HIGHWAY 199 EXPRESSWAY UPGRADE PROJECT

Wetlands Technical Report

County: Josephine

Oregon Department of Transportation Region 3

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Acronyms

Acronym or Abbreviation	Meaning
ADT	average daily traffic
API	area of potential impact
ESA	Endangered Species Act
ESH	essential salmonid habitat
ESU	evolutionary significant unit
MBTA	Migratory Bird Treaty Act
MVM	million vehicle miles
NMFS	National Marine Fisheries Service
NOAA Fisheries	National Oceanic and Atmospheric Administration- Fisheries
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
ODSL	Oregon Department of State Lands
OHP	Oregon Highway Plan
OHWM	ordinary high Water mark
ORNHIC	Oregon Natural Heritage Information Center
PDT	Project development team
PCP	Pollution control plan
PJD	Preliminary Jurisdictional Determination
SONC Coho salmon	Southern Oregon-Northern California Coho salmon
SWMP	Stormwater Management Plan
T&E	threatened and endangered
USACOE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service

v/c	Volume to capacity

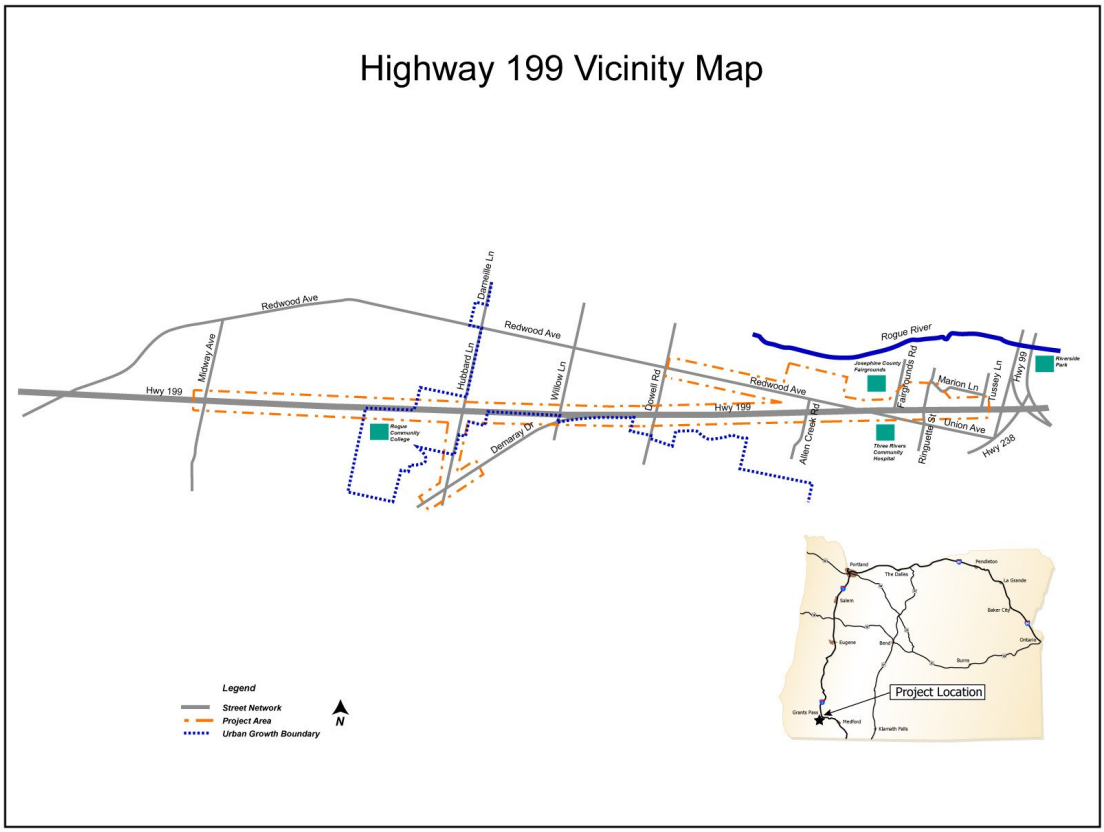
1. Executive Summary

This Technical Report evaluates the potential temporary and long-term effects to wetlands and water resources from the construction of the Highway 199 Expressway Upgrade Project. Measures are proposed to mitigate the potential temporary and long-term adverse effects; however, the compensatory mitigation strategy is not finalized.

Area of Potential Impact

An area of potential impact (API) is defined for the project and is depicted in Exhibit 1. The Project Management Team anticipates that impacts associated with this project will be contained within the API. Thus, the API serves as the survey boundaries to evaluate environmental effects. Documented environmental constraints within the API are mapped and are used by the design team to minimize impacts as alternatives are developed to address the purpose and need for the project.

Exhibit 1. Project location and area of potential impact (API)



Methods and Coordination

Methods

Preliminary information gathering included review of aerial photographs, USGS Quadrangle Maps, NRCS Soil Survey Reports and Maps, National Wetland Inventory (NWI) Maps, Local Wetland Inventory (LWI) Maps, ODSL Essential Salmonid Habitat Maps and other resources.

Several site visits and field investigations have occurred. A pedestrian survey was conducted to ground-truth site conditions for the baseline report. For the purposes of this technical report, wetlands were identified in accordance with the US Army *Corps of Engineers (USACOE) Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the Oregon Department of State Lands (DSL) administrative rules for wetland determinations (OAR 141-090-0005 through 141-090-0055, July 1, 2001). Level 2 of the routine method was chosen to conduct the on-site wetland determination.

Identified wetlands were flagged in the field and mapped on color aerial photographs using field measurements. Field mapped boundaries were converted to microstation (.dgn) files with the aid of an ODOT drafter. Due to the fact that no access to private property was obtained, depicted wetlands and impact areas are provided as a NEPA project planning aid and do not represent delineated wetlands.

Coordination

Coordination for the preparation of this report was performed with the project development team (PDT), project consultants, local planners and state and federal natural resource agencies including ODSL, USACOE, ODFW, NMFS and USFWS.

Environmental Baseline Conditions

The API is located within the Rogue River basin (HUC #17100308). The Rogue River is located approximately 0.30 miles to the north. The Rogue River is listed on DEQ's 303 (d) list of water quality limited water bodies for fecal coliform and

temperature (DEQ 2002). Southern Oregon Northern California (SONC) Coho salmon (LT) are present in the Rogue River.

The topography of the API is a mostly level to gently with steeper slopes to the west. East of Rogue Community College (RCC) the landscape is characterized as ancient river terrace. The western portion of the API from Midway Avenue to RCC is the beginning of a landscape transition to higher elevations and the foothills of the Siskiyou Mountains.

Various wetlands are identified within the API. Forested and herbaceous emergent wetlands are most common, although one scrub-shrub wetland is identified. Both the National Wetlands Inventory (NWI) and the Local Wetlands Inventory (LWI) identify wetlands and water resources throughout the API.

Rogue River tributaries within the API include Allen Creek and Sand Creek, which traverse the API. Both Allen and Sand Creek are designated Critical habitat (CH) for SONC Coho salmon. CH extends 300 feet laterally from each bank of the streams. An unnamed perennial tributary, several intermittent tributaries, ponds and other waters (irrigation canals and roadside ditches) are also identified.

The API traverses a rapidly urbanizing portion of the Urban Growth Boundary (UGB) of Grants Pass, Josephine County, Oregon. Land uses include commercial, industrial, agricultural and residential development. These competing water uses have altered hydrology within the API. Irrigation ditches, roadside ditches, and impervious surfaces affect hydrologic processes by diverting direct precipitation and other water inputs, and channeling surface flow or eliminating infiltration. These alterations have affected peak and base flows by increasing runoff and decreasing retention. In-stream temperatures and other water quality parameters are also affected.

Impacts

No Build Alternative

The No Build alternative would not directly impact wetlands or water resources. Indirect impacts from the no build alternative

may include the loss of upgraded stormwater management infrastructure. Upgraded stormwater management would presumably result in a net improvement of water quality in receiving wetlands and waters.

Alternative A

Alternative A will have temporary impacts to wildlife due to construction activities, heavy machinery and increased human presence. Other common temporary impacts such as the loss of trees and soil disturbance will be mitigated via site restoration and erosion and sediment control plans.

The presence of wetlands and waters adjacent to the roadway offers little chance for complete avoidance of long-term impacts, while also meeting the purpose and need of the project. Long term impacts will mainly consist of sliver fills in wetlands and waters derived from roadway widening and improving intersections. A new pedestrian bridge over Sand Creek will permanently impact forested riparian zone and CH. An unnamed perennial tributary west of Hubbard Lane will be impacted by culvert extension. Intermittent tributaries will also be impacted by culvert extensions. A pond located at Dawn Drive will be impacted by improving the intersection. Roadside ditches and irrigation canals may also be impacted by the project.

The Allen Creek Road and US 199 intersection is the major design difference between the alternatives. No wetland or water resources impacts are anticipated at the Allen Creek Road intersection under Alternative A; however, the shoofly is positioned much closer to the riparian zone of Allen Creek under this alternative. Effects of increased ISA will be mitigated via stormwater management plans (SWMP). The likely impacts from SWMP will be beneficial, resulting in improved water quality and moderation of peak and base flow.

Alternative C

Impacts to wetlands and water resources derived from Alternative C will be generally the same as Alternative A; however, the proposed Redwood Avenue roadway expansion will impact approximately 0.03 acre of additional wetlands as

compared to Alternative A. This impact will take place near the western extent of the Redwood Avenue upgrade.

Mitigation

Impacts to wetlands and water resources shall be avoided and minimized to the greatest practicable extent while meeting the project purpose and need. Once an alternative project design is chosen, avoidance and minimization of impacts to wetlands and waters will be addressed further as design becomes more refined. Complete avoidance of wetland and water resource impacts is not practicable due to the location of several wetlands directly adjacent to the highway, and the fact that several water resources transect the highway.

Best management practices will mitigate temporary impacts. Preparation of an erosion and sediment control plan in accordance with the agency's NPDES 1200 CA permit will stabilize disturbed soils. A pollution control plan will be required to prevent deleterious substances from entering wetlands or waters. In-water work, where required, will occur during the in-water work period. Fish will be salvaged and/or excluded from work areas as appropriate. Temporary impacts to wetlands, waters and CH/riparian areas will be addressed via site restoration plans. Site restoration plans will include the use of native plants and other natural materials. All efforts will be made to maintain existing hydrology. Increased ISA will be addressed via stormwater management plans.

A compensatory wetland mitigation plan will be developed to replace functions lost as a result of permanent wetland impacts. Due to rapid urbanization and a lack of known suitable wetland restoration opportunities on-site, off-site compensatory mitigation may be more desirable to replace wildlife habitat and maintenance of botanical resource functions.

Temporary: Where temporary impacts are unavoidable, site restoration plans will be developed.

Long Term: Permanent impacts to wetlands will be addressed in a Compensatory Wetland Mitigation plan, which is under development.

