
CHAPTER 7

ENVIRONMENTAL CONSIDERATIONS

INTRODUCTION

This chapter includes a discussion of potential environmental impacts, avoidance and mitigation activities at the policy and strategy level rather than from a project-specific level. This analysis is a specific requirement of the Fixing America's Surface Transportation Act (FAST Act), signed into law in 2015.

The chapter was developed in consultation with federal, state and tribal wildlife, land management, and regulatory agencies, as shown on Table 7.1.1 on the next page.

7.1 ENVIRONMENTAL CONSIDERATIONS IN PLANNING

It is appropriate to begin considering the environmental consequences of any policy, project, and/or program that address transportation deficiencies. However, such consideration is not expected to be at the same level of detail as may be required by the National Environmental Policy Act (NEPA). It is important to note that a NEPA process is required for any transportation project having a federal nexus. A project has a federal nexus if it involves federal funding, a federal permit or approval, use of federal lands, or a federal program.

EARLY CONSIDERATION OF ENVIRONMENTAL CONSEQUENCES

A common principle of environmental laws and regulations is a stepped process that focuses on:

- Avoiding impacts to resources;
- Minimizing those impacts that are unavoidable, and
- If impacts are not avoidable, mitigating for those impacts.

If these processes can be considered at a regional level, projects may be able to advance through required environmental processes more quickly than projects whose impacts must be evaluated and considered independently.

ENVIRONMENTAL IMPACTS

Environmental mitigation activities are defined in FAST Act as strategies, policies, programs, actions and activities that over time will serve to minimize or compensate for the impacts to or disruption of elements of the human and natural environment associated with the implementation of the Regional Transportation Plan (RTP).

FAST Act requires that metropolitan planning organizations, as part of the consultation process, discuss types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan. These activities should also be developed in consultation with Federal, State and tribal wildlife, land management and regulatory agencies (23 U.S.C. 134(i)(2)(D)).

To fulfill this requirement, a comparison of projects in the RTP to historic and environmentally-sensitive areas was conducted to determine the environmental impacts and potential mitigation activities that could be implemented in areas where a project intersects a resource area.

The FAST Act requires a discussion of potential mitigation activities for each environmental resource affected by the RTP. These activities will be considered if the project, at the time of implementation, would produce any affect on the environment.

This RTP includes projects that are expected to receive federal funds including regionally significant projects for air quality. In addition, other environmental laws and regulations are applicable to projects regardless of the funding source. This chapter will outline the applicability of those laws and regulations as related to expected funding.

Table 7.1.1: RTP Environmental Considerations Agency Consultation

State Agencies	Federal Agencies
OR Department of Environmental Quality (DEQ)	U.S. Department of Transportation, Federal Highway Administration (FHWA)
OR Department of Fish and Wildlife (ODFW)	U.S. Environmental Protection Agency (EPA)
OR Department of Land and Conservation (DLCD)	U.S. Army Corps of Engineers (USACE)
OR State Historic Preservation Office (SHPO)	U.S. Department of Commerce, National Marine Fisheries Service (NMFS)
OR Department Of State Lands (DSL)	U.S. Department of Transportation Federal Transit Administration (FTA)
OR Department of Transportation (ODOT)	U.S. Fish and Wildlife Service (USFWS)

INVENTORY AND MAPPING

The RVMPO inventoried historic and natural resources within the MPO planning boundary. This work was coordinated with the appropriate federal, state, tribal, wildlife, land management and regulatory agencies.

The RVMPO collaborated with partners to identify and obtain the most current, complete and accurate data possible from which to develop the inventory in this chapters. Data used in the project includes data used to develop the Rogue Basin

Partnership's (RBP) Action Plan, data collected by RVCOG as part of a National Academies Strategic Highway Research Program and other sources.

Data was incorporated into GIS to create the maps that illustrate important environmental areas. Inventory and resource data are included in the discussion sections of this chapter; all maps appear in numerical order at the end of the chapter.

Environmental Considerations Maps 7.1.1 through 7.1.7 provide information pertaining to:

- Prime Agricultural Soils, Orchards, and Vineyards
- Wetlands, floodplains, vernal pools and mitigation sites
- Ecologically Sensitive Areas
- Wildlife movements
- Animal collision hotspots and collision locations
- Impaired water bodies, fish-passage barriers (dams, culverts), ODFW priority barriers.
- Archeologically and historically sensitive areas

Details about the selected maps appear below, with more in depth discussion of issues surrounding environmental features in the sections that follow. Map pages begin on Page 7-23.

Prime Agricultural Soils, Orchards, and Vineyards, Map 7.1.1 – These are the RTP projects that are located on agricultural soils (irrigated soils classes 1-4). This soil information is derived from U. S. Department of Agriculture (USDA) soils data, which categorize soils into eight capability classes.

Wetlands, Floodplain and Vernal Pools, Map 7.1.2 – Illustrates those RTP projects that intersect the National Wetlands Inventory, Local Wetlands Inventories, Vernal Pools, and FEMA's Special Flood Hazard Areas.

Wildlife Movements, Map 7.1.3 – This map illustrates RTP projects that overlap with ODFW wildlife movement data, which are key movement areas for wildlife, emphasizing areas that cross paved roads.

Animal Collision Data, Map 7.1.4 – Animal and vehicle collision locations (data from ODFW 2016). The map shows the point locations of where documented animal and vehicle collisions occurred.

Fish Passage Barriers, Salmonid Habitat, Total Maximum Daily Load (TMDL), Water Quality Limited Streams, Map 7.1.5(a) – Identifies fish passage barriers from ODEF. Salmonid habitat (Department of State Lands), and TMDL approved streams (water quality limited streams, DEQ).

Priority Fish Passage Barriers, Map 7.1.5(b) – This map identifies ODFW’s updated priority fish passage barriers for the MPO.

Archeologically Sensitive Areas, Map 7.1.6 – The National Parks Service National Register of Historic Places and the Medford, Ashland and Jacksonville National Historic Districts are mapped with the RTP projects. In addition, archeologically sensitive areas identified in the region are mapped with RTP projects. The sensitive areas were created by Archaeologist Jeff LaLande for the Transportation Research Board (TRB)/National Academies project in 2010, with funding provided by the National Academies and ODOT.

The RTP projects that intersect the archeologically sensitive areas have a greater potential likelihood for containing possibly significant archaeological resources than do other portions of the valley floor.

USE OF ENVIRONMENTAL INFORMATION

Environmental information is typically collected and analyzed in the transportation planning process. The RVMPO maintains a GIS geodatabase of environmental data that can be used to identify and document potentially affected environmental resources. This information can then be used to identify opportunities to avoid or minimize environmental impacts of any alternative transportation solutions being considered, modify alternatives being considered, or potentially eliminate alternatives with unacceptable or greater environmental consequences.

In addition, the RVMPO and RVCOG have actively worked on projects to identify locations of ecological and historical significance, and overlay the information with planned transportation projects.

Documentation – Environmental information and/or analyses used in the planning process, and environmental impact avoidance or minimization actions taken, should be thoroughly documented. This will allow information to be used again, or incorporated as evidence of mitigation, resulting in effective and expedited environmental review.

Evaluation of Impacts - The evaluation of the impacts a roadway project has on natural areas and historic resources shall take into account (in accordance with 23 CFR Part 777.7):

1. The importance of the impacted wetlands and natural habitats
2. The extent of roadway impacts on the wetlands and natural habitats
3. Actions necessary to comply with the Clean Water Act, Section 404; the Endangered Species Act of 1973; and other relevant Federal statutes (e.g., TMDLs, National Pollutant Discharge Elimination System (NPDES) Stormwater Phase II)

4. Evaluation of the importance of the impacted wetlands and natural habitats shall consider:
 - a. Wetland and natural habitat functional capacity
 - b. Relative importance of these functions to the total wetland or natural habitat resource of the area
 - c. Other factors such as uniqueness, aesthetics, or cultural values; and
 - d. Input from the appropriate resource management agencies through interagency coordination.
5. A determination of the highway impact should focus on both the short and long-term effects of the project on wetland or natural habitat functional capacity.

