
3. Environmental Impacts

Chapter 3 describes the potential direct, indirect and cumulative impacts of the No-Build Alternative and Build Alternatives 4 and 5. The potential impacts associated with each alternative are evaluated with respect to anticipated conditions in Brookings for the project planning year, 2027.

Cumulative impacts are discussed in the context of incremental consequences of the alternatives combined with past, present and future developments and infrastructure projects in the area. The purpose of the cumulative impacts analysis is to identify and describe impacts of the project that may be insubstantial considered in isolation, but substantial in combination with the effects of other projects and trends.

3.1 Transportation

3.1.1 Existing Conditions and Methods

This section provides a synopsis of existing transportation conditions within the study area, and anticipated transportation conditions associated with the No-Build and the two Build alternatives.

No-Build conditions for 2007 and 2027 are evaluated based on the assumption that a number of planned roadway improvement projects will be in place.

The sections discussing the impacts associated with the two Build alternatives evaluate the design elements that would be common in both alternatives, as well as those that would be unique to each. Potential traffic impacts described include projected intersection operations along with impacts relating to other transportation issues like bicycle/pedestrian circulation, parking and property access. ODOT's Transportation Planning Analysis Unit (TPAU) completed the traffic analysis for this report. TPAU obtained base year traffic data from several sources including manual turning movement traffic counts at key locations, ODOT permanent traffic recorder stations, and ODOT traffic volume tables. TPAU derived 2007 and 2027 volumes by preparing travel demand models for Brookings that were based on projected population and employment data, as well as anticipated local development growth. The traffic analysis was then conducted by using a traffic operations model developed specifically for the Brookings Urban Area.

3.1.1.1 Street System Characteristics

U.S. 101 is locally referred to as **Chetco Avenue**, and is the primary roadway traversing the City of Brookings. The facility is classified as a primary arterial and is generally lined with commercial land uses. Chetco Avenue has five lanes and a posted speed of 35 miles per hour (mph) from the north end of the study area to Pacific Avenue, about midway through the study area. Within this section, some on-street parking is provided on the south side of the road west of Mill Beach Road. Between Pacific Avenue and Alder Street, the road has four lanes with a posted speed of 25 mph. On-street parking is provided on both sides between Mill and Oak

streets. Because Chetco Avenue is part of the state highway system, the facility is owned and maintained by ODOT. All other streets are owned and maintained by the City of Brookings. Figure 3-1 illustrates the existing study area street system as well as intersection traffic control and geometrics.

Railroad Street is a two-lane collector street with a mix of commercial, industrial and residential land uses, and has a posted speed of 25 mph. In addition to serving local trips, Railroad Street serves as a by-pass for local traffic during times where there is congestion on nearby Chetco Avenue. Trucks also use Railroad Street to access nearby commercial and industrial properties.

Mill Beach Road is a two-lane street with a posted speed of 25 mph. The facility is classified as a local street and is straddled by commercial and residential land uses.

5th Street is classified as a collector and has a posted speed of 25 mph. Between Railroad Street and Chetco Avenue the facility has two lanes with left turn pockets, serves commercial and industrial land uses, and does not have on-street parking. North of Chetco Avenue, the street has two lanes, no on-street parking, and serves primarily residential land uses.

Pacific Avenue is a two-lane collector with on-street parking and a posted speed of 25 mph. The street serves commercial and industrial land uses south of Chetco Avenue, and residential land uses to the north.

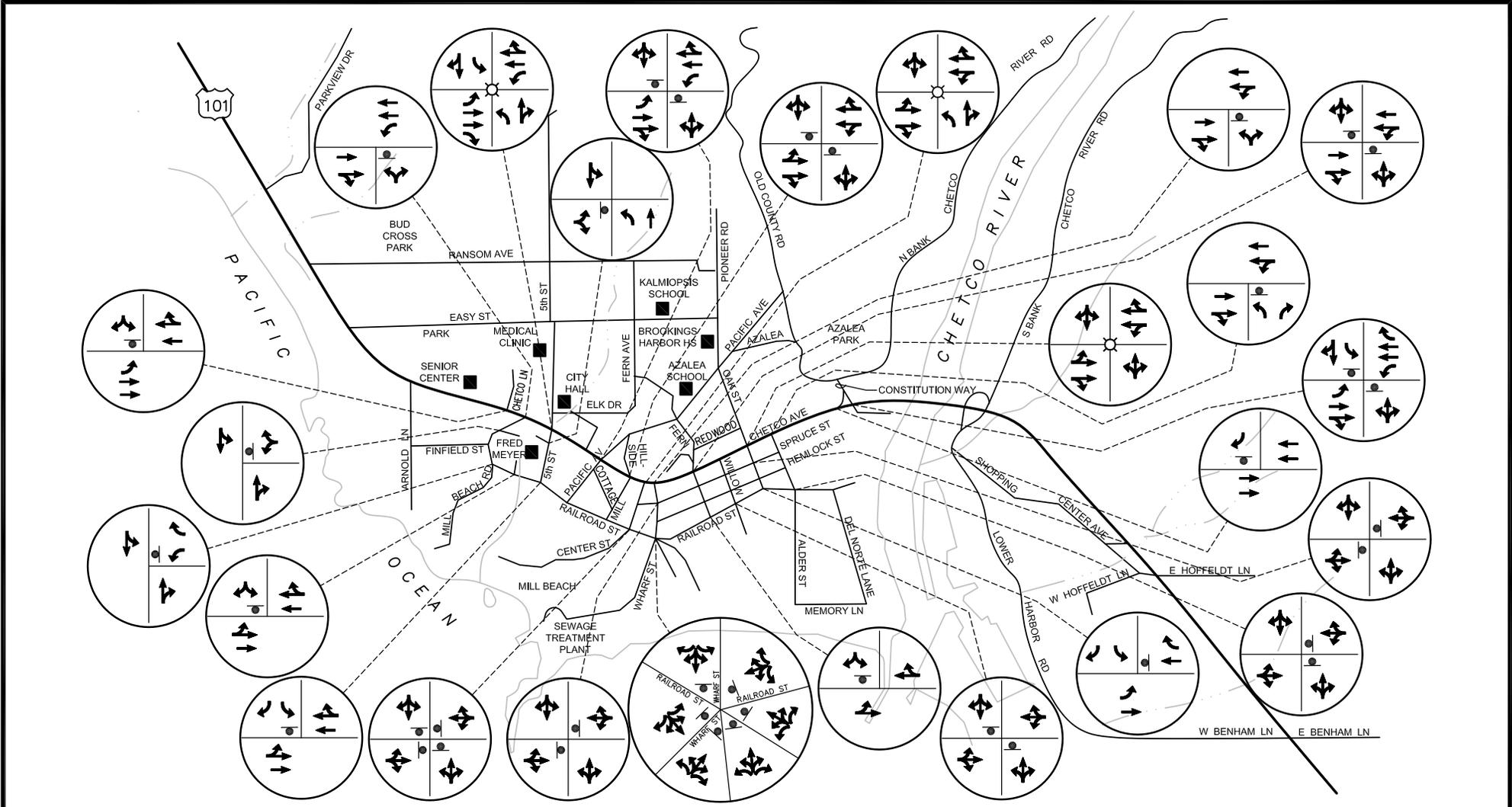
Mill Street is a two-lane facility serving commercial and industrial land uses. The facility has a posted speed of 25 mph and is classified as a local street. On-street parking is available on the east side (and portions of the west side) of the street.

Center Street is classified as a collector and serves commercial land uses. The facility has two lanes and a posted speed of 25 mph. On-street parking is provided between Chetco Avenue and Railroad Street. Center Street has a traffic signal at its intersection with Chetco Avenue, which makes the facility an attractive route for vehicles wishing to access the state highway from locations between Chetco Avenue and the coastline.

Fern Avenue, Willow Street and Wharf Street each have two lanes and are classified as local streets. The facilities have posted speeds of 25 mph, on-street parking, and serve predominantly commercial land uses (the portion of Fern Avenue north of Chetco Avenue serves residential land uses).

Oak Street is a two-lane collector with a posted speed of 25 mph and on-street parking. The facility serves residential land uses north of Chetco Avenue and serves commercial land uses to the south. Oak Street has a traffic signal at its intersection with Chetco Avenue, which also makes this facility an attractive route for vehicles wishing to access the state highway. The high school, middle school and elementary school are located on Oak Street north of Chetco Avenue and this intersection is used for vehicles and pedestrians to cross Chetco Avenue to reach the schools.

Alder Street is a two-lane local street with a posted speed of 25 mph. The facility serves both commercial and residential land uses with limited on-street parking.



KEY

NOT TO SCALE

- LEGEND:**
- SIGNAL
 - STOP SIGN
 - TURNING MOVEMENT

Figure 3.1
2002 Study Area Street System And
Intersection Traffic Control/Geometrics

3.1.1.2 Public Transit

Curry Public Transit Coastal Express provides service between Brookings and North Bend with intermediate stops in Gold Beach, Port Orford, Bandon and Coos Bay. Service consists of four roundtrips per weekday with each one-way trip between Brookings and North Bend taking about 2 hours 20 minutes. The one stop for this service within the project area is in the parking lot at Ray's Food Mart.

3.1.1.3 Bicycle System

Most streets in the study area do not have dedicated bicycle facilities. Bicyclists must often share vehicle travel lanes with motorists or share sidewalks with pedestrians. Bicycle facilities on Chetco Avenue are in the form of wide shoulders along some segments. The presence of on-street parking in the downtown core, as well as the lack of wide shoulders, does not provide separated space for bicycle travel. In these areas, bicycle traffic either conflicts with motorists on Chetco Avenue, or uses parallel streets like Railroad Street.

Although lower vehicle volumes on Railroad Street contribute to a more comfortable bicycling environment compared with Chetco Avenue, the street lacks designated bicycle facilities in most places. Many segments of the roadway lack shoulders, forcing bicyclists to share narrow travel lanes with autos and trucks. A separated multi-use path does exist along the street between Alder and Wharf Streets.

3.1.1.4 Pedestrian System

The study area pedestrian network is currently fragmented, with gaps in the sidewalk system along some streets, as well as streets with no sidewalks at all. Sidewalks exist on most portions of Chetco Avenue and are between 1.5 and 2.4 meters (5 and 8 feet) wide (with a short segment between Wharf and Willow Streets that is 3 meters [10 feet] wide). Eight intersections along Chetco Avenue within the study area have marked crosswalks. Unsignalized intersections with crosswalks include Arnold Lane, Pacific Avenue, Mill Street, Fern Avenue and Willow Street. Signalized intersections with crosswalks include 5th Street, Center Street and Oak Street. There is also a crosswalk on Chetco Avenue located about 91.4 meters (300 feet) south of Center Street with a flashing "caution" light and advisory signs for motorists.

The sidewalk system on Railroad Street is also fragmented. Some segments have sidewalks on one side only while others have no sidewalks at all. Frontage improvements required with new development have resulted in sidewalk construction and reconstruction along Railroad Street, particularly in the western part of the study area near 5th Street and Mill Beach Road. Mentioned above, a multi-use path also exists along Railroad Street between Alder and Wharf Streets. Sidewalks with curb ramps meeting the Americans with Disabilities Act (ADA) standards are located at some study area intersections (like Chetco Avenue/5th Street), but several intersections (notably along Railroad Street and along Chetco Avenue within downtown Brookings) have substandard ramps or do not have curb ramps at all. The minimal presence of facilities for disabled persons contributes to decreased connectivity for the disabled community.

Three collisions between vehicles and pedestrians occurred in the study area between 1997 and 2001. All occurred near the intersection of Chetco Avenue/Arnold Lane while pedestrians were using marked but uncontrolled crosswalks to cross Chetco Avenue, or using parallel crosswalks on side streets. Crashes occurred along Chetco Avenue, at Pacific Avenue, Center Street and between Mill Beach Road and 5th Street (no crashes were fatal).

3.1.2 Transportation Impacts

3.1.2.1 No-Build Alternative

Traffic Operations Impacts

Traffic analysis for the No-Build, Alternative 4 and Alternative 5 scenarios was conducted for the 2007 and 2027 peak hour. 2007 marks the proposed year in which roadway improvements for Alternatives 4 or 5 may be completed, and 2027 corresponds with the general 20-year analysis period for transportation projects. The period between 1:00 and 2:00 p.m. represented the “peak hour,” as this time period is when volumes are typically highest on the Brookings street system.

ODOT measures intersection performance on state highways based on a volume-to-capacity (v/c) ratio. A v/c ratio is calculated by dividing the peak hour volume (vehicles per hour) on a highway segment by the maximum volume that the highway section or intersection can handle. According to the ODOT Oregon Highway Plan (OHP), the maximum allowable v/c ratio on Chetco Avenue is 0.80 (the OHP v/c mobility standard was used to evaluate traffic operations for the existing and No-Build scenarios). Ordinarily, intersections yielding a ratio higher than 0.80 would be targeted for modification to improve traffic operations. The Brookings City Council recently voted to apply for a Special Transportation Area (STA) designation for a portion of the downtown area along Chetco Avenue between Pacific Avenue and Alder Street. The designation typically relaxes vehicular traffic mobility standards in an effort to enhance the mobility of other traffic modes like bicycling and walking. The STA designation is assigned by ODOT and if approved, would raise the maximum allowable v/c ratio from 0.80 to 0.90. This would effectively allow greater congestion to occur and would slow the movement of vehicular traffic to accommodate other, local objectives. While the 0.90 v/c ratio associated with the STA designation would apply to intersections along Chetco Avenue between Pacific Avenue and Alder Street, the remaining study area intersections would still be governed by the 0.80 v/c mobility standard (as dictated by the OHP).

In 2007, all study area intersections are expected to operate within ODOT’s 0.80 v/c standard during the peak hour. By 2027, four signalized intersections and five unsignalized intersections would “Fail” under the No-Build scenario, as they are expected to exceed the v/c standard during the peak hour (see Table 1-1 and 1-2 for v/c ratios). At the unsignalized intersections, side street traffic could experience difficulty crossing or accessing Chetco Avenue due to the lack of adequate gaps in the traffic stream. Even if the STA designation is approved for Chetco Avenue between Pacific Avenue and Alder Street, some intersections are still expected to exceed the more relaxed STA mobility standard (0.90). Intersections expected to exceed mobility standards during the 2027 No-Build peak hour include:

- Chetco Avenue/5th Street (signalized)

- Chetco Avenue/Center Street (signalized)
- Chetco Avenue/Oak Street (signalized)
- Chetco Avenue/Mill Beach Road (unsignalized)
- Chetco Avenue/Pacific Avenue (unsignalized)
- Chetco Avenue/Mill Street (unsignalized)
- Chetco Avenue/Fern Avenue (unsignalized)
- Chetco Avenue/Alder Street (unsignalized)

Tables 1-1 and 1-2 in Section 1.2 summarize v/c results for the intersections (listed above) that would not operate acceptably in the 2027 No-Build scenario.

Parking Impacts

Site visits and aerial photography were used to inventory the existing study area on-street parking stock. Approximately 95 on-street parking spaces are currently located on Chetco Avenue between Arnold Lane and Alder Street. The on-street parking stock in the No-Build scenario is assumed to be the same as the existing inventory. Retaining on-street parking could benefit pedestrians (especially in downtown Brookings) by providing a “buffer” between vehicle traffic and the sidewalk.

Bicycle and Pedestrian Impacts

The No-Build alternative would not result in a loss of bicycle and pedestrian facilities, but also is not likely to improve the fragmented system that currently exists. The Downtown Master Plan includes improvements to pedestrian and bicycle facilities. Though the City could begin to implement elements of the Master Plan, the planned street improvements are not anticipated to substantially improve conditions for non-motorized travelers, including the elderly and persons with disabilities.

Property Access Impacts

The No-Build alternative would not modify existing property accesses within the study area; therefore any impacts could only be indirect. Potential impacts associated with this scenario would relate to motorists’ ability to enter and exit properties along Chetco Avenue. Traffic volumes are expected to grow along Chetco Avenue, and motorists could experience increased difficulty making left turns between the street and adjacent properties. The combined absence of left turn lanes, and the inability of motorists to find adequate gaps in the opposing traffic stream, could result in longer traffic delays on Chetco Avenue as vehicles waiting to turn left would block through traffic. Increased volumes could also create difficulties for motorists turning left from properties onto Chetco Avenue. In addition to increased traffic delays on Chetco Avenue, these impacts could cause motorists to use side streets as alternate routes to gain access or to leave nearby properties.

3.1.2.2 Alternative 4

Traffic Operations Impacts

Conversion of U.S. 101 to a one-way couplet would increase capacity for vehicle and truck traffic, as three travel lanes would be provided in each direction. The increased capacity has the potential to smooth traffic flow through and within the study area. Traffic signal progression would also be easier to implement along one-way streets, which would reduce vehicle delays. Roadway construction associated with this alternative could result in traffic delays; however these impacts would be expected to be temporary.

The mobility standard (0.75 v/c) dictated by the ODOT Highway Design Manual (HDM) was used as the basis for traffic analysis for Alternatives 4 and 5. The STA mobility standard (0.90 v/c) would be used in areas with the STA designation. In addition to the planned roadway projects that are independent of the potential improvement alternatives (e.g. signalizing Chetco Avenue/Constitution Way), several study area intersections were modeled with signalized traffic control as they were anticipated to meet preliminary signal warrants based on projected traffic volumes and the layout of the proposed Alternative 4 street system.

