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## 4. Mitigation

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Mitigation is proposed to avoid, minimize, or compensate for impacts that would occur as a result of the proposed action. Mitigation for the Downtown Brookings – Highway 101 Transportation Solutions Project has been divided into two types of mitigation:

- construction mitigation that would be applied for impacts that would occur during construction, and
- other mitigation that would be applied to compensate for impacts that would occur due to long term impacts from the proposed action, or from the No-Build alternative.

### 4.1 Transportation Mitigation

#### 4.1.1 Alternative 4

##### 4.1.1.1 Construction Mitigation

Roadway construction associated with the implementation of Alternative 4 could result in temporary adverse impacts to traffic operation within the study area. It is assumed that ODOT would develop a Traffic Management Plan (TMP) prior to commencing construction activities. The TMP would need to include public outreach to ensure that adverse impacts to area businesses are minimized during construction.

##### 4.1.1.2 Other Mitigation

Under Alternative 4, all study area intersections would operate within the mobility standard in the 2007 peak hour, as prescribed by the HDM (0.75 v/c) and the proposed STA designation (0.90 v/c) within downtown Brookings. The intersection of Chetco Avenue/Constitution Way would exceed the mobility standard in 2027, but this intersection would be unaffected by couplet-related traffic patterns to the north and is not part of the proposed action (this intersection would also exceed the standard in the No-Build scenario).

The Alternative 4 street network would eliminate some study area street connections. Of particular concern are classified streets that would no longer be able to perform their function as a result of losing their connections to the rest of the system. Specifically, portions of Memory Lane and Center Street (both collector streets) would be eliminated. The Memory Lane and Cove Road legs would be eliminated from the existing Railroad Street/Wharf Street/Cove Road/Memory Lane intersection to improve safety. To replace the function of Memory Lane as a collector facility, a nearby parallel route like Tanbark Road would need to be reclassified, which would require that the facility meet design standards for collector streets prescribed by the Brookings TSP. It is also possible that Tanbark Road would experience higher traffic volumes with its new higher functional classification and the associated redistribution of traffic. Similar measures would be required if the segment of Center Street between Chetco Avenue and Spruce Street is eliminated. A nearby parallel route (like Mill Street) would need to be reclassified,

which would include specific design standards and could possibly result in higher traffic volumes.

To reduce the potential for problems with higher vehicle speeds, pedestrians could be encouraged to cross Chetco Avenue or Railroad Street at signalized intersections, as these locations would have amenities like marked crosswalks and pedestrian signal push buttons. In addition, signage advising motorists of bicycle/pedestrian cross-traffic could increase awareness of non-motorized travelers.

The various proposed right turn channels could pose potential safety problems for bicycles and pedestrians, as vehicle-turning speeds could increase with broader turning radii. To increase safety for non-motorized traffic, crosswalks within the right turn channels and signage advising motorists of pedestrian crossings could be included, per ODOT standards. Striped bicycle lanes could also be maintained through these right turn channel areas. Maintaining bicycle lane striping through these areas with dashed lines (rather than “dropping” them) would comply with the requirements of the ODOT *Bicycle and Pedestrian Plan* and would increase motorist awareness of bicycle traffic in these areas.

The two “merge/diverge” points associated with Alternative 4 could pose safety problems for non-motorized travel, especially for pedestrians attempting to cross vehicle travel lanes in these areas. While bicycle traffic usually travels in the same direction as vehicle traffic, pedestrians travel in both directions on sidewalks regardless of vehicle traffic flow. The crossing issues specific to this alternative would pertain to pedestrians on the west side of Chetco Avenue at the merge/diverge areas. In order to pass through these areas on the west side of the street, pedestrians would need to cross several vehicle travel lanes. While raised islands are proposed at these locations, they may not provide enough safety for pedestrian crossings. To address this problem, safer pedestrian amenities (like marked crosswalks and possibly signalized crossings) should be considered. If this would create unacceptable adverse impacts on vehicle traffic flow, pedestrian crossings could need to be prohibited at these locations. Prohibiting pedestrian crossings however should be avoided when possible, as these limitations would result in reduced connectivity.