AVOIDANCE, MINIMIZATION, MITIGATION

The RVMPO, utilizing GIS, species accounts, soil types and other relevant data, seeks to avoid environmental impacts. Where impacts cannot be avoided, efforts will be made to minimize impacts. Any remaining impacts will then be mitigated. Additionally, the RVMPO works with other agencies to provide greater benefits to the environment regionally. Additional discussion of avoidance, minimization and mitigation appears in subsequent sections addressing specific resources.

The Rogue Valley Council of Governments has a Natural Resource Department that coordinates and facilitates resource projects within the region. Subsequently, this internal knowledge of natural resources, combined with regional collaboration, will lead to improved avoidance measures and natural resource mitigation activities.

Where impacts cannot be avoided, minimization and mitigation is the attempt to offset potential adverse effects of human activity on the environment. Mitigation is the last step of the avoidance and minimization process. The National Environmental Policy Act regulations define mitigation (40 CFR 1508.20) as follows:

1. Avoiding adverse impacts by not taking an action.
2. Minimizing impacts by limiting the degree of action.
3. Rectifying by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating impacts over time through preservation and maintenance activities.
5. Compensating for an impact by replacing or providing substitute resources or environments. In most mitigation agreements, more of a resource or habitat must be provided than was originally present. Ratios greater than 1:1 are required in part to compensate for unrealized losses and the inability of technology to completely restore the natural environment.

WETLANDS AND NATURAL HABITATS

The RVMPO encourages progressive approaches to wetlands and natural habitat mitigation. These approaches include the development of conservation and mitigation banking agreements or the purchase of intact natural areas. Conservation and mitigation banks differ to some degree. A mitigation bank could refer to mitigation of any habitat, although they are typically referring to wetland mitigation per federal guidance for Compensatory Mitigation for Losses of Aquatic Resources, Federal Register / Volume 73, Number 70, Thursday, April 10, 2008 / Rules and Regulations, Army Corps of Engineers (COR), 33 CFR Parts 325 & 332, Environmental Protection Agency (EPA), 40 CFR Part 230.

Whereas conservation banks are oriented toward endangered, threatened and other at-risk species; habitats are selected and managed based upon the needs of those specific species. Roadway projects are linear, often resulting in many small, incremental impacts. Subsequently, on-site mitigation sometimes results in isolated wetlands and natural habitat that might not provide benefits commensurate with costs and time required to establish wetland and natural habitat functions. Wetland or habitat banks have the ability to provide more wetland or habitat values and benefits per acre; consequently, the increased habitat benefits result in greater benefits to fauna, and often result in increased biodiversity. It is noteworthy that the mitigation area needs to receive sufficient management to ensure their functions will be sustained in perpetuity. In some cases it may be mutually beneficial, both in preserving the environment and creating an effective transportation system, to preserve the same or similar habitats in relatively close proximity to the habitats being impacted. The RVMPO recognizes that the Rogue Valley provides valuable habitat along the Pacific flyway, one of four flyways nationwide for migratory birds. Therefore, the RVMPO will strive to lessen impacts to habitats upon which species are dependent.

Additionally, efforts will be made to establish and maintain regional collaboration, both in identifying potential mitigation areas and ensuring their management in perpetuity.

Reducing Impacts – There are a number of actions that can be taken to minimize the impact of roadway projects on wetlands or natural habitats (23 CFR Part 777.9).

- Avoidance and minimization of impacts to wetlands or natural habitats through realignment and special design, construction features, or other measures.
- Compensatory mitigation alternatives, either inside or outside of the right-of-way. This includes, but is not limited to, such measures as on-site mitigation, when that alternative is determined to be the preferred approach by the appropriate regulatory agency; improvement of existing degraded or historic wetlands or natural habitats through restoration or enhancement on or off site; creation of new wetlands; and under certain circumstances, preservation of existing wetlands or natural habitats on or off site. Restoration of wetlands is generally preferable to enhancement or creation of new wetlands.
- Improvements to existing wetlands or natural habitats. Such activities may include, but are not limited to, construction or modification of water level

control structures or ditches, establishment of natural vegetation, re-contouring of a site, installation or removal of irrigation, drainage, or other water distribution systems, integrated pest management, installation of fencing, monitoring, and other measures to protect, enhance, or restore the wetland or natural habitat character of a site.

- Mitigation Banks- The RVMPO encourages the use of mitigation banks, or other habitat preservation measures, to offset habitat impacts. Banks will be approved in accordance with the Federal Guidance for Compensatory Mitigation for Losses of Aquatic Resources, Federal Register / Volume 73, Number 70, Thursday, April 10, 2008 / Rules and Regulations, Army Corps of Engineers (COR), 33 CFR Parts 325 & 332, Environmental Protection Agency (EPA), 40 CFR Part 230, or other agreement between appropriate agencies. Where feasible, the MPO will attempt to collectively conserve habitat areas that provide greater environmental benefits. Mitigation and conservation areas are shown on Map 7.1.6(a).

MITIGATION BANK AREAS IN THE RVMPO

FAST Act requires MPOs to provide a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities. This section of the chapter provides an overview of the potential areas to carry out mitigation activities.

Wildlands Rogue Valley Vernal Pool



Wildlands Rogue Valley Vernal Pool Bank – A private vernal pool mitigation bank was developed near Eagle Point and approved in 2012. Wildlands, Inc. discussed conservation easement options with Southern Oregon Land Conservancy (SOLC) and private landowners in the area as part of the development. Phase One of bank is 131 acres. Later phases will be developed adding approximately 110 acres.

ODOT Vernal Pool Bank – Oregon Department of Transportation (ODOT) has a vernal pool / wetland mitigation bank near Central Point which is used for ODOT projects. ODOT began an extensive search for prospective vernal pool complex bank sites in 2005. Several prospective sites were viewed in the field by staff from ODOT, the U.S. Fish and Wildlife Service (USFWS), the Oregon Department of Fish and Wildlife

(ODFW), the U.S. Army Corps of Engineers (Corps), the Oregon Department of State Lands (DSL), the Oregon Department of Environmental Quality (DEQ), the National Marine Fisheries Service (NMFS), and the U.S. Environmental Protection Agency (EPA).

Preference for the selected site was supported by all agencies based on the presence of a large parcel of high quality vernal pool complex habitat and the adjacent The Nature Conservancy (TNC) Whetstone Preserve, which contributes to the sustainability and viability of the Bank site.

The ODOT Bank is located near the intersection of Newland and Truax Roads, in White City, Jackson County, Oregon (Map 7.1.6(a)). Originally the Bank consisted of the two parcels that comprise 80.23 acres and located west of and directly adjacent to the Nature Conservancy's Whetstone Savanna Preserve (a registered Oregon Natural Heritage Resource) and are of similar character. In 2014, ODOT completed the purchase of four additional parcels (116 acres) adjacent and to the west and north of the original Bank parcels to serve as Individual Permittee Responsible Mitigation for ODOT's Highway 62: Interstate 5 to Dutton Road Project.

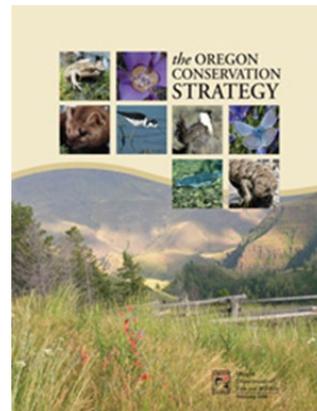
The adjacent preserve's acreage is approximately 116 acres of which roughly 13 acres is high functioning. The remaining 100 plus acres will be enhanced and restored to high functioning habitat. In 2014, approximately 14 acres of the property was restored, with additional phases of restoration slated for 2015 through 2017. Cumulatively, upon completion of restoration activities, approximately 196 acres of contiguous high functioning vernal pool complex will be protected and under management to sustain wetland functions and values.

WILDLIFE HABITAT

The Oregon Department of Fish and Wildlife's (ODFW) follows a conservation strategy that focuses on habitat restoration and maintenance to address the needs of game and nongame species.