In addition to the existing signalized intersections, the intersections of Railroad Street/5th Street and Railroad Street/Oak Street were modeled with signalization in 2007. These intersections were also modeled with signalization in 2027 in addition to the intersections of Railroad Street/Mill Street, Railroad Street/Wharf Street and Chetco Avenue/Mill Street-Hillside Avenue. The intersection of Chetco Avenue/Center Street was modeled without signalization in 2007 and 2027, as the proposed street network would eliminate Center Street between Chetco Avenue and Spruce Street.

All study area intersections along Chetco Avenue and Railroad Street are anticipated to operate acceptably (within the 0.75 v/c ratio) during the 2007 peak hour under Alternative 4. In the 2027 peak hour, Chetco Avenue/Constitution Way is the only intersection expected to exceed the v/c standard, but this intersection would be unaffected by couplet-related traffic patterns and is not part of the proposed action.

The design of the Alternative 4 street system could indirectly impact truck turning movements. Intersections along Chetco Avenue and Railroad Street would include curb extensions (also known as “bulb outs”) to improve the pedestrian crossing environment. It is assumed that curb extension designs would conform to ODOT standards to ensure that larger vehicles can safely make turning maneuvers. The indirect impacts to truck traffic could be in the perception of a difficult turning environment. Truck operators might avoid intersections with curb extensions and seek intersections with wider turning radii. This could potentially change truck traffic patterns and cause truck operators to use routes that are not designated for heavy vehicles.

The street system layout in Alternative 4 assumes that some street segments would be realigned while others would be eliminated. The alignment modifications would indirectly impact other nearby streets in the form of higher traffic volumes. As lower-order streets like Tanbark Road and Mill Street experience higher volumes and replace the function of higher-order streets like Memory Lane and Center Street, they would need to be re-classified to correspond with their

new function. For example, Center Street would no longer connect with Chetco Avenue. Traffic would be shifted to Mill Street, increasing traffic volumes. Impacts due to the increased traffic volumes would be minimal as drivers adjusted to new routes. Improvements in traffic circulation and safety would increase with the additional four-way traffic light on Chetco Avenue and the consolidation of the five-leg intersection at Memory/Cove/Wharf.

Parking Impacts

The on-street parking stock in the No-Build scenario is assumed to be the same as the existing inventory, and was used as a comparison to determine the potential parking impacts associated with Alternative 4. Alternative 4 would include on-street parking on both sides of Chetco Avenue between Pacific Avenue and Oak Street, and on Railroad Street between Wharf and Willow Streets. Portions of Hemlock and Spruce Streets would also have on-street parking on one side.

Comparison of the existing on-street parking stock with the inventory assumed in Alternative 4 indicates that Alternative 4 would provide many more on-street spaces than are currently provided. Approximately 95 on-street parking spaces are currently located on Chetco Avenue between Arnold Lane and Alder Street. Under Alternative 4, about 130 spaces would be provided with the majority of additional spaced located on Railroad Street between Wharf and Willow Streets.

Retaining existing on-street parking and creating additional spaces could indirectly yield economic and physical benefits. Economic benefits for area businesses could be achieved as patrons would likely have easier access to commercial destinations with less out-of-direction travel between their vehicles and their destinations. This could increase the attractiveness of the downtown business district and surrounding areas. The presence of on-street parking would also indirectly benefit pedestrians by retaining a “buffer” between vehicle traffic and the sidewalk.

Comparing the on-street parking stock along local streets was difficult because stalls are not clearly delineated on these facilities, and several streets currently lack defined edges between parking areas and vehicle travel lanes. Alternative 4 is expected to include about 40 on-street spaces on Railroad Street between Wharf and Willow Streets. Hemlock Street would have approximately 16 spaces between Wharf and Willow Streets, and Spruce Street would have roughly 23 spaces between Wharf and Oak Streets.

Bicycle and Pedestrian Impacts

On the one-way couplet portion of the Alternative 4 street system, northbound bicycle lanes would be provided on Chetco Avenue, and southbound bicycle lanes would be provided on Railroad Street (as well as other streets that would carry the U.S. 101 southbound alignment). Bicycle facilities would also be provided on the two-way portions of Chetco Avenue within the study area where possible. Pedestrian facilities would include sidewalks, curb extensions, curb ramps, pedestrian signal push buttons and crosswalks where possible. These improvements would provide direct positive impacts to the bicycle and pedestrian system, as they would contribute to a more complete system compared with the No-Build and Alternative 5 scenarios.

Converting U.S. 101 into a one-way couplet would reduce vehicular traffic volumes along Chetco Avenue by directing southbound traffic onto Railroad Street. For bicyclists and pedestrians, Chetco Avenue is currently perceived as a barrier to north/south travel cutting through the downtown business district. Anticipated traffic volume growth would likely increase this perception if the facility were to remain in its current state. In addition to lower vehicle volumes under Alternative 4, Chetco Avenue would have fewer travel lanes, reducing the crossing distance for bicyclists and pedestrians. While the couplet would result in reduced vehicle volumes and travel lanes on Chetco Avenue, Railroad Street would experience the opposite trend. Railroad Street's current function as serving primarily local traffic would change as the street would be upgraded from a collector street to an arterial with three travel lanes (similar to the design for Chetco Avenue).

While traffic volumes on Railroad Street would increase, the facility would have bicycle/pedestrian amenities similar to those planned for Chetco Avenue. The presence of on-street parking along Chetco Avenue and Railroad Street would indirectly contribute to a more comfortable walking environment by serving as a buffer between vehicle travel lanes and sidewalks. Under Alternative 4, on-street parking would be provided on both sides of Chetco Avenue between Pacific Avenue and Oak Street, and on both sides of Railroad Street between Wharf and Willow Streets. These segments are located within downtown, which has the potential to generate and attract a higher rate of walking trips than other parts of Brookings. In general, the bicycle and pedestrian amenities included in the couplet design would provide a more complete system than the No-Build and Alternative 5 scenarios.

Though the Alternative 4 street system would improve overall conditions for bicyclists and pedestrians compared with the No-Build and Alternative 5 scenarios, some indirect adverse impacts are possible. The one-way couplet option would distribute vehicle traffic more evenly through downtown Brookings, and the number of travel lanes on Chetco Avenue would be reduced (from four existing lanes to three lanes). While fewer travel lanes would ease bicycle and pedestrian crossings on Chetco Avenue by reducing the crossing distance, this improvement could be offset by higher vehicle speeds, which could contribute to a perception of an uncomfortable environment for non-motorized travelers. Similar patterns could also occur on Railroad Street, which would have the same cross-section of three vehicle travel lanes.

Some intersections along Chetco Avenue and Railroad Street are proposed to include channelized right turn lanes. Channelized right turn lanes are intended to serve higher vehicle volumes, and they typically include a broader vehicle turning radius and a concrete island between the general vehicle travel lanes and the right turn channel. They are often used at intersections limited to right-in/right-out movements. While these facilities have the potential to increase pedestrian safety by including refuge islands for walkers crossing parallel to the main street, the broad vehicle turning radius of the right turn channel could result in higher vehicle turning speeds. Higher turning speeds combined with driver inattention and/or error could result in conflicts and/or collisions with pedestrians and bicyclists crossing the turn channel.

Vehicle conflicts with bicycles, and particularly pedestrians, could potentially occur at the couplet's "merge/diverge" points, the points where Chetco Avenue transitions between a one-way and a two-way facility. In these areas, pedestrians on the south side of Chetco Avenue

would encounter safety issues if they wished to remain on the south side of the street. For example, in order to remain on Chetco Avenue, a pedestrian walking east on the southern side of Chetco Avenue near Chetco Lane would have to cross a total of four lanes – two lanes of U.S. 101 southbound traffic, the access lane from Chetco Lane and the channelized left turn lane from Chetco Avenue westbound. Similar conditions would exist at the southern merge/diverge point near Chetco Avenue/Alder Street. These crossings are proposed to include minimal pedestrian amenities.

Property Access Impacts

Under Alternative 4, street connections that could result in indirect economic impacts on businesses and residents would be eliminated. The segment of Center Street between Chetco Avenue and Spruce Street would be eliminated, and properties on this segment would no longer have a direct connection with Chetco Avenue. Business access could also be impacted if Hemlock and Spruce Streets are “dead ended” near the proposed U.S. 101 southbound alignment. While the elimination of some street connections is intended to promote safety and adequate operations at nearby intersections, the lack of connectivity would likely result in low traffic volumes on the dead end portions of Spruce and Hemlock Streets. The lack of vehicle traffic could result in reduced patronage for businesses located in this area.

The existing Railroad Street/Wharf Street/Cove Road/Memory Lane intersection would be modified to eliminate the Cove Road and Memory Lane legs. Eliminating these legs would improve safety and overall operations at the intersection, but access to properties along Cove Road and Memory Lane would be indirectly impacted in that vehicle traffic would need to use a more circuitous route (especially vehicles coming from the north).

A technical report summarizing potential ROW impacts was completed by ODOT in April 2004. The report indicates that the proposed Alternative 4 street system would impact 62 study area properties. Of these impacted properties, six residences and eight businesses would need to be relocated (the Land Use section provides a more-detailed discussion of these properties). Impacts to the remaining 48 properties would be in the form of strip acquisitions along existing property frontage. Specifically, the impacts would be related to landscaping, asphalt, parking and signs. The ROW report written by ODOT indicates that safety-related access restrictions would eliminate or change the location of driveways in several areas that could cause displacements (to the properties mentioned above), parking losses and changes to internal circulation. The report however does not indicate which specific properties would be impacted by the strip acquisitions but it is assumed that driveway relocations, closures and/or consolidations would be based on current ODOT procedures during the roadway design phase.

3.1.2.3 Alternative 5

Traffic Operations Impacts

Alternative 5 would retain U.S. 101 as a four-lane facility on Chetco Avenue and would add turn pockets at several intersections. The new left turn pockets would increase capacity for vehicle and truck traffic by removing left-turning vehicles from the inside travel lane and by limiting direct access from adjacent properties (some driveways would be limited to right-in/right-out

movements while other driveways would be closed). This alternative would include center medians along Chetco Avenue between Alder Street and north of Mill Beach Road. The medians would be intended to preserve the storage function of dedicated left turn pockets by preventing motorists from turning left onto (or from) Chetco Avenue while waiting for gaps in the traffic stream. Roadway construction associated with this alternative could result in traffic delays; however these impacts are expected to be temporary.

The mobility standard (0.75 v/c) dictated by the ODOT HDM was used as the basis for traffic analysis for Alternatives 4 and 5. The STA mobility standard (0.90 v/c) would be used in areas with the STA designation. In addition to the planned roadway projects that are independent of the potential improvement alternatives (e.g. signalizing Chetco Avenue/Constitution Way), some study area intersections were modeled with signalized traffic control as they were anticipated to meet preliminary signal warrants based on projected traffic volumes and the layout of the Alternative 5 street system. In addition to existing signalized intersections, the intersection of Chetco Avenue/Mill Street-Hillside Avenue was modeled with signalization in 2007. This intersection was also modeled with signalization in 2027. The intersection of Chetco Avenue/Center Street was modeled without signalization in 2007 and 2027, as the proposed street network would eliminate Center Street between Chetco Avenue and Spruce Street.

In 2007, the only intersection expected to exceed the maximum allowable v/c ratio is 5th Street/South Fred Meyer Access. This intersection is not on the state highway system, and is not likely to affect operations at 5th and Chetco. In 2027, three intersections on Chetco Avenue are anticipated to exceed the ODOT HDM v/c standard, including:

- Chetco Avenue/Mill Street-Hillside Avenue (signalized)
- Chetco Avenue/Oak Street (signalized)
- Chetco Avenue/Alder Street (unsignalized)

Stated above, the signalized intersections of Chetco Avenue/Mill Street-Hillside Avenue and Chetco Avenue/Oak Street would exceed the HDM mobility standard, as would the unsignalized intersection of Chetco Avenue/Alder Street. While these three intersections would exceed the HDM mobility standard, they would fall within the mobility standard associated with the potential STA designation (the STA designation would apply to Chetco Avenue between Pacific Avenue and Alder Street if adopted).

The design of the Alternative 5 street system could indirectly impact truck turning movements. The Alternative 5 street system would retain the existing turning radii at most study area intersections. Some intersections have tight turning radii, forcing trucks to make wide turns to avoid curbs. Trucks making wide turns often need to use part of the adjacent lane of the street that the operator is turning from, and also use two lanes of the street to which the truck is entering.

The street system layout in Alternative 5 assumes that some street segments would be realigned while others would be eliminated. The alignment modifications would indirectly impact other nearby streets in the form of higher traffic volumes. As lower-order streets like Tanbark Road and Mill Street experience higher volumes and replace the function of higher-order streets like

Memory Lane and Center Street, they would need to be reclassified to correspond with their new function.

Parking Impacts

The on-street parking stock in the No-Build scenario was used as a comparison to determine the potential parking impacts associated with Alternative 5. In order to accommodate dedicated left turn pockets on Chetco Avenue, on-street parking would be removed from Chetco Avenue throughout the study area under Alternative 5.

Implementation of this alternative would directly result in a loss of about 95 on-street parking spaces along Chetco Avenue between Arnold Lane and Alder Street. Removing all on-street parking from Chetco Avenue throughout the study area could have a number of indirect economic and physical impacts. The economic impacts refer to reduced accessibility for patrons intending to frequent downtown businesses. The lack of on-street parking on Chetco Avenue would force patrons to park on side streets which would likely create a longer walking distance between their vehicles and the business they intend to visit. Removing on-street parking might also create indirect adverse impacts on the pedestrian environment by eliminating the “buffer” between sidewalks and vehicle traffic along Chetco Avenue.

While the loss of on-street parking could yield adverse economic and physical impacts, traffic flow could potentially benefit. On-street parking removal would eliminate potential conflicts between through vehicle traffic and motorists entering or exiting parking stalls. As parking maneuvers can potentially block the outside vehicle travel lane, the absence of on-street spaces would prevent blockages from occurring thus improving overall traffic flow.

Comparing the on-street parking stock along local streets was difficult because stalls are not clearly delineated on these facilities and several streets currently lack defined edges between parking areas and vehicle travel lanes. The on-street parking stock along Railroad Street is expected to generally reflect the existing inventory, as modifications related to the proposed Alternative 5 street system would be minimal. On-street parking impacts on other local streets like Spruce and Hemlock Streets would also be minimal, as these facilities would generally reflect their existing cross-sections.

Bicycle and Pedestrian Impacts

Construction of Alternative 5 would include bicycle lanes on Chetco Avenue west of Pacific Avenue. The addition of bike lanes would contribute to a more complete bicycle network through and within downtown Brookings compared with the No-Build alternative.

Removing on-street parking to accommodate dedicated left turn pockets on Chetco Avenue could indirectly contribute to a less comfortable environment for pedestrians. On-street parking tends to serve as a visual buffer between vehicles and pedestrians leading to a perceived sense of safety when motor vehicle traffic is not directly adjacent to a sidewalk. An uncomfortable walking environment could promote the perception that Chetco Avenue serves as a barrier dividing the north and south sides of downtown Brookings.

The segment of Chetco Avenue to the east and west of 5th Street would have eight travel lanes for vehicle traffic (including dedicated left and right turn pockets). This would increase the distance required for a pedestrian to cross the street, which could have direct comfort and safety implications. Traffic analysis conducted at this intersection assumed that pedestrians would not have enough time to completely cross Chetco Avenue, given the amount of “green” time assigned to the 5th Street approaches. Some intersections along Chetco Avenue are proposed to include channelized right turn lanes. Channelized right turn lanes are intended to serve higher vehicle volumes, and they typically include a broader vehicle turning radius and a concrete island between the general vehicle travel lanes and the right turn channel. They are often used at intersections limited to right-in/right-out movements. While these facilities have the potential to increase pedestrian safety by including refuge islands for walkers crossing parallel to the main street, the broad vehicle turning radius of the right-turn channel could result in higher vehicle turning speeds. Higher turning speeds combined with driver inattention and/or error could result in conflicts and/or collisions with pedestrians and bicyclists crossing the turn channel.

Property Access Impacts

Installation of a raised center median on Chetco Avenue for the length of the project would directly impact access to businesses along the roadway, as the median would limit vehicle access. At present, vehicles can freely access properties along Chetco Avenue between Alder Street and north of Mill Beach Road from either side of the street. Conversely, traffic leaving these properties can access either the northbound or southbound lanes of Chetco Avenue. As proposed with this alternative, the addition of a center median would substantially reduce access to and from these properties, since vehicles entering or leaving properties in the area would be limited to right-in and/or right-out movements. This could cause traffic to use out of the way routes to reach some businesses, resulting in traffic diverting to side streets in order to double back to access some properties.

Street connections would also be eliminated under Alternative 5 that could result in indirect economic impacts to area businesses and residents. The segment of Center Street between Chetco Avenue and Spruce Street would be eliminated, and properties on this segment would no longer have a direct connection with Chetco Avenue. The existing Railroad Street/Wharf Street/Cove Road/Memory Lane intersection would be modified to eliminate the Cove Road and Memory Lane legs. Eliminating these legs would improve the safety and overall operations at the intersection, but access to properties along Cove Road and Memory Lane would be indirectly impacted because vehicle traffic would need to use a more circuitous route (especially vehicles coming from the north).