#### **4.1.1.3 Property Access Mitigation**

Driveway access modifications on the northbound and southbound alignments of U.S. 101 (including driveway relocation, closure and/or consolidation) would be based on ODOT procedures in place when the roadway design phase began. Currently, no construction funding has been identified for the proposed action. Roadway design would begin once construction funding was secured.

### **4.1.2 Alternative 5**

#### **4.1.2.1 Construction Mitigation**

Roadway construction associated with the implementation of Alternative 5 could result in temporary adverse impacts to traffic operations within the study area. It is assumed that ODOT would develop a TMP prior to commencing construction activities. The TMP would need to

include public outreach to ensure that adverse impacts to area businesses are minimized during construction.

#### 4.1.2.2 Other Mitigation

During the 2027 peak hour, three signalized intersections and one unsignalized intersection are projected to operate with v/c ratios exceeding the HDM mobility standard. Specifically, these intersections include Chetco Avenue/Mill Street-Hillside Avenue, Chetco Avenue/Oak Street, and Chetco Avenue/Alder Street. These intersections are located within the proposed Special Transportation Area. If the STA designation is approved, these intersections would operate within the acceptable STA mobility standard (0.90 v/c). Mitigation measures for off-system street improvements and reclassifications to the Railroad Street/Wharf Street/Cove Road/Memory Lane intersection and Center Street would be identical to those described for Alternative 4.

#### 4.1.2.3 Parking Mitigation

To accommodate projected traffic flows and increase traffic safety, on-street parking would be removed from Chetco Avenue in the study area under Alternative 5. This would translate to the removal of roughly 95 existing on-street parking spaces along Chetco Avenue between Arnold Lane and Alder Street. ODOT and the City of Brookings could work to find possible locations for additional parking to mitigate for this loss of parking. Additional parking would likely be in the form of on-street parking on side-streets or new off-street facilities. Prior to adding parking facilities in other locations, it would be beneficial to conduct a study focused on the on-street parking facilities on Chetco Avenue. This study should determine parking utilization rates, and this information would help in calculating the amount of parking that would actually need to be replaced. Any parking replacement recommendations would ultimately need to comply with the policies and regulations dictated by the Brookings TSP, the Downtown Master Plan, and other pertinent planning documents.

#### 4.1.2.4 Bicycle and Pedestrian Mitigation

Removing on-street parking from the downtown business district would likely create an uncomfortable walking environment for pedestrians, as the buffer between the sidewalk and vehicle lanes would no longer exist. In these areas, other potential “buffer” options (like planter strips) should be considered where it can be accommodated.

The portion of Chetco Avenue east and west of 5th Street would have an eight-lane cross-section, creating a potentially uncomfortable crossing environment for bicyclists and pedestrians. At the Chetco Avenue/5th Street intersection, a pedestrian refuge island and pedestrian signal push button would be located between the northbound and southbound lanes for pedestrians who cannot cross Chetco Avenue in the time allotted by the walk signal. Even on a refuge island, pedestrians would likely feel uncomfortable while waiting in the middle of the intersection. Although traffic operations could be adversely impacted, consideration should be made to provide adequate signal time for a pedestrian to fully cross Chetco Avenue without requiring a refuge island. It would be preferable to time the pedestrian signal phase to allow slower pedestrians and those with disabilities enough time to safely cross the intersection, and to

minimize dependence on the refuge island. If Alternative 5 were identified as the preferred alternative, the design of the intersection would be refined to provide an adequate pedestrian facility.

The various proposed right turn channels could pose potential safety problems for bicycles and pedestrians, as vehicle turning speeds could increase with broader turning radii. To increase safety for non-motorized traffic, crosswalks within the right turn channels and signage advising motorists of pedestrian crossings could be included, per ODOT standards. Striped bicycle lanes could also be maintained through these right turn channel areas. Maintaining bicycle lane striping through these areas with dashed lines (rather than “dropping” them) would comply with the requirements of the ODOT *Bicycle and Pedestrian Plan* and would increase motorist awareness of bicycle traffic in these areas.