Exhibit 2. Comparison of approximate long term impacts by alternative

Resource	No Build	Alternative A			Alternative C		
		Midway Avenue to Dowell Road	Dowell Road to Fairgrounds	Fairgrounds to Tussey Lane	Midway Avenue to Dowell Road	Dowell Road to Fairgrounds	Fairgrounds to Tussey Lane
PFOE	No direct Impacts	19,000 sq ft (0.44 ac)	4,800 sq ft (0.11 ac)	0	19,000 sq ft (0.44 ac)	4,800 sq ft (0.11 ac)	0
PSSE	No direct impacts	0	0	0	0	1,100 sq ft (0.03 ac)	0
PEME	No direct impacts	18,035 sq ft (0.41 ac)	9,700 sq ft (0.22 ac)	0	18,035 sq ft (0.41 ac)	9,700 sq ft (0.22 ac)	0

Resource	No Build	Alternative A			Alternative C		
		Midway Avenue to Dowell Road	Dowell Road to Fairgrounds	Fairgrounds to Tussey Lane	Midway Avenue to Dowell Road	Dowell Road to Fairgrounds	Fairgrounds to Tussey Lane
Sand Creek CH	No direct impacts	30,000 sq ft (0.68 ac)	0	0	30,000 sq ft (0.68 ac)	0	0
R3AB	No direct impacts	200 sq ft (0.01 ac)	0	0	200 sq ft (0.01 ac)	0	0
Intermittent Tributaries (R4SB)	No direct impacts	Not mapped or quantified	Not mapped or quantified	Not mapped or quantified	Not mapped or quantified	Not mapped or quantified	Not mapped or quantified
POW/AB	No direct impacts	2,940 sq ft (0.07 ac)	0	0	2,940 sq ft (0.07 ac)	0	0
Ditches	No direct	Not mapped or	Not mapped or	Not mapped or	Not mapped or	Not mapped or	Not mapped or

Resource		Alternative A			Alternative C		
	No Build	Midway Avenue to Dowell Road	Dowell Road to Fairgrounds	Fairgrounds to Tussey Lane	Midway Avenue to Dowell Road	Dowell Road to Fairgrounds	Fairgrounds to Tussey Lane
and/or irrig.	impacts	quantified	quantified	quantified	quantified	quantified	quantified

2. Project Purpose and Need

Purpose of the Proposed Action

The purpose of the project is to address vehicular and pedestrian safety, and current and future congestion and operational deficiencies, along Highway 199 between Tussey Lane and Midway Avenue.

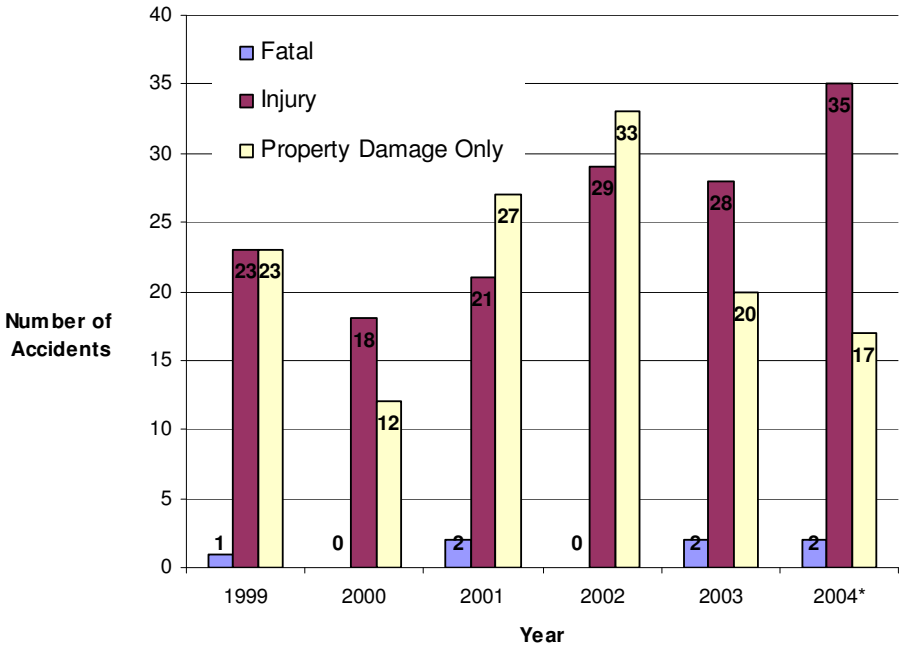
Need for the Proposed Action

The need for the project is based on the accident history, congestion, access, growth of surrounding area, and system efficiency of Highway 199.

Safety

There have been 293 accidents reported within the limits of the project between January 1999 and October 2004. Of these reported accidents, 2 percent included fatalities, 53 percent involved injuries, and 45 percent involved property damage only (Exhibit 3).

Exhibit 3. Highway 199 accident summary from Tussey Lane to Midway Avenue

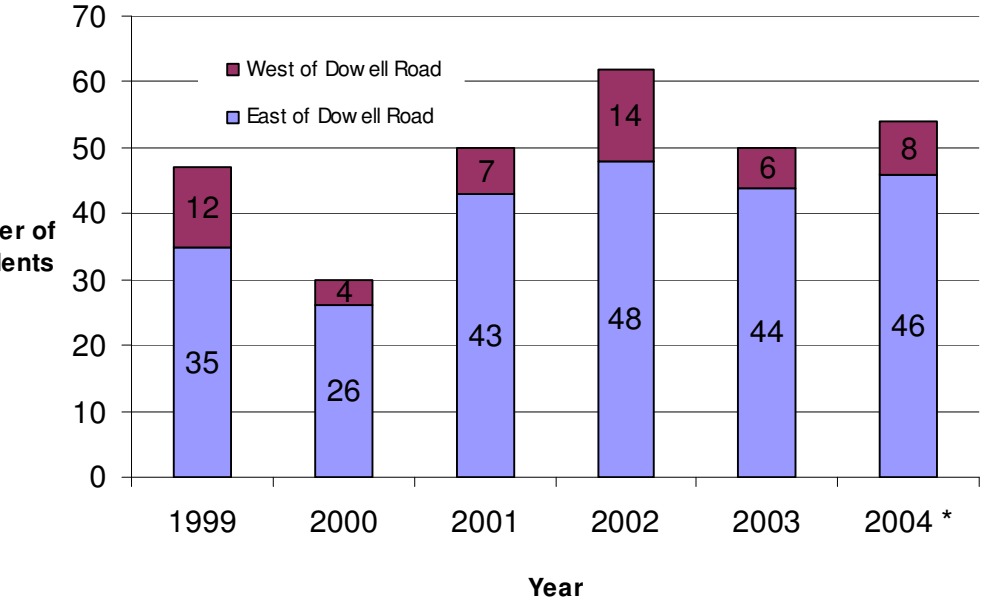


* Accident data is not complete for 2004, majority of accidents through September and part of October are included

Highway 199 from Tussey Lane to Midway Avenue has experienced an accident rate consistently higher than the statewide average for similar facilities. Along the eastern portion of Highway 199 from Tussey Lane to Dowell Road, the accident rate is 3.69 accidents per million-vehicle miles (MVM) versus the statewide average of 2.99 accidents per MVM. Within the western portion of Highway 199, from Dowell Road to Midway Avenue, the accident rate is 0.89 accidents per MVM versus the statewide average of 0.80 accidents per MVM. Exhibit 4 shows the number of accidents occurring on Highway 199 east and west of Dowell Road from January 1999 through about October 2004.

The highest number of accidents occurred between Tussey Lane and Dowell Road. Accidents within this segment tend to be less severe than accidents west of Dowell Road. Since 1999 there have been 242 accidents in this segment, one of which involved a fatality.

Exhibit 4. Accidents occurring on Highway 199 east and west of Dowell Road



Between Dowell Road and Midway Avenue, accidents occur less, but the severity of the accidents is greater due to the

higher speeds. From 1999 to October 2004 there have been 51 accidents, of which there were 6 accidents that included fatalities. To put this in perspective, there were 17 fatalities reported in Josephine County in 2004. Twenty-five percent of these fatalities occurred within the limits of this project.

West of Dowell Road, there is a lack of safe areas along Highway 199 for residents and delivery services to access mail and newspaper boxes along the highway shoulders. Also, there is a lack of safe areas for school buses to stop along the highway to pick up school children.

During peak traffic hours, vehicles at uncontrolled intersections have longer waits to find gaps in traffic to safely enter the highway. This is especially difficult for vehicles attempting to make left turns across multiple lanes of traffic. In these situations, drivers wait long periods of time, become increasingly frustrated, and take higher risks to enter the highway.

Access

There are 15 intersections along Highway 199 in the API. Five of the intersections are controlled by 4-way signals, and 10 are partially controlled by stop signs at the intersecting local roads. In addition to the controlled intersections, there are approximately 13 driveways that allow uncontrolled access to Highway 199. A particular unsafe area occurs on westbound Highway 199 between Tussey Lane to Ringuette Street where there is no barrier or curb and uncontrolled access into dense commercial development. This presents a situation where traffic freely enters and exits the highway, which increases the risk of accidents.

The signals at Ringuette Street, Fairgrounds Road, and Redwood Avenue do not meet the standard signalized access spacing of at least 0.5 mile. Only the spacing from Allen Creek Road to Dowell Road signals currently meets this standard.

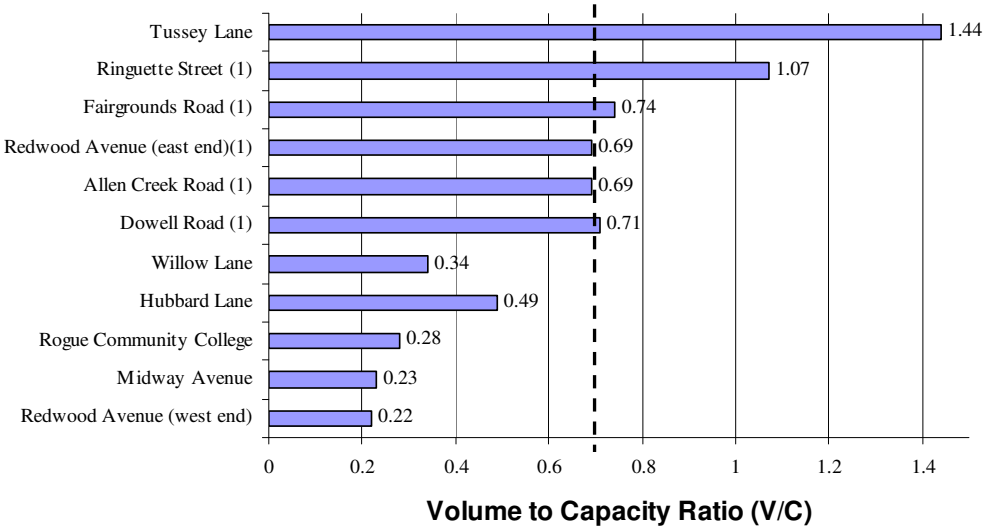
The current substandard spacing of signalized intersections, the multiple driveways along the highway, and the high traffic volumes during peak hour traffic has created an environment of stop-and-go traffic due to vehicles slowing and stopping to enter or exit the highway. These conditions diminish the ability

of Highway 199 to function as an expressway where traffic should travel safely at efficient high speeds and promote high volume traffic movements.

Capacity and Congestion

The average daily traffic (ADT) between Tussey Lane and Dowell Road ranges from 38,000 to 22,000 and from Dowell Road to Midway Avenue it ranges from 22,000 to 12,000. Congestion is occurring throughout the Highway 199 corridor. Currently 4 intersections within the corridor are functioning at an unacceptable volume to capacity (v/c) level, and 2 intersections are nearly at the unacceptable level Exhibit 5. A v/c ratio above 0.70 for highways such as Highway 199 is considered unacceptable per the 1999 Oregon Highway Plan.

Exhibit 5. Volume/capacity ratios for intersections on Highway 199



Growth

Grants Pass, the second largest city in Southern Oregon, has experienced a high population growth rate, averaging 2.8 percent annual increase from 1993 to 2004. Over the last 10 years the population of Grants Pass has increased by 34 percent. The current population of Grants Pass is 24,790. Development is occurring at a high rate within and near the Highway 199 project limits. With the increase in population comes an increase in traffic. Traffic west of Dowell Road is

growing at a rate of 1.5 to 2 percent per year. Looking ahead, growth in Grants Pass is likely to increase over the next several years and add traffic to the currently congested Highway 199.

System Efficiency

Highway 199 is currently not functioning as an expressway as defined by the Oregon Highway Plan (OHP). The 1999 OHP defines an expressway as a highway that provides for safe and efficient high speed and high volume traffic movements. The primary function of an expressway is for interurban travel and connections to ports and major recreation areas with minimal interruptions. Private access is discouraged and public access is highly controlled. Freight, commuters, and tourists cannot effectively move through the Highway 199 corridor due to high traffic congestion, slower speeds, and numerous access points that have negatively impacted inter-regional and regional travel.

High traffic volumes on Highway 199 also create a barrier for north-south local travelers trying to use local roads. Local users are also using Highway 199 to make short trips, such as to the hospital, local business, or community college located next to the highway. Local users are often making more turning movements onto and off of the highway, which puts local use in conflict with through users and decreases the systems efficiency. This high level of local use conflicts with the through users who are using the expressway for inter-regional travel.