The strategy highlights specific actions that can conserve Oregon's fish and wildlife when the chances of success are greatest before they become sensitive or endangered.

Cover of The Oregon Conservation Strategy guide



The strategy provides information about species and habitats in every region in Oregon and the issues affecting their present and future health. This information is included in the RTP for the purposes of:

- Landowners and land managers who want to improve conditions for at-risk wildlife;
- Agencies and organizations interested in making conservation investments more effective and efficient; and
- Oregonians who want a better understanding of the conservation issues of concern in their area.

The link below offers more information on the ODFW Conservation Strategy for Oregon:

http://www.dfw.state.or.us/conservationstrategy/read_the_strategy.asp

Conservation Strategy for Oregon – Klamath Mountains Ecoregion – The RVMPO is situated within the Klamath Mountains ecoregion which covers much of southwestern Oregon, including the Umpqua Mountains, Siskiyou Mountains and interior valleys and foothills between these and the Cascade Range. Several popular and scenic rivers run through the ecoregion, including: the Umpqua, Rogue, Illinois, and Applegate. Within the ecoregion, there are wide ranges in elevation, topography, geology, and climate. The elevation ranges from about 600 to more than 7400 feet, from steep mountains and canyons to gentle foothills and flat valley bottoms. This variation along with the varied marine influence support a climate that ranges from the lush, rainy western portion of the ecoregion to the dry, warmer interior valleys and cold, snowy mountains.

The Klamath Mountains ecoregion boasts a high rate of species diversity, including many species found only locally. In fact, the Klamath-Siskiyou region was included in the World Wildlife Fund's assessment of the 200 locations most important for species diversity world-wide. The region is particularly rich in plant species, including many pockets of endemic communities and some of the most diverse plant communities in the world. For example, there are more kinds of cone-bearing trees found in the Klamath Mountains ecoregion than anywhere else in North America. In all, there are about 4,000 native plants in Oregon, and about half of these are found in the Klamath Mountains ecoregion.

The ecoregion is noted as an Area of Global Botanical Significance (one of only seven in North America) and world "Centre of Plant Diversity" by the World Conservation Union. The ecoregion boasts many unique invertebrates, although many of these are not as well studied as their plant counterparts.

For more information on the Klamath Mountains Ecoregion click on the link below:

<http://www.dfw.state.or.us/conservationstrategy/docs/ecoregions/KlamathMtnsEcoSheet.pdf>

HABITAT CONSERVATION OPPORTUNITIES

Conservation Opportunity Areas (COAs) are landscapes where broad fish and wildlife conservation goals would be best met. COAs were developed to guide voluntary, non-regulatory actions. There are three (3) COAs located within the RVMPO planning area. They are described below.

North Medford Area – This unique area provides important habitat for species living at lower elevations (valley) and includes the Denman Wildlife Area, Upper and Lower Table Rocks, Agate Desert Preserve, and the Whetstone Savannah Preserve.

This area contains many endemic, rare plants and is important for migrating and nesting waterfowl.

Key habitats are: aquatic; grasslands and oak savanna; riparian; and wetlands.

Key species are: horned lark; purple Martin; upland birds; waterfowl; Coho salmon; fall Chinook salmon; summer and winter steelhead; fairy shrimp;

Identified in other planning efforts:

- Oregon Biodiversity Project Conservation Opportunity Areas
- Oregon's Important Bird Areas (Denman WA, Table Rocks, Whetstone Savanna)
- The Nature Conservancy Ecoregional Assessment

Antelope Creek Area – This area encompasses the foothills east of Medford. The low elevation site provides a diversity of habitats for both terrestrial and aquatic species.

Key species are: fall Chinook salmon; winter steelhead; common king snake.

This area has been identified in other planning efforts including:

- American Fisheries Society Aquatic Diversity Areas
- Oregon Biodiversity Project Conservation Opportunity Areas
- The Nature Conservancy Ecoregional Assessment
- The Oregon Plan Core Salmon Areas

Siskiyou Crest-Soda Mountain – Located on the edge of three ecoregions, The Cascade-Siskiyou National Monument within this opportunity area was established for its "spectacular biological diversity."

The area provides habitat for a large number of species on the edge of their range, forming rare communities and species interactions.

Key habitats are: aquatic; grasslands and oak savanna; late successional mixed conifer forests; pine-oak woodlands; and wetlands. Recommended conservation action calls for working to restore fire regime to historical and natural range of variation.

Key species are: Siskiyou Mountains salamander; blue-gray gnatcatcher; great gray owl; northern spotted owl; willow flycatcher; Jenny Creek sucker; and fisher.

Identified in other planning efforts:

- American Fisheries Society Aquatic Diversity Areas
- Oregon's Important Bird Areas (Siskiyou Peak, Cascade-Siskiyou National Monument)
- The Nature Conservancy Eco-regional Assessment (Siskiyou Crest site, Soda Mountain site)

BARRIERS TO WILDLIFE MOVEMENT

Barriers to fish and wildlife movement are a key conservation issue for the RVMPO. Roads, dams and other structures act as barriers to the movement of fish and wildlife. These barriers reduce total habitat, create challenges to animal dispersal and reproduction and make wildlife more vulnerable to injury and death.

ODFW is working with the Oregon Department of Transportation, county transportation departments, and other partners to identify and reduce fish passage barriers and areas where wildlife mortality on highways occurs. ODFW's fish passage rules can be found here: <http://www.dfw.state.or.us/fish/passage/> (OAR Chapter 635 Division 412).

Example of wildlife passageway under a highway in North Dakota



ODFW notes that stream crossing designs must meet fish passage criteria in order to provide fish passage for Oregon's native migratory fish species. Barriers to migration are a big challenge to recovery for the fish species in Bear Creek. Numerous tributaries have significant barriers near their confluence with Bear Creek. Restoration of native fish populations will lag if fish are not able to utilize the habitat available in the watershed, including urban stream areas.

During a project near a stream, it may be possible to utilize equipment and personnel to do smaller scale restoration projects on the nearby waterbody, such as adding some minor retrofits to improve fish passage. This can be scoped with ODFW pre-project.

ODOT is a partner in the Oregon Wildlife Movement Strategy, which is an interagency partnership to inventory and prioritize wildlife movement barriers on the state highway system. ODOT's Geo-Environmental Section is developing a Wildlife Collision Prevention Plan that addresses Federal Highway Administration and Oregon Department of Fish and Wildlife concerns for animal-vehicle collisions on the state highway system.

The effects of roads on wildlife can be mitigated through the design and construction of underpasses and overcrossings. For more information on wildlife and roads, click on the link below:

<http://www.wildlifeandroads.org/decisionguide/>

ADDRESSING IMPAIRED WATER RESOURCES

The Rogue Valley, like many regions in the United States, has experienced development and modification of the natural landscape. Subsequently, modifications of the natural landscape have led to water resource impacts. Surface waters and associated vegetation have been altered, leaving bodies of water with impairments, including increased temperatures, elevated levels of bacteria, and decreased dissolved oxygen levels and other concerns.

As a result of combined impairments to water bodies across the nation, the Clean Water Act was established, including a system for identifying and working to repair impaired water bodies. The system for identifying impaired water bodies is known as the 303(d) list and requires states to identify impaired waters within their state. The list identifies both the body of water and what impairments it has. The states are then required to prioritize their impaired water bodies and develop action plans, known as total maximum daily loads (TMDLs), to improve water quality of the listed systems.

TMDLs for the streams within the RVMPO (Bear Creek and Rogue River Basins) that meet the requirements of Section 303(d) of the Federal 1972 Clear Water Act have been approved.