#### **4.1.2.5 Property Access Mitigation**

Driveway access modifications on the northbound and southbound alignments of U.S. 101 (including driveway relocation, closure and/or consolidation) would be based on ODOT procedures in place when the roadway design phase began. Currently, no construction funding has been identified for the proposed action. Roadway design would begin once construction funding was secured.

## **4.2 Socioeconomics Mitigation**

### **4.2.1 Construction Mitigation**

Construction of either of the Build Alternatives would cause temporary access impacts for those wishing to reach their homes, businesses, or community facilities. This could result in delays, and could require temporary out-of direction travel. Such temporary impacts could be mitigated through the development of a TMP. Regular updates of closings and detours could be provided to Brookings residents through postings on a website, and in public facilities such as City Hall, Chetco Community Public Library, and Chetco Senior Center.

Construction activities could block storefronts or create detours that would reduce important drive-by traffic for retail stores on Chetco Avenue and Railroad Street. To mitigate the effects of these disruptions, signage and clear detour routes would be used to ensure that tourist and local traffic were aware that stores in these locations are open and provide the best routes to reach them.

### **4.2.2 Other Mitigation**

#### **4.2.2.1 No-Build Alternative**

Under the No-Build Alternative, people traveling through downtown Brookings would continue to be affected by the transportation network and increasing traffic volumes. There are a number of mitigation measures that could alleviate the adverse effects of increased traffic and congestion in the No-Build alternative.

- **Crosswalks, Crossing Guards, Flashing Signs** – Any of these mitigation measures could make it easier for school children to cross Railroad and Chetco Avenues. The Transportation Technical Report notes that most collisions between vehicles and pedestrians occurred at marked, but uncontrolled, crosswalks. Flashing crosswalk signs that would not require signalized intersections could reduce vehicle-pedestrian conflicts.
- **Directional Signage to Attractions** – ODOT and the City of Brookings could encourage alternate travel patterns with the use of signage. These signs could direct motorists and pedestrians to attractions, businesses, parking, or through routes. Signage could be colored in accordance with the type of attraction.
- **Downtown Signage** – In order to create the impression that a motorist or pedestrian is entering downtown, gateway-type signage over or adjacent to Chetco or Railroad Avenues could announce when one enters and leaves historic downtown.
- **Restricted Turns** – some of the most common types of vehicle incidents in downtown Brookings are rear-end collisions between intersections, related to turning movement conflicts. Restricting left-hand turns off Chetco Avenue at non-signalized intersections could reduce these traffic conflicts.

#### 4.2.2.2 Alternative 4

The construction of Alternative 4 would require the acquisition and relocation of six homes and eight businesses. ODOT would work closely with property owners and would provide fair market value to property owners and provide relocation assistance in accordance with adopted state and federal policies. (ODOT’s relocating policy entitled “Acquiring Land for Highways and Public Projects” and “Moving Because of the Highway or Public Projects?” are included in Appendix F.) ODOT would interview the affected residents as part of a housing study to determine where individuals would like to relocate or if they have any special needs. Vacancy rates in Brookings suggest sufficient housing stock for replacement housing. Because property values in Brookings have increased dramatically over the past ten years the cost for replacing of housing may be higher than can be provided for by Replacement Housing payments. In this case the Uniform Relocation Act would provide for Housing of Last Resort (HLR) funds. HLR involves the use of payments in excess of statutory maximums or the use of other unusual methods of providing comparable housing.

ODOT could also offer a program to help the displaced business owners take advantage of reinvestment opportunities that could be created by the couplet. Such assistance could include providing support with notices and signage related to change of location (including advertising in local newspapers), and working with commercial developers to ensure that displaced business owners are notified of appropriate lease opportunities in the area.

In order to mitigate for the loss of drive by traffic for businesses on Chetco Avenue, every effort should be made to encourage travelers to visit both legs of the couplet as they pass through town. A three-block distance between legs of the couplet is not a familiar layout for most travelers so uniform and consistent signage directing visitors throughout town would increase an understanding of the town’s layout and could be very important to mitigate for the loss of drive by traffic. Providing additional parking and commercial and community attraction between

Chetco Avenue and Railroad Street could draw visitors to locations between the north and southbound legs of the couplet. Local citizens would likely require some time to adapt to new traffic patterns, but would eventually relearn routes to locations in town.