Safety Corridor Sign for Highway 199.

3. Project Alternatives

Description of the Alternatives

The Highway 199 Expressway Upgrade Project considered a range of alternatives to rectify the safety, access, congestion, and future growth needs while minimizing effects to the community and environment. This range of alternatives was narrowed down to two build alternatives (Alternative A and Alternative C) as well as the No Build Alternative. The alternatives are described below. For description and analysis purposes, each build alternative is broken into three segments

(from west to east): Midway Avenue to Dowell Road, Dowell Road to the Josephine County Fairgrounds entrance, and the Fairgrounds entrance to Tussey Lane. Each build alternative would be constructed in two phases, Phase 1 and Phase 2; each phase is also described.

No Build

The No Build Alternative provides the basis for a comparative analysis of the build alternatives. The No Build Alternative assumes that roadway configurations along Highway 199 within the API would remain in their current configuration.

Existing signalized intersection of Highway 199 and Fairgrounds Road.

Currently Highway 199 within the API has two travel lanes in each direction, with signalized intersections at Dowell Road, Allen Creek Road, Redwood Avenue, Fairgrounds Road, and Ringuette Street. Unsignalized intersections include: Midway Avenue, Rogue Community College, Hubbard Lane, Willow Lane, and Tussey Lane. In addition, Arbor Ridge Drive, Dawn Drive, and many private driveways currently have direct and uncontrolled access onto Highway 199. Between Allen Creek Road and Tussey Lane the westbound and eastbound travel lanes on Highway 199 are separated by a large median. From Midway Avenue to Willow Lane there is no median restricting vehicular movements across travel lanes. At the intersection of Highway 199 and Willow Lane there is a median curb, which provides traffic on Highway 199 with one left-turn-only lane onto Willow Lane and prohibits traffic on Willow Lane from crossing Highway 199.

There are limited and unconnected dedicated bicycle and pedestrian facilities within the API. There is an existing bicycle and pedestrian shared use path along the south side of Highway 199, beginning at the Rogue Community College entrance and continuing east until Nebraska Avenue. Along Redwood Avenue and most of Hubbard Lane, pedestrians and bicyclists use paved shoulders. A small section of sidewalk exists along the west side of Hubbard Avenue just south of Highway 199.

The No Build Alternative also assumes that other programmed and funded projects within and adjacent to the API will occur,

regardless of whether the Highway 199 Expressway Upgrade Project is constructed. The No Build alternative assumes the following future improvements:

- Minor road realignment and signal installation at Park Street and Lewis Avenue.
- Signal installation at Harbeck Road and OR 238.
- Construct eastbound passing lane on Highway 199 (mile post (MP) 10.4-11.2) about six miles west of the project API.
- Repave and construct bicycle and pedestrian facilities on Redwood Avenue (MP 0 to 1.39) and OR 238 (MP 0 to 1.7).
- Redwood Avenue improvements including reconstruction of two travel lanes, center turn lane and bicycle and pedestrian facilities from Redwood Circle to Dowell Road.
- Improve Redwood Avenue at Dowell Road intersection and install traffic signal.

Alternative A

Alternative A would be constructed in two phases. Phase 1 would include improvements from Midway Avenue to Tussey Lane, and Phase 2 would include additional improvements from roughly the Josephine County Fairgrounds to Tussey Lane.

Phase 1

Midway Avenue to Dowell Road

Exhibit 6 shows the general improvements proposed as part of Alternative A between Midway Avenue and Dowell Road, with insets to provide greater design detail at major intersections. This segment has the following design features:

Maps of Alternative A

Detailed maps showing much of the proposed improvements are included in Appendix B.

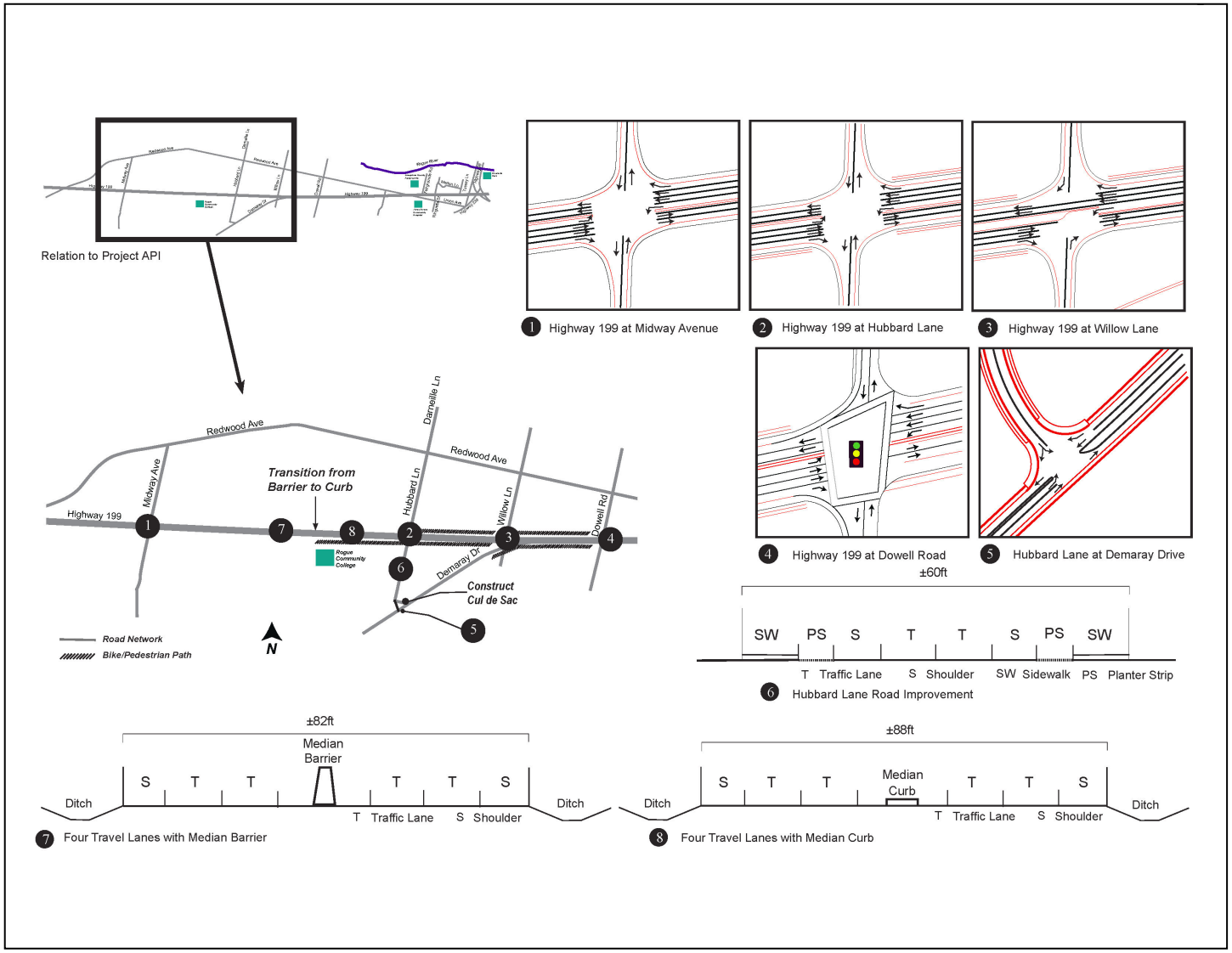
- Highway 199 would continue to have four travel lanes (two in each direction) but a median barrier would be

added between the eastbound and westbound lanes. From Midway Avenue to the Rogue Community College entrance, the barrier would be an approximately 42-inch high concrete median barrier. This median barrier would transition to a median curb (approximately 8 inches high) in the vicinity of the Rogue Community College entrance. The median curb would continue east to Dowell Road. Insets 7 and 8 of Exhibit 6 illustrate these typical road sections.

- The existing configuration of the Highway 199 at Midway Avenue intersection would remain two through lanes in each direction and left-turn-only and right-turn-only lanes from Highway 199 north and south onto Midway Avenue (Exhibit 6, Inset 1). Improvements to this intersection would include widening Highway 199 to accommodate u-turn movements.

- Arbor Ridge Drive, Dawn Drive, and various private driveways would be restricted to right in/right out movements due to the median barrier along Highway 199. A new driveway collector nearly 500 feet long would also be constructed east from Dawn Drive.

Exhibit 6. Alternative A and Alternative C from Midway Avenue to Dowell Road



- The entrance to Rogue Community College from eastbound Highway 199 would have a deceleration lane for right turns into the college. Entrance to the college from westbound on Highway 199 would be from a left-turn-only lane. Exit from the college would be right out only.
- A portion of the South Highline Canal adjacent to the southeast corner of the intersection of Highway 199 and the Rogue Community College entrance would be realigned for about 150 feet.
- Highway 199 at the intersection with Hubbard Lane would include left-turn-only lanes, two through lanes, and right-turn-only lanes in both directions. U-turns would be permissible. This intersection would be constructed to accommodate a future traffic signal once traffic conditions warrant signal installation (Exhibit 6, Inset 2).
- Hubbard Lane would be improved to City of Grants Pass design standards (including a planter strip and sidewalk along both sides) south of Highway 199 (Exhibit 6, Inset 6). The southern-most 400 feet of Hubbard Lane would be realigned to create a new intersection with Demaray Drive (Exhibit 6, Inset 5). The existing intersection of Hubbard Lane and Demaray Drive would be closed and made into a cul-de-sac.
- A separated bicycle and pedestrian shared use path would be constructed along the north side of Highway 199 between Hubbard Lane and Dowell Road. The existing bicycle and pedestrian shared use path along the south side of Highway 199, beginning at the Rogue Community College entrance and continuing east past Dowell Road, would be reconstructed (see Exhibit 6).
- Highway 199 at the intersection with Willow Lane would remain two through lanes in each direction, right-turn-only lanes in both directions, and median curb allowing left-turn-only from a dedicated turn pocket for westbound traffic (Exhibit 6, Inset 3). Eastbound traffic

would continue to be prohibited from making left-turns. Willow Lane would continue to be right in/right out only north and south of Highway 199.

- Highway 199 at the intersection with Dowell Road would continue to be signalized. It would include left-turn-only and right-turn-only lanes off Highway 199.

