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## 2. Project Alternatives

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### 2.1 Project Background

The City of Brookings has seen substantial increases in population over the past 10 years. Based on information derived from studies conducted by the Population Research Center at Portland State University, Brookings grew at an average annual rate of 2.3 percent between 1990 and 2000. Traffic increases related to this population growth, as well as increased through volumes from tourist and freight uses, have resulted in higher rates of accidents in some parts of town and more congestion, especially during the summer months (ODOT, 2004). Between 1990 and 2001 the City of Brookings initiated several studies to evaluate various methods of improving traffic mobility on U.S. 101, and provide for economic development for the business community. These studies offered several options for the improvement of traffic circulation on and around U.S. 101 in downtown Brookings

In 2002, ODOT allocated funding through the Oregon Transportation Improvement Act (OTIA) to study the traffic conditions in Brookings, and to conduct an Environmental Assessment (EA) of potential facility improvements that met ODOT goals for increased safety and mobility and the livability and economic development goals outlined by the City in their Transportation System Plan (2000) and Downtown Master Plan (2003). ODOT began work developing and studying alternatives in January 2003.

### 2.2 Existing Conditions

The project study area was defined on U.S. 101 (Chetco Avenue) between Arnold Lane (mile point 356.5) and Constitution Way (mile point 357.7), which includes the downtown area of Brookings (see Figure 2-1). Local streets intersecting and running parallel to Chetco Avenue were also included in the study area. Within the study area, Chetco Avenue is a four-lane highway, 18.2 meters (60-feet) wide at its narrowest point, with on-street parking between Alder Street and Pacific Avenue. The highway bears almost all of the traffic that moves through Brookings, and serves as a major arterial for local traffic. Chetco Avenue is the main street for Brookings, and forms a downtown business district between Pacific Avenue and Alder Street. Businesses along Chetco Avenue include a variety of commercial and residential uses, with commercial uses ranging from destination locations, such as a movie theater, a car dealership, and a bowling alley – to smaller retailers, such as gift shops, gas stations, and fast food outlets. From Center Street north to Arnold Street (northern terminus of the project) the road widens to 24.3 meters (80 feet), with land uses being more of a mix of larger commercial properties such as Fred Meyer, Ray's Food Place, and smaller strip malls, all with off-street parking.

Railroad Street is a local collector that runs parallel to and south of Chetco Avenue. Railroad Street serves as an alternate route for local traffic trying to avoid the congestion on Chetco Avenue. Railroad Street is two-lanes, 10.3 meters (34 feet) wide, with no on-street parking. Railroad Street has a mix of commercial, industrial, and residential land uses. Many of the commercial uses have off-street parking. A separated multi-use path exists along a portion of the

roadway between Oak and Wharf streets. A drainage ditch also closely parallels the north side of Railroad Street between Oak and Wharf streets.

Traffic congestion on Chetco Avenue, and the intersecting local street network, has been increasing. In addition to the growth in local traffic, heavy seasonal tourism traffic contributes to a rise in congestion and accidents along Chetco Avenue during summer months. As the volume of traffic increases, pedestrian safety issues have also been a growing concern. In the downtown area there are limited pedestrian crosswalks, and handicap accessibility is absent along Chetco Avenue north of 5th Street.

## **2.3 Development of Alternatives**

Beginning in February of 2003 ODOT convened a Stakeholders Committee, made up of local business and community leaders, to provide recommendations on the Downtown Brookings – Highway 101 Transportation Solutions Project. A Project Development Team (PDT) comprised of ODOT staff and City officials was also assembled. The Stakeholders Committee is charged with developing recommendations for the project that would be considered by the PDT. The PDT is responsible for making project decisions, which are subject to the approval of FHWA.