Because couplets have been shown to increase the speed of traffic, crosswalks, crossing guards, and other pedestrian safety measures could be used to reduce speeds on Railroad and Chetco Avenues. Such features would make a safer pedestrian environment for school students who live south of Railroad Street and would be required to cross two 3-lane, one-way sections of the state highway to reach school. In addition, school bus routes could be reconfigured to accommodate the new traffic flow.

The loss of tax revenue as a result of the acquisition of properties required for the construction of Alternative 4 could not be mitigated.

#### 4.2.2.3 Alternative 5

Because the construction of Alternative 5 could require the acquisition two businesses, ODOT would compensate property owners in accordance with adopted state and federal policies. (ODOT's relocating policy entitled "Acquiring Land for Highways and Public Projects" and "Moving Because of the Highway or Public Projects?" are included in Appendix F.)

If suitable property were to be found as a replacement for the loss of parking along Chetco Avenue, ODOT and the City of Brookings could work together to develop these locations. New parking facilities would likely be in the form of on-street parking on side-streets or new off-street facilities. Clear signage directing travelers to these facilities would be important to encourage people to stop. Provided the number of parking spaces constructed replaces those lost, off-street parking lots could provide an improvement over the current parking conditions. Parking lots could provide space for RV parking and allow people to get in and out of their cars without standing in the road. Parking facilities could provide signage and maps of the downtown directing tourists to various locations and services provided in the downtown.

Striped parking (which is more efficient at allocating parking spots than un-striped areas), could be applied to side streets that border Chetco Avenue to help mitigate for the increased volume of motorists seeking on-street parking off Chetco Avenue. Pedestrian improvements such as sidewalks could also be utilized to provide safer facilities for drivers that wish to park on side streets and walk to downtown.

The eight-lane intersection at 5th Street and Chetco Avenue would provide an island refuge for pedestrians that would require two cycles of the traffic light, but this is probably not enough mitigation to make this crossing comfortable for many Brookings residences. ODOT should consider allowing longer light cycles when the pedestrian crossing button is pushed instead of requiring pedestrians to make the trip in two parts.

## **4.3 Planning and Land Use Mitigation**

### **4.3.1 Construction Mitigation**

Construction of either of the Build Alternatives would require temporary traffic lane closures and limited short-term street closures and detours. Economic effects of the construction of this project would be limited to potential short-term disruptions for retail, business establishments. Other than the commercial relocations, impacts would likely be short-lived and can be mitigated through advanced planning. Impacts could be compounded if the repaving project and the Downtown Brookings – Highway 101 Transportation Solutions Project both were to occur within just a few years.

### **4.3.2 Other Mitigation**

#### **4.3.2.1 Alternative 4**

The primary mitigation measure for land use impacts of Alternative 4 would be property acquisition and relocation assistance. For property owners displaced by the project, ODOT would provide a relocation assistance program (see Section 4.2.2.2). New access to some of the properties impacted by Alternative 4 would need to be accommodated through the construction of alternative access located off 5th Street between Chetco Avenue and Railroad Street for properties that currently have access solely on Chetco Avenue or Railroad near intersections. This would include Taco Bell/KFC, McDonalds, and Les Schwab on Chetco Avenue and U.S. Bank on Railroad Street. Signage to indicate new access points for these businesses would be critical to the future success of commercial uses in this area.

#### **4.3.2.2 Alternative 5**

For property owners whose property would be acquired due to the construction of Alternative 5, ODOT would provide just compensation for property acquired and a relocation assistance program (See section 4.2.2.3). Alternative 5 would eliminate all on-street parking along Chetco Avenue. ODOT and the City of Brookings could work together to find possible locations for additional parking to mitigate for this loss of parking. Additional parking would likely be in the form of on-street parking on side-streets or new off-street facilities. New access to some of the properties impacted by Alternative 5 would need to be accommodated through the construction of alternative access located off 5th Street between Chetco Avenue and Railroad Street for properties that currently have access solely on Chetco Avenue or Railroad near intersections. This would include Taco Bell/KFC, McDonalds, and Les Schwab on Chetco Avenue and U.S. Bank on Railroad Street. Signage to indicate new access points for these businesses would be critical to the future success of commercial uses in this area.

