites are in the National Register of Historic Places (NRHP)-eligible Tri-Cities Archaeological District and Hanford South Archaeological District. One site within a mile of the Broadmoor area is in the Hanford South District. This district has never been selected as an eligible candidate for the NRHP but has not been recently updated in WISAARD, so its NRHP eligibility is unknown at this time.

The 13 sites within the 1-mile radius contain a combination of lithics, shell, burials, irrigation pipes, and one designated as a field camp. One historic site located within a mile of the Broadmoor area shows a history of farming, indicating a great deal of historic ground disturbing activity.

5.12.2 POTENTIAL IMPACTS

Generally, the potential for impacts to cultural resources is proportional to the intensity of development. The greater the horizontal and vertical extent of ground disturbance, the more likely that a development will impact archaeological materials, historic structures, or traditional cultural

properties. Several existing laws and regulations govern the identification and treatment of cultural resources. These include:

- Section 106 of the National Historic Preservation Act and its implementing regulations at 36 CFR 800, which apply to projects that are federally funded or approved.
- Governor's Executive Order 05-05, which applies to projects that use State of Washington capital funds.
- RCW 27.53 (Archaeological Sites and Records), which prohibits the unpermitted removal of archaeological materials and establishes a permitting process.
- RCW 27.44 (Indian Graves and Records), which describes how human remains must be treated.
- PMC Historic Preservation Title 20 regulates historic sites for "identification, evaluation, designation, and protection of designated historic and prehistoric resources."

Given these laws and regulations, it is likely that any impacts to significant cultural resources would have to be mitigated, in consultation with Native American Tribes and the Department of Archaeology and Historic Preservation (DAHP).

Archaeological or historical materials could be found within the Broadmoor area as part of development planned under both alternatives. Unrecorded archaeological sites could be affected in these areas.

5.12.3 MITIGATION MEASURES

1. Because the WISAARD predictive model indicates that the entire Broadmoor area ranges from High Risk to Very High Risk, an archaeological survey is advised due to the possibility that artifacts could be found. The City should comply with applicable laws and regulations regarding impacts to cultural resources. Section 106, Executive Order 05-05, and RCW 27.53, among others, require impacts to cultural resources to be mitigated. Mitigation is developed on a project-by-project basis, in consultation with Native American Tribes, DAHP, and other interested parties.
2. Furthermore, it is recommended that the City of Pasco prepare an Unanticipated Discovery Plan, with additional consideration for the disturbance of Native and European burials, and to begin notification and consultation efforts.

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APPENDICES

Appendix A: Natural Resources Conservation Service Hydric Rating for the Broadmoor Project Area

Appendix B: (Cultural and Historic Resources) A Literature Review of the 1,600-2,000 Acre Area in the Northwest Portion of Pasco for the Broadmoor Area Non-Project Environmental Impact Statement

Appendix C: City of Pasco Transportation System Master Plan (TSMP) Draft