ODOT’s April 2004 ROW report indicates that the proposed Alternative 5 street system would impact 33 study area properties. Of these impacted properties, two businesses would need to be relocated. These businesses would also need to be relocated under Alternative 4 (the Land Use section provides a more-detailed discussion of these properties). Impacts to the remaining 31 properties would be in the form of strip acquisitions along existing property frontage. Specifically, the impacts would be related to landscaping, asphalt, parking and signs. The ROW report indicates that safety-related access restrictions would eliminate or change the location of driveways in several areas which would cause displacements (to the properties mentioned above), parking losses and internal circulation issues. The report however does not indicate

which specific properties would be impacted by the strip acquisitions. It is assumed that driveway access modifications on Chetco Avenue (including driveway relocation, closure and/or consolidation) would be based on current ODOT procedures during the roadway design phase.

3.1.3 Cumulative Impacts

3.1.3.1 Alternative 4 and Alternative 5

Two of the planned roadway improvement projects could temporarily impact traffic circulation within the study area. The City of Brookings is planning to replace water and wastewater lines under Chetco Avenue between Chetco Lane and north of Arnold Lane. There is also a pavement preservation project planned to reconstruct and repave Chetco Avenue between the Thomas Creek Bridge and the Chetco River Bridge. Any construction activities that could disrupt traffic circulation are anticipated to be temporary.

3.2 Socioeconomics

This section analyzes the potential social and economic impacts of the two Build Alternatives and the No-Build Alternative. Elements considered are demographics of the area, neighborhood impacts, business district impacts, and community facilities impacts.

3.2.1 Existing Conditions and Methods

The City of Brookings is characterized by a central business district that extends along Chetco Avenue and Railroad Street from Arnold Street to Alder Street. The remaining area of the city is primarily composed of neighborhoods. Additional business and neighborhoods exist further east along Highway 101 in the unincorporated Harbor area. Brookings has historically relied on resource extraction industries such as timber and fishing. The South Coast Timber remains the largest employer in town but the decline of these industries all along the Oregon coast has many towns, including Brookings relying more on tourism. Data from U.S. Census block groups that comprise the project area were collected and analyzed to determine the population, race, age, and income of the residents located within the project area. These block groups make up an area much larger than the project area itself, but are used as a reference in accordance with Executive Order #12898 on Environmental Justice.

Neighborhoods and business districts were analyzed based on site visits, conversations with City staff, review of adopted planning documents, and comments received during Public Open Houses.

3.2.2 Socioeconomic Impacts

3.2.2.1 No-Build Alternative

If the City of Brookings continues to grow as expected, greater pressure would be placed on the existing transportation infrastructure, particularly along Chetco Avenue. While the No-Build Alternative would not have any direct impacts to current neighborhoods, community facilities, or

business districts, the No-Build Alternative would do nothing to alleviate traffic congestion. The increased congestion would likely slow traffic speeds that could result in increased visibility for the businesses in the area. Increased congestion could cause intersections to fail along Chetco Avenue and discourage people traveling through Brookings from stopping to shop in downtown Brookings. Indirect impacts from the No-Build Alternative could include increased congestion along Chetco Avenue that would make vehicle and pedestrian access into and out of neighborhoods bordering the downtown area increasingly difficult. Students who live south of downtown and walk to school could have difficulty crossing Railroad Street and Chetco Avenue on their way to and from schools located north of Chetco Avenue.

3.2.2.2 Alternative 4

Neighborhood Impacts

The construction of Alternative 4 would have direct impacts to Brookings residential areas by requiring the acquisition of six residences on Mill Beach Loop near the existing Fred Meyer. The acquisition of these homes would be the result of the loss of access to the properties -not the actual construction of the alternative. Based on April 2004 data from the Curry County Assessors Office, for five of the six parcels it is estimated that the average assessed value for these properties is \$70,796, while the median is \$51,030. The average annual property tax payment for the manufactured homes is \$760 and the median is \$548. Under Alternative 4, these acquired properties would no longer be contributing to the City of Brookings tax rolls.

While Alternative 4 would provide greater speed and access to travel through town, motorists and pedestrians would likely have a more difficult time crossing Railroad and Chetco avenues. In addition, neighborhood streets immediately adjacent to the couplet could experience greater out-of-direction traffic from motorists looping back to destinations on the other leg of the couplet. Improvements to the local street system between Chetco Avenue and Railroad Street are suggested as part of this project. This area would be improved with new road surfaces including striping, curbs, gutters and sidewalks. These improvements would aid in the out-of-direction travel and facilitate improvements that are included in the Downtown Master Plan. According to City planning staff implementation of the Downtown Master Plan is scheduled to begin along Spruce Street in 2005.

Because Alternative 4 would create a couplet and divide U.S. 101 into north and southbound legs separated by three city blocks, additional direct impacts would be caused by this separation disrupting the continuity of downtown Brookings and creating a feeling of isolation for the surrounding residential neighborhoods. The feeling of isolation would be greatest for the neighborhoods south of Railroad Street and between Railroad Street and Chetco Avenue. This is because Railroad Street is currently a local two-lane street that is an integrated part of this area of town and provides an important alternate-route for residents in this area. Under Alternative 4, Railroad Street would be redesigned as a one-way three-lane state highway, and though it would include sidewalk, traffic signals, and bike lanes to create a safer pedestrian environment the higher volume of traffic and a wider right-of-way could also create a barrier to downtown.

The intersection of Memory Lane, Wharf Street, and Railroad Street would be realigned. This is currently a five-way intersection that is considered to be dangerous by local residents. This

realignment of the intersection could result in indirect impacts such as out-of-direction travel, and longer travel times for residents who live south of Railroad Street and east of Wharf Street. The realignment would also make the intersection safer for traffic and pedestrians.

Community Facility Impacts

The direct impacts to community facilities with Alternative 4 would be limited to right-of-way strip acquisitions from the Chetco Community Public Library, City Hall, and the Post Office properties. These acquisitions would consist of small amounts of land that would not affect access to the properties, or their ability to meet their public functions. Due to the redirection of travel onto a couplet and increased traffic on Railroad Street, some indirect impacts to community facilities would occur.

Chetco Public Library – Alternative 4 would increase traffic volumes passing the library. Alternative 4 would include sidewalks and traffic signals that could make safer pedestrian travel than currently exists, but the volume of vehicles passing near the library and the increased width of the right-of-way could be a barrier to pedestrians wishing to walk to the library. Noise from increased traffic volumes passing the library to the library could also disrupt the facility. A complete assessment of noise impacts is in Section 3.4.

Schools – Students who walk to school from south of Railroad Street would be required to cross two three-lane, one-way legs of Highway 101 to reach the school property located north of Chetco Avenue. Alternative 4 would include sidewalks and traffic signals that could make pedestrian travel safer than currently exists.

Chetco Senior Center and Post Office – As a result of the implementation of Alternative 4, motorists would be required to make out-of-direction travel trips to the Chetco Senior Center and Post Office. An evaluation of other couplets that have been built in cities of similar size shows that residents take some time to acclimate to new travel patterns but do adapt over time. The anticipated reduction in traffic congestion as a result of Alternative 4 could create easier access to the Post Office. Out of direction travel for southbound traffic on Chetco Avenue would be necessary to reach the Chetco Senior Center.

Business District Impacts

Alternative 4 would have a direct impact on eight Brookings businesses that support at least 17 jobs (not all employment statistics were available for these businesses). These businesses would be required to relocate to accommodate the Alternative 4 design. Data from the Curry County Assessors Office was used to determine the potential loss in tax revenue to the City of Brookings annually. Data was not complete and did not include tax data for all the properties that would be acquired under Alternative 4. Based on April 2004 data from the Curry County Assessors Office for five of the businesses that would be impacted, it is estimated that the City of Brookings would lose \$7,701 annually in property taxes.

The eight businesses that would be relocated as a result of Alternative 4 would be:

- Homeport Bagels (1007 Chetco Avenue)
- Hanky Box Antiques (1009 Chetco Avenue)

- Extreme Action Paintball (805 Railroad Avenue)
- The Pizza Place (623 Memory Lane)
- Shape Up Tone and Tan (505 Hemlock Street)
- Bob Rose Ceramic Tile Showroom (505B Hemlock)
- Shoestrings Daycare (299 Spruce Drive)
- Dairy Queen (349 Chetco Avenue)

In addition to these direct impacts, some indirect impacts to the businesses could include increased exposure for new and future businesses along Railroad Avenue from the additional drive-by traffic along southbound couplet lanes. This increased traffic volume would be a result of southbound traffic being drawn off of Chetco Avenue. Businesses that front Chetco Avenue could lose drive-by traffic and visibility. This could have the effect of creating two main streets in Brookings. The loss of drive-by traffic would probably not affect larger destination businesses such as grocery stores, but could hurt the smaller businesses that rely on greater drive-by traffic and impulse stops.

During the scoping process, ODOT conducted research that evaluated impacts resulting from the construction of couplets in other towns. This research (ODOT, 2003) indicated that the businesses most likely to be affected by the construction of a couplet and its alteration of traffic patterns are drive-by attractions, such as gasoline service stations and hotels/motels. These types of businesses in downtown Brookings that could lose bi-directional access could fare worse with a couplet configuration. Research also showed that traffic speeds on couplets tend to be faster than on two-way streets, which is another factor that could hurt some businesses' visibility and reduce pedestrian safety.

On-street parking would remain as it currently exists on Chetco Avenue, and parking would be added along Railroad Street between Wharf and Willow Streets. Portions of Hemlock and Spruce streets would also have on-street parking on one side. The number of on-street parking spaces along Chetco Avenue would increase by approximately 35 spaces because less roadway width would be required than currently exists. Approximately 40 on-street spaces on Railroad Street between Wharf and Willow streets, 16 spaces between Wharf and Willow streets on Hemlock Street, and roughly 23 spaces between Wharf and Oak streets along Spruce Street could be added, unless improvements in this area were to have already been constructed as part of the implementation of the Downtown Master Plan.

A narrowing of the curb-to-curb width of the highway and retaining on street parking would allow greater flexibility in the final design for the implementation of traffic calming measures and improved pedestrian mobility. These elements would be constructed to meet ODOT design standards and would provide opportunities to incorporate design elements included in the Downtown Master Plan. Such elements could increase the attractiveness of the downtown business district and surrounding areas.

Alternative 4 would require some right-of-way acquisitions from businesses in the downtown area, but they would be small strip takes that would not impact any structures or access.

Demographics

According to the 2000 U.S. Census, the age, race, and income of the residents located in the four census areas that Alternative 4 encompasses are similar to that of the City of Brookings and Curry County as a whole. Executive Order #12898 on Environmental Justice requires that impacts to low income and minority population be evaluated to determine if such populations bear an undue burden of the high and adverse impacts caused by the project. Based on the analysis of the U.S. Census data, the demographics of the project area do not indicate a disproportionate percentage of low income or minority populations within the project area. For this reason impacts caused by Alternative 4 are not likely to cause an undue burden of high and adverse impacts on such populations

Alternative 4 would require the relocation of six manufactured homes along Mill Beach Loop behind Fred Meyer. Considering the housing type, there is the potential that these acquisitions could cause impacts to low-income families. Two of the homes are owner occupied, while the other four are rental units. For all properties requiring total acquisition of a property, ODOT would provide relocation assistance and the owners would be compensated at a fair market value. Tenants of rental properties would be provided assistance in relocating to new residences. These relocations would not be anticipated to pose environmental justice issues as outlined in Executive Order #12898 on Environmental Justice.

Brookings has a large population of elderly residents. Elderly residents require safe pedestrian amenities to aid in their movement in an urban area. Many of the same requirements needed for the elderly population are also required for the disabled community. Chetco Avenue and Railroad Street currently lack many of the safety amenities that would make pedestrian travel more comfortable for elderly or disabled residents. Alternative 4 would provide opportunity for amenities such as curb cuts, curb extensions outs, and wider sidewalks that would create a safer environment for the elderly and disabled communities that would be in compliance with the Americans with Disabilities Act. A complete assessment of pedestrian travel impacts can be found in the Transportation Section 3.3.2.2.

3.2.2.3 Alternative 5

Neighborhood Impacts

The construction of Alternative 5 would create direct impacts to Brookings area neighborhoods. The elimination of all on-street parking to accommodate four travel lanes and left turn refuges could lead motorists to seek parking on streets immediately adjacent to the state highway. Currently, some streets that are adjacent to the downtown do not have sidewalks or pedestrian facilities, which could force people to walk in the street.

The intersection of Memory Lane, Wharf Street, and Railroad Street would be realigned. This is currently a five-way intersection that is considered to be dangerous by local residents. This realignment of the intersection could require out-of-direction travel and longer travel times for residents who live south of Railroad Street and east of Wharf Street, but would make the intersection safer for traffic and pedestrians.

Several indirect impacts could result from the construction of Alternative 5. Left turn pockets on Chetco Avenue would improve conditions for motorists making turns off of Chetco Avenue into the neighborhoods to the north. Currently, vehicles making a left turn must stop in traffic. Many of the collisions in this area are rear-end collisions, so left turn lanes could improve safety conditions.

Traffic signals would remain at Oak Street and 5th Street while the traffic light at Center Street would be moved to Mill Street-Hillside Avenue intersection. Moving the traffic light to Mill/Hillside intersection would provide an additional signalized access to the neighborhoods to the north.

Community Facility Impacts

The Elmer Bankus Fountain at 5th Street and Chetco Avenue would be directly impacted by the construction of Alternative 5. The width of the eight-lane intersection, as currently designed, would require the use of 5,789 square feet of the 21,821 square feet that make up the Elmer Bankus Fountain Park. The fountain is the most prominent feature in the park and would likely be impacted by the project. A full evaluation of the impacts to the Bankus Fountain is further described in Section 6, the Draft Section 4(f) Evaluation.

Indirect impacts would result from eliminating Center Street's connection with Chetco Avenue. This would cause some out-of-direction travel for those wishing to drive to the Post Office. But by moving the traffic light to the four-way intersection and Chetco Avenue and Mill Street-Hillside Avenue there would be an additional signalized access point onto Chetco Avenue from north of the street that would increase safety.

Business District Impacts

If the construction of Alternative 5 included the off-system improvement to Railroad Street it would have several direct impacts to the Brookings business districts. Most notably would be the relocation of two businesses that support at least two jobs (not all employment statistics were available for these businesses).

The two businesses that would be relocated as a result of Alternative 5 off-system improvements would be:

- Pizza Place (623 Memory Lane)
- Extreme Action Paint Ball (805 Railroad Avenue)

Alternative 5 would eliminate all parking along Chetco Avenue. This would result in a loss of about 95 on-street parking spaces along Chetco Avenue between Arnold Lane and Alder Street. The elimination of parking would make incorporation of most pedestrian friendly and traffic calming amenities difficult if not impossible. There would be little opportunity for sidewalk enhancements such as plantings or "street furniture", and even though the Downtown Master Plan selected a two-way design for Chetco Avenue, Alternative 5 would provide little opportunity for the incorporations of most of the other design elements included in the Downtown Master Plan.

Alternative 5 would create a very automobile-oriented business district in the downtown area, and unless arrangements for additional off-street parking facilities were established, there would be few opportunities for traffic to stop and park. Current existing off street parking lots and neighborhood side streets may not be able to accommodate the demand for parking in the downtown area.

Converting Chetco Avenue to a four-lane facility with left turn pockets at most intersections would limit direct access from adjacent properties (some driveways would be limited to right-in/right-out movements while other driveways would be closed). This alternative would include center medians along Chetco Avenue between Alder Street and north of Mill Beach Road. Dedicated left turn pockets would be provided at 5th Street, Pacific Avenue, Mill Street-Hillside Avenue, Wharf Street, Fern Avenue, Oak Street and Alder Street. Median openings would not be provided at Ross Road, Center Street (which would be realigned) and Willow Street (which would be converted to a one-way eastbound facility). Ross Road would be limited to right-in movements, and Willow Street would be limited to right-out movements. The medians would be intended to preserve the storage function of dedicated left turn pockets by preventing motorists from turning left onto (or from) Chetco Avenue, since these motorists could block the left turn pockets while waiting for gaps in the traffic stream. These design elements intended to improve the traffic mobility and safety of Chetco Avenue through Brookings but could disrupt the ability of vehicles to turn off the highway system and access particular business along Chetco Avenue.

The intersection at 5th Street and Chetco Avenue would be an eight-lane intersection. Given the amount of “green” time assigned to the 5th Street approaches, a traffic signal would not give pedestrians enough time to completely cross Chetco Avenue. The elderly and disabled populations of Brookings would likely find this situation undesirable. There are no other signalized crossings of Chetco Avenue nearby so some elderly and disabled citizens may be forced to cross the highway here despite the long crossing.

Demographics

According to the 2000 U.S. Census the age, race, and income of the residents located in the four census areas that fall within Alternative 5 is similar to that of the City of Brookings and Curry County, as a whole. Executive Order #12898 on Environmental Justice requires that impacts to low income and minority population be evaluated to determine if such populations bear an undue burden of the high and adverse impacts caused by the project. Based on the analysis of the U.S. Census data, the demographics of the project area do not indicate a disproportionate percentage of low income or minority populations within the project area. For this reason impacts caused by Alternative 5 are not likely to cause an undue burden of the high and adverse impacts on such populations.

Alternative 5 would provide some opportunity for amenities such as curb cuts that would create a safer environment for the elderly and disabled communities that would be in compliance with the Americans with Disabilities Act. Other amenities such as bulb outs and wider sidewalks would not be implemented. On-street parking is required for bulb outs and limited ROW due to the creation of left turn pockets would not allow for wider sidewalks. A complete assessment of pedestrian travel impacts can be found in Transportation Section 3.3.2.2.