As currently designed, Alternative 5 would require demolition of the Elmer Bankus Fountain at 5th and Chetco and acquisition of a portion of the parcel containing the fountain. Section 4(f) of the Department of Transportation Act of 1966 prohibits the “use” of such park properties unless no prudent and feasible avoidance alternative can be found. Potential measures to avoid this impact are discussed in the Draft Section 4(f) Evaluation. For example, realigning Chetco to the

south would avoid direct impacts on the fountain. This realignment, however, would result in property acquisition, parking loss and potential business displacements on the south side of Chetco. Other mitigation approaches are also being considered by ODOT and the City of Brookings.

## **4.4 Noise Mitigation**

### **4.4.1 Construction Noise Mitigation**

Construction noise levels for the Downtown Brookings – Highway 101 Transportation Solutions Project would result from normal construction activities. Noise levels for these activities could be expected to range from 70 to 100 dBA at sites 15 meters (50 feet) from the activities. These noise levels, although temporary in nature, could be annoying. The following ODOT standard construction noise abatement measures would be included in the project specifications.

1. No construction would be performed within 304.8 meters (1000 feet) of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 10 p.m. and 6 a.m. on other days, without the approval of the ODOT project Engineer.
2. All equipment used would have sound-control devices no less effective than those provided on the original equipment. No equipment would have unmuffled exhaust.
3. All equipment would comply with pertinent equipment noise standards of the U.S. Environmental Protection Agency.
4. No pile driving or blasting operations would be performed within 914.4 meters (3000 feet) of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 8 p.m. and 8 a.m. on other days, without the approval of the ODOT project Engineer.
5. The noise from rock crushing or screening operations performed within 914.4 meters (3000 feet) of any occupied dwelling would be mitigated by strategic placement of material stockpiles between the operation and the affected dwelling or by other means approved by the ODOT project Engineer.

Should a specific noise impact complaint occur during the construction of the project, one or more of the following noise mitigations could be required at the Contractor's expense, as directed by the ODOT Project Engineer:

- Locate stationary construction equipment as far from nearby noise-sensitive properties as feasible.
- Shut off idling equipment.
- Reschedule construction operations to avoid per periods of noise annoyance identified in the complaint.
- Notify nearby residents whenever extremely noisy work would be occurring.

- Install temporary or portable acoustic barriers around stationary construction noise sources.
- Operate electrically powered equipment using line voltage power or solar power.

#### **4.4.2 Other Mitigation**

Noise abatement measures were analyzed for Alternatives 4 and 5. Several options were considered for traffic noise abatement. These included truck restrictions, speed restrictions, and alignment changes. Truck restrictions were determined to be infeasible because the project area is a major route for freight movement within this region of the state of Oregon. The posted speed limit within the project area is 25 to 35 mph, which would result in reduced sound levels, compared to potentially higher posted speeds such as 40 to 45 mph.

Commercial properties adjacent to the roadway are predicted to have noise levels in excess of the ODOT commercial noise impact criteria in many cases. The commercial properties directly adjacent to the road do not have outdoor use areas, and would not be expected to benefit from noise mitigation. Some forms of mitigation (sound walls or berms) could reduce visibility from the road and are not compatible with many commercial uses. Mitigation in the form of barriers is not recommended for commercial land uses impacted by this project.

Noise mitigation in the form of barriers is not feasible for many of the residential noise impacts predicted under Alternatives 4 and 5. Several of the residences are second-story apartments located above commercial uses on Chetco Avenue (receptors 11A, 13A, 14A and 40A); barriers are not generally constructed to mitigate second-story impacts. Several residences located close to Chetco Avenue have direct lines of sight from elevated locations where barriers located on the right-of-way would not be effective (R7, R8, R10 and R17). Noise barriers were not analyzed for motels where visibility and safety are important. Direct driveway access would render barriers ineffective for the impacted residences located on Mill Beach Road (which becomes the new southbound U.S. 101 connector under Alternative 4) (R38), and several residences and the adult care home located on Railroad Street (R25, R26, R28, R31, and R33). The residence represented by R32 does not have direct driveway access onto Railroad Street but noise barriers are seldom cost effective for one residence.