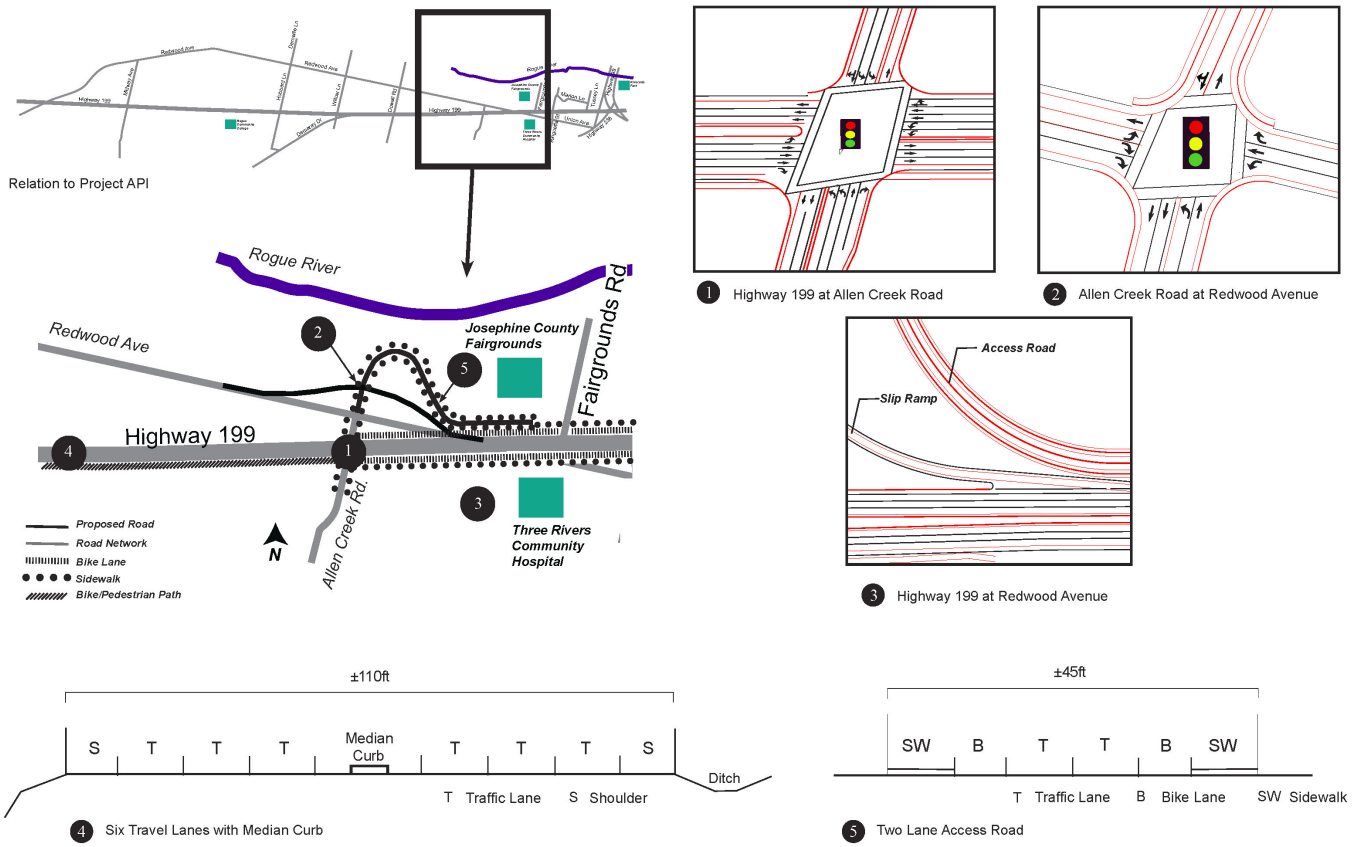
Dowell Road to Josephine County Fairgrounds Entrance

Exhibit 7 shows the general improvements proposed as part of Alternative A between Dowell Road and the Josephine County Fairgrounds entrance, with insets to provide greater design detail at major intersections. This segment of has the following design features:

- At Dowell Road, Highway 199 would transition from four travel lanes to six travel lanes with median curb continuing between the eastbound and westbound lanes (see Exhibit 7, Inset 4).
- The intersection of Highway 199 and Allen Creek Road, as shown in Inset 1 of Exhibit 7, would be signalized and include the following features:
  - Eastbound Highway 199 would have three through lanes, one left-turn-only lane, and one right-turn-only lane.
  - Westbound Highway 199 would have three through lanes, with the right hand lane also allowing for right turns, and two left-turn-only lanes.
  - Northbound Allen Creek Road would have one through lane, two left-turn-only lanes, and one right-turn-only lane.
  - Southbound Allen Creek Road would have one combined through and right-turn lane and two left-turn-only lanes.

1 **Exhibit 7. Alternative A between Dowell Road and Fairgrounds Entrance**

2



- Allen Creek Road would be extended approximately 250 feet north of the existing Redwood Avenue where it currently ends at a "T" intersection (see Exhibit 7, Inset 2). Sidewalks would be added on both sides of Allen Creek Road and u-turns would be permissible at the intersection of Allen Creek Road, Redwood Avenue, and the new access road. This new intersection would be signalized and:
  - Northbound from Allen Creek Road would have one through lane and one left-turn-only lane.
  - Eastbound from a realigned Redwood Avenue would have no through lanes, one left-turn-only lane, and two right-turn-only lanes.
  - Southbound from a new access road would have a combined through lane and right-turn lane.
  - Westbound from a realigned westbound Highway 199 slip ramp would have one through lane, one left-turn-only lane and one right-turn-only lane.
- To connect with the new extension of Allen Creek Road, Redwood Avenue would be realigned starting just west of Redwood Circle (Exhibit 7). The realigned portion of Redwood Avenue would curve to the north. The remaining portion of Redwood Avenue east of the new curve would cul-de-sac just before Allen Creek Road and properties along this stretch would use this road to access the realigned Redwood Avenue at a new signalized intersection with Redwood Circle.
- A new local street would be constructed to connect Daisy Lane with Redwood Circle; thereby providing properties along Daisy Lane access to Redwood Avenue.
- Access to the Josephine County Fairgrounds, the YMCA, and other county-owned parcels east of the YMCA would be from a new access road (Exhibit 7). The access road would bulb out to the north of the new Allen Creek Road extension, curve east, then south across the quarter track portion of the fairgrounds

raceway before straightening and continuing east adjacent to Highway 199 and into the Fairgrounds.

- The access road would have two lanes and a sidewalk on both sides of the road (Exhibit 7, Inset 5).
- A realigned one-way slip ramp from westbound Highway 199 would be constructed (Exhibit 7, Inset 3). This slip ramp would allow westbound traffic to either continue through the new Allen Creek Road intersection to the realigned Redwood Avenue, turn right onto the new access road, or turn left towards the Highway 199 at Allen Creek Road intersection.
- The existing signal at the Highway 199 at Redwood Avenue intersection would be removed.
- The existing separated bicycle and pedestrian shared use path along south side of Highway 199, which begins at the Rogue Community College entrance, would continue east to Nebraska Avenue.
- A bike lane along north side of Highway 199 between the Redwood Avenue slip ramp and the Fairgrounds entrance, and continuing east to Tussey Lane, would be striped on the roadway shoulder.
- A bike lane would be added along the south side of Highway 199 between Allen Creek Road and Ringuette Street and would be striped on the roadway shoulder.
- Sidewalk, separated by a planter strip, would be added to the north side of Highway 199 from the Redwood Avenue slip ramp to Tussey Lane. A sidewalk would be added to the south side of Highway 199 from Allen Creek Road to Ringuette Street.

Josephine County Fairgrounds Entrance to Tussey Lane

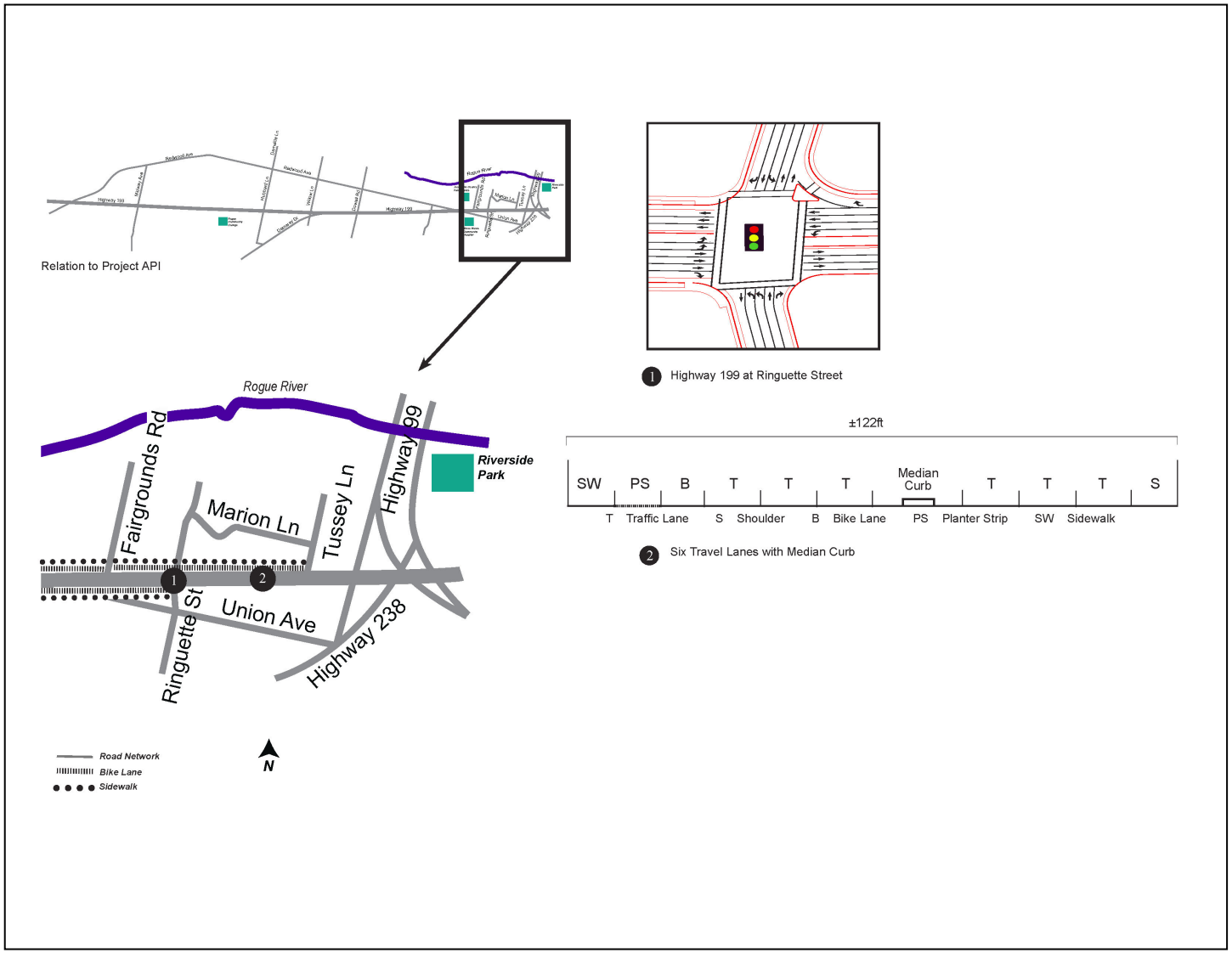
Exhibit 8 shows the general improvements proposed as part of Alternative A between the Josephine County Fairgrounds entrance to Tussey Lane, with insets to provide greater design detail at major intersections. This segment has the following design features:

- This segment of Highway 199 would provide six travel lanes with median curb continuing between the eastbound and westbound lanes (Exhibit 8, Inset 2).
- Where permitted, direct access to Highway 199 would be right in/right out only. Curb and a detached sidewalk would be constructed along the westbound portion of Highway 199. Access would be defined by driveways with some shared between parcels.

- The existing signal at the intersection of Highway 199 and the Josephine County Fairgrounds entrance would be removed and traffic movements would be restricted to right in/right out. The new access road would provide a new, additional access point for fairgrounds traffic.
- The intersection of Highway 199 and Ringuette Street, as shown in Inset 1 of Exhibit 8, would continue to be signalized and include the following features:
  - Westbound Highway 199 would have three through lanes, one left-turn-only lane, and one free flowing right-turn-only lane.
  - Eastbound Highway 199 would have three through lanes, two left-turn-only lanes, and one right-turn-only lane.
  - Northbound Ringuette Street would have one through lane, two left-turn-only lanes, and one right-turn-only lane.
  - Southbound Ringuette Street would have one through lane, one left-turn-only lane, and one right-turn-only lane.
  - A left-turn-only lane would be added to southbound Ringuette Street at the intersection with Union Avenue.

1 **Exhibit 8. Alternative A and Alternative C between Fairgrounds Entrance and Tussey Lane**

2



- Henderson Lane and Tussey Lane would continue to provide access to Highway 199 and traffic would continue to be restricted to right in/right out movements due to median curb along Highway 199.
- A sidewalk, separated from Highway 199 by a planter strip, would continue along the north side of Highway 199 between the Fairgrounds entrance and Tussey Lane. A sidewalk would also be constructed along both sides of Ringuette Street north of Highway 199 for approximately 300 feet. A sidewalk along the south side of Highway 199 would continue from Allen Creek Road to Ringuette Street.
- The bike lane striped on the roadway shoulder along north side of Highway 199, starting at Allen Creek Road, would continue between the Fairgrounds entrance and Tussey Lane. The bike lane striped on the roadway shoulder along the south side of Highway 199, starting at Allen Creek Road, would continue to Ringuette Street.