3.2.3 Cumulative Socioeconomic Impacts

3.2.3.1 Alternative 4 and Alternative 5

The Preservation/Restoration project to repave Chetco Avenue, and the replacement of sewer and water lines along Chetco Avenue, could affect access to neighborhoods, community facilities, and business districts. Some businesses along Chetco Avenue have already incurred economic losses from the sewer and water line replacements that have occurred between Chetco Lane and Arnold Street. Additional obstructions would occur from the completion of the sewer and water line replacements, and could cause businesses to lose additional trade. Construction of Alternative 4 or Alternative 5 several years later would compound the access and visibility issues and would cause additional economic losses.

3.3 Planning and Land Use

3.3.1 Existing Conditions and Methods

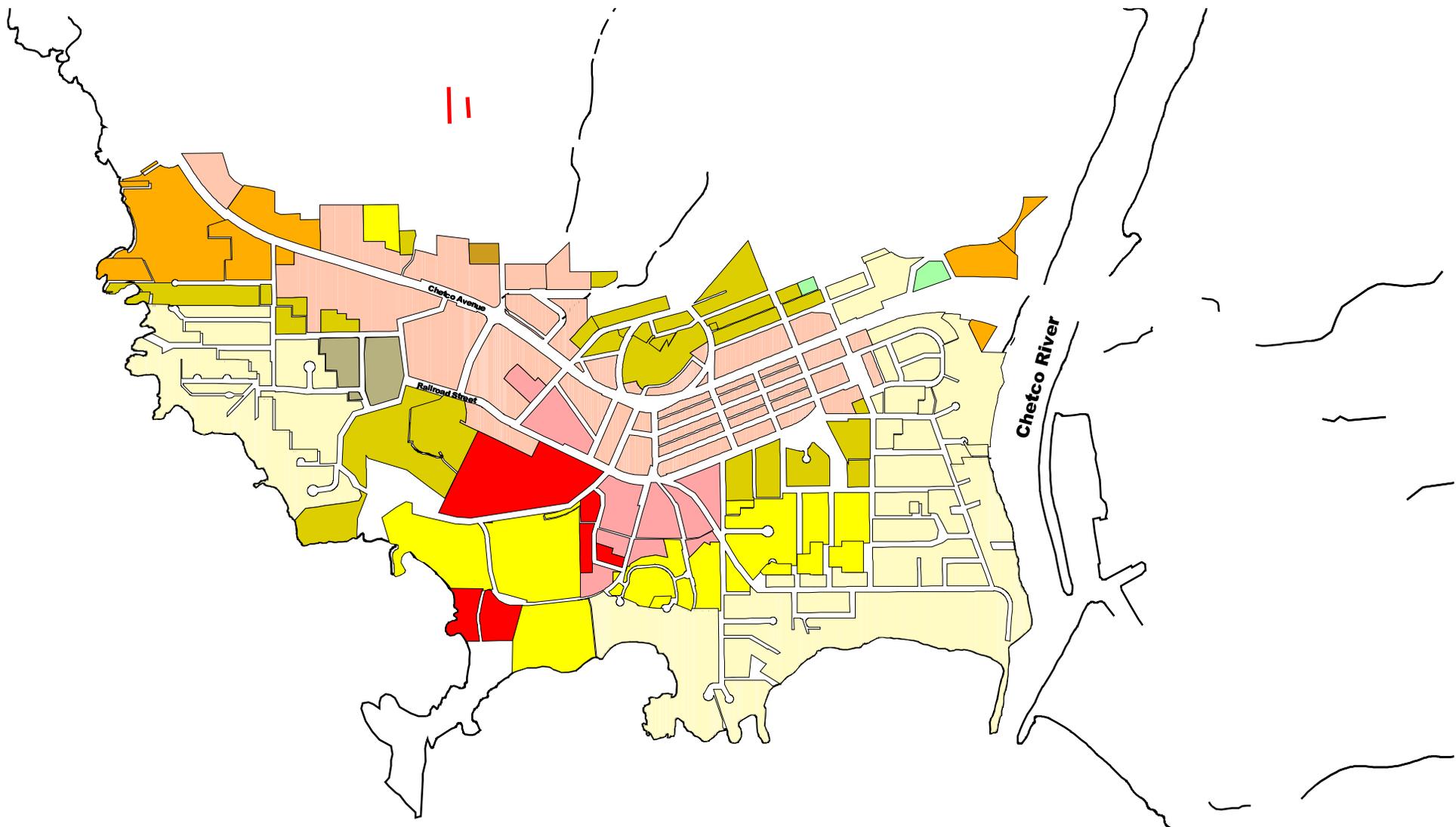
Commercial land uses are predominant along Chetco Avenue. Larger commercial uses and strip development are located on the north end of town with small businesses existing in the older downtown district between Pacific Avenue and Alder Street. A mix of commercial land uses and residential land uses along with some industrial uses exist along Railroad Street.

Information for this analysis was compiled from adopted City plans and policies. Site visits and interviews confirmed existing land uses, the location of community facilities, and provided information on the characteristics of neighborhoods and commercial areas.

3.3.1.1 Existing and Planned Land Use

The zoning within the study area includes General Commercial, Multiple-Family Residential, Industrial Park, General Industrial, Mobile Home Residential, and Public Open Space. Existing land uses in the study area often differ from the Comprehensive Plan and Zoning Map designations. Changes to the Comprehensive Plan and stated goals of the Downtown Master Plan have sought to change the character of the City of Brookings downtown area through rezoning much of the former single-family residential-zoned areas to general commercial.

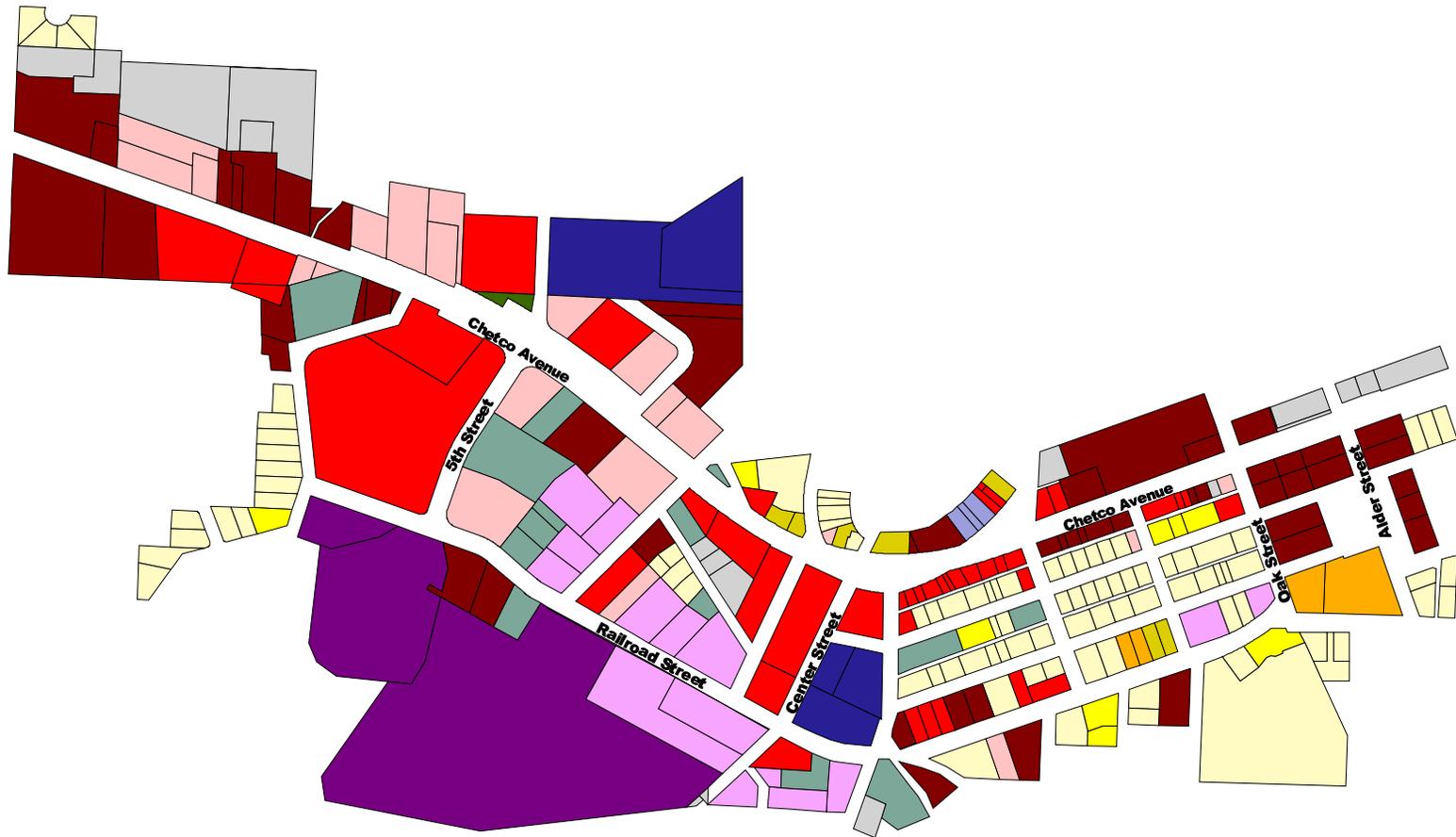
The comprehensive plan and zoning map (Figure 3-2) designations demonstrate planned land use patterns, reflecting the goals and policies of the adopted City of Brookings Comprehensive Plan, Downtown Master Plan, and Urban Renewal Plan. Between Railroad Street and Chetco Avenue are residential uses and scattered businesses (Figure 3-3). Railroad Street and the streets between Chetco Avenue and Railroad Street generally lack sidewalks, curbs and gutters, and many of the buildings along Railroad Street have parking in front that appears to be encroaching into the city-owned right-of-way.



Zoning

- | | |
|---|--|
|  C-3--General Commercial |  R-1-6--Single Family Residential |
|  C-4--Tourist Commercial |  R-2--Two Family Residential |
|  I-P--Industrial Park |  R-3--Multiple-Family Residential |
|  M-2--General Industrial |  R-MH--Mobile Home Residential |
|  P/OS--Public Open Space | |
|  PO-1--Professional Office | |

Figure 3-2: Comprehensive Plan and Zoning Designations
 Source: City of Brookings



Land Use Designations

- | | | | |
|---|---------------------|---|--------------------------|
|  | Commercial |  | SFR |
|  | Commercial/Retail |  | Mixed Use |
|  | Commercial/Services |  | Multi Family Residential |
|  | Industrial |  | Community |
|  | Light Industrial |  | Government |
|  | Vacant |  | Parking |
| | |  | Public |

Figure 3-3 Project Area Land Uses
Source: Parametrix



3.3.1.2 Future Land Development Needs

The City of Brookings has projected future land development needs to accommodate population and employment growth. The Brookings Comprehensive Plan identifies land needs to accommodate population growth through 2003. The City has been gradually updating the plan through periodic review over the last decade and is close to reaching compliance with the Department of Land Conservation and Development requirements.

The City of Brookings Transportation System Plan (TSP) includes an estimate of land needs based on an Urban Growth Boundary (UGB) needs analysis produced in 1995. Table 3-1 summarizes land supply information within the Brookings UGB based on data presented in the Brookings TSP. More current data were not available at the time of this report (personal communication, John Bischoff July 2004). The expansion of the Brookings UGB projected in 1995 included a large increase in the percentage of commercial/industrial land use supplies and a moderate increase in residential land uses based on anticipation of an increasing population and employment base within the UGB.

Table 3-1 City of Brookings Future Land Development Needs (2002)

Comprehensive Plan Designation	Land Needed by 2017 (acres)	Land Within Existing UGB (acres)	Proposed Addition to UGB (acres)	Percentage increase
Commercial/Industrial	700	174	526	302%
Residential	976	593	383	65%
Total	1,676	767	909	119%

Subsequent to the 1995 UGB needs analysis study, the Oregon Supreme Court approved an expansion to the Brookings UGB in 1997. This expansion increased land area within the UGB by 3,500 total acres, of which 1,200 were estimated to be developable land. This expansion included a larger amount of residential land than commercial land, however, it is anticipated that some of the residential land may be rezoned for commercial uses (personal communication, John Bischoff July 2004). This analysis will take into account anticipated land need trends when addressing land use impacts of the alternatives.

3.3.1.3 Existing Local Plans and Policies

There are several existing adopted land use planning documents, as well as the City's land use development code, with which improvements to Chetco Avenue or Railroad Street must comply. A brief overview of the local plans and development code most directly relevant to this project is provided below.

Brookings Transportation System Plan

The City of Brookings adopted the Transportation System Plan (TSP) in August 2002. The TSP provides a 20-year multi-modal plan for the City's transportation network. It contains several goals and supporting policies intended to guide future transportation planning efforts. Following

are goals and policies related to the Downtown Brookings- Highway 101 Transportation Solutions Project:

Goal 1: Preserve the function, capacity, level of service, and safety of state highways.

- Develop local access management standards that will meet the requirements of the TPR and also consider the needs of the affected communities.
- Develop alternative, parallel routes.

Goal 2: Improve and enhance safety and traffic circulation and preserve the level of service on local street systems.

Goal 3: Identify the 20-year roadway system needs to accommodate developing or undeveloped areas without undermining the rural nature of the city.

- Encourage growth by improving the access onto and off of arterial roadways.

Goal 4: Increase the use of alternative modes of transportation (walking, bicycling, rideshare/carpooling, and transit) through improved access, safety, and service.

- Encourage sidewalks, bikeways, and safe crossings on urban arterial and collector roads.

Goal 5: Provide and encourage a safe, convenient and economic transportation system.

- Encourage greater accessibility to the downtown business district by vehicles and pedestrians.
- Support improvement of intra-regional transportation, construction of passing lanes and the couplet of U.S. 101.

Goal 6: Ensure that the road system within the city and urban area is adequate to meet public needs, including the transportation disadvantaged.

- Direct commercial development and use access onto major arterials by means of improved city streets.
- Develop an access management strategy for U.S. 101.

Goal 7: Improve coordination among Curry County, the Oregon Department of Transportation, the U.S. Forest Service, the Federal Highway Administration, and the City.

- Encourage improvement of state highways, especially U.S. 101.
- Take advantage of federal and state highway funding programs.

The TSP recommends construction of the Chetco Avenue/Railroad Street couplet as funding becomes available. In its recommendation, the TSP suggests roadway design standards for several sections of the couplet. For the two-way portions of Chetco Avenue north and south of the actual couplet, the standards generally include four through lanes and a center turn lane (each 3.6 meters [12 feet] in width), 1.5 meter (5-foot) wide bicycle lanes and 1.8 meter (6-foot) wide sidewalks where conditions permit. The TSP guidelines propose that the one-way segments of Chetco Avenue and Railroad Street have three travel lanes (3.6 meters [12 feet wide]), 1.5 meter (5-foot) wide bicycle lanes and 1.8 meter (6-foot) wide curb-tight sidewalks. Recommendations for on-street parking vary by location. The standards serve as suggestions until an EA can be

completed. Other specific pedestrian improvements recommended in the study area include sidewalks on the north side of Chetco Avenue between Alder Street and the Chetco River Bridge. The TSP does not make any specific bicycle improvement recommendations for the Chetco Avenue/Railroad Street corridor.

City of Brookings Comprehensive Plan

The current Comprehensive Plan, adopted in 1983, includes several findings and policies that are relevant to the Downtown Brookings—Highway 101 Transportation Solutions Project:

Goal 9: Economy of the State

To diversify and improve the economy of the Brookings area

Policy 1

It is the policy of the City of Brookings to improve the appearance of the downtown commercial areas and to enhance shopping opportunities for residents and visitors.

Goal 12 Transportation

To provide and encourage a safe, convenient and economic transportation system

Findings

6. A study funded by the Oregon Department of Transportation has determined that the highway couplet concept, using Railroad Street as the southbound leg of the highway, is feasible. The City Council has endorsed this study.

Policies

2. All new commercial areas and new commercial development within existing commercial areas would utilize the concepts of access management.
4. The City will develop a traffic circulation system, which allows adequate access to industrial and commercial land.

City of Brookings Downtown Master Plan

The City of Brookings Downtown Master Plan, adopted in January 2003, addresses the project study area between Chetco Avenue and Railroad Street and from Pacific Avenue to Alder Street. The Downtown Master Plan, among other things provides zoning ordinance recommendations and downtown Brookings design guidelines, which include:

- A cottage commercial / garden mixed-use district in the area between Chetco Avenue and Railroad Street
- A local resident / visitor mixed-use area along or adjacent to Chetco Avenue
- Locally-serving mixed-use, including neighborhood markets, cafes, and residential services along Railroad Street, but includes businesses that also serve tourists

- A pedestrian friendly environment in downtown Brookings, including parking that fosters the practice of parking once and walking.

In concert with these recommendations, the Downtown Master Plan proposes improving Railroad Street to facilitate increased use of all modes of transportation. It also proposes maintaining Chetco Avenue as a two-way state highway, but with improvements, including a protected left turn pocket at both Oak and Center Streets. Other circulation suggestions include converting portions of Fern and Willow Streets to one-way streets to limit turning movements. The plan recommends the acquisition of additional public right-of-way on both sides of Chetco Avenue, which would necessitate the loss of some on-street parking spaces. While the Plan proposes a 'loop system' that would keep Chetco Avenue as a two-way state highway, the Plan does recognize the possibilities of other transportation networks, including a couplet.