Table 7.1.2: Rogue River Basin Streams Located within the Rogue Valley MPO with Approved TMDL Plans

Stream Segments (All listed streams are by river mile (RM), unless otherwise stated)	Parameters Covered in 2008 TMDL		
	Bacteria		Temperature
	E. coli	Fecal Coliform	
Antelope Creek (RM: 0 to 19.7)	S, FWS		S
Lake Creek (RM: 0 to 7.8)	S, FWS		S
Little Butte Creek (RM: 0 to 16.7)	S, FWS	S, FWS	S
Nichols Branch (RM: 0 to 2.7)	S, FWS		
North Fork Little Butte Creek (RM: 0 to 6.5)	FWS		S
South Fork Little Butte Creek (RM: 0 to 16.4)	S		S

Key: S=summer, FWS=fall/winter/spring

Source: Rogue Basin TMDL, ODEQ, Dec. 22, 2008

Table 7.2.3: Bear Creek Basin Streams within the RVMPO with Approved TMDL Plans

Stream Segments (All listed streams are from mouth to headwaters, unless otherwise stated)	Parameters Covered in 2007 TMDL					Parameters Covered in 1992 TMDL					
	Bacteria	Temperature	Sediments	Flow	Habitat	DO	Nutrient [P]	pH	Toxics	Chlorophyll(a)	Periphyton
Ashland Creek (Mouth to Ashland City)	Y										
Ashland Creek (Mouth to Ashland STP)							I		I		
Baldy Creek		S									
Bear Creek (Mouth to Neil Creek)	Y	S		*	*	Y	I	Y	I	S	Y
Butler Creek	FWS	S									
Carter Creek		S									
Coleman Creek	Y	S									
Crooked Creek	Y	S									
Emigrant Creek (mouth to dam)		S						Y			
Emigrant Crk (dam to Green Mtn. Crk)		S									
Griffin Creek	Y	S									
Hobart Creek		S									
Jackson Creek	Y	S									
Larson Creek	Y	S									
Lazy Creek	Y										
Lone Pine Creek		S									
Meyer Creek	Y	S									
Neil Creek (mouth to I-5)		S									
Payne Creek	Y										
Reeder Reservoir			Y								Y
Tyler Creek		S									
Walker Creek		S									
Wagner Crk (Horn Gulch to headwaters)		S									

Map 7.1.6(a) illustrates TMDL water bodies and dams; Tables 7.1.2 and 7.1.3 list TMDL stream segments within the RVMPO (Bear Creek and Rogue River Basins) along with their identified impairments. See Table 7.1.4 for a list of fish, wildlife and plant species including their status at the local, state or federal levels. (For example, State Species of Concern or Federally Threatened.)

STORMWATER MONITORING AND MANAGEMENT

Stormwater is the flow of water created by impermeable surfaces, such as roads, highways, bridges, sidewalks and parking lots. There are additional forms of development that contribute to stormwater runoff, such as commercial and residential buildings. Ultimately, the combinations of these impervious surfaces prevent water from infiltrating and percolating through the soils and into the groundwater (groundwater recharge). Consequently, water that used to be available through groundwater, as well as seeps, which may be needed by streams and other surface waters during the summer months may no longer be available. Therefore, a variety of interrelated impacts can occur.

A consequence of decreasing groundwater is a decrease in the amount of water available to surface waters, such as through seeps or springs. Typically during the warmer months when water levels are lower, seeps may be needed to augment stream flows in order to prevent surface waters (e.g., streams) from becoming shallow and warmer. Surface waters that do not receive appropriate inflow from seeps or springs may not properly function. Subsequently, the lower volumes of surface water lead to temperature increases which result in changes to aquatic and terrestrial species.

Impervious surfaces also lead to increased flows during months with high precipitation. Precipitation runs off and flows downhill (path of least resistance), and ends up in a receiving water body. It is noteworthy that increased runoff causes increased flow rates (seasonal peaks) which in turn cause scour and erosion, often resulting in modifications to the shape of the stream channel. For example, months with a lot of rain create peak flows in stream systems from the increased water being conveyed to them as a result of an increase in impervious surfaces. Consequently, stream channels can scour and banks can erode resulting in the channel being altered and subsequent changes to habitats and composition of species.

As stormwater runoff flows over ground surfaces, it can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm drain untreated is discharged into the water bodies. Pollutants commonly found in stormwater include nutrients (nitrogen and phosphorus), oil, bacteria, fertilizers, and metals (e.g., copper, lead, and zinc from automobile brake pads).

Impacts to aquatic and terrestrial habitats and associated fish and wildlife can result from roads and other impervious surfaces. Erosion and scour that changes a stream channel will modify flow, vegetation and temperature, and subsequently favor species adapted to the newly created conditions. In addition, pollutants draining from roads and parking lots can contribute to impaired water quality and degraded wildlife habitat. In relation to fish and aquatic species, these pollutants are a source of potent adverse effects to the biotic ecosystem, even at ambient levels. They are known to accumulate in the prey and tissues of juvenile salmon where they cause a variety of lethal and sub lethal effects including disrupted behavior, reduced olfactory function, immune suppression, reduced growth, disrupted smoltification, hormone disruption, disrupted reproduction, cellular damage, and physical and developmental abnormalities (National Oceanic and Atmospheric Administration (NOAA) Fisheries 2015). Therefore, care in the design of the transportation system is important. Stormwater discharge is

regulated under the Clean Water Act, Section 402. Projects will need to meet requirements of any local programs (e.g., NPDES Phase II) and design manuals (e.g. Rogue Valley Stormwater Water Quality Design Manual).

HISTORIC AND ARCHEOLOGICAL CONSIDERATIONS

Protection of historic and archeological resources must be considered as part of the decision-making process for transportation projects. Map 7.1.7 illustrates and provides additional information regarding national historic sites, districts and roads.

Numerous laws and regulations call for preservation and/or enhancement of cultural resources. These include the Department of Transportation (DOT) Act of 1966, the Federal-Aid Highway Act of 1968, the National Environmental Policy Act of 1969, the National Historic Preservation Act of 1966, the Archeological Resource Protection Act of 1979 and the Surface Transportation and Uniform Relocation Assistance Act of 1987. In addition, regulations by the Council on Environmental Quality (40 CFR, Part 1500-1508) and the Advisory Council on Historic Preservation (ACHP) (36 CFR, Part 800) have been promulgated to assure that effects on historic properties are considered in the development of federal undertakings. Historic properties are any historic district, site, building, structure or object included in, or eligible for inclusion in, the National Register of Historic Places.

Transportation officials are required to make a good faith effort to identify historic properties that may be affected by a transportation project. A discussion of the effects on historic properties must be included in the environmental documentation. This discussion is to be commensurate with the importance of the historic properties as well as the magnitude of the project's impacts on those properties.

The primary provisions related to historic preservation for transportation projects are Section 106 of the National Historic Preservation Act and Section 4(f) of the DOT Act. These provisions are applicable to actions that require federal approval or are undertaken with federal funds.

Section 106 of the [National Historic Preservation Act of 1966 \(NHPA\)](#) as amended through 2000 requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on the undertaking. The historic preservation review and consultation process mandated by Section 106 is outlined in regulations issued by ACHP. Revised regulations, "[Protection of Historic Properties](#)" (36 CFR Part 800), became effective January 11, 2001 and were further amended in August 2004.

Federal agencies are responsible for initiating Section 106 review, most of which takes place between the agency and state and tribal officials. Appointed by the governor, the State Historic Preservation Officer (SHPO) coordinates the state's historic preservation program and consults with agencies during Section 106 review. Agencies also consult with officials of federally recognized Indian tribes when tribal lands or historic properties of significance to such tribes are involved. Some tribes have

officially designated Tribal Historic Preservation Officers (THPOs), who function as a SHPO on tribal lands, while others designate representatives to consult with agencies as needed.

At this time, none of the Tribes in the Region have a THPO. The MPO will consult with the Confederated Tribes of Grande Ronde; Confederated Tribes of Siletz; and Cow Creek Band of Umpqua Indians for each Regional Transportation Plan update. The appropriate Tribe to consult will be determined based upon historic and current information provided.