The residences represented by R23, R24, R27, and R29 do not have direct driveway access onto Railroad Street. Noise barriers were considered, but not recommended to mitigate the impacts of Alternative 4 in these locations because the land is zoned commercial. The mixed uses in this area could change to commercial, and the life of the barriers might outlast the residential land uses.

Noise mitigation in the form of noise barriers is not recommended for any of the downtown Brookings alternatives

## **4.5 Archaeological Resources Mitigation**

### **4.5.1 Construction Mitigation**

If archaeological resources were to be discovered during construction of the project the contractor must comply with all laws governing preservation of cultural resources. Cultural resources could include, but are not limited to, dwellings, bridges, trails, fossils, and artifacts. If cultural resources were to be encountered on the Project area or in material sources, and their disposition is not addressed in the Special Provisions the contractor would be required to follow ODOT standard measures for the protection of Archeological resources (Section 00290.51 Protection of Sensitive Cultural Sites).

## **4.6 Biological Resources Mitigation**

### **4.6.1 Construction Mitigation**

There are no sensitive wildlife resources in the area of potential impact, so no mitigation would be required (other than the mitigation specified for Water Quality). Construction does have the potential to introduce noxious weeds. The construction contract would include language that would require the contractor to control existing noxious weeds in the project area, and prevent the establishment of other weeds identified in the Oregon Noxious Weed Policy and Identification System maintained by the Department of Agriculture.

## **4.7 Hazardous Materials Mitigation**

### **4.7.1 Construction Mitigation**

A Pollution Control Plan (PCP) would be prepared, incorporated into construction bid documents, and implemented for construction activities during the project, specifically near areas of known or potential contamination. The required elements of a PCP are outlined in Oregon's 2002 Standard Specifications Section 00290.20 Hazardous Waste and Hazardous Substances.

In order to mitigate for the possible discovery of hazardous materials that may already exist on a property that would be purchased as a result of this project, an established procedure for the early identification, avoidance, investigation, and cleanup of hazardous material sites for transportation projects must be followed as part of this project. ODOT's "Hazardous Materials Procedure for Transportation Projects" (ENV 16-02) states that every effort should be made to investigate the potential for encountering hazardous materials prior to beginning project construction.

ODOT's guidelines state that project teams are responsible for insuring that hazardous materials are adequately investigated during project development and the hazardous materials studies and findings are properly documented. All reasonable efforts would be made to identify hazardous material sites potentially affecting transportation projects. The identification of hazardous material sites began following the identification of the alternatives to be investigated in the EA.

Investigations would continue as the project develops until all sites have been investigated and addressed.

When hazardous material sites with soil or groundwater contamination are identified and confirmed with testing, the first option to consider is avoiding the site. If the site can not be avoided or the costs of avoidance are high, the second option would be to have the current property owner conduct the necessary investigations and cleanup. The last and least preferred option is for ODOT to conduct the investigations and to clean up the hazardous materials. The use of project funds to clean up hazardous materials may be warranted, if the property owner; (1) does not have the financial resources to clean up the site, or (2) is not proceeding with the investigations and cleanup in a timely fashion.

If hazardous materials were to be discovered during construction, prompt action would be taken to protect workers and to notify the local ODOT hazardous materials specialist.

## **4.8 Historic Resources Mitigation**

### **4.8.1 Construction Mitigation**

No impacts would be expected as a result of construction of either of the Build Alternatives. No construction mitigation would be required.

### **4.8.2 Other Mitigation**

Under either of the Build Alternatives, the project would have no effect on The Central Building, located at 703 Chetco Avenue. SHPO concurred with the finding of FHWA and ODOT that the project will have “no historic properties affected.” This finding was made pursuant to the requirements of Section 106 of the National Historic Preservation act of 1966 (36 CFR 800), Executive Order 11593, and the National Environmental Policy Act (see SHPO letter in Appendix G).