Phase 2

Phase 2 of Alternative A would extend the access road would be constructed in Phase 1. The extension would continue the access road from the Josephine County Fairgrounds east to Tussey Lane. This access road would relocate business and residential driveways that are currently on Highway 199 to the new access road.

Construction of Phase 2, and the actual alignment, would not be set unless this access road concept is found to be part of the overall solution for the South Y Interchange Planning Study scheduled to begin in 2007.

Maps of Alternative C

Detailed maps showing much of the proposed improvements for Alternative C are included in Appendix B.

Alternative C

Alternative C would also be constructed in two phases; Phase 1 would include improvements from Midway Avenue to Tussey Lane and Phase 2 would include additional improvements from roughly the Josephine County Fairgrounds to Tussey Lane.

Phase 1

Midway Avenue to Dowell Road

This section of Alternative C has the same design features as Alternative A, see Exhibit 6.

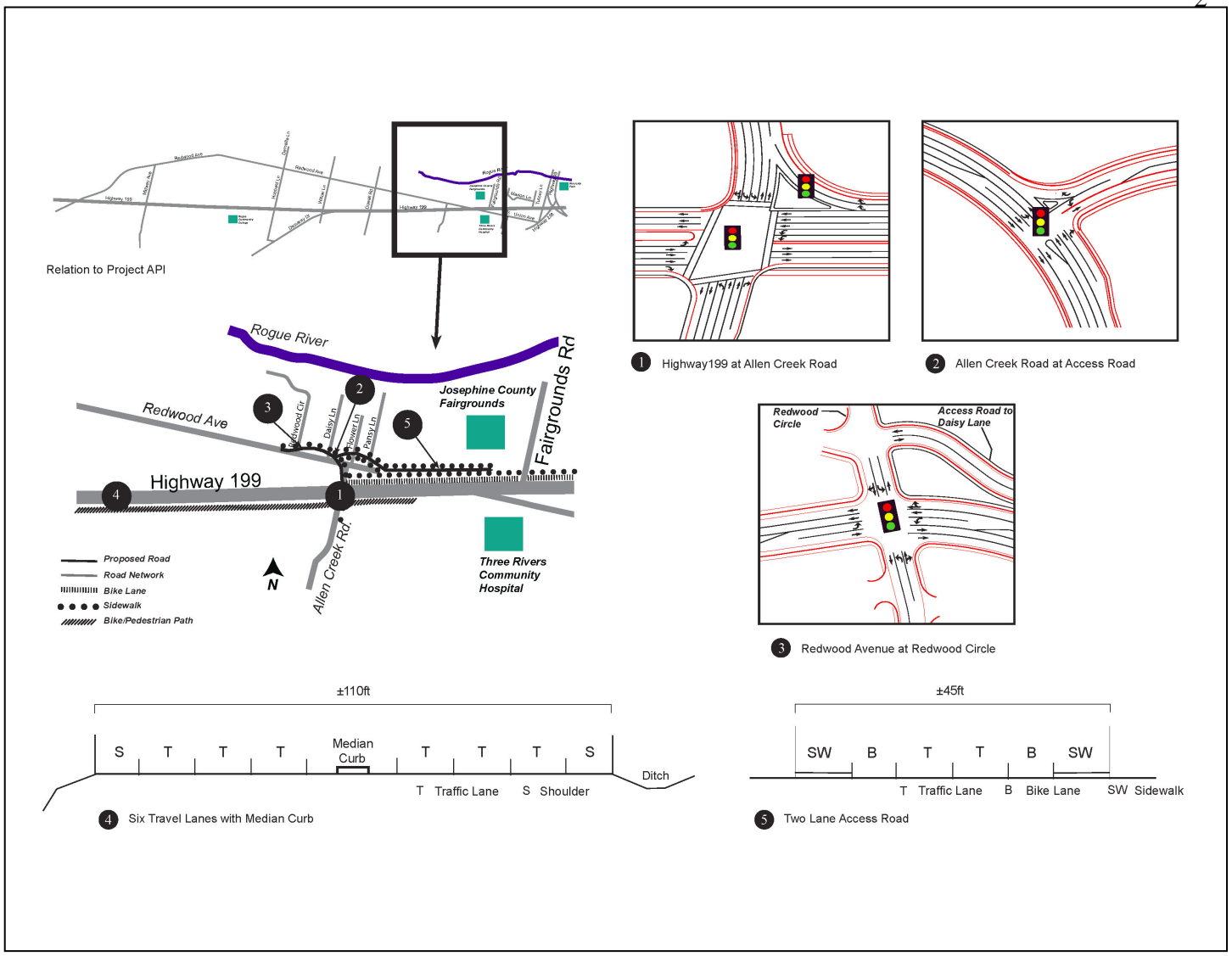
Dowell Road to Josephine County Fairgrounds Entrance

Exhibit 9 shows the general improvements proposed as part of Alternative C between Dowell Road and the Josephine County Fairgrounds entrance, with insets to provide greater design detail at major intersections. This segment has the following design features:

- At Dowell Road, Highway 199 would transition from four travel lanes to six travel lanes with median curb continuing between the eastbound and westbound lanes (see Exhibit 9, Inset 4). There would be no direct access to Highway 199 from businesses or residences.
- The intersection of Highway 199 and Allen Creek Road, as shown in Inset 1 of Exhibit 9, would be signalized and include the following features:
  - Eastbound Highway 199 would have three through lanes, one left-turn-only lane and one right-turn-only lane.
  - Westbound Highway 199 would have three through lanes, two left-turn-only lanes and two right-turn-only lanes. The right-turn-only lanes would be signalized. The right-turn-only lanes would begin approximately 700 feet east of the intersection to enable vehicle queuing when the signal is red.
  - Northbound Allen Creek Road would have two through lanes, one left-turn-only lane, and one right-turn-only lane.
  - Southbound Allen Creek Road would have one combined through and right-turn lane and two left-turn-only lanes.

1 **Exhibit 9. Alternative C between Dowell Road and Fairgrounds Entrance**

2



- Allen Creek Road, north of Highway 199 would be curved slightly to the west to connect with a new three-legged signalized intersection with a realigned Redwood Avenue and a new access road. This intersection, as shown in Inset 2 of Exhibit 9, would include the following features:
  - Northbound Allen Creek Road would have two through lanes and one right-turn-only lane.
  - Southbound realigned Redwood Avenue would have two through lanes and one left-turn-only lane.
  - Westbound new access road would have one left-turn-only lane and one right-turn-only lane.
- To connect with the new Allen Creek Road intersection, Redwood Avenue would be realigned and curved north just west of Redwood Circle.
- A new four-legged signalized intersection with Redwood Avenue and Redwood Circle would provide access to the properties located along the old Redwood Avenue alignment between Redwood Circle and Allen Creek Road. This intersection would also provide access to those properties north along Redwood Circle. In addition, a new local street would be constructed connecting Daisy Lane with Redwood Circle; thereby providing properties along Daisy Lane access to Redwood Avenue. This intersection, as shown in Inset 3 of Exhibit 9, would include the following features
  - Eastbound realigned Redwood Avenue would have one through lane and one left-turn-only lane.
  - Westbound realigned Redwood Avenue would have one through lane, one combined through and right-turn lane, and one left-turn-only lane.
  - Southbound Redwood Circle would include one combined through and right-turn lane and one left-turn-only lane.

  - Northbound Redwood Circle would have one combined through and right-turn lane and one left-turn-only lane.

- Access to the Josephine County Fairgrounds, the YMCA, and other Fairground parcels east of the YMCA would be from a new access road. This access road would bulb out slightly to the north/northeast of the new three-legged intersection with Allen Creek Road and Redwood Avenue, and then curve south and back east running along the north side of Highway 199 into the Fairgrounds. The access road would have two travel lanes, bike lanes, and a sidewalk on both sides of the road. (Exhibit 9, Inset 5)

- Access to properties along the old Redwood Avenue alignment between Allen Creek Road and the new access road would be at an intersection with the new access road and Pansy Lane. Cul-de-sacs would be constructed on either end of this portion of the old Redwood Avenue alignment. Properties along Flower Lane would have access via a new local street connection between Flower Lane and Pansy Lane. From all four directions, this intersection would have a combined through and right-turn lane and a left-turn-only lane. Stop signs would be place on the Pansy Lane and Redwood Avenue access sides of the intersection (See Exhibit 9).

- The existing signal at the intersection of Redwood Avenue and Highway 199 would be removed and access to Redwood Avenue from westbound Highway 199 would be from the two right-turn-only lanes at the Allen Creek Road intersection.

- The existing separated bicycle and pedestrian shared use path along south side of Highway 199, which begins at the Rogue Community College entrance, would continue east to Nebraska Avenue.

- A bike lane would be added along north side of Highway 199 between the Allen Creek Road and the

Fairgrounds entrance, and continuing east to Tussey Lane, would be striped on the roadway shoulder.

- A bike lane would be added along the south side of Highway 199 between Allen Creek Road and Ringuette Street and would be striped on the roadway shoulder.
- Sidewalk, separated by a planter strip, would be added to the north side of Highway 199 from Allen Creek Road to Tussey Lane. A sidewalk would be added to the south side of Highway 199 from Allen Creek Road to Ringuette Street.

Josephine County Fairgrounds Entrance to Tussey Lane

This section of Alternative C has the same design features as Alternative A, see Exhibit 8.

Phase 2

Phase 2 of Alternative C has the same design features and conditions as Phase 2 of Alternative A.

4. Methods and Coordination

Methods

The wetlands and water resources investigation of the API was conducted by Mr. Brad Livingston, ODOT Wetlands Specialist. Preliminary information gathering included review of aerial photographs, USGS Quadrangle Maps, the NRCS Soil Survey, National Wetland Inventory (NWI) Maps, Local Wetland Inventory (LWI) Maps, ODSL Essential Salmonid Habitat Maps and FEMA Floodway Maps. The Grants Pass Wetlands Resource Plan was reviewed for baseline information and local development codes. ODOT's GIS system provided aerial photographs, general location/presence of irrigation systems, land use and development information, and other spatial data.

A vehicle survey was conducted on June 9, 2005. The purpose of the vehicle surveys was to document land uses and make general observations of plant communities and ecological condition of wetlands and water resources within the API. Wetlands and water resources viewed during the site visit were

rapidly characterized by observed vegetation, hydrology, landscape position and adjacent land uses.

Pedestrian surveys encompassing the API were conducted on 2/15-2/17, 4/20, 4/25 and 4/26/2006. Pedestrian surveys identified approximate wetland boundaries within the API using wetland determination methods of the 1987 USACOE Wetlands Delineation Manual (Environmental Laboratory, 1987). Determination data plots were positioned in potential wetland areas. Vegetation, soil and hydrology data was collected throughout the API.

Absolute percent areal coverage was recorded for individual plant species in each stratum. Total cover of each stratum was recorded. A five foot radius data plot was used for herbaceous vegetation, saplings and shrubs. A thirty foot radius was used for trees and woody vines. The 50/20 method (Environmental Laboratory, 1987) was used to determine dominant plant species. Indicator status of identified vegetation was determined using the National List of Plant Species that Occur in Wetlands: Northwest, Region 9 (Reed, 1988) and the Plant List Supplement: Northwest, Region 9 (Reed, 1993).

Soil pits were dug to a minimum depth of 16 inches at each data plot when conditions allowed. Hydric soil indicators were recorded when present. Soil matrix and mottle colors were determined with moist soil using Earth Colors Soil Color Book (Color Communications, Inc. 1997). Soil structure and soil texture was recorded.

The presence or absence of wetland hydrology indicators was recorded at each determination data plot. Depth of surface water, depth to saturation, and depth to free water were recorded for all data plots. Primary and secondary wetland hydrology indicators were recorded if present.

Potentially jurisdictional water resources were identified by field observations of an ordinary high water (OHW) mark and the presence of bed and bank characteristics. Allen Creek, Sand Creek and an unnamed tributary west of Hubbard Lane are identified as water resources to the approximate lateral extent of their respective top of banks. Four ponds are also

identified as water resources. All other potentially jurisdictional water resources such as intermittent tributaries, ditches and irrigation canals will be identified and mapped once the wetland delineation is completed.