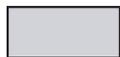
The Stakeholders Committee and PDT assisted with identification of transportation issues within the project area and provided input on desired outcomes for the project. In March 2003, ODOT began developing conceptual alternatives that could improve traffic and safety concerns along Chetco Avenue. To begin the process of developing conceptual alternatives, ODOT first looked at the transportation issues and possible design solutions that had been discussed previously, and reviewed in the following local plans and studies:

- South Coast Transportation Study, 1996
- City of Brookings Transportation System Plan, Adopted July 2002
- City of Brookings Urban Renewal Plan, July 2002
- Downtown Brookings Master Plan, Adopted January 2003
- Brookings Town Center Revitalization PROUD Study, July 2002

ODOT then began identifying and developing conceptual alternatives using aerial photography; input from interviews with local business and community leaders; topographic maps; recommendations by the Stakeholders Committee, PDT, and City staff; and the findings from the review of previous local studies and plans. From this process the Stakeholders Committee recommended to the PDT that five conceptual alternatives be evaluated. The PDT concurred with this recommendation, and both PDT and the Stakeholder Committee met seven times between March and December 2003 to evaluate the conceptual alternatives and identify those alternatives to be carried forward for analysis in the EA. Following each Stakeholders Committee meeting the PDT held separate meetings covering the same subject matter as the Stakeholders Committee discussed the previous evening. The PDT was presented with Stakeholders Committee recommendations for discussion and concurrence if warranted. The process included three Public Open Houses, which were held at the Chetco Community Public Library (see Chapter 5 for compete Public Involvement strategy). A sixth alternative resulted from the input heard at the second Open House held in June 2003.



**KEY**



CITY OF BROOKINGS



PROJECT AREA

Figure 2-1  
Project Area Map  
Source: Parametrix



## 2.3.1 Narrowing of Alternatives

As mentioned previously, ODOT staff, the Stakeholders Committee, and the PDT worked from March 2003 through December 2003 to evaluate the conceptual alternatives, and identify those alternatives for further study in the EA. The conceptual alternatives were evaluated through a lengthy process that evaluated the traffic and safety concerns associated with the Chetco Avenue status as a state highway, the concerns and needs of Brookings residents relying on Chetco Avenue and Railroad Street for local circulation, and the role that 101 serves in delivering tourist travelers to the city. The process included the following steps:

- Develop project purpose and need
- Identify goals and objectives for the project
- Select evaluation criteria to rank alternatives
- Screen and rank conceptual alternatives

Through this process, three of the six conceptual alternatives were identified as the most promising alternatives. However, before deciding which alternatives were to be carried forward for analysis in this EA, the Stakeholders Committee asked for additional information to assist in the analysis of the potential impacts that could result from each of the remaining alternatives. To provide the additional information, ODOT further refined the designs for the remaining three alternatives and conducted research that evaluated the impacts from the construction of couplets on similar-sized communities in the Pacific Northwest. ODOT's couplet study (ODOT, November 2003) looked at the communities of Albany, Coos Bay, and Medford in Oregon, Sequim, Washington, and Crescent City, California. Interviews and secondary research provided an assessment of the potential impacts from building a couplet such as business impacts before and after a couplet was built and if there was a perceived improvement to traffic mobility.

The results from this analysis were presented to the Stakeholders Committee in conjunction with the third Public Open House in December 2003. At this time the Stakeholders Committee recommended to the Project Development Team that two of the remaining three alternatives be the focus of the EA. The PDT and FHWA concurred with the Stakeholders Committee recommendation to carry two alternatives forward to be the focus of the EA (see Section 2.4 for description of alternatives and Section 2.8 for alternatives considered but withdrawn).

## 2.4 Description of Alternatives

### 2.4.1 No-Build Alternative

The No-Build Alternative would involve maintaining U.S. 101/Chetco Avenue in its current configuration. There would be no other local transit facilities for residents, so it is expected that all increases in population, local traffic, and tourist travel would have an impact on the average daily trips (ADT) for Brookings. Intersections along Chetco Avenue at the 5th Street, Center Street, and Oak Street areas would be expected to fail (v/c ratio greater than 1.00) before the planning year 2027.

The crash rate for the area between Pacific Street and Alder Street exceeded the statewide average for all five years between the years 1997 and 2001. Additionally, there are top 10 percent Safety Priority Index System (SPIS) sites located on U.S. 101 between Willow and Alder Streets. Other locations along Chetco Avenue have high incidences of accidents. Population and traffic growth in Brookings over the 20-year time frame of the project would be expected to worsen the safety conditions for cars, pedestrians, and cyclists traveling through downtown.