City of Brookings Land Development Code (LDC)

The LDC regulates land use actions within the City of Brookings. The following zones are found within the study area:

- General Commercial (C-3)
- Multiple-Family Residential (R-3)
- Industrial Park (IP)
- General Industrial (M-2)
- Mobile Home Residential (R-MH)
- Public Open Space (P/OS)

Highway improvements are not addressed as an allowed or conditional use within any of the zones listed above. Discussions with John Bishoff, Planning Director for the City of Brookings indicate that no local land use permits would be required for highway improvement projects on ODOT property. Highway projects requiring additional right-of-way would require acquisition of land from the property owner. Alternative 4 would involve a reclassification of Railroad Street from a City-owned and maintained street to a State Highway and would require an amendment to the TSP. Because this is a formal land use action, if Alternative 4 were selected as the preferred alternative, the TSP amendment would have to be adopted prior to the finalization of the Revised Environmental Assessment and a Finding of No Significant Impact (FONSI) per the State Agency Coordination (SAC) Agreement between ODOT and the Department of Land Conservation and Development.

3.3.2 Planning and Land Use Impacts

3.3.2.1 No-Build Alternative

The No-Build alternative would not result in direct impacts to land use. No right-of-way acquisitions would be required and no existing buildings would be displaced for highway construction. The No-Build Alternative would not reduce the amount of buildable land available for urban development within the Brookings UGB. Because traffic congestion would increase under the No-Build Alternative with no increase in access to land within the project area, it is not

likely that this alternative would result in induced growth impacts to the areas surrounding Chetco Avenue.

Under the No-Build Alternative, traffic congestion would likely increase on Chetco Avenue and Railroad Street. If congestion worsens to a point of reducing accesses to businesses, there could be a reduced demand for commercial land uses in Brookings. Competition for commercial development exists now between Brookings and the unincorporated Harbor area. An increase in traffic congestion could reduce the desirability of commercial property in downtown Brookings and direct more development towards Harbor.

3.3.2.2 Alternative 4

The construction of Alternative 4 would have direct impacts to land uses and 62 properties along Chetco Avenue, Railroad Street and internal streets between the proposed couplet including Fern Avenue and 5th, Mill, Wharf, Willow, Oak, Spruce and Hemlock streets. In addition to these streets, several streets surrounding the couplet are proposed for alterations or improvements that would have impacts on adjacent land uses. These streets include Center Street, Memory Lane, Tanbark Road, Oxford Street, Floral Drive, Alder Street, Hazel Street, Pacific Avenue, Chetco Lane, Mill Reach Loop and King Street. These impacts would be due to intersection improvements. The majority of the actions required would be relocating access points and acquiring property along the streets that would be improved.

Of the 62 impacted properties, there are 45 commercial-zoned parcels, 10 industrial-zoned parcels and seven residential-zoned parcels. Fourteen parcels would require full acquisition and relocation under Alternative 4. Eight of these parcels are commercial land uses, and are located throughout the project area. The remaining six full acquisitions would be residential land uses on the north side of Mill Beach Road between Railroad Street and Chetco Avenue. The displaced residences would be single-family manufactured homes on parcels currently zoned as R-MH or Mobile Home Residential. This is the only R-MH zoned area in the city, according to the Brookings Planning Director (Personal communication, John Bischoff May 2004), because the R-MH zoning designation is no longer used, and manufactured homes displaced from this zone could be relocated to parcels zoned R-1, R-2, or suburban/residential (S/R).

The project area zoning would be the same as the Comprehensive Plan designation.

Alternative 4 would also have indirect land use impacts that could create pressure related to timing, location, and type or density of development that could be different from what is assumed in the city's adopted land use plans. Other indirect impacts are related to the compatibility of Alternative 4 with City of Brookings redevelopment plans for land within the project area and possible development pressures that could be created with improved accessibility.

Alternative 4 would have the following indirect planning and land use impacts:

- Alternative 4 would provide increased accessibility and visibility to the area between Chetco Avenue and Railroad Street by routing southbound Chetco Avenue traffic flows to Railroad Street.

- Because there are three blocks between the northbound and southbound lanes of the couplet, access and visibility of blocks between Chetco Avenue and Railroad Street would increase as some traffic flows traverse the area using local streets between the couplets.
- Increased accessibility and visibility due to the realignment of southbound U.S. 101 traffic could induce development pressures on parcels near the new alignment. Increased traffic flows would likely be seen as a positive factor in influencing the development of underutilized commercial-zoned land north of Railroad Street.
- Many of the strip land acquisitions required along Chetco Avenue and Railroad Street would be to accommodate sidewalks and bicycle lanes. This could increase viable transportation mode options within the downtown area and would foster an improved pedestrian environment.
- Alternative 4 would displace eight commercial parcels; however, there is available vacant land within the immediate project area that is zoned general commercial. Relocation of displaced businesses could induce demand of commercial land within the study area as businesses look for replacement land. There are several vacant storefronts along Chetco Avenue; however, some of the buildings are in a state of disrepair. While this impact would likely be small given the amount of land area displaced, actual impacts to small businesses could be great.
- Diverting traffic flows to Railroad Street would increase noise to land uses surrounding the southbound alignment of U.S. 101. Several land uses in proximity to the new alignment are residential land uses.

Some of the indirect impacts of Alternative 4 listed above could foster changes that reflect the intent of the Downtown Master Plan and Urban Renewal Plan. An increased pedestrian environment would be encouraged through the inclusion of traffic calming and pedestrian amenities such as street furniture, plantings, and curb extensions. Also the creation of additional on-street parking along Railroad Street as proposed under Alternative 4 could increase access to shopping, entertainment, and business destinations for drivers in this area. Increased access and visibility could induce development / redevelopment pressure for commercial properties along Railroad Street.

The Downtown Master Plan does not envision a Chetco Avenue / Railroad Avenue couplet as proposed in Alternative 4. It is possible that decreased traffic flow along Chetco Avenue caused by dividing the northbound and southbound travel lanes of U.S. 101 (Chetco Avenue) could decrease access and visibility of this area, especially to tourist traffic. Because many of the businesses located along Chetco rely on business generated by U.S. 101 through traffic, both northbound and southbound, a restriction of traffic flow to one direction along Chetco could decrease demand for land uses along Chetco Avenue.

Other elements proposed by Alternative 4 vary slightly from the Downtown Master Plan. For example, the plan envisions two-way circulation on all streets except for Fern Street and Willow Street between Spruce Street and Chetco Avenue, while Alternative 4 proposes one-way circulation on Chetco Avenue, Railroad Avenue, Spruce Street and Hemlock Street. The master plan envisions paving, curb, gutter and sidewalk improvements to all interior streets within the

Brookings core area (between Chetco Avenue and Railroad Avenue, and Center Street and Alder Street). Alternative 4 proposes the same level of improvements to all streets except Center Street and Wharf Street. While many of the actions proposed by Alternative 4 reflect the aesthetic and economic enhancement goals envisioned by the Downtown Master Plan, some of the differences fall short of these goals.

3.3.2.3 Alternative 5

The construction of Alternative 5 “base improvements” would have direct impacts only to land uses along Chetco Avenue. These impacts would be due to intersection improvements. The majority of the actions required would be relocating access points and acquiring property to allow for the widening of Chetco Avenue. No land use actions would be required. Alternative 5 would have an impact on 33 properties within the study area. Of the 33 impacted properties, there are 23 commercial-zoned parcels, eight industrial-zoned parcels and two residential-zoned parcels.

Two commercial properties located on Railroad Street could require full acquisition and relocation of existing uses but would be contingent on the construction of the off-system improvements described in Section 2.6.2. Indirect land use impacts can be measured as the potential pressure created by the proposed project related to timing, location, and type or density of development different from that assumed in the adopted land use plans. This analysis of indirect land use impacts seeks to estimate the degree to which this project would be followed by noticeable change in land use that can be attributed to Alternative 5. The analysis of indirect impacts highlights the compatibility of project impacts with City of Brookings redevelopment plans for land within the project area and possible development pressures that could be created with improved accessibility.

Alternative 5 would have the following indirect planning and land use impacts:

- Alternative 5 would remove on-street parking along Chetco Avenue, creating a possible deficit in parking availability for local businesses that do not have off-street parking facilities.
- Alternative 5 would provide increased capacity for traffic flows along Chetco Avenue by widening the facility beyond four lanes to accommodate left turn pockets.
- Proposed traffic management measures such as left turn pockets and medians along Chetco Avenue would increase traffic safety along the corridor despite the increase in traffic flow.
- Increased traffic flow along Chetco Avenue could discourage connectivity between areas of Brookings north and south of Chetco Avenue if the facility is perceived to divide the community.
- The elimination of parking on Chetco Avenue could cause a decrease in pedestrian traffic that could make it difficult to sustain existing businesses and foster development or redevelopment on Chetco Avenue and nearby areas.

Other indirect impacts could occur with the implementation of the local, off-highway system improvements that are included in this analysis. These could include:

- Improved pedestrian environment due to facility improvements on Railroad Street, Center Street, Mill Beach Street and Wharf Street.
- Induced development possibilities in the area between Chetco Avenue and Railroad Street, east of Wharf Street to Alder Street, and along Railroad Street.

Some elements of Alternative 5 are consistent with the Downtown Master Plan. Both the plan and Alternative 5 propose the continuation of two-way traffic along Chetco Avenue, as opposed to the couplet alternative. The Downtown Master Plan envisions paving, curb, gutter and sidewalk improvements to all streets within the Brookings core area – between Chetco Avenue and Railroad Avenue, and Center Street and Alder Street. Alternative 5 proposes the same level of improvements to all streets except Spruce Street, Hemlock Street, Center Street and Wharf Street. These improvements would encourage pedestrian movement on the smaller streets south of Chetco Avenue.

Alternative 5 would increase traffic capacity and automobile safety on Chetco Avenue, however, some of the indirect impacts of Alternative 5 may not reflect the goals of the Urban Renewal Plan and the Downtown Master Plan. The plan envisions Chetco Avenue maximum right-of-way of 24.3 meters (80 feet). Alternative 5 proposes a 6.4 meter (21-foot) increase in paved surface to 33.8 meters (111 feet). The additional width of Chetco Avenue proposed by Alternative 5 could inhibit the visual enhancements proposed by the plan by reducing Chetco Avenue’s “Main Street” appearance.

For bicyclists and pedestrians, Chetco Avenue is currently perceived as a barrier cutting through the downtown business district. Anticipated traffic volume growth would likely increase this perception if the facility were to remain in its current state. A key element of the Downtown Master Plan is on-street parking and bike lanes along Chetco Avenue, which would increase bicycle and pedestrian safety by providing additional space for these modes of travel. However, Alternative 5 would remove on-street parking. Increased traffic flows resulting from increased capacity could discourage bicycle and pedestrian movement on Chetco Avenue. Though Chetco Avenue currently does not have bicycle facilities, the anticipated increase in traffic in the future without the possibility of implementing bike lanes would make an even worse bicycle environment than currently exists. The elimination of on-street parking would decrease access to shopping, entertainment, and business destinations for drivers. If vehicle, pedestrian and bicycle traffic decrease due to the more auto-oriented streetscape of Chetco Avenue combined with the elimination of parking proposed by Alternative 5, small businesses along Chetco Avenue could be negatively impacted. These conditions could also decrease demand for commercial land uses along Chetco Avenue on properties that lack off-street parking alternatives.

3.3.3 Cumulative Planning and Land Use Impacts

3.3.3.1 No-Build Alternative

The U.S. Borax project, although not within the project area, would add several hundred housing units and a college campus over the next 20 years, increasing traffic flows on Chetco Avenue

beyond that represented in the No-Build Alternative. The Borax project plans include construction of 1,000 residential units that, if fully realized, could increase demand for retail and commercial services in Brookings that do not currently exist. The Borax plans include two acres of retail space, but this is not likely to be sufficient to accommodate the potential growth such a development could create. Areas zoned for commercial uses that currently have residential uses would like feel development pressure to respond to the demands of the increased population.

3.3.3.2 Alternative 4 and Alternative 5

Both the paving/reconstruction project along Chetco Avenue and the construction of either of the Build Alternatives could cause temporary constricted access and reduced traffic to businesses in this area. The compounded effect of these projects could make it difficult for businesses to sustain themselves during the combined construction periods required of the projects. This could also contribute to job losses in this area.

Additional cumulative impacts could be created by the development of the site purchased by Curry General Hospital. This proposed development is on a vacant parcel that is proposed for construction of backage roads for properties that currently have access solely on Chetco Avenue or Railroad Street near intersections by both build alternatives. However, without knowledge of the specific site plans for the hospital, or certainty of its development, it is difficult to quantify cumulative impacts.

As described under cumulative impacts for the No-Build Alternative, the Brookings Planning Commission has approved U.S. Borax's 20-year plan for a development that includes 1,000 residential units. If the growth occurs that is projected with the purchase those homes pressure could be increased to convert residential land uses in the downtown area to more commercial land uses to meet the demand for services. This demand combined with the construction of Alternative 4 could result in redevelopment along the streets located between Chetco Avenue and Railroad Street. Redevelopment pressure under Alternative 5 would be greatest along Chetco Avenue and its adjoining side streets. If redevelopment occurred, there would be a greater demand for new parking facilities to replace the loss of on-street parking that would occur under Alternative 5.

3.4 Noise

3.4.1 Existing Conditions and Methods

This analysis has been prepared to meet the FHWA Noise Regulations (23 CFR 772) following the guidance contained in the *ODOT Noise Manual* (June 1996). All noise levels referred to in this report are stated as hourly equivalent sound pressure levels (Leq) in terms of A-weighted decibels (dBA). Noise levels stated in terms of dBA approximate the response of the human ear by filtering out some of the noise in the low and high frequency ranges that the ear does not detect well. The A-weighting is used in most environmental ordinances and standards. The equivalent sound pressure level is defined as the average noise level, on an energy basis, for a stated period of time (e.g., hourly).

FHWA considers a traffic noise impact to occur if predicted noise levels approach or exceed the abatement criteria or substantially exceed existing levels. ODOT defines “approach” as a noise level 2 dBA below the noise abatement criteria. At this level, the property is impacted by noise and normally requires an analysis of abatement. Impacts are also considered to occur if there is a substantial increase in future noise levels relative to existing noise levels. An increase of 10 dBA or more is considered substantial. The criteria are applied to the peak noise impact hour.

Traffic noise levels for this project were calculated using FHWA’s Traffic Noise Prediction Model (FHWA, TNM[®] Version 2.1). TNM computes highway traffic noise at specified locations (receptors) and aids in the design of mitigation measures. Inputs to the model include three-dimensional descriptions of road alignments; vehicle volumes within defined vehicle classes; vehicle speeds and traffic control devices; and data on the characteristics and locations of specific ground types, topographical features, and other features likely to influence the propagation of vehicle noise between the roadway and the receiver. Existing conditions (2002), future Build conditions (2027), and future No-Build conditions (2027) were modeled. The peak noise hour was found to be the PM peak traffic hour (1:00 to 2:00 PM). The peak truck hour occurs during the PM peak traffic hour.

Under existing peak noise hour conditions noise levels at 10 receptors are predicted to exceed the noise impact criteria (see Table 3-2 and figures 3-4 to 3-9). Three of these receptors represent commercial land uses on Chetco Avenue located very close to the edge of the roadway between Mill and Oak streets. The remaining receptors represent seven residences and two motels.

3.4.2 Noise Impacts

3.4.2.1 No-Build Alternative

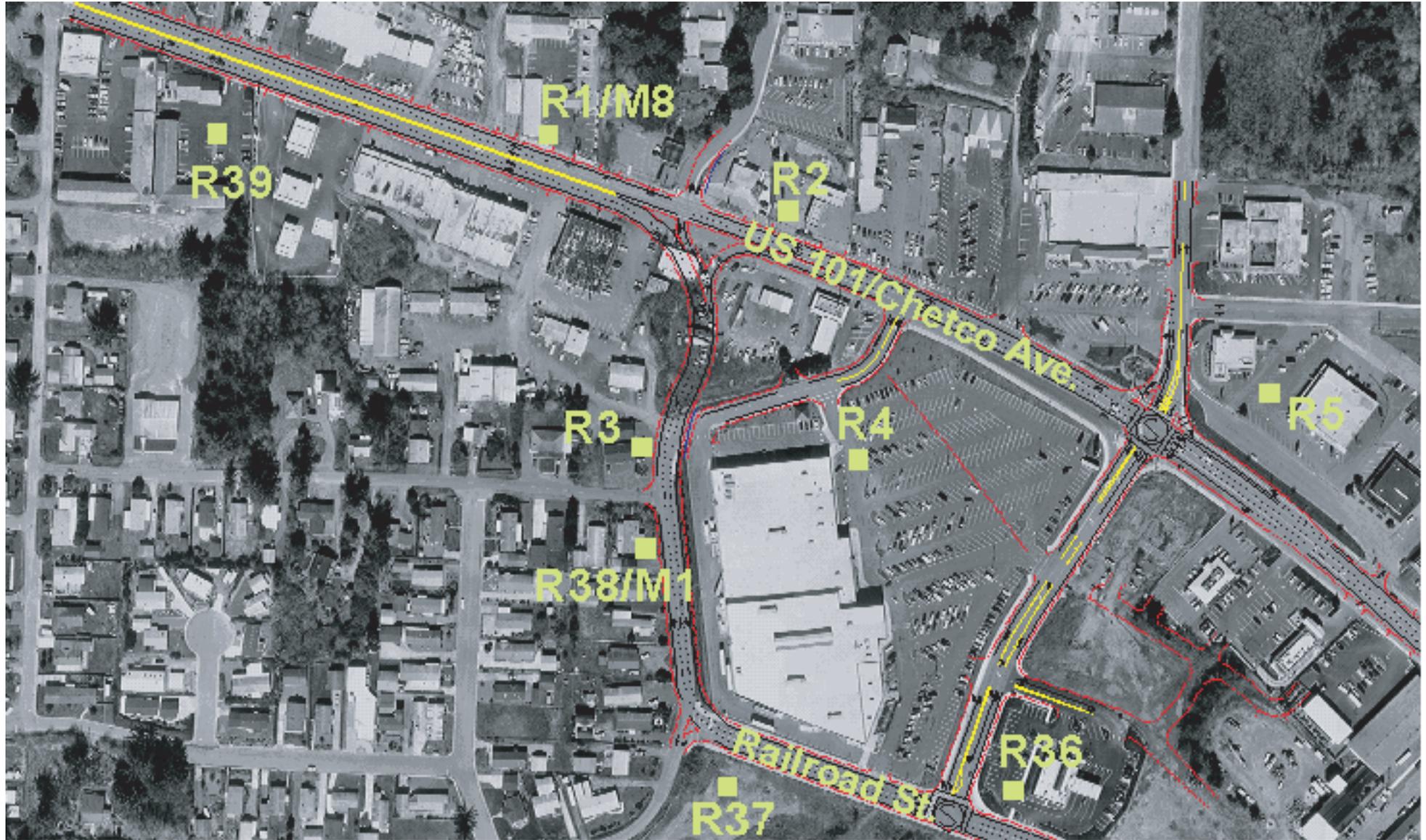
The No-Build Alternative shows increases in sound levels of 1 to 4 dBA over existing conditions for all receptor locations as a result of traffic volume increases between 2002 and 2027. A 3-dBA change in sound level is perceptible to most people. By 2027, sound levels at 19 receptors are predicted to exceed the noise impact criteria under the No-Build Alternative. No substantial increases are predicted. (An increase of 10 dBA or more is considered substantial). Eight receptors representing commercial land uses adjacent to the roadway over the entire length of Chetco Avenue are predicted to be noise impacted under the No-Build Alternative. Impacts are not predicted for commercial buildings located further off the right-of-way. No commercial noise impacts are predicted on Railroad Street. Eleven receptors, representing 14 residences and two motels, would be noise impacted under the No-Build Alternative. The receptor locations are listed in Table 3-2 and shown in Figures 3-4, 3-5, and 3-6 and Figures 3-7, 3-8, and 3-9.