According to the Advisory Council on Historic Preservation, Section 106 review and consultation requires federal agencies to do the following:

- Determine if Section 106 of the NHPA applies to a given project and, if so, initiate consultation;
- Gather information to decide which properties in the project area are listed in or eligible for the National Register Historic Places;
- Determine how historic properties might be affected;
- Explore alternatives to avoid or reduce harm to historic properties; and
- Reach agreement with the SHPO/THPO (and the ACHP in some cases) on measures to resolve any adverse effects to historic properties.

Another protection to park and wildlife areas is provided by Section 4(f) of the U.S. Department of Transportation Act of 1966. This environmental regulation applies to projects that receive Department of Transportation (FHWA or FTA) funds. Section 4(f) (recodified in [49 USC 303](#), but still known as Section 4(f)) includes provisions prohibiting federal transportation agencies from using land from a significant publicly owned park, recreation area, wildlife or waterfowl refuge, or any land from an historic site of national, state, or local significance unless:

- There is no feasible and prudent alternative to the use of land, and
- The action includes all possible planning to minimize harm to the property resulting from use.

In assessing the environmental effects of an action through the [National Environmental Policy Act process](#), FHWA includes an evaluation of the use of land protected under Section 4(f). The environmental regulations for applying Section 4(f) to transportation project development can be found at [23 CFR 771.135](#). For other detailed guidance on applying the requirements of Section 4(f), the FHWA wrote the [Section 4\(f\) Policy Paper](#), which discusses such topics as the history of Section 4(f), alternatives analysis, mitigation, and how Section 4(f) relates to other statutes and regulations which protect the same types of resources, including Section 106 of the National Historic Preservation Act.

In order for FHWA field offices to make key determinations on projects having minor impacts or a net benefit on areas protected by Section 4(f), the agency issued several [Nationwide Section 4\(f\) Programmatic Statements](#). Section 4(f) is considered by the preservation community to be one of the most effective tools in the protection of historic properties. But its stringent standards and interpretations by various court rulings have had the transportation community seeking revisions to provide more flexibility in implementing the law.

Additional information on archaeologically sensitive areas is provided on Map 7.1.7. This data was compiled by Archaeologist Jeff LaLande, with funding provided by the National Academies and ODOT.

The Archaeologically Sensitive Areas (Native American) layer is based on the Jeff LaLande's >40 years of local experience and current knowledge relative to which Bear Creek Valley terrain types (i.e., within the area located below about the 2,000-foot elevational contour) would have a greater potential likelihood for containing *possibly significant Native archaeological resources* than do other portions of the valley floor. Examples of significant resources would include winter villages and major seasonal camps.

Note: As compiled in December 2011, this map layer does not yet reference valley-bottom sites that may have been recorded since 1990 in the Oregon State Historic Preservation Office's archaeological-site database.

The Early Settlement Archaeologically Sensitivity Areas reflect the compiler's: (1) current knowledge of those urbanized areas (or locations of former major mining camps) where relatively intact/potentially significant early-historic archaeological deposits may yet remain, as well as: (2) results from the compiler's 2011 review of Jackson County's initial (1854) U.S. General Land Office (GLO) township-survey plats that give the approximate locations of *selected* original Donation Land Claim (DLC) settlers' cabins and farmhouses in the valley bottom.

Note: The selection of DLC sites was based on the compiler's best [not-field-checked] judgment as to just which of the various 1854-mapped structural sites would have a comparatively higher likelihood of still containing intact historic-period archaeological deposits than would other mapped DLC locations. (The locations of the selected cabin sites are approximate at best; if future transportation development or other projects were to be planned for such locations, a qualified land surveyor should consult the original GLO survey notes in an attempt to pinpoint a more accurate location.)

7.2 Environmental Justice

Environmental Justice encompasses three fundamental principles, listed in the adjacent box. These principles work to identify and appropriately address disproportionately high and adverse health or environmental effects on minority and low-income populations. Environmental Justice stems from Title VI of the Civil Rights Act of 1964 and Executive Order 12898 of 1994. The latter, Executive Order 12898, states that federal agencies incorporate achieving Environmental Justice into their missions. RVMPO maintains a separate Title VI & Environmental Justice Plan.

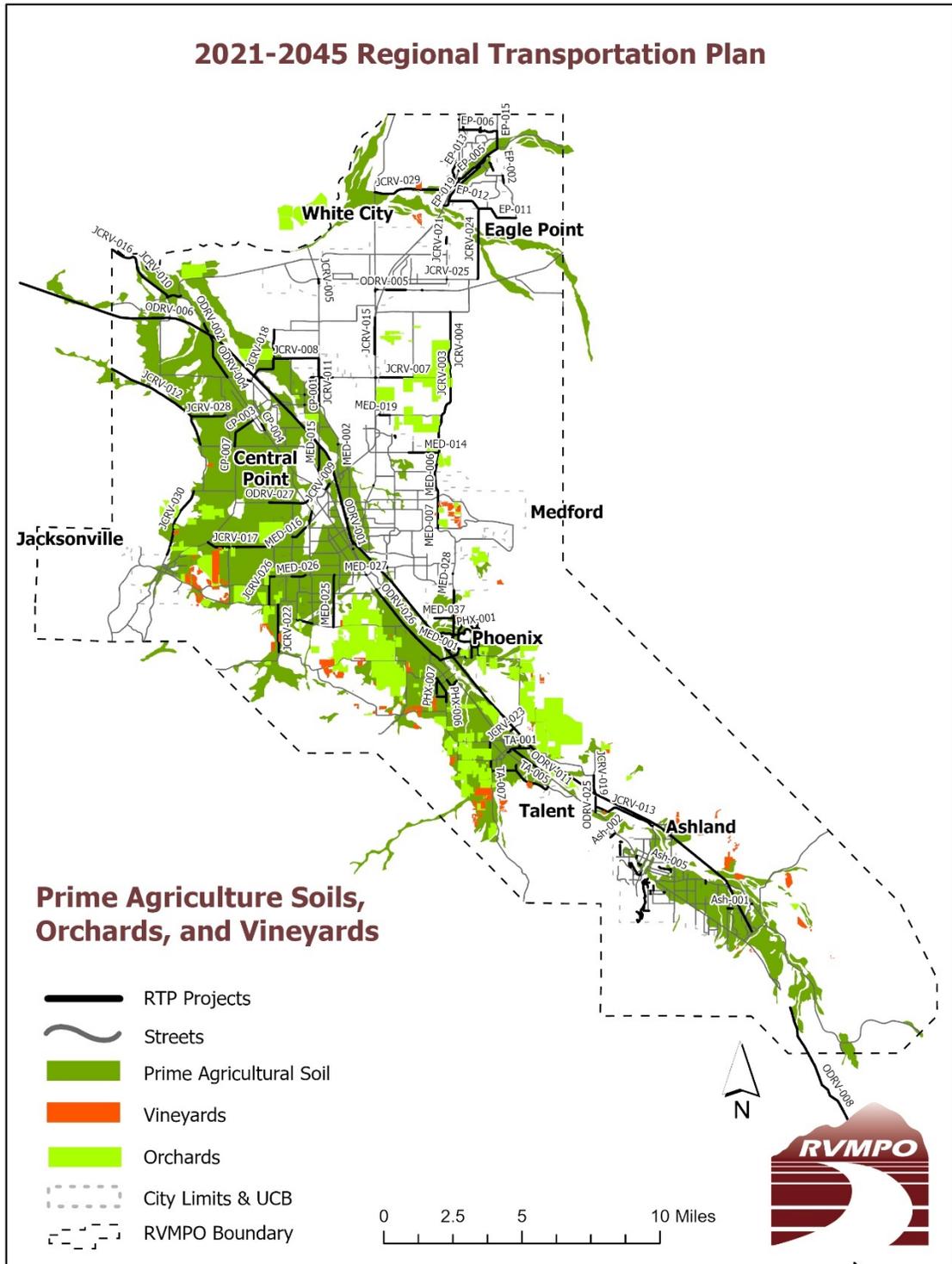
One of the RVMPO Regional Transportation Plan Environmental Justice goals is to achieve equal protection from environmental and health hazards and equal access to decision-making for all citizens of the Rogue Valley in an effort to promote quality of life.