Photographs were taken throughout the API to document wetlands and water resources baseline condition. Select photographs of the API are stored electronically and available upon request.

Brief comments regarding the functional capacity and/or the value of identified resources were made using best professional judgment and elements of HGM-based Judgmental Method of Functional Assessment of Willamette Valley wetland and riparian sites (Adamus and Field, 2001). The HGM Judgmental Method requires the use of best professional judgment to subjectively assign functional capabilities based on site-specific conditions. This method is a qualitative assessment of wetland and riparian function. Indirect and cumulative effects were addressed using best professional judgment, discussions with the project development team, and review of natural resource agencies guidance.

Identified wetlands and water resources were flagged in the field and mapped on color aerial photographs using field measurements. High resolution aerials and detailed base mapping were provided by ODOT Geometronics (2005). Field mapped boundaries were converted to microstation (.dgn) files with the aid of an ODOT drafter. The project footprint for each alternative was then overlaid with the wetland boundaries to determine potential impact areas. Mapped wetlands are provided as a NEPA project planning aid and do not represent delineated wetlands. Depicted wetland impacts do not represent final impact areas due to the margin of error associated with the mapping techniques (+/- 5 feet approximately). Once an alternative is selected a wetland delineation will be conducted to determine more precisely the areas of impact. Figures depicting the project footprint and wetlands and water resource boundaries are provided in **Appendix B and C**.

From RCC to the west, wetland impact acreages were determined from a previous wetlands delineation in which a survey crew captured wetland boundaries (NOTE: wetlands and water resource impact figures (Figures 7-23) indicate the approximate field mapped location of wetlands, but the impact areas are derived from the US 199: RCC to Midway project Digital Terrain Model survey and design acceptance plans (DAP)).

Coordination

Coordination for the preparation of this report was performed with the project development team (PDT), project consultants and state and federal natural resource agency specialists. Discussions with ODOT roadway design and survey crew members provided additional information. Representatives from DSL, USACOE, DEQ, USFWS, ODFW, and Grants Pass City Planning were consulted.

5. Baseline Conditions

The API is located within the Rogue River basin (HUC #17100308). The Rogue River is located approximately 0.30 mile to the north of the API. Surface water flows in a general northerly direction within the API. Two Rogue River tributaries, Allen and Sand Creek, traverse the API. The Rogue River is listed on DEQ's 303 (d) list of water quality limited water bodies for fecal coliform and temperature (DEQ 2002).

The API is located within the Klamath Mountains Ecoregion. From RCC to the west the landform transitions from ancient Rogue River terrace to Siskiyou Mountains foothills (Figure 1). The topography of the eastern portion of the API is level to gently sloping ancient river terrace (Figure 2). The API is outside the 100-year Rogue River Floodplain. The approximate mean elevation of the API is at 950 feet above sea level.

The climate is generally characterized as having cool moist winters, with warm and dry temperate summers. Mean winter temperature is 41 degrees and mean summer temperature is 68 degrees F (SCS 1983). Mean annual temperature is about 52

degrees F. Annual precipitation may range from 18 to 60 inches, but mean annual precipitation is about 31 inches (NRCS, 2005).

The NRCS Soil Survey identifies ten soil types within the API (Figures 3 and 4). Most of the soil types within the API formed in colluvium and alluvium. Two soil types are listed as hydric soils. Most of the soils may contain hydric properties from hydric inclusions. Hydric properties may also occur in wet spots or alluvial fan locations. Table 1 list the mapped soil types and provides their hydric soil status.

Table 1. Hydric soil status of soil types mapped within the API.

MAP UNIT ID	SOIL TYPE	HYDRIC STATUS
1B	Abegg gravelly loam	Not hydric, wet spots may contain hydric properties
5B	Barron coarse sandy loam	Not hydric, wet spots
15	Camas-Newberg complex	Not hydric, river wash and wet spots
17B	Clawson sandy loam	Hydric, alluvial fan
42B	Holland sandy loam	Not Hydric
46	Jerome sandy loam	Hydric, alluvial fan
52	Kerby loam	Not hydric, wet spots
53	Manita loam	Not hydric, seep springs and wet spots
70F	Siskiyou gravelly sandy loam (North slopes)	Not hydric
71F	Siskiyou gravelly	Not hydric

	sandy loam (South)	

Source: Hydric Soils List for Josephine County, Oregon (NRCS, 2000)

The NWI Map is an overlay for Grants Pass and Wilderville, Oregon (USFWS, 1977) USGS Quadrangles. NWI map data is not yet available electronically in this region of Oregon. Wetlands identified by the NWI Map overlay include palustrine forested (PFO), palustrine emergent (PEM) and palustrine open water (POW) wetlands. Allen Creek and Sand Creek riparian forest areas are identified as PFO wetlands by the NWI. Irrigation canals are most often identified as riverine, lower perennial, open water (R2OW).

The LWI was prepared as part of the Wetlands Resources Plan for Grants Pass (DEA, 1999). The LWI focused on wetlands and water resources within the city limits, but also identified wetlands within the urban growth boundary (Figures 5 and 6). Most of the API is outside city limits. Wetlands identified outside city limits were not assessed for functions and were not assigned a conservation class. LWI wetlands are classified using Cowardin classification (Cowardin et al, 1979) and are represented by spatial data. The most common wetland type identified by the LWI is palustrine emergent (PEM) wetlands. Palustrine scrub-shrub (PSS), PFO and palustrine open water (POW) wetlands are also mapped within the API.

The API traverses a rapidly urbanizing portion of the City of Grants Pass and the associated Urban Growth Boundary. Dominant land uses include commercial, industrial and residential development along both US 199 and Redwood Avenue. Urban development and competing agricultural water uses have drastically affected the localized hydrology within the API. Irrigation ditches, roadside ditches, and extensive impervious surfaces alter natural hydrologic processes. These alterations have limited the functional capacity of wetlands and water resources within the API, as well as affecting peak and base flows by increasing runoff and decreasing retention. Channelization of streams has eliminated connectivity with flood plains and stream terraces.

Habitat fragmentation associated with dense urban development impedes wildlife habitat functioning and migration corridors. An example of habitat fragmentation is visible at the intersection of US 199 and Redwood Avenue where an isolated cottonwood stand in a depressional area was likely once within the riparian zone of Allen Creek. This example depicts the loss of riparian/floodplain connectivity as a result of rapid urbanization, and more specifically the placement of Allen Creek into a culvert for several hundred feet from the API to the Rogue River.

Widespread irrigation infrastructure has created man-induced and augmented wetland hydrology, which provides new normal circumstances for wetland development. Conversely, irrigation may have diverted natural hydrologic processes resulting in hydrologic impacts to natural wetlands. Irrigation canals provide a hydrologic connection from wetlands to waters throughout much of the API.

Wetlands

Multiple wetlands are identified within the API. Wetland plant communities include forested, scrub-shrub and emergent herbaceous. Vernal seeps and pasture wetlands are included as emergent herbaceous wetlands. HGM classifications vary, but the majority of identified wetlands are classified as Slope Valley (SV) and Riverine Flow-through (RFT) wetlands.

Forested Wetlands: Palustrine, forested, seasonally flooded/saturated (PFOE) wetlands are present within the API throughout the ancient Rogue River terrace. HGM classifications of forested wetlands include Riverine Flow-through (RFT) and Slope Valley (SV) wetlands. PFOE/RFT wetlands are most often associated with water resources such as Allen Creek and Sand Creek to the 2-year flood elevation. PFOE/RFT wetlands provide thermoregulation and resident fish habitat support functions. PFOE/SV wetlands occupy bottomland terraces near the base of gentle slopes. The two largest PFOE wetlands are associated hydrologically with irrigation canals which traverse them. These canals hydrologically connect Allen Creek to Sand Creek, as well as

several wetlands in between. Mature black cottonwood and large snags provide bird habitat and nesting opportunities. PFOE wetlands also provide carbon sequestration, primary production, water quality and water storage functions. A western fence lizard, mallards and songbirds were observed during the field investigation.

Plant communities are dominated by black cottonwood (*Populus balsamifera*; FAC), red alder (*Alnus rubra*; FAC), Oregon ash (*Fraxinus latifolia*; FACW), Douglas' spiraea (*Spiraea douglasii*; FACW) various wild rose species (*Rosa* spp.), willows (*Salix* spp.), Himalayan blackberry (*Rubus armeniacus;* FACU*)*, horsetail (*Equisetum arvense*; FAC), reed canary grass (*Phalaris arundinacea;* FACW*),* straw color flatsedge *(Cyperus strigosus;* FACW*),* slough sedge (*Carex obnupta*; OBL), cattail (*Typha latifolia*; OBL), scouring rush (*Equisetum hyemale*; FACW) and deer fern (*Blechnum spicant*; FAC+).

Scrub-Shrub Wetlands: One palustrine, scrub-shrub, seasonally flooded/saturated (PSSE) wetland is located within the API. The HGM classification of the PSSE wetland is RFT. This wetland provides water quality improvement and water storage, as well as invertebrate, songbird and amphibian habitat support functions. Water quality and storage are key functions of this urban wetland due to adjacent residential development and ground disturbance, increased impervious surfaces and stormwater runoff. Hydrophytic vegetation includes soft rush (*Juncus effusus*; FACW), curly dock (*Rumex crispus*; FAC+), wild rose species, willow species, Douglas' spiraea and Oregon ash saplings.

Emergent Herbaceous Wetlands: Palustrine, emergent, seasonally flooded/saturated (PEME) wetlands are identified within the API. The HGM classification of the majority of the PEME wetlands is SV or RFT. PEME/SV wetlands provide songbird habitat support, waterbird habitat support, nutrient cycling, water quality and short term water storage functions within the API. PEME/RFT wetlands within the API are most often linear wetlands associated with water resources. RFT wetlands provide shoreline stabilization, water storage, water

quality improvement, amphibian and invertebrate habitat support functions. Common emergent herbaceous wetland vegetation includes meadow foxtail (*Alopecuris pratensis*; FACW), red fescue (*Festuca rubra*; FAC+), rushes (*Juncus* spp.), sedges (*Carex* spp.), toad rush (*Juncus bufonius*; FACW-), straw colored flat sedge, bentgrass species (*Agrostis* spp.), American speedwell (*Veronica americana*; OBL), willow herb (*Epilobium* spp.), aster (*Aster spp.*) and cattail. Tall fescue (*Festuca arundinacea*; FAC-) is a dominant species identified throughout PEME/SV wetlands. Encroaching woody vegetation includes wild rose, black hawthorne (*Crataegus douglasii*; FAC+), cottonwood and red alder.

Vernal Seeps classified as PEME/SV are distinguished from other PEME wetlands by their ephemeral hydrology and diverse native plant population. These vernally wet meadow wetlands function highly regarding botanical biodiversity maintenance. Most of the vernal seeps present within the API are adjacent to the south of US 199 from the RCC entrance to the west. Located on convex slopes just above the ancient Rogue River terrace, these small groundwater and precipitation driven herbaceous plant communities contain native hydrophytes such as common camas (*Camassia quamash*; FACW), popcornflower (*Plagiobothrys* spp.), dense spike primrose (*Epilobium densiflorum*; FACW-), green sheathed sedge (*Carex feta*; FACW), Howell's montia (*Montia howellii*; FACW-), slender rush (*Juncus tenuis*; FACW-), Oregon saxifrage (*Saxifraga oregana*; FACW+), navarretia (*Navarretia intertexta*; FACW), forget-me-not (*Myosotis* spp.), buttercup (*Ranunculus* spp.) checkermallow (*Sidalcea* spp.), shooting stars (*Dodecathon* spp.), marsh cudweed (*Gnaphalium palustre*; FAC+), purslane speedwell (*Veronica peregrina*; OBL), annual hairgrass (*Deschampsia danthonioides*; FACW-), ladies tresses (*Spiranthes romanzoffiana*; FACW), owls clover (*Orthocarpus* spp.) and monkeyflower (*Mimulus guttatus*; OBL). Other native plants associated with these seasonal wetlands, but not recognized as hydrophytes, include woodrush (*Luzula* spp.), white brodiaea (*Triteleia hyacinthina*; FACU) and mules ears (*Wyethia angustifolia*; FACU).