Table 3-2 Predicted Peak Noise Hour Sound Levels for Existing and No-Build Alternative Conditions (L_{eq} – dBA)

Receptor	Land Use	Noise Impact Criterion(dBA)	Existing 2002	No-Build Alternative 2027	Number of Impacted Residences (No-Build)
R1	Motel	65	70	72	Motel
R2	Commercial	70	69	71	

Receptor	Land Use	Noise Impact Criterion(dBA)	Existing 2002	No-Build Alternative 2027	Number of Impacted Residences (No-Build)
R3	Hospice Clinic	65	58	60	
R4	Fred Meyer	70	59	62	
R5	Commercial	70	67	70	
R6	Commercial	70	67	70	
R7	Residential (1)	65	63	65	1
R8	Residential (2)	65	64	67	2
R9	Residential (1)	65	61	63	
R10	Residential (1)	65	65	67	1
R11	Commercial	70	72	73	
R11A	Residential (1/2nd fl)	65	72	74	1
R13	Commercial	70	67	70	
R13A	Residential (2/2nd fl)	65	70	73	2
R14	Commercial	70	70	73	
R14A	Residential (2/2nd fl)	65	71	74	2
R15	Medical Center	70	67	70	
R16	Motel	65	71	75	Motel
R17	Residential (1)	65	63	66	1
R18	Residential (3)	65	62	65	3
R19	Residential (7)	65	54	58	
R20	Medical Center	70	59	62	
R21	Bowling Alley	70	57	61	
R22	Library	70	55	58	
R23	Residential (1)	65	60	63	
R24	Residential (1)	65	57	60	
R25	Adult Care	65	61	64	
R26	Residential (2)	65	60	62	
R27	Residential (1)	65	56	59	
R28	Residential (1)	65	59	62	
R29	Residential (1)	65	57	59	
R31	Apartments (8) and Residence (1)	65	60	62	
R32	Residential (1)	65	57	59	
R33	Residential (1)	65	57	60	
R34	Commercial	70	59	60	
R35	Commercial	70	60	61	
R36	Commercial	70	63	64	
R37	Commercial	70	55	56	
R38	Residential (7)	65	57	59	
R39	Motel	65	59	63	
R40	Commercial	70	70	73	
R40A	Residential (1/2nd fl)	65	70	73	1
TOTAL IMPACTS		14 residences, 2 motels, 8 commercial areas			

Note: Noise impacted receptors exceeding the criteria are shown in bold.



KEY

■ **Noise Receptor**

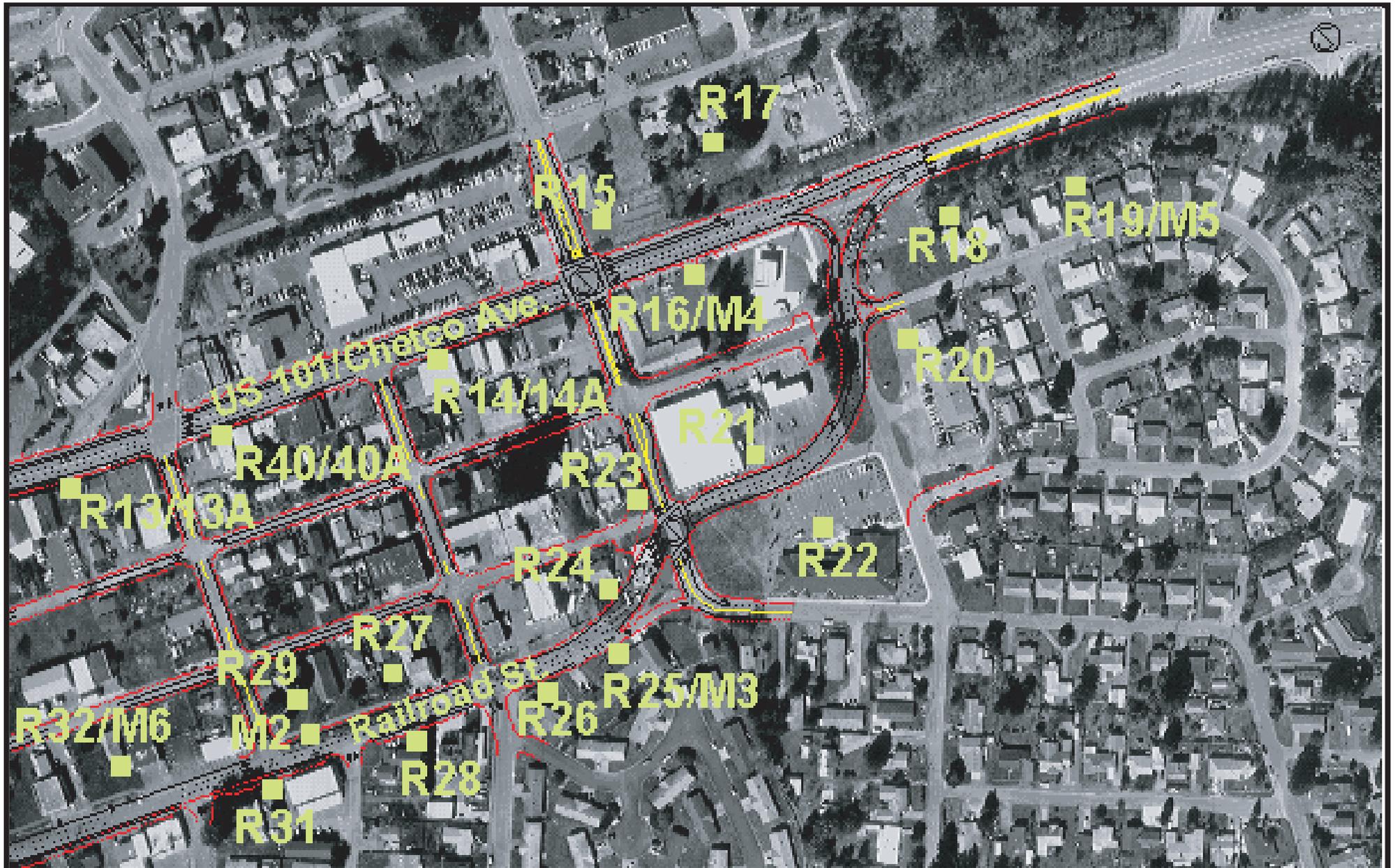
Figure 3-4
 Receptor and Monitoring Site Locations - Alternative 4
 Source: TW Environmental



KEY

■ Noise Receptor

Figure 3-5
 Receptor and Monitoring Site Locations - Alternative 4
 Source: TW Environmental



KEY

■ Noise Receptor

Figure 3-6
 Receptor and Monitoring Site Locations - Alternative 4
 Source: TW Environmental



KEY

Noise Receptor

Figure 3-7
 Receptor and Monitoring Site Locations - Alternative 5
 Source: TW Environmental



KEY

■ Noise Receptor

Figure 3-8
 Receptor and Monitoring Site Locations - Alternative 5
 Source: TW Environmental



KEY

■ Noise Receptor

Figure 3-9
 Receptor and Monitoring Site Locations - Alternative 5
 Source: TW Environmental

3.4.2.2 Alternative 4

For Alternative 4, the changes from predicted existing sound levels at the various receptors would be a result of increased traffic volumes and the creation of the U.S. 101 couplet, relocating the southbound highway traffic onto Railroad Street.

With Alternative 4, the amount of change would vary from decreases of up to 4 dBA at some receptors, to increases of up to 16 dBA at other receptors. Increases in outdoor noise levels that are 5 dBA or greater would be noticeably different from the existing conditions. By 2027, sound levels at 26 receptors are predicted to exceed the noise impact criteria under Alternative 4. At seven of the 26 receptors the substantial increase criteria would also be exceeded. The substantial increase criterion (an increase of 10 dBA) is exceeded at one additional receptor with levels below the absolute impact criteria (65 dBA), bringing the total number of noise-impacted receptors to 27. The locations of the noise receptors are listed in Table 3-3 shown in Figures 3-4, 3-5, 3-6. Of the 27 noise receptors impacted:

- Seven receptors represent commercial land uses along Chetco Avenue and Railroad Street, and
- Twenty receptors represent 37 residences, two motels, an adult care home, a hospice clinic, and a church). (Six of the residences are predicted to exceed the noise impact criteria under Alternative 4 would be displaced by the construction of Alternative 4.)

Table 3-3 Predicted Peak Noise Hour Sound Levels for Existing and Alternative 4 Conditions (L_{eq} – dBA)

Receptor	Land Use	Noise Impact Criterion (dBA)	Existing 2002	Alternative 4 2027	Number of Impacted Residences (Alternative 4)
R1	Motel	65	70	73	Motel
R2	Commercial	70	69	69	
R3	Hospice Clinic	65	58	66	Hospice clinic
R4	Fred Meyer	70	59	61	
R5	Commercial	70	67	64	
R6	Commercial	70	67	65	
R7	Residential (1)	65	63	63	
R8	Residential (2)	65	64	65	2
R9	Residential (1)	65	61	64	
R10	Residential (1)	65	65	66	1
R11	Commercial	70	72	70	
R11A	Residential (1/2nd fl)	65	72	71	1
R13	Commercial	70	67	67	
R13A	Residential (2/2nd fl)	65	70	70	2
R14	Commercial	70	70	71	
R14A	Residential (2/2nd fl)	65	71	73	2
R15	Medical Center	70	67	67	

Receptor	Land Use	Noise Impact Criterion (dBA)	Existing 2002	Alternative 4 2027	Number of Impacted Residences (Alternative 4)
R16	Motel	65	71	70	Motel
R17	Residential (1)	65	63	64	
R18	Residential (3)	65	62	66	3
R19	Residential (7)	65	54	58	
R20	Medical Center	70	59	66	
R21	Bowling Alley	70	57	73*	
R22	Library	70	55	64	
R23	Residential (1)	65	60	70*	1
R24	Residential (1)	65	57	71*	1
R25	Adult Care	65	61	67	Adult Care
R26	Residential (2)	65	60	67	2
R27	Residential (1)	65	56	66*	1
R28	Residential (1)	65	59	68	1
R29	Residential (1)	65	57	66	1, Church
R31	Apartments (8) and Residence (1)	65	60	69	9
R32	Residential (1)	65	57	67*	1
R33	Residential (1)	65	57	68*	1
R34	Commercial	70	59	69*	
R35	Commercial	70	60	67	
R36	Commercial	70	63	72	
R37	Commercial	70	55	64	
R38	Residential (7) [#]	65	57	68*	7
R39	Motel	65	59	62	
R40	Commercial	70	70	70	
R40A	Residential (1/2nd fl)	65	70	71	1
TOTAL IMPACTS 37 residences, 2 motels, adult care home, church, hospice clinic, and 7 commercial areas					

Note: Noise impacted receptors exceeding the criteria are shown in bold. Noise impacted receptors with a substantial increase in sound levels are indicated by an asterisk. R16 was adjusted by 3 dBA to account for an interaction of roadway width and receptor location that appears to produce anomalous results.

[#] Six residents at this location would be displaced by the construction of Alternative 4.

3.4.2.3 Alternative 5

For Alternative 5, the changes from predicted existing sound levels at the various receptors would be a result of increased traffic volumes, increased traffic capacity on Chetco Avenue and improvements to Railroad Street.

Alternative 5 shows an increase of zero to 4 dBA in sound levels over existing conditions. By 2027, Sound levels at 17 receptors are predicted to exceed the noise impact criteria under Alternative 5. The locations of the noise receptors are listed in Table 3-4, and shown in Figures 3-7, 3-8, and 3-9. No substantial noise increases are predicted. Of the 17 impacted receptors

- Seven represent commercial land uses on Chetco Avenue
- Ten represent 11 residences and two motels throughout the Project Area

Table 3-4 Predicted Peak Noise Hour Sound Levels for Existing and Alternative 5 Conditions (L_{eq} – dBA)

Receptor	Land Use	Noise Impact Criterion (dBA)	Existing 2002	Alternative 5 2027	Number of Impacted Residences (Alternative 5)
R1	Motel	65	70	73	Motel
R2	Commercial	70	69	71	
R3	Hospice Clinic	65	58	60	
R4	Fred Meyer	70	59	62	
R5	Commercial	70	67	69	
R6	Commercial	70	67	70	
R7	Residential (1)	65	63	66	1
R8	Residential (2)	65	64	67	2
R9	Residential (1)	65	61	64	
R10	Residential (1)	65	65	67	1
R11	Commercial	70	72	72	
R11A	Residential (1/2nd fl)	65	72	73	1
R13	Commercial	70	67	70	
R13A	Residential (2/2nd fl)	65	70	72	2
R14	Commercial	70	70	72	
R14A	Residential (2/2nd fl)	65	71	74	2
R15	Medical Center	70	67	70	
R16	Motel	65	71	73	Motel
R17	Residential (1)	65	63	66	1
R18	Residential (3)	65	62	64	
R19	Residential (7)	65	54	57	
R20	Medical Center	70	59	61	
R21	Bowling Alley	70	57	59	
R22	Library	70	55	56	
R23	Residential (1)	65	60	62	
R24	Residential (1)	65	57	60	
R25	Adult Care	65	61	62	
R26	Residential (2)	65	60	62	
R27	Residential (1)	65	56	59	
R28	Residential (1)	65	59	61	
R29	Residential (1)	65	57	59	
R31	Apartments (8) and Residence (1)	65	60	62	
R32	Residential (1)	65	57	58	
R33	Residential (1)	65	57	59	
R34	Commercial	70	59	61	

Receptor	Land Use	Noise Impact Criterion (dBA)	Existing 2002	Alternative 5 2027	Number of Impacted Residences (Alternative 5)
R35	Commercial	70	60	63	
R36	Commercial	70	63	65	
R37	Commercial	70	55	56	
R38	Residential (7)	65	57	59	
R39	Motel	65	59	63	
R40	Commercial	70	70	73	
R40A	Residential (1/2nd fl)	65	70	73	1
TOTAL IMPACTS			11 residences, 2 motels, and 7 commercial areas		

Note: Noise impacted receptors exceeding the criteria are shown in bold.

3.4.3 Cumulative Noise Impacts

The noise modeling analysis used for this project accounts for cumulative impacts, because it evaluates projected traffic volumes based on population forecasts and projected development in the area.

3.5 Archaeological Resources

3.5.1 Existing Conditions and Methodology

This section evaluates at the potential for each of the alternatives to disrupt or disturb archaeological resources that could be located within the project area.

Efforts to identify both prehistoric and historic cultural resources were pursued. A previous archaeological survey was conducted for prehistoric resources in the summer of 2002. According to that report there are numerous resources in the greater Brookings area but no known resources in the downtown area. A visual inspection of the project area revealed that the area is 100 percent built with no original ground surface remaining exposed.

3.5.2 Archeological Resource Impacts

3.5.2.1 No-Build Alternative

Under the No-Build Alternative, the current street structure would remain intact. There are no currently anticipated archaeological concerns with regard to the No-Build Alternative.