Environmental Justice principles are addressed through policy, as well as through actions by the RVMPO to promote equality including criteria in the project selection process as described in *Chapter 8 Plan Implementation*. Through constant and consistent assessment the RVMPO will work to assure Environmental Justice – such as the recently completed Environmental Justice-related study, the RVMPO Transportation Needs Assessment for Traditionally Underserved Populations.

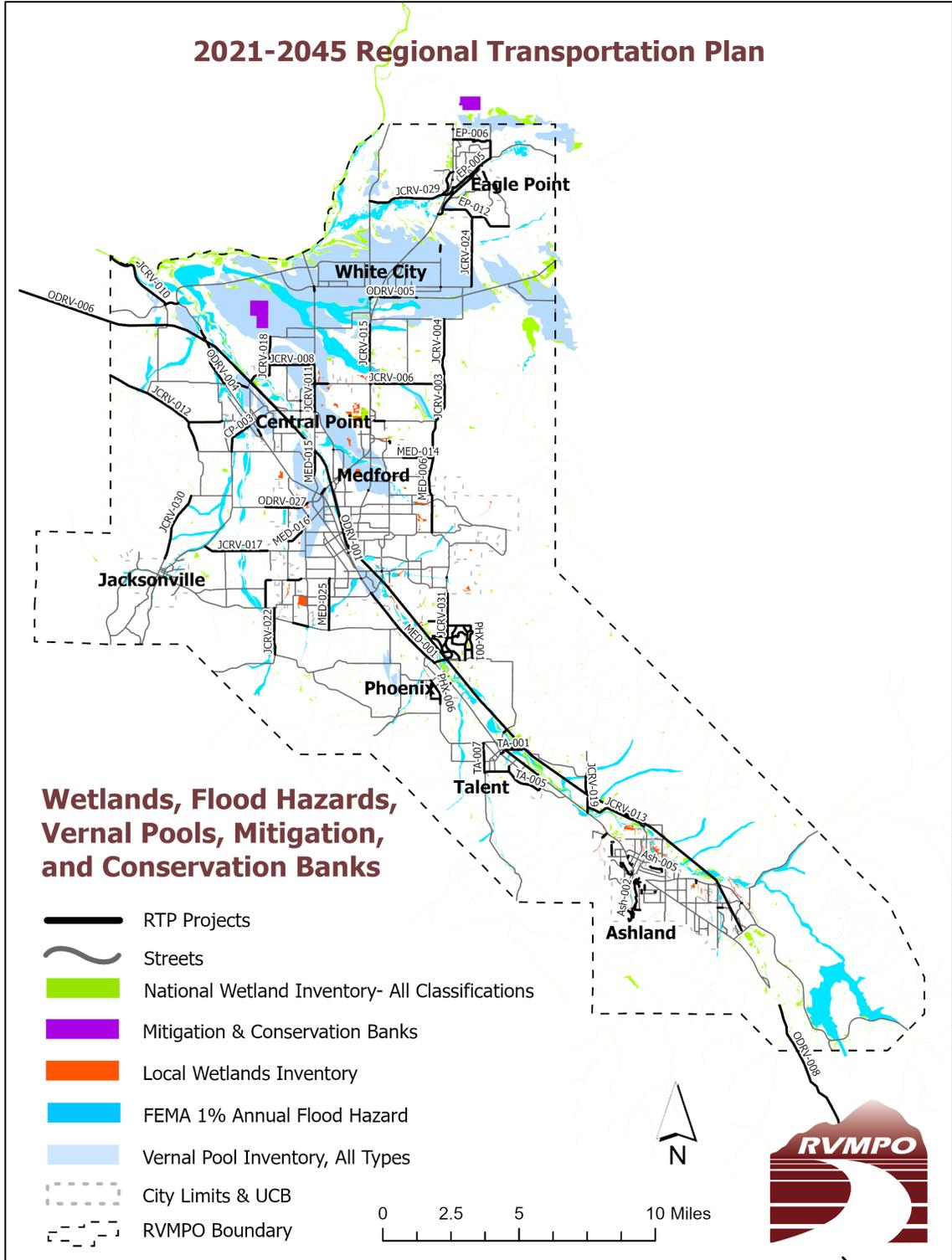
Environmental Justice Fundamental Principles

1. Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
2. Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. Prevent the denial of, reduction in, or significant delay of these protections for minority and low-income populations.

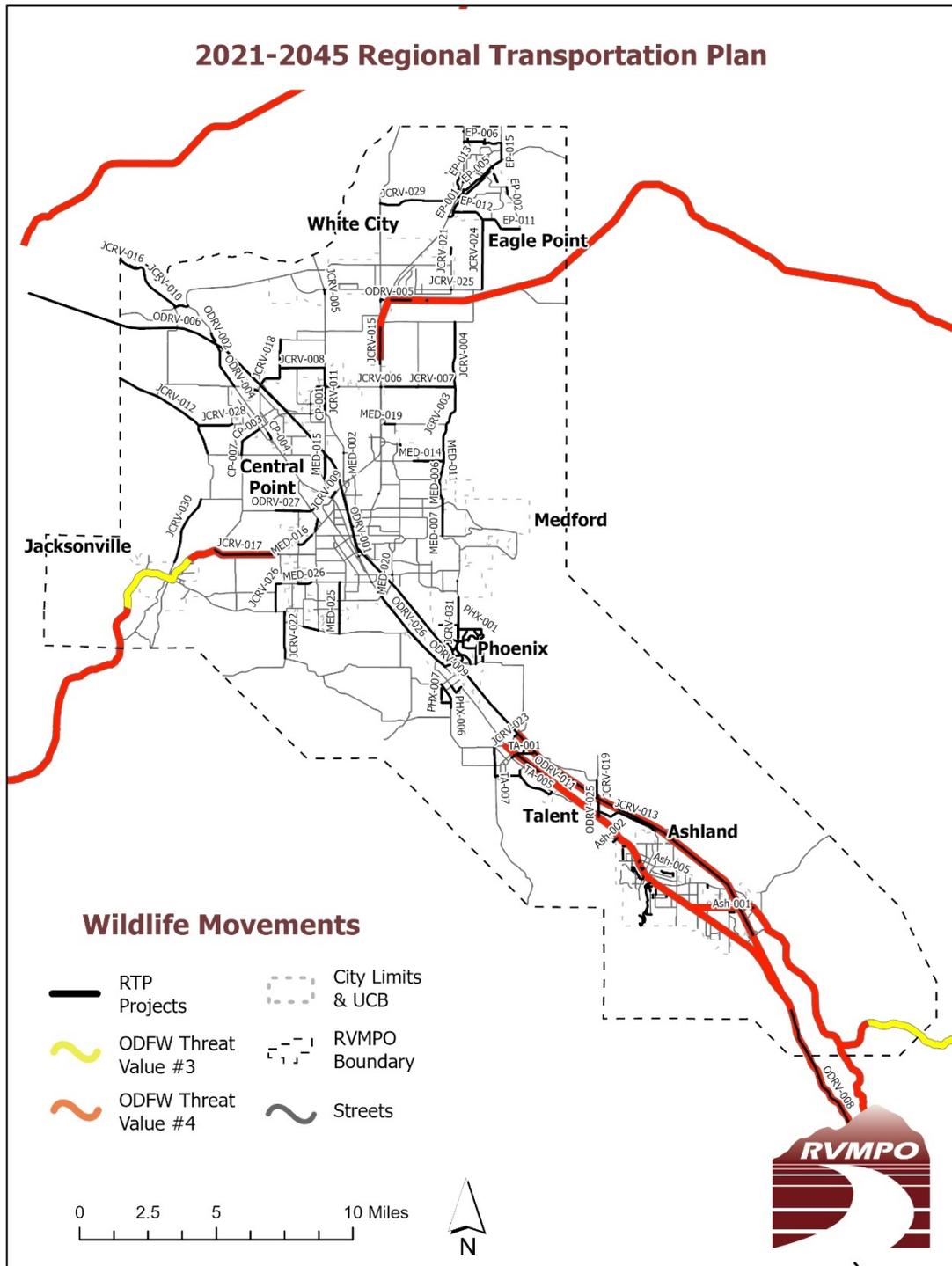
Map 7.1.1: Prime Agricultural Soils, Orchards, and Vineyards