There are currently three locations for pedestrians to cross Chetco Avenue at signalized traffic lights, 5th Street, Center Street, and Oak Street. A pedestrian crosswalk with a flashing caution light also exists at Fern Street in front of the movie theater.

The Curry Public Transit system, known as the Coastal Express, is the only public transit available for Brookings residents traveling between Brookings and North Bend.

U.S. 101 from Astoria to the California border is designated as the Oregon Coast Bike Route. Cyclists pass through town on using Chetco Avenue. There are no bike lanes currently on Chetco Avenue.

#### 2.4.1.1 Other Related Projects

Under the No-Build Alternative, it is assumed that other projects will occur, regardless of the Downtown Brookings Transportation Solutions project. These projects and the No-Build Alternative form an important basis for the comparative assessment of Downtown Brookings Transportation Solutions Build Alternatives, particularly the assessment of cumulative impacts. The projects that are planned in the Brookings area are:

- Preservation/Restoration project to reconstruct and repave U.S. 101 from the Thomas Creek Bridge to the Chetco River Bridge.
- In-street improvements to water and sewer lines along Chetco Avenue from 5th Street to Arnold Lane.
- The possible construction of the Curry General Hospital's Imaging Center/Urgent Care Facility on Fifth Street between KFC and U.S. Bank.
- A development by U.S. Borax Inc. on an existing industrial property a mile north of the project area. This project has been approved by the Brookings Planning Commission and will be voted on by the City Council in September 2004. The project's 20-year master plan includes 1,000 residential units, 2 acres of retail uses, and 10-acre parcel for Southwestern Oregon Community College.

The Brookings City Council recently agreed to ODOT's proposal of assigning a Special Transportation Area (STA) designation to the area between Pacific and Alder Streets. The designation has yet to be confirmed by the Oregon Transportation Commission, but will likely happen in January 2005. The STA designation will encourage pedestrian mobility, and allow for a greater level of congestion on streets and at intersections in the downtown area, which will slow traffic. This designation would likely occur regardless of the outcome of the project.

## 2.4.2 Alternative 4

### 2.4.2.1 Design Features

Under Alternative 4 Chetco Avenue would be redesigned to create a couplet that would route southbound traffic onto Railroad Street, while keeping northbound traffic on Chetco Avenue (Figure 2-2). Both directions would have three lanes and on-street parking along portions of each segment of the couplet.

Railroad Street would require widening to accommodate three lanes of traffic, on-street parking, and a bicycle lane. Additional right-of-way (ROW) would be needed at both ends of the couplet where the two legs would split/rejoin. Traffic signals would be installed on Railroad Street at 5th Street, Mill Street, Wharf Street, and Oak Street. Traffic signals on Chetco would remain at Oak Street and 5th Street. The traffic light that is currently at Center Street would be moved to Mill Street.

Other design features incorporated in Alternative 4 by ODOT would be:

- Parallel parking would be allowed on both sides of Railroad Street between Wharf and Willow Streets.
- Parallel parking would be allowed on both sides of Chetco Avenue between Pacific Avenue and Oak Street.
- Traffic from Chetco Lane would access the southbound lanes of U.S. 101 by traveling across the northbound lanes of U.S. 101 and merge with turnaround traffic headed from the northbound to southbound direction. Mill Beach Road would provide truck access to the rear of Fred Meyer but would not connect to the southbound lanes of the couplet.
- The southbound Chetco Avenue/Spruce Drive intersection would be a right in/out intersection.
- A raised barrier would prevent any drivers that would be turning right out of Spruce Drive from traveling across Chetco Avenue southbound lanes to access the northbound lanes.
- A bike lane would be constructed in each travel direction.
- The Railroad Street/Wharf Street/Cove Road/Memory Lane intersection would be realigned.
- Fifield Street would be right in/right out only from southbound leg of the couplet in the area that is currently Mill Beach Loop.

### 2.4.2.2 Off-System Design Elements

Other design features being considered in this analysis as part of Alternative 4 would occur on street facilities that are not part of the state highway system. Because of this, these improvements would likely