Potentially jurisdictional pasture wetlands are located east of Hubbard Lane and west of the south 'Y' intersection, south of US 199. Access was limited to the right of way fence line, where hydric soils and wetland hydrology were observed among overgrazed and unidentifiable grasses. The pasture wetlands are classified as PEME/SV. Pasture wetlands provide water storage, nutrient cycling and water quality improvement functions. The high productivity of the pasture wetlands provides value for livestock forage.

Water Resources

Water resources identified within the API include Rogue River tributaries such as Allen Creek and Sand Creek, an unnamed perennial tributary, intermittent tributaries, ponds, irrigation canals and potentially jurisdictional roadside ditches.

Allen Creek: Allen Creek is a channelized tributary to the Rogue River classified as riverine, lower perennial, stream bed (R2SB). Critical habitat for SONC Coho extends 300' laterally from the creek. Allen Creek is not listed as Essential Salmonid Habitat by DSL, and was not included on DEQ's 303 (d) list of water quality limited water bodies (DEQ, 2002). The Allen Creek basin encompasses approximately 4,450 acres (DEA, 1999).

Allen Creek is an urban water resource within the API. Much of the basin is currently urbanizing and has been modified as a result of past agricultural, residential, industrial and commercial development. Irrigation uses from Allen Creek reduce summer flow resulting in increased water temperature. Fragmentation of riparian habitat is visible at the US 199 and Redwood Avenue intersection, where an isolated black cottonwood stand was likely part of the riparian zone of Allen Creek. The US 199 Allen Creek culvert has adversely affected riparian productivity, in-stream habitat complexity, fish passage and terrestrial riparian habitat continuity.

Despite past impacts to Allen Creek and the riparian zone, the water resource continues to provide aquatic and terrestrial habitat support. Streambed substrate consists of orange-sized gravels, pea-sized gravels, and sand. Sediment and debris

deposits were observed above the aquatic resource limits (OHWL) within the riparian forest. Narrow RFT "wetlands" extend to the 2-year flood elevation within the forested riparian area. These forested RFT wetlands provide shoreline stabilization, fish habitat support, thermoregulation, and songbird habitat. Fish passage obstacles such as the US 199 culvert and associated high flow velocities reduce the capacity of the creek to support over wintering, refugia, or spawning and rearing habitat for salmonids within the API. Large Woody Debris (LWD) and habitat complexity is generally scarce, but shallow pools, overhanging vegetation, and undercut banks with protruding root masses are present upstream of the US 199 culvert within the active channel. Riparian vegetation includes cottonwood, Oregon white oak (*Quercus garryana*; NOL), red alder, big-leaf maple (*Acer macrophyllum*; FACU), Oregon ash, willow, Ponderosa pine (*Pinus ponderosa*; FACU-), Douglas-fir (*Pseudotsuga menziesii*; FACU), incense cedar (*Calocedrus decurrens*; NOL), Himalayan blackberry, climbing nightshade (*Solanum dulcamara*; FAC+) scouring rush, American speedwell, blue wild rye (*Elymus glaucus*; FACU) and reed-canary grass. The riparian zone provides organic matter, habitat features, moderation of peak and base flows, and water quality benefits to Allen Creek's aquatic resources. Amphibians, invertebrates and terrestrial wildlife also utilize the riparian forest.

Sand Creek: Sand Creek is a heavily altered tributary to the Rogue River classified as R2SB. Critical habitat for SONC Coho extends 300' laterally from the creek. The lower reaches of Sand Creek outside the API are designated Essential Salmonid Habitat by DSL. Sand Creek was not included on DEQ's 303 (d) list of water quality limited water bodies (DEQ, 2002). The Sand Creek basin encompasses 4,240 acres (DEA, 1999).

Sand Creek is a sister stream of Allen Creek, and the two Rogue River tributaries are very similar; however, the Sand Creek basin is somewhat less urbanized/developed. Both Allen and Sand Creek have been substantially modified by agricultural, residential and other land uses. For a description of in-stream aquatic habitat structure, terrestrial riparian

habitat, and functions provided please refer to the Allen Creek description above.

Unnamed Perennial Tributary: Located immediately to the west of Hubbard Lane south of US 199 is a riverine, upper perennial, aquatic bed (R3AB) water resource which was mapped by the LWI as a wetland. A portion of the unnamed tributary is artificially impounded by a concrete structure with two lateral retaining walls and a weir at the outlet. This R3AB water resource enters a culvert at US 199, briefly daylights for approximately 30 feet on the north side of US 199, then enters another culvert which crosses beneath recent development for hundreds of feet before entering either an irrigation canal or Sand Creek (no access to track and difficult to observe on aerials). Riparian vegetation includes red alder, incense cedar, Ponderosa pine, Himalayan blackberry, geranium (*Geranium* spp.), soft rush, cattail, American speedwell and tall fescue. This unnamed tributary receives a great deal of stormwater runoff from residential development. Much of the contributing watershed is urbanizing via residential development. Several unidentified fish, a Pacific tree frog and a crayfish were observed within the water resource. The unnamed perennial tributary provides water quality and storage functions, as well as aquatic habitat support.

Intermittent Tributaries: Several natural seasonal tributaries traverse the API from RCC to the west. These natural water resources are classified as riverine, intermittent, streambed (R4SB). Narrow RFT wetlands are associated with seasonal tributaries where vegetated streambanks contain field indicators of high water such as debris lines and sediment deposits. These seasonal tributaries are likely somewhat spring-fed. All seasonal tributaries flow from south to north within the API, and often discharge to irrigation canals and/or Sand Creek. Stream substrate mostly consists of small gravel and sand. Streambanks are most often gently sloping and stabilized by woody vegetation. Common riparian vegetation includes black cottonwood, red alder, black hawthorne, Pacific crabapple *(Malus fusca; FAC+),* Oregon white oak, Pacific madrone (*Arbutus menziesii*; FACU), Ponderosa pine, poison oak (*Toxicodendron diversilobum*; FACU), oceanspray

(*Holodiscus discolor*; NOL), snowberry (*Symphoricarpos albus*; FACU), blue wild rye and reed canary grass. These areas provide nesting and cover habitat, feeding and watering areas for amphibians, songbirds, and other wildlife. A nesting wild turkey and common mallard were observed utilizing two of the small tributary water resources. Seasonal tributaries and their associated riparian areas also provide water storage benefits and regulation of peak and base flows in receiving waters.

Ponds: Two palustrine open water/aquatic bed (POW/AB) resources are identified north of US 199 west of RCC, and two are identified south of US 199 west of Allen Creek Rd. These ponds are created impoundments which utilize seasonal tributaries, irrigation leakage and/or seasonal runoff as hydrology sources to maintain open water. All the ponds contain aquatic algae. Hydrophytic vegetation includes aquatic bed type plants such as water starwort (*Callitriche* spp.), and littoral fringe species such as straw colored flatsedge and soft rush. Riparian vegetation includes Pacific madrone, Oregon white oak, Ponderosa pine, red alder, Himalayan blackberry, tall fescue, Pacific sanicle *(Sanicula crassicaulis;* NOL) and common horsetail. The riparian area at Dawn Drive also contains native wildflowers such as scarlet fritillary (*Frittilaria recurva)*, shooting stars (*Dodecathon* spp.), cat's ears (*Calochortus* spp.) and larkspur (*Delphinium* spp.). Waterfowl, amphibian and invertebrate habitat is supported by these ponds. Three of the ponds appear maintained by private landowners, who provide nest boxes for birds. An American goldfinch, a mallard and six wood ducks were observed utilizing these water resources.

Other Waters: Roadside drainage ditches are potentially jurisdictional water resources if a connection to a natural waterway, bed and bank characteristics, and an ordinary high water mark is present. Roadside drainage ditches may also be potentially jurisdictional if they are located adjacent to wetlands, if they were excavated from wetlands or if they are channelized streams. The majority of the roadside ditches within the API are not likely jurisdictional water resources, but rather potential point sources artificially created in uplands

which will be addressed via stormwater management plans and 401 water quality certification. Common hydrophytes observed within potentially jurisdictional roadside drainage ditches include reed canary grass, American speedwell, straw color flatsedge, soft rush and cattail. Bullfrogs and a nesting mallard were observed utilizing these roadside ditches. Many roadside ditches are/were used during the irrigation season for conveyance purposes.

Substantial irrigation infrastructure is located throughout the API. This irrigation infrastructure forms a distinct hydrologic connection among many of the wetlands and water resources identified. The Grants Pass Irrigation District manages and maintains the irrigation system. Irrigation infrastructure mostly consists of concrete trapezoidal channels of varying size, control valves and boxes. Irrigation canals may potentially be jurisdictional water resources if they are not entirely de-watered during the non-irrigation season, exchange surface water with a natural waterway and contain an ordinary high water mark with bed and bank characteristics. Reed canary grass, Himalayan blackberry and other non-native pioneer plant species are most commonly associated with irrigation channels. Aquatic algae are also common.

One small stormwater treatment pond was identified within the Grange Coop. property south of US 199 and west of Ringuettte Street. The pond is approximately 0.10 acre and contains a littoral fringe hydrophytic plant community consisting of straw colored flatsedge, reed canary grass and cattail.

6. Temporary Impacts

No Build

The No Build Alternative would have no temporary impacts to wetlands and water resources within the API.

Alternative A

Alternative A will have temporary impacts to wildlife due to construction activities, heavy machinery and increased human

presence. These impacts may be classified as nuisances. Other common temporary impacts such as the loss of trees and soil disturbance will be mitigated via site restoration and erosion and sediment control plans. The temporary loss of riparian or wetland trees may be considered a long-term temporary impact despite replanting due to long regeneration times.

Midway Avenue to Dowell Road

Temporary impacts to wetlands and water resources may derive from access needs. Since cross-drain culverts will be extended and/or replaced there may be a need for temporary work areas outside the permanent impact areas. Temporary access via wetlands, water resources and/or riparian zones will be avoided by performing roadway expansion from the roadway to the extent practicable.

Dowell Road to Fairgrounds

Temporary impacts to wetlands and water resources may derive from access needs. Since cross-drain culverts will be extended and/or replaced there will likely be a need for temporary work areas outside the permanent impact areas. Temporary access via wetlands, waters and/or riparian areas will be avoided by performing roadway expansion from the roadway.

Fairgrounds to Tussey Lane

Temporary impacts to wetlands are not anticipated since no wetlands are identified in this section. The only water resources identified within this section are an irrigation canal and a potentially jurisdictional stormwater ditch tributary. Temporary impacts may occur as a result of access needs to extend the US 199 concrete box culvert which conveys the irrigation canal.

Alternative C

Midway Avenue to Dowell Road

Temporary impacts to wetlands and water resources will be the same as Alternative A.

Dowell Road to Fairgrounds

Temporary impacts to wetlands and water resources will be the same as Alternative A.

Fairgrounds to Tussey Lane

Temporary impacts to wetlands and water resources will be the same as Alternative A.

7. Long-Term Impacts

No Build

Selecting the No Build Alternative would not directly impact wetlands and water resources within the API. Stormwater treatment would not be upgraded and water quality may degrade over time as ADT (i.e. pollutant loading) increases beyond current levels. Other projects scheduled to occur under the no-build alternative, as described in section 3 above, may impact wetlands and water resources directly or indirectly. The other projects must also address wetlands and water resources, ESA and water quality compliance.

Alternative A

Please refer to Exhibit 2 for a summary of approximate wetlands and water resources impacts. Figures depicting wetlands and water resources impact mapping are provided in Appendix B (Figures 7-14).

Midway Avenue to Dowell Road

The majority of the wetlands impacts occur between Midway Avenue and Dowell Road. The riparian zone of Sand Creek will be impacted within this section. Intermittent streams and a pond will also be impacted.