No mitigation would be necessary because there would be no affect to the resource or its significant features under either Alternative 4 or Alternative 5.

## **4.9 Visual Resources Mitigation**

### **4.9.1 Construction Mitigation**

There would be temporary visual impacts during construction of the roadway including grading, clearing, demolition and staging areas. Screening and fencing of staging areas could help reduce the visual disruption of the downtown area during construction.

## **4.9.2 Other Mitigation**

### **4.9.2.1 Alternative 4**

The design of Alternative 4 allows for additional improvements that would provide positive visual impacts to the entire project area. Bulb-outs, street furniture, and plantings could be incorporated into the design of Alternative 4. Incorporating these elements would not only provide for improved visual conditions but also help establish some of the amenities that have been called out in the Brookings Downtown Master Plan.

### **4.9.2.2 Alternative 5**

Alternative 5 could have negative impacts resulting from the increase in road surface (increased pedestrian crossing time without a refuge island) at 5th Street and Chetco Avenue. The visual impact of a wide road surface (a constraint to pedestrian connectivity) could be mitigated by adding a landscaped pedestrian refuge median at 5th Street and Chetco Avenue.

The 22-foot retaining wall/fence at the Fred Meyer property line could be mitigated by the construction of landscape screening (a green wall with vines trained on a trellis) and/or an architectural wall as buffer.

The negative visual impact due to the removal of on-street parking could be decreased by including visual buffers as streetscape elements where it could be accommodated.

## **4.10 Water Quality Mitigation**

### **4.10.1 Construction Mitigation**

The construction of this project would create many opportunities for the exposure of bare ground to the elements. Conservation measures in the form of Best Management Practices (BMPs) would be implemented during construction to minimize the amount of sediment leaving the site to prevent it from reaching surface waters. These BMPs would be specifically detailed in and Erosion Control Plan (ECP) that would be prepared by ODOT's Erosion Control Team and implemented by the contractor.

### **4.10.2 Other Mitigation**

#### **4.10.2.1 Alternative 4**

Alternative 4 meets the criteria for water quality mitigation set by ODOT (ODOT, 2000) because sub-basins 2 and 4 would meet the 1,000 square meters per drainage area requirement; these two sub-basins constitute the majority of the project area. No water quality treatment is currently provided for stormwater in this area so treatment facilities would have to be designed for new impervious areas for drainages 2 and 4. Water quality treatment facilities would be designed during the final design and permitting process. The increase in runoff to the millpond would not likely be enough to require detention. This would be determined during the design phase.

#### 4.10.2.2 Alternative 5

Alternative 5 meets the criteria for mitigation to be required by ODOT (ODOT, 2000) because the future traffic count is forecasted to be greater than 30,000 ADT and sub-basins 2 and 4 would both have increases in imperviousness greater than 1,000 square meters. No water quality treatment is currently provided at the site, so treatment facilities would have to be designed for new impervious areas for drainages 2 and 4. Water quality treatment facilities would be designed during the final design and permitting process. The increase in runoff to the millpond would not likely be enough to require detention. This would be determined during the design phase.

### **4.11 Wetlands Mitigation**

#### **4.11.1 Construction Mitigation**

Existing stormwater facilities have been identified to flow directly into the millpond wetland. Best management practices (BMPs) would be implemented to minimize sedimentation in runoff from the construction site that would reach the millpond.

#### **4.11.2 Other Mitigation**

No direct impacts to wetlands would occur under this alternative; no mitigation would be necessary. Stormwater treatment for new impervious surfaces would be necessary.

### **4.12 Air Quality Mitigation**

#### **4.12.1 Construction Mitigation**

During project construction, CO and particulate matter emissions would be expected to increase temporarily. The increases in emissions of these pollutants results from added congestion, construction vehicle exhaust and earth excavation. To mitigate temporary emission increases in particulate matter due to construction activities, watering of exposed surfaces would be used to control dust generation.