3.5.2.2 Alternative 4

Because some portions of the town exceed 90 years in age and historic archaeological issues could be of concern, a variety of historic maps and references were consulted to determine if current road designs are faithful to the original plat created by Bernard Maybeck. The maps included Maybeck's original design, a 1920 Brookings Land and Town site plat, a 1939 Oregon

State Tax Commission Survey and Land Classification Map, and a 1962 Oregon State Highway Commission Traffic Engineering map. In all cases, urban streets on later maps correspond well to those identified on the earlier maps, and subsequent road development in the more rural areas did not occur in areas where historically recognized structures, such as homesteads or agricultural structures, would have been affected. For these reasons there are no currently anticipated archaeological concerns with regard to Alternative 4. As always, there could be inadvertent discoveries during the course of the project, and the ODOT Cultural Resources Program has specific guidelines for such circumstances.

Because the areas impacted by the two build alternatives are previously disturbed, it is not anticipated that construction activities would reveal archaeological resources.

3.5.2.3 Alternative 5

For the same reasons stated for Alternative 4, there are no anticipated archaeological concerns with regard to Alternative 5. As always, there could be inadvertent discoveries during the course of the project, and the ODOT Cultural Resources Program has specific guidelines for such circumstances.

Because the areas impacted by the two build alternatives are previously disturbed, it is not anticipated that construction activities would reveal archaeological resources.

3.5.3 Cumulative Archeological Resource Impacts

There are no projects planned within the project area that would be expected to have an impact to archaeological resources. However, any project including excavation, such as the sewer replacement project between 5th Street and Arnold Street, could potentially impact known or undiscovered archaeological resources. Other projects should include site-specific review for archaeological resources and should incorporate mitigation as appropriate.

3.6 Biological Resources

3.6.1 Existing Conditions and Methods

The project area is within the Brookings urban growth boundary, and contains no large or significant natural areas. The project area consists mainly of paved areas, lawns, street trees, ornamental landscaping, and a few vacant lots. The habitat value for native plants is very low.

Habitat for state and federally protected wildlife species is not found within the project area. The undeveloped portions of the project area consist of small lots surrounded by development.

Coho salmon (*Oncorhynchus kisutch*) of the Southern Oregon/Northern California Coast Evolutionary Significant Unit (ESU) are reported to exist in the Chetco River. Coho salmon are listed under the federal Endangered Species Act as Threatened and by the state as sensitive – critical. No data on fish use in Macklyn Creek was available. It is unlikely fish are able to use

this portion of the creek due to the creek being completely piped within the project area. This pipe also serves as a stormwater pipe and offers no suitable habitat for fish.

3.6.2 Biological Resource Impacts

3.6.2.1 No-Build Alternative

As described above, existing plant and wildlife habitat within the project area is negligible. Thus, the No-Build Alternative will have no direct or indirect impacts on plants, wildlife, or fish within the project area.

3.6.2.2 Alternative 4

Because no potential habitat for listed plants, wildlife, and fish species was identified within the project area, Alternative 4 would not directly or indirectly impact habitat for these biological resources, nor would construction activities associated with this alternative.

Negligible stormwater runoff from the project site would enter the Chetco River system, and that which does would likely undergo water quality treatment. Water quality impacts are discussed in section 4.10.

3.6.2.3 Alternative 5

The effects to biological resources under Alternative 5 would be similar to, but less than those stated above for Alternative 4.

3.6.3 Cumulative Biological Resource Impacts

Because existing plant and wildlife habitat within the project is negligible, cumulative impacts to biological resources would be identical for Alternatives 4 and 5. No habitat suitable to support the listed Threatened or Endangered species is known to exist in the vicinity surrounding the project area. Because coho salmon of the Southern Oregon/Northern California Coast ESU are recorded as occurring in the Chetco River, other projects that occur within the project area increase the amount of impervious surface draining to the Chetco River, a detailed stormwater plan would need to be developed to eliminate impacts to water quality in the Chetco River.

The U.S. Borax project is planned for a location that has an identified population of endangered western lily. Though there are no western lilies within the project area, development of the Borax could have a potential impact to habitat of listed species within 2 miles of the project area.

3.7 Hazardous Materials

3.7.1 Existing Conditions and Methods

Generally, the proposed project would not be likely to cause any soil or groundwater contamination. The primary concern is that construction could be required on parcels already contaminated, and therefore construction activities would need to address the proper handling of existing contaminated soils and/or groundwater.

This section evaluates the existing properties that have the potential for contaminated soils or groundwater. Indicators of potential contamination include land use (current and previous) as well as regulatory agency reports of hazardous material use, storage or spills. Geology is also reviewed to determine potential for transport of hazardous materials in soil and groundwater.

The Brookings area consists primarily of sandstone, siltstone, basalt and intrusive rocks underlying the sea cliffs and uplands in the county. Semi-consolidated to unconsolidated terrace and lowland deposits overlie the bedrock units. Unconsolidated quaternary terrace deposits overlie bedrock in the project area.

Potential impacts are summarized from a Technical Report conducted in general accordance with the Phase I Environmental Site Assessment process. The Environmental Site Assessment process included a regulatory review of reasonably ascertainable government records, site reconnaissance and reporting. The Phase I analysis was conducted to identify the presence or likely presence of hazardous substances or petroleum products on a property that indicates an existing release, a past release, or a material threat of a release onto the soil, groundwater, or surface water of a property, which could impact the Downtown Brookings – Highway 101 Transportation Solutions Project.

3.7.2 Hazardous Materials Impacts

3.7.2.1 No-Build Alternative

The No-Build Alternative would not include right-of-way acquisition or subsurface construction. For this reason the potential hazmat impacts associated with the No-Build Alternative are low. If any soil or groundwater contamination exists within the project area, it would remain.

3.7.2.2 Alternative 4

The potential impacts related to the construction of Alternative 4 include right-of-way acquisitions (for street widening, utility corridors, etc.) and construction activities, which have the potential to expose workers to subsurface contaminants and present a potential need for remediation of the hazard. The construction of Alternative 4 has the potential of encountering contaminated soils in and around three sites identified in the regulatory database searches conducted for this analysis. The three sites and their potential hazardous material are listed in Table 3-5.

Table 3-5 Properties with Potential Hazardous Materials Impacts with Alternative 4

Site Name	Potential Hazardous Material
Colvin Oil Company—Northgate 1023 Chetco Avenue	Petroleum Contaminated Soils
Wilson Texaco 926 Chetco Avenue	Petroleum Contaminated Soils
Colvin Oil Bulk Plant 820 Railroad Street	Petroleum Contaminated Soils

The Wilson Texaco site and the Colvin Oil Company – Northgate site were listed in the Leaking Underground Storage Tank (LUST) database for releases reported in 1990 and 1993, respectively. The Wilson Texaco site is no longer operational, but the regulatory file has not been closed. Additional information as to the extent and magnitude of contamination is not known. The Colvin Oil Company – Northgate site has reported releases associated with five decommissioned underground storage tanks (USTs) in 1993. There are also four USTs currently located at this site. Both of these sites appear to represent a moderate environmental concern for the implementation of Alternative 4. If right-of-way acquisitions were to include a portion of this property, or subsurface construction was to be conducted near the property, mitigation measures could be necessary.

Based on the regulatory review, the Colvin Oil Bulk Plant site, located at 820 Railroad Street, is listed on the Environmental Cleanup Site Information database because it has had several releases of petroleum products due to above-ground storage tanks and poor waste-handling practices. The extent of contamination is not known and could need further investigation and/or remediation. Alternative 4 includes modifications to Railroad Avenue, including the portion adjacent to the Colvin Oil Bulk Plant. If right-of-way acquisitions were to include a portion of this property or subsurface construction was to be conducted near the property, mitigation measures could be necessary. If project construction were to result in site remediation, there would be a beneficial impact associated with the alternative because of the potential removal of contaminated soils that could exist.

3.7.2.3 Alternative 5

The construction of Alternative 5 has the potential of encountering contaminated soils in and around the same three sites identified under Alternative 4.

3.7.3 Cumulative Hazardous Materials Impacts

Other projects in the study area could encounter contamination due to the historic release of hazardous materials. The other projects occurring within the project area would also require mitigation.

3.8 Historic Resources

3.8.1 Existing Conditions and Methods

This section analyzes potential impacts to historic resources in the project area. Historic resources that are listed on or are determined eligible for the National Register of Historic Places are afforded preservation protection under federal law through planning and coordination requirements. Section 4(f) of the Department of Transportation Act of 1966 is also applicable to this project because federal funds could be utilized for this project and the project could require the acquisition or use of land from either potentially eligible or National Register-listed historic resources.

A field reconnaissance survey identified 180 properties as potential historic resources that required further documentation and study to make definitive Determinations of Eligibility according to National Register of Historic Places criteria. This internal review resulted in the determination that 13 individual properties could potentially be eligible for the National Register of Historic Places and warranted further study. These resources include five residential properties; all constructed about 1920 in the Craftsman or Craftsman Bungalow style. The other eight resources are commercial, industrial, religious, or mixed-use structures constructed between 1920 and 1955. The 13 individual resources identified during the field survey that required further study are as follows:

- 522 Redwood Street, a 1920 Craftsman residence.
- 520 Redwood Street, a 1920 Craftsman residence.
- 516 Redwood Street, a 1920 Craftsman residence.
- 607 Pacific Avenue, c. 1925 Gothic Revival church and parsonage.
- 624 Spruce Street, c. 1930 Craftsman residence.
- 521 Spruce Street, c. 1930 Craftsman residence.
- 819 Railroad Street, c. 1950 industrial plywood mill.
- 934 Chetco Avenue, a 1953 International Style car dealership.
- 656-660 Chetco Avenue, a 1955 Commercial Vernacular mixed use building.
- 654 Chetco Avenue, a 1956 Commercial Vernacular retail building.
- 600 Chetco Avenue, c. 1935 Modern office building.
- 554 Chetco Avenue, c. 1950 Commercial Vernacular retail building.
- 621 Chetco Avenue, c. 1955 remodel of a c. 1920 movie theater.

In addition to these thirteen individual properties identified during the reconnaissance survey, two groups of potential resources were identified during the ODOT Cultural Resources internal review as requiring further research and analysis for National Register eligibility (Figure 3-10). The first group is located along Hillside Avenue north of Chetco Avenue, and includes four bungalow cottages that date from about 1920. These bungalows are located at 448, 444, 440, and 427 Hillside Avenue. This group is identified as the Hillside Avenue Group. The second group is located south of Chetco Avenue near the east end of the project area. This group contains 44 residences that are good examples of early tract ranch development located on Spruce Drive, Mulberry Lane, and Linden Street. They are indicative of the development of Brookings, following the end of World War II and the construction of the South Coast Plywood Plant. This group is identified as the Spruce Drive Group.

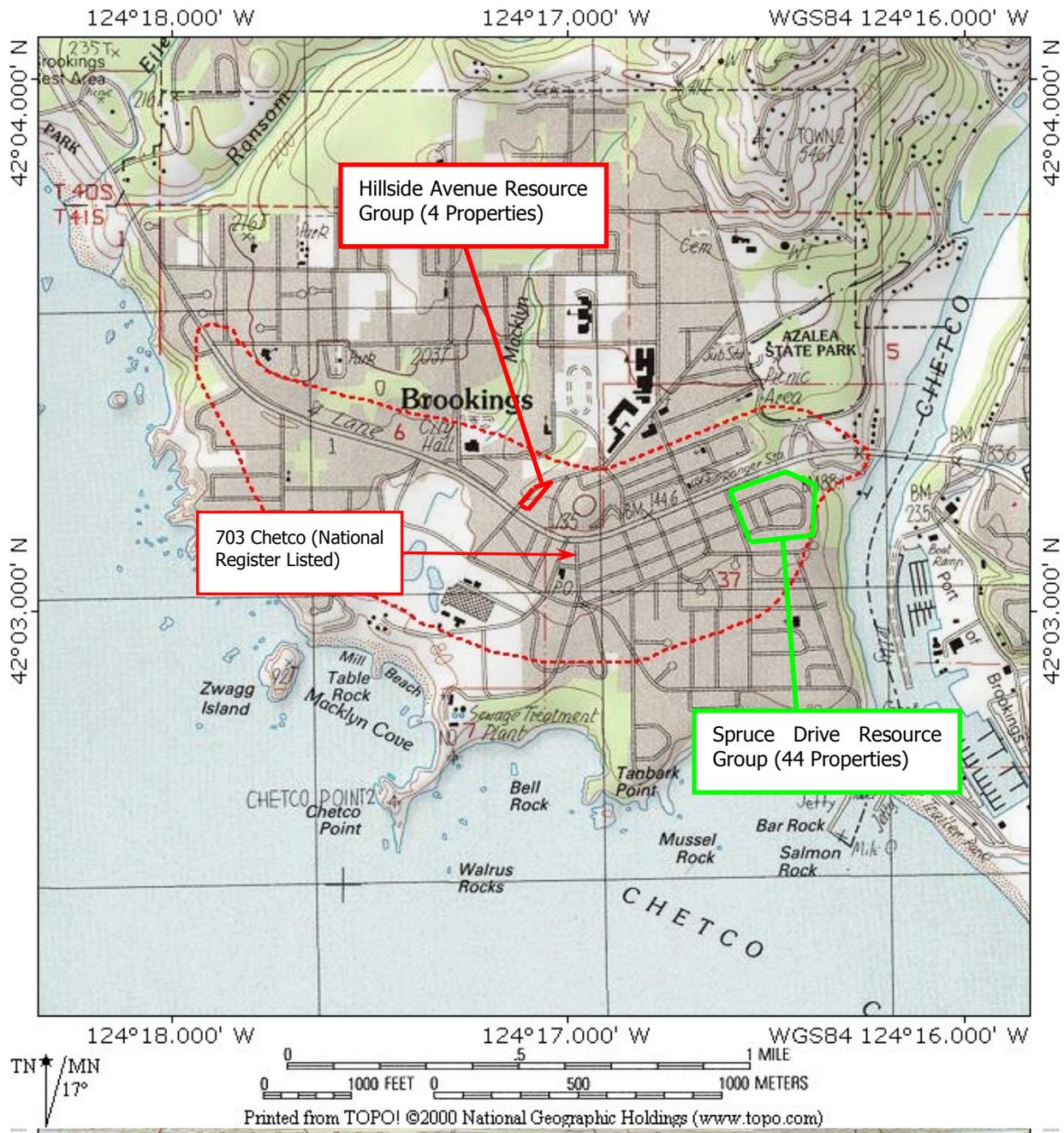


Figure 3-10 Map of Potentially Eligible Resource Groups

One property within the project area has previously been listed on the National Register of Historic Places. The Central Building, located at 703 Chetco Avenue, was listed on the National Register in April of 1980. The Central Building was built in 1915 by the California and Oregon Lumber Company, and served as the administration building for the Brookings Company, which included the Brookings Land and Townsite Company, the California and Oregon Lumber Company, the Brookings Commercial Company, and the Northwest Railroad Company.

Collectively, these companies owned and operated the mill town of Brookings, which included the mill, a hospital, a commissary, a theater, a hotel, a mercantile store, and employee housing. Designed by William Ward, the building has modest classical detailing, and is a well-preserved and rare example of a company town administrative structure.

In addition to research conducted at the Oregon State Historic Preservation Office (SHPO), research was conducted on the town plan of Brookings. The town was laid out by noted architect Bernard Maybeck, who realized the potential of the site and persuaded the company to carefully lay out the town with respect to the hilly contours and the unusual south-facing view of the Pacific Ocean. Maybeck's plan for the town was never fully realized, but portions were incorporated in the December 1920 Plat No. 1 for Brookings. Background research on the general development of the city was also conducted at the Oregon State Library and at the Curry County Historical Society.

3.8.2 Historic Resource Impacts

3.8.2.1 No-Build Alternative

Under the No-Build alternative, there would be no effects to historic resources. The existing condition of Chetco Avenue would be retained.

3.8.2.2 Alternative 4

Alternative 4 would not impact the two resource groups identified in the field survey (the Hillside Avenue Group and the Spruce Drive Group) because they lie outside of the areas of proposed improvements, as do four of the individual properties identified during the reconnaissance survey. Alternative 4 also has no potential to effect or alter the historic qualities of the one resource listed on the National Register, The Central Building. Alternative 4 could increase development pressure in the areas between Railroad Street and Chetco Avenue, which could in turn impact the 9 potentially eligible resources identified within the project area. SHPO concurred with the finding of FHWA and ODOT that Alternative 4 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.

3.8.2.3 Alternative 5

The effects to the National Register-listed Central Building under Alternative 5 would be identical to those under Alternative 4, described above. SHPO concurred with the finding of FHWA and ODOT that Alternative 5 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.

3.8.3 Cumulative Historic Resources Impacts

No cumulative impacts to historic resources as a result of either of the proposed alternatives and other identified projects within the project area.

3.9 Visual Resources

3.9.1 Existing Conditions and Methodology

The proposed project area lies entirely within the urbanized core of the Brookings central business district and is generally flat to gently sloped. The highest point within the project area is on Chetco Avenue between Wharf and Fern streets, at an elevation of 47.8 meters (157 feet) above sea level. From this point the elevation drops to sea level at the Pacific Ocean approximately 1/2-mile to the west and south. To the east the slope continues down to the Chetco River. To the north of the project area there is a small hill and then a gradual rise. Views of the Pacific Ocean (approximately 1/2 mile south and west of project area) are almost completely obstructed by foreground structures and distant coastal bluff.

Chetco Avenue is generally lined with commercial land uses. Through downtown Brookings, Chetco Avenue generally has four lanes and a posted speed of 25 mph. Architectural cohesion varies greatly throughout the study area, ranging from single-family residential and manufactured homes to commercial and industrial structures. Commercial structures are generally fronted by surface parking lots and include small owner-operated businesses often located in strip commercial complexes and stand-alone chain stores. The sidewalk-oriented traditional downtown area is a four-block core located along Chetco Avenue between Mill Street and Oak Street. Railroad Street is primarily a mix of businesses with low architectural significance fronted by small surface parking lots.