Wetlands and water resource impacts are primarily derived from roadway widening for median barrier and curb installation, widening for U-turn movements (at Midway Ave.) and access upgrades at the RCC entrance, Dawn Drive, Midway Avenue and Arbor Ridge Drive (right in/right out movements). Impacts to wetlands may also occur from development of a deceleration lane eastbound on 199 to the RCC entrance. Placement of a stormwater detention facility at RCC will also impact wetlands.

Forested wetlands located adjacent to the north of US 199 and east of Sand Creek will be unavoidable. A total of approximately 0.44 acres of impacts to PFOE/SV wetlands are anticipated within this section of the project. Two large individual forested wetlands mapped by the LWI are present. The first forested wetland is located just east of Sand Creek. The second forested wetland is located a block west of Dowell Road. Carbon sequestration, primary production, and water storage functions will be impacted. Wildlife habitat functioning of the forested wetlands will also be reduced.

Impacts to the south of US 199 between Arbor Ridge Drive and Dawn Drive, and at RCC will consist of sliver fills in PEME/SV wetlands. A total of approximately 0.41 acres of impacts to PEME/SV wetlands are anticipated within this section of the project. Impacts are derived from road widening and respective access upgrades. The primary impacted function provided by the "vernal seep" wetlands in this section is botanical biodiversity maintenance. Native hydrophytes such as Oregon saxifrage, needle leaf navarretia and popcornflower are present, but no listed plants are known to be present. Pasture wetlands that are classified as PEME/SV will also be impacted south of US 199 and east of Sand Creek. The pasture wetlands provide nutrient cycling, water quality, and water storage functions.

Direct impacts below OHW of Sand Creek will be avoided; however, there will be impacts to approximately 0.68 acre of riparian CH at Sand Creek resulting from construction of a new separated pedestrian trail and bridge. Bridge construction will include excavation, pile driving, riprap stream bank armoring and pouring of concrete within the riparian zone and designated CH. Functional losses include shading, detritus and organic matter export, and loss of habitat and channel forming processes.

Approximately 0.01 acre of the larger tributary stream west of Hubbard Lane will be impacted by culvert extension derived from roadway expansion. Few, if any, large riparian trees will be taken. This larger tributary contained unidentified fish

observed during field investigations. Impacts to aquatic habitat are considered minor.

Intermittent tributaries may be impacted by roadway widening and associated culvert extensions. Impacts to intermittent streams will consist of a loss of riparian vegetation and streambed replacement by culvert extension. Impacts to the intermittent tributaries are not yet quantified. A slight loss of habitat and water storage capacity is assumed.

Approximately 0.07 acre of an identified pond (POW/AB) will be impacted to improve the Dawn Drive access. The pond is located adjacent to the east of Dawn Drive, north of US 199. This pond was likely created from the artificial impoundment of surface water runoff derived from the original construction of the Dawn Drive access. Despite the likelihood that the pond was artificially created, it does provide water storage, water quality improvement, waterfowl and other wildlife habitat support functions. Of particular concern for avoidance/minimization are the native wildflowers located throughout the adjacent riparian upland buffer.

Dowell Road to Fairgrounds

Impacts to wetlands will result from this segment becoming a 6 lane roadway with a raised barrier. Impacts will mostly consist of sliver fills from roadway expansion. Wetlands are especially difficult to avoid since they are located adjacent to the roadway prism. Much of the widening on the eastern portion of the Dowell to Fairgrounds segment will not impact wetlands; rather the project will modify existing functionally impervious disturbed areas.

Impacts to approximately 0.11 acre PFOE/SV wetlands located north of US 199 at Thelma Lou Lane appear unavoidable. Wildlife habitat functioning is relatively low where impacts will occur due to the adjacent busy highway. The forested wetlands identified are within the rapidly urbanizing area of Grants Pass and are likely to become more isolated/fragmented with continued development. Functions provided by the PFOE wetlands include water quality improvement and water storage.

Impacts to approximately 0.22 acre PEME/SV wetlands located adjacent to the south of US 199 and west of Thelma

Lou Lane are anticipated. These PEME/SV wetlands provide waterfowl and songbird habitat, water quality improvements, as well as water storage functions.

There are no identified wetlands or waters within the Allen Creek Road interchange footprint that will be directly impacted under Alternative A, and the majority of the existing ground surface may currently be considered functionally impervious. One potential concern is the proximity of the new streets to the riparian zone of Allen Creek and associated CH.

Fairgrounds to Tussey Lane

Impacts to wetlands and water resources are limited to one potentially jurisdictional existing stormwater ditch tributary and one irrigation canal. The small stormwater ditch tributary may not be considered a jurisdictional resource and provides negligible water quality benefits. The irrigation canal's primary function of water conveyance will be maintained despite potential expansion of the US 199 culvert. Impacts to wetlands or natural water resources are expected to be minor within this portion of the project. The impact of primary concern would result from stormwater management issues, which will be addressed via upgraded stormwater management facilities including bio-swales.

Alternative C

Please refer to Exhibit 2 for a summary of wetlands impacts. Figures depicting wetlands and water resources impact mapping are provided in Appendix C (Figures 15-23).

Midway Avenue to Dowell Road

Long-term impacts to wetlands and water resources will be the same as Alternative A.

Dowell Road to Fairgrounds

The proposed Redwood Avenue roadway expansion will impact approximately 0.03 acre of PSSE/RFT wetland (Figure 21) at its' western extent. The wetland is located east of Shady Lane on the north side of Redwood Avenue. The sliver fills will reduce the functional area of the wetland, but will not impact the entire wetland. The PSSE/RFT wetland provides sediment retention and water quality improvement functions, as

well as wildlife habitat within the urbanizing area. This wetland will be avoided under Alternative A.

The remaining upgrades to this section will result in the same long-term impacts as Alternative A.

Fairgrounds to Tussey Lane

Long-term impacts to wetlands and water resources will be generally the same as Alternative A since the new Allen Creek Road intersection will be constructed mostly in disturbed and functionally impervious surface areas.

8. Indirect and Cummulative Effects

Indirect and cumulative effects may be beneficial or detrimental to wetlands and water resources. Generally, indirect impacts and benefits occur as a result of a proposed project action, but take place later in time than the initial action. Cumulative impacts and benefits occur as a result of the combined effects of several proposed or considered project actions that may take place in the API before, during, or after the project timeframe.

Indirect Effects

The project is not expected to have significant indirect effects outside the project footprint due primarily to the fact that the project will generally expand existing roadways as opposed to building new roads. New roads will be built in existing functionally impervious surfaces, for the most part. Indirect effects resulting from large increases in ISA, alteration of existing hydrology in terms of stormwater management, and from utility infrastructure relocation or alteration may occur. Where new roads will be constructed at the Allen Creek intersection, impacts to natural resources are minor due to the presence of existing functionally impervious surfaces. No wetlands or water resources impacts are anticipated at the Allen Creek intersection. Stormwater management will mitigate effects of water quality and quantity in runoff generated from this intersection improvement. Existing hydrology throughout the API will be maintained to the extent practicable and

allowable for stormwater management, in order to reduce effects to existing hydrology.

Cumulative Effects

Both the City of Grants Pass and ODOT have future projects planned in this area. The extent, timing of construction and impacts from these projects are currently unknown, however are anticipated to take place within the 20 year planning horizon of this document

The Grants Pass area is experiencing rapid growth so future impacts to the environmental baseline can be expected. Future projects include:

- 6th-7th Street- Grants Pass Bundle- ODOT and City of Grants Pass
- US 199 Passing Lanes- ODOT
- Grants Pass Parkway Resurfacing- ODOT
- OR99-238 Paving- ODOT
- Redwood Avenue reconstruction- City of Grants Pass
- Intersection of Redwood Ave and Dowell Road- City of Grants Pass
- West Park Improvement Project- City of Grants Pass
- US 199 RCC to Midway-ODOT

The US 199 expressway will function as an interurban route designed to ease regional mobility. Additional development is likely to occur off the expressway on new frontage roads and city streets, but not adjacent to US 199 as access is controlled. Wetlands will likely become more fragmented and impervious surfaces will increase due to the continued urbanization adjacent to the API. Wetlands and water resources to be avoided by the US 199 expressway project in the western portion of the API, west of RCC, will likely continue to provide similar functions as they do today because of Urban Growth Boundaries. Residential development in this western

section may affect wetlands and waters outside the API, however.

9. Mitigation

Impacts to wetlands and water resources shall be avoided and minimized to the greatest practicable extent while meeting the project purpose and need. Once an alternative project design is chosen, avoidance and minimization of impacts to wetlands and waters will be addressed further as design becomes more refined. Complete avoidance of wetland and water resource impacts is not practicable due to the location of several wetlands directly adjacent to the highway, and the fact that several water resources transect the highway. Guardrail may be added where appropriate to avoid impacts to wetlands by increasing roadway fill slope steepness. Avoidance of CH/riparian areas at Allen Creek will occur. The new pedestrian bridge over Sand Creek will fully span the OHWL. Fish will be excluded from the work area at the Sand Creek pedestrian bridge to minimize the potential for incidental take, as appropriate. Local setback requirement for wetlands and riparian zones will be adhered to as practicable to further minimize long term impacts by maintaining buffers. Wetlands and waters identified as avoidable by the project team will be identified as “no work zones” or “restricted work zones”. Stormwater management plans will avoid direct impacts to wetlands to the extent practicable.

Temporary Impacts

Best management practices will mitigate temporary impacts. An erosion and sediment control (ESC) plan, and a pollution control plan will be developed for the purpose of preventing deleterious substances from entering wetlands and waters. The ESC plan will be in compliance with ODOT’s NPDES 1200 CA permit. Temporary impacts to wetlands are not anticipated, but if they are found to be unavoidable a wetland restoration plan will be developed and implemented. Where temporary impacts to the riparian zone of Sand Creek are unavoidable, site restoration plans will mitigate adverse effects. Both

wetland and riparian restoration plans would include grading plans, planting plans, and the use of native materials such as LWD, rock and soil for habitat structure. Restoration plans will be monitored and maintained for a minimum 5 year period to ensure success.

Long-Term Impacts

Wetland and riparian tree removal may be considered long-term temporary impacts despite replanting efforts. A site restoration plan, referred to above, will be developed to re-vegetate all disturbed wetlands and water resources, including the riparian zone and CH of Sand Creek, and other riparian areas.

Compensatory Wetland Mitigation: Because both alternatives have nearly identical impacts, compensatory mitigation plans would be nearly identical as well. On-site CWM is believed to be inappropriate in this case due to:

- The presence of busy roads within the API;
- The presence of an urbanizing development zone adjacent to the API;
- The likelihood of future alterations to hydrologic processes within the API;
- The need for engineered stormwater management facilities within the API;
- The limited available space on-site; and
- The lack of appropriate restoration opportunities near by.

Off-site compensatory wetland mitigation would provide for more sustainable habitat and biodiversity functions if developed outside rapidly urbanizing areas with sufficient buffer zones. The current preferred method of compensatory wetland mitigation is to use an ODOT developed wetlands mitigation bank, scheduled to be operational by January 2008.

The Unnamed Perennial Tributary located immediately to the west of Hubbard Lane contains unidentified fish species. An ODFW exemption for fish passage may be required to expand the culvert, since meeting fish passage guidance is likely cost prohibitive.

Both alternatives will address water quality and quantity via SWMP. SWM infrastructure should avoid wetlands and other higher quality habitat (oak woodlands, mature coniferous forest, and riparian areas) to the extent practicable. Drainage facilities such as ditches and culverts should be designed to maintain existing surface and groundwater hydrology, as appropriate.

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11. Glossary

Term	Definition
Wetlands	Those areas that are inundated or saturated at a duration or frequency which, under normal circumstances, support plants adapted for life in saturated soil conditions (Environmental Laboratory 1987)
Hydric	<Insert definition>
<Insert Term>	<Insert definition>
<Insert Term>	<Insert definition>
<Insert term>	<Insert definition>

Appendix A

Wetlands Baseline Mapping

Appendix B

Alternative A Wetlands and Water Resources Impact Mapping

Figures 7-14 (shown west to east)

Appendix C

Alternative C Wetlands and Water Resources Impact Mapping

Figures 15-23 (shown west to east)