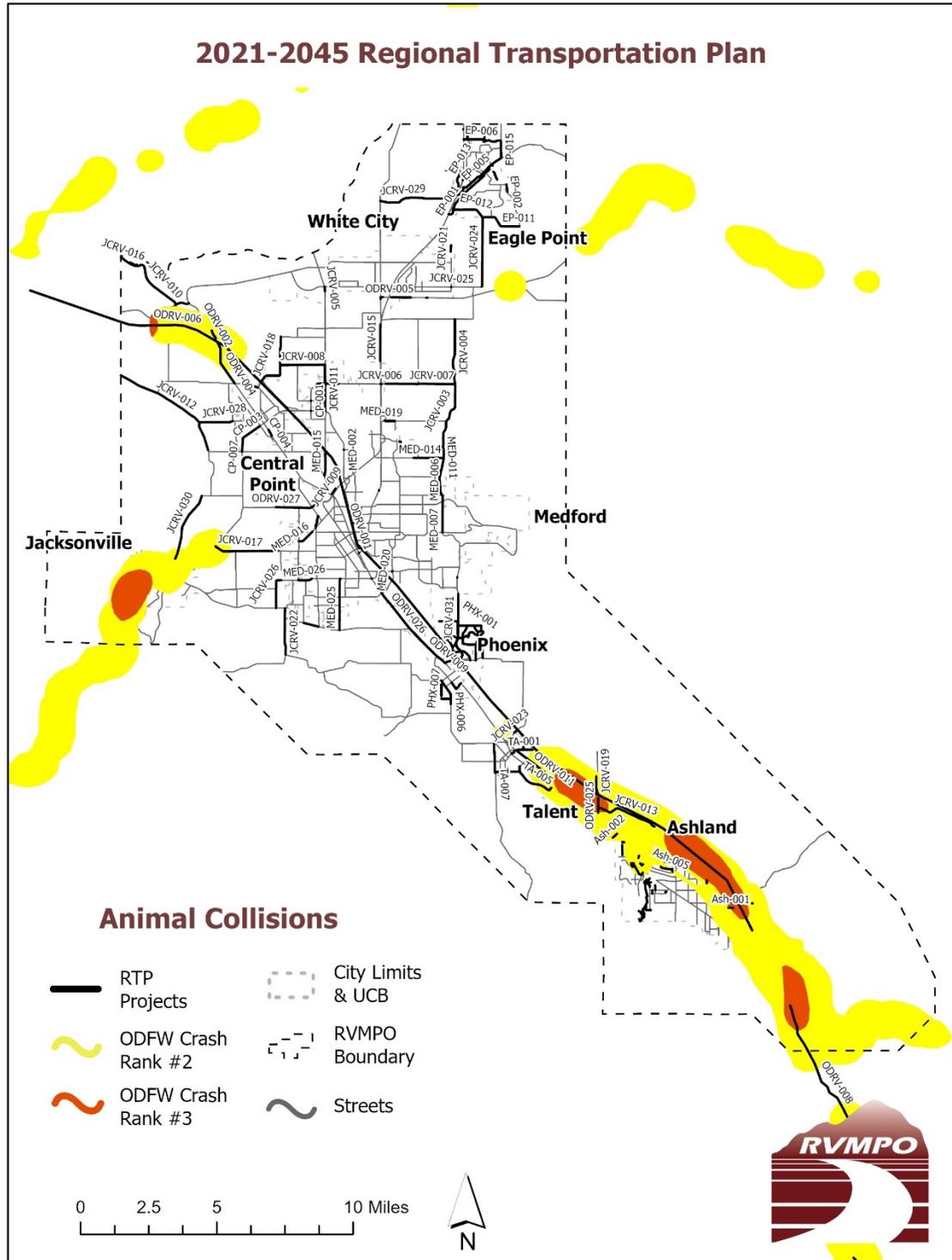
Map 7.1.2: Wetlands, Floodplain, and Vernal Pools