The visual resources analysis considers the existing visual resources within the project area and the potential impacts to the area by each of the alternatives. The analysis considers elements of each alternative, such as right-of-way improvements (travel lanes, medians, bike lanes, sidewalks, etc.), and related structures such as retaining walls and cut and fills slopes. More specific elements and streetscape features, such as street furniture, street trees, and street lighting would be specified during the design phase of the project; therefore, they are not considered in this assessment.

The process used in this visual impact analysis generally follows the guidelines outlined in the publication “Visual Impact Assessment for Highway Projects” (Federal Highway Administration, March 1981).

3.9.2 Visual Resources Impacts

3.9.2.1 No-Build Alternative

The No-Build Alternative would have no direct visual impacts. However, increasing traffic throughout the auto-oriented commercial areas of downtown Brookings would result in indirect visual impacts due to increased visual clutter from the added volume of vehicles passing through town.

3.9.2.2 Alternative 4

At Chetco Lane, where southbound traffic would be diverted onto Mill Beach Loop, Alternative 4 would increase the improved right-of-way by approximately 17.9 meters (59 feet) to accommodate the split in the highway. Where the split occurs and northbound traffic has a dedicated left turn lane to loop back in the southbound direction, a 185.8 square meter (2,000 square-foot) landscape median would be constructed and seen by motorists entering Brookings from the north. On Chetco Avenue between 5th Street and Chetco Lane (approximately 800 feet), Alternative 4 would decrease right-of-way by approximately 9.7 meters (32 feet). A 12.1 meter (40-foot) landscape buffer would be constructed between the road surface and the Fred Meyer parking lot. These changes would provide some beneficial impact resulting from an overall decrease in paved road surface along Chetco Avenue and an increase in landscape area. The inclusion of the median where the highway splits would provide the opportunity for a gateway site to be seen by those entering the city from the north.

Between 5th Street and Alder Street, Alternative 4 would reduce the total number of travel lanes from four to three along Chetco Avenue. Because all southbound traffic would be shifted to Railroad Street it would decrease traffic volumes along Chetco Avenue, improving the visual quality of the downtown area by reducing the visual clutter of moving automobiles, which would likely be a moderate beneficial visual impact to the area.

The area between Chetco Avenue and Railroad Street would be improved with new road surfaces including curbs, gutters and sidewalks. These features would add visual unity with consistent streetscape elements that currently do not exist in this area. This would provide a moderate beneficial impact resulting from the addition of urbanized streetscape features.

Along the Railroad Street corridor the construction of the couplet could add visual unity with consistent urbanized streetscape elements – improved road surface, curbs, gutters, sidewalks, and bike lanes. This would be a moderately beneficial visual impact. Alternative 4 would increase the volume of traffic using the Railroad Street corridor creating a much busier street and add visual clutter.

The Railroad Street corridor would have moderate visual impacts during construction of the couplet due to extent of construction (rebuild of roadbed and widening of finished road surface) and the close proximity of residential neighborhoods.

3.9.2.3 Alternative 5

Alternative 5 would create an eight-lane cross section at the 5th Street and Chetco Avenue intersection. There would be a moderate negative visual impact resulting from the increase in road surface and the creation of a 6.7 meters (22-foot) retaining wall/fence at the Fred Meyer property line.

The elimination of all on-street parking along Chetco Avenue would remove the only existing visual buffer between travel lanes and sidewalks throughout the downtown commercial district and would add a center median that would range in width from .6 to 3.6 meters (2 to 12 feet). The visual impact from these changes would likely be negative due to removal of on-street

parking, which provides a significant buffer between travel lanes and sidewalks along the Brookings primarily pedestrian-oriented commercial district.

Changes to the area between Chetco Avenue and Railroad Street would include urbanization improvements to Fern Street and Willow Street only (i.e. travel lane repaving, curbs, gutters, sidewalks). These street improvements could add visual unity with consistent streetscape elements that would provide a beneficial visual impact resulting from the addition of urbanized streetscape features and basic safety standards.

Alternative 5 could also include urbanization improvements to Railroad Street between Pacific Avenue and Oak Street. These changes could add visual unity to Railroad Street with consistent urbanized streetscape elements – improved road surface, curbs, gutters, sidewalks, and bike lanes.

Visual impacts from the construction of Alternative 5 would be low, due to limited residential and employment density between Pacific Avenue and Oak Street

3.9.3 Cumulative Visual Resource Impacts

Other projects that are planned in the Brookings area could have additional visual impacts in addition to those described for this project.

The preservation and restoration project that is planned for the downtown area would have temporary construction visual impacts to the area. These impacts are not considered to be substantial. If the repaving work, the construction of a clinic, and the construction of this project were all to happen in within a close time frame, the town would have a continual “torn-up” look to it that would be a negative visual impact to the downtown area. It is unlikely that these projects will happen close enough together to create a substantial cumulative impact to the town.

The possible construction of the hospital clinic would fill a vacant parcel along 5th Street between Chetco Avenue and Railroad Street. The vacant parcel currently offers low visual benefit and so as long as the building and surrounding landscaping conforms to Brookings development code the development would not create an additional visual impact to the area.

3.10 Water Quality

3.10.1 Existing Conditions and Methods

Water bodies in the project area were determined through City documentation and the National Wetlands Inventory (NWI). The drainage patterns for existing water bodies, existing stormwater pipes and their respective receiving water bodies were identified through available drainage maps and stormwater plans. Floodplains were identified using Federal Emergency Management Agency (FEMA) floodplain maps. Existing water quality issues were identified through the 303(d) list provided by DEQ.

Potential impacts to water resources that could result from the proposed project design were evaluated by quantifying the proposed net increase of impervious area.

Requirements for stormwater treatment/detention facilities are determined by evaluating existing City of Brookings regulations; consulting with the City engineer, consulting ODOT regulations, and reviewing general permitting agreements between ODOT and the DEQ.

The proposed project area is generally flat to gently sloped. The highest point within the project area is on Chetco Avenue between Wharf and Fern streets, at an elevation of 47.8 meters (157 feet). From this point, the elevation drops to sea level at the Pacific Ocean to the west and south. To the east, the slope continues down to the Chetco River. To the north of the project area there is a small hill and then a gradual rise in slope.

The majority of the rainfall occurs during the fall and winter with November through February averaging over ten inches of rain each month. The average annual rainfall is 78 inches.

The FEMA 100-year floodplain elevation at the Chetco River Bridge is approximately 3.8 meters (12.5 feet). The location of the floodplain is outside the proposed project area.

Intermediate receiving waters include a millpond, which is mapped as a wetland by the NWI. This millpond has previously been enhanced for compensatory mitigation for a permitted wetland fill. The millpond acts as a receiving body for stormwater and discharges to the Pacific Ocean.

Macklyn Creek is the only creek that passes through the project study area. The creek flows in an open channel north of the study area and enters a 48-inch storm drain at Elk Drive north of U.S. 101. The storm drain crosses U.S. 101 in a southwest direction, and discharges to the millpond (located South of Railroad Avenue between 5th Street and Mill Beach Loop).

Based on existing drainage maps, it appears that City storm drainage pipes and open ditches currently serve the project area. Receiving water bodies are the Pacific Ocean, the Chetco River, and the millpond. Stormwater generated south of Linden Lane drains into the Pacific Ocean. Stormwater generated north of Linden Lane drains into the Chetco River (HGE 1985). There is currently no stormwater detention or treatment for runoff from the project area except for the millpond.

3.10.2 Water Quality Impacts

3.10.2.1 No-Build Alternative

Currently the flow of Macklyn Creek is combined with stormwater runoff before it enters the millpond. If the population and employment growth continues in Brookings there could be an increase in impervious surfaces as well as higher concentrations of pollutants being carried by the stormwater. This combined stormwater/surface water could create impacts to the millpond. This indirect impact can be mitigated but such mitigation would not be required.

3.10.2.2 Alternative 4

Alternative 4 would increase the impervious area within the project by roughly 4.8 acres, resulting in an increase of approximately 11 percent in impervious area on the roadways. Approximate increase in stormwater runoff to the millpond would be 0.2 cfs for a two year 24-hour storm design. There would be no anticipated runoff increase into the Chetco River. If water quality treatment is included in the project design, Alternative 4 would not add additional stormwater pollutants to the stormwater discharge produced by the project site.

3.10.2.3 Alternative 5

Alternative 5 would increase the impervious area within the project by roughly 4.08 acres, resulting in an approximate 17 percent increase in impervious area on the roadways. Approximate increase in stormwater runoff to the millpond would be 0.4 cfs for a 2-year twenty-four hour design storm. There would be no anticipated runoff increase into the Chetco River. If water quality treatment were included in the project design, no additional stormwater pollutants would be expected to be discharged from the project site.

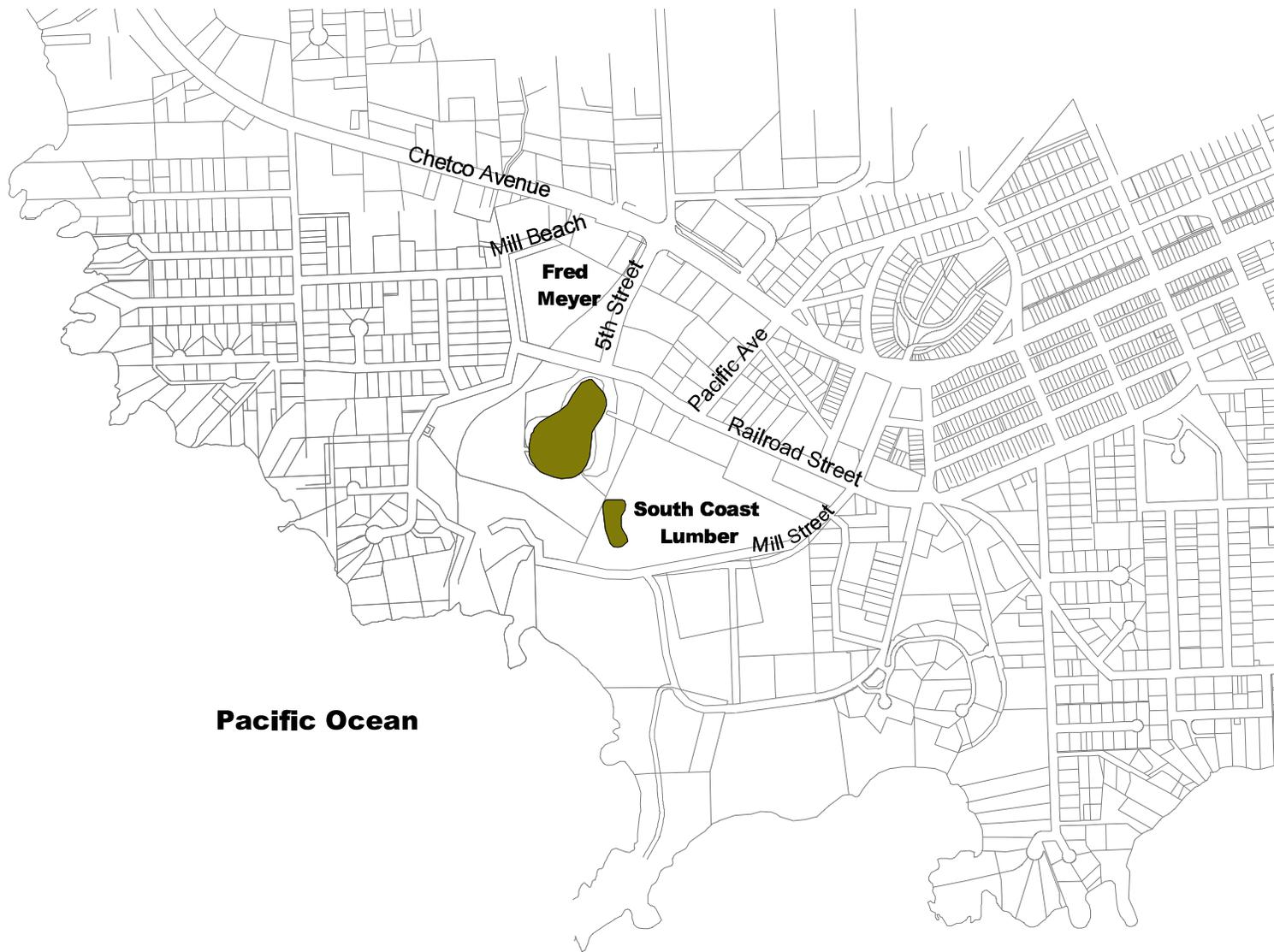
3.10.3 Cumulative Water Quality Impacts

The Curry General Hospital has purchased a 1.6-acre parcel on Fifth Street between KFC/Taco Bell and U.S. Bank. The site is planned as the location of a 1,858 square meter (20,000 square foot) building that will become Curry General Hospital's Imaging Center, Urgent Care Facility and will house lab and office space. Planning for this project is not far enough along to know the specifics of the building or the size of the parking lot. Without additional information on the new building or on parking it is unknown what the cumulative effects could be due to an increase in impervious area. As long as any stormwater occurring during the construction period would be treated on-site, it is not anticipated that this project would have any long-term effects on water quality.

3.11 Wetlands

3.11.1 Existing Conditions and Methods Existing Conditions

The NWI was used to identify wetlands within the project area. NWI mapping shows two wetlands within the project area. Both are located south of Railroad Street near the South Coast Lumber Mill. The larger millpond is between the South Coast Lumber offices and the mill. The other smaller pond is an excavated wetland located next to the Mill. Fred Meyer previously enhanced the larger pond for compensatory mitigation for permitted wetland fill. Macklyn Creek, which drains from the northern hills above Brookings and enters a 48-inch storm drain pipe north of Elk Drive, discharges into the mill pond. The smaller pond was excavated and is used by the mill.



Pacific Ocean



 Project Area Wetlands

Figure 3-11: Wetlands in Project Area
Source: National Wetlands Inventory

3.11.2 Wetland Impacts

3.11.2.1 No-Build Alternative

Under existing conditions, stormwater entering Macklyn Creek is untreated (for water quality) and discharges to the millpond wetland. The projected increased traffic volumes could result in an increase in pollutants entering the storm drain, and thus could contribute to a degradation of the water quality in the millpond. Although it would not be required, this indirect impact could be mitigated through the installation of stormwater treatment facilities.

3.11.2.2 Alternative 4

Alternative 4 includes no plans to fill or disturb the existing wetlands or Macklyn Creek. Thus, no direct impacts to these resources are expected.

The improvements to Chetco Avenue and Railroad Avenue would require that all stormwater draining from the new street surfaces be treated for water quality. Thus, the stormwater discharging to the millpond would not contribute to the degradation of water quality in that wetland. No indirect adverse impacts would be expected. In addition, a temporary erosion and sediment control plan would be implemented to protect surface water during construction.

Decreased infiltration due to increased impervious surface area could slightly impact peak flows in Macklyn Creek as it flows through the pipe. Increase flow in to the millpond wetland would not be expected to be measurable. Impacts to base flows would also not be expected to be measurable.

3.11.2.3 Alternative 5

Direct and indirect impacts to wetlands under Alternative 5 would be identical to those described for Alternative 4.

3.11.3 Cumulative Wetland Impacts

The possible construction of the Curry General Hospital's Imaging Center and Urgent Care Facility on Fifth Street between KFC and U.S. Bank has the potential for additional runoff to reach the millpond area. Construction of this project could increase sediment loads carried to the wetland as well as other untreated contaminants during construction. The planned U.S. Borax development at the northern end of town, though not within the project area, has the potential of impacting existing wetlands. If this project impacts existing wetlands, these losses should be mitigated to ensure no additional losses of wetlands in the Brookings area.

3.12 Air Quality

3.12.1 Existing Conditions and Methods

The project area is designated ‘attainment’ for all state and national ambient air quality standards and is identified as a Prevention of Significant Deterioration Class II area (PSD II). Areas identified as PSD II are not associated with air pollution problems and are allowed a moderate level of air quality degradation due to development. The Oregon Department of Environmental Quality (DEQ) is the lead agency for air pollution control in Curry County. The DEQ does not maintain any air quality monitoring stations within the project area.

Local meteorological conditions greatly influence air quality in the project area. Areas in close proximity to the ocean are affected by differential heating of land mass versus water mass that results in diurnal on-shore, offshore shifts in air flow. Thus, locally strong winds tend to facilitate increased mixing and dispersion of air pollutants throughout day and night periods. As a result, air quality in areas in close proximity to the ocean is very good with respect to the criteria pollutants: carbon monoxide (CO), particulate matter and ozone.

3.12.2 Air Quality Impacts

3.12.2.1 No-Build Alternative

The No-Build Alternative demonstrates an overall Level of Service (LOS) of ‘C’ or better in the planning year (2027). Therefore, CO hot-spot modeling is not warranted for this project and no impacts to air quality would be expected.

3.12.2.2 Build Alternative 4

Alternative 4 demonstrates an overall LOS of ‘C’ or better in the construction year (2027). Therefore, CO hot-spot modeling is not warranted and no impacts to air quality would be expected.

3.12.2.3 Build Alternative 5

Alternative 4 demonstrates an overall LOS of ‘C’ or better in the construction year (2027). Therefore, CO hot-spot modeling is not warranted and no impacts to air quality would be expected.

3.12.3 Cumulative Air Quality Impacts

No cumulative impacts are expected from future projects.