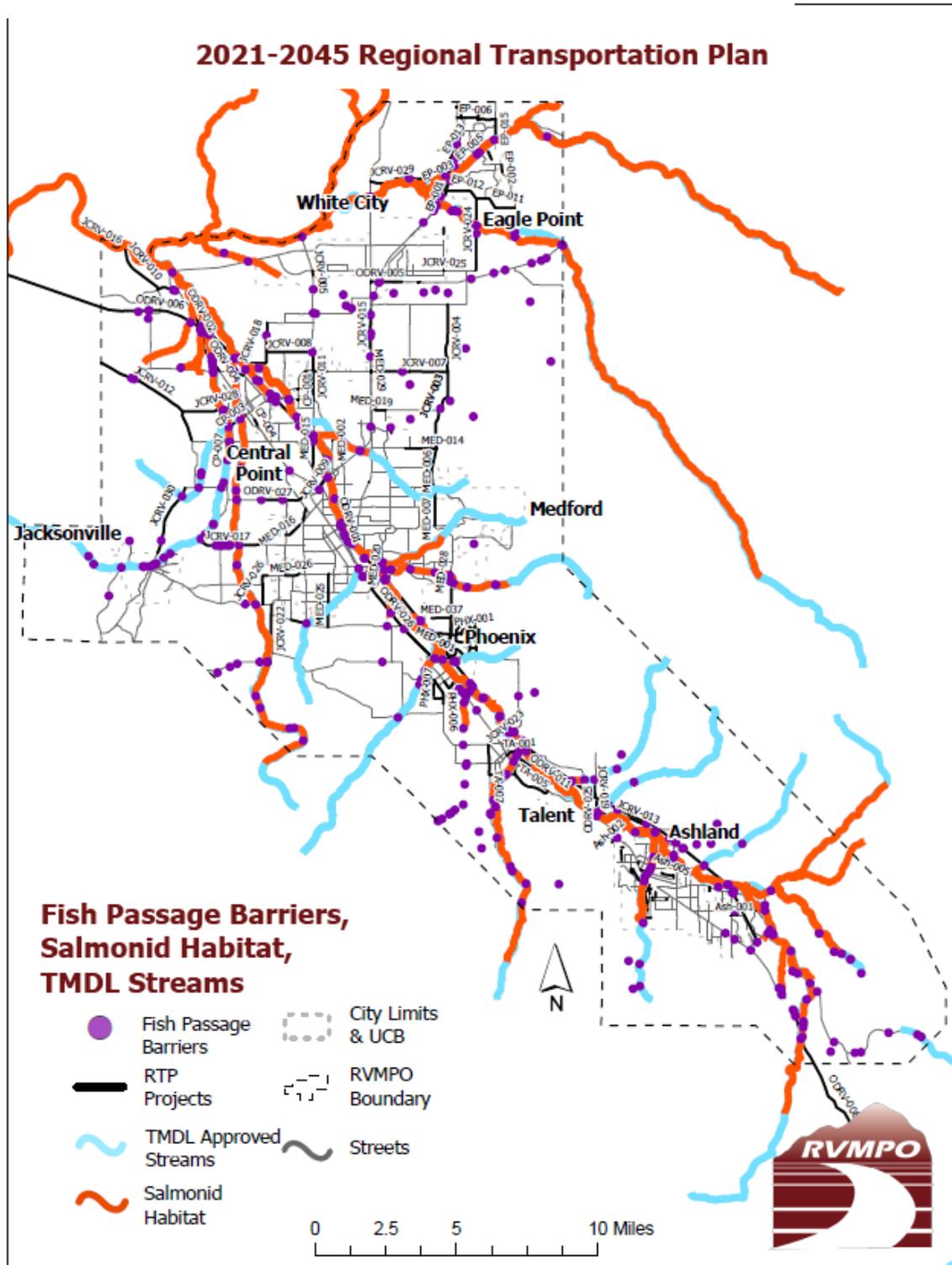
Map 7.1.3: Wildlife Movements



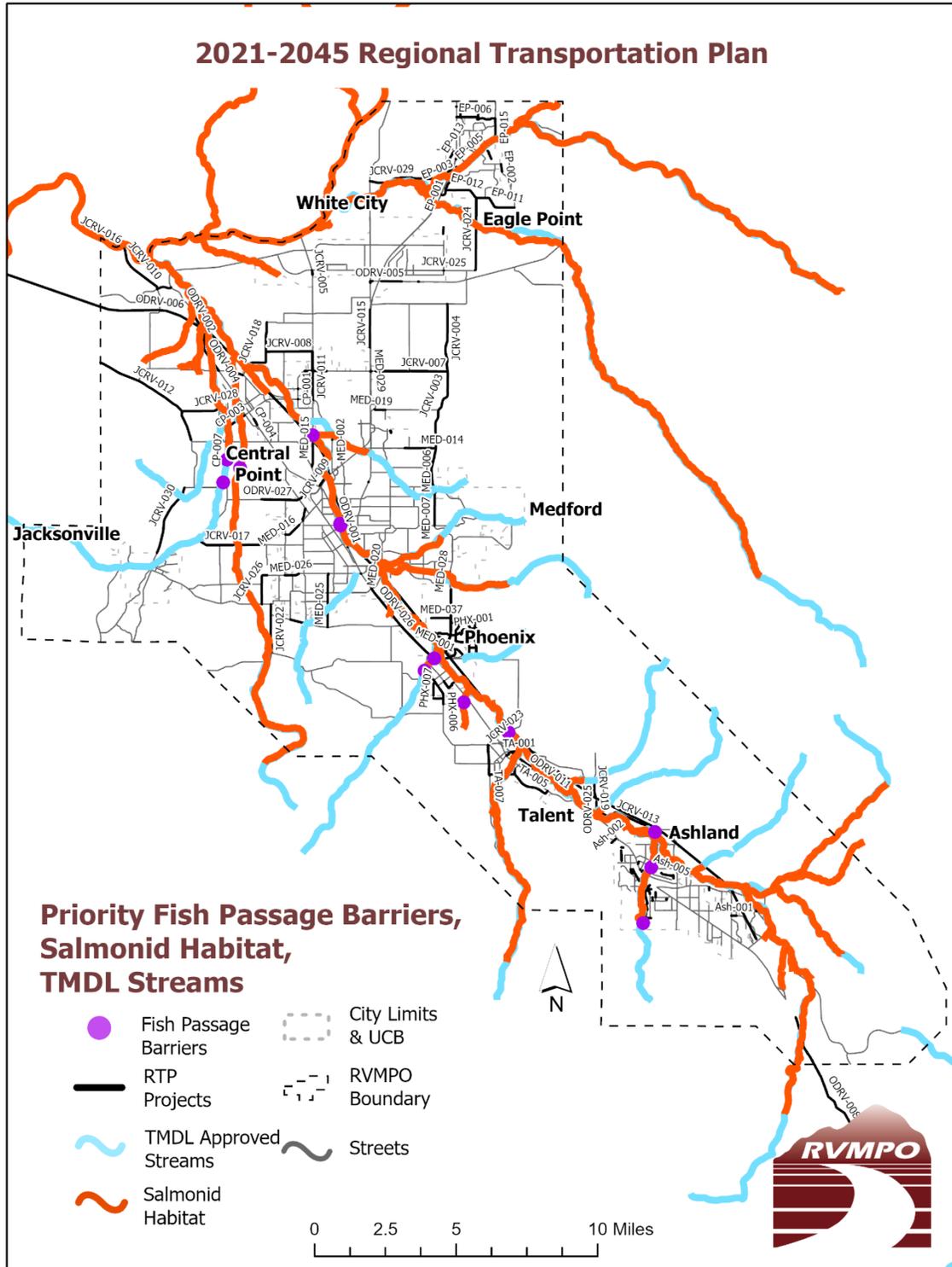
Map 7.1.4: Animal Collisions



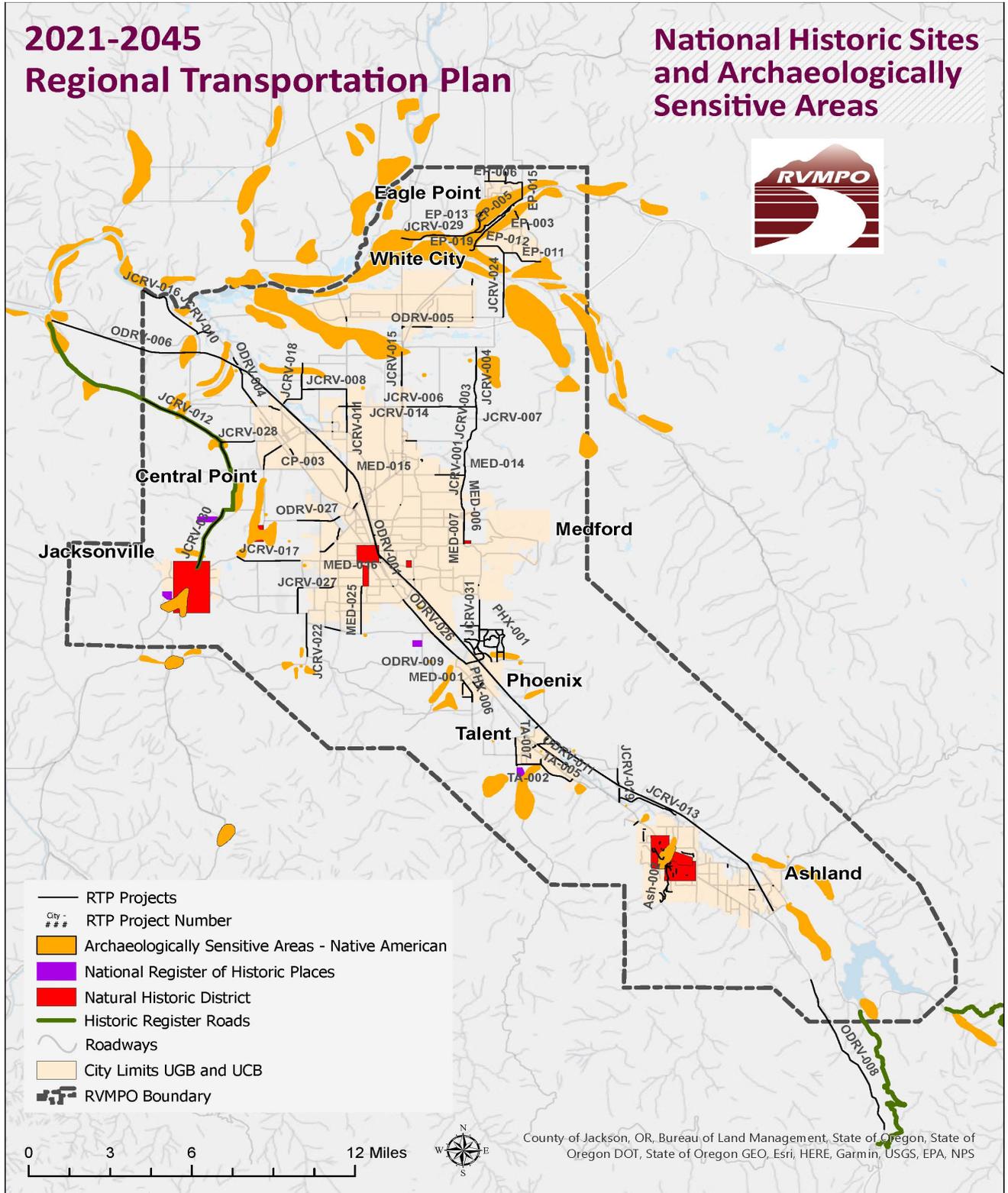
Map 7.1.5(a): Fish Habitat and Barriers



Map 7.1.5(b): Priority Fish Barriers



Map 7.1.6: Archeologically Sensitive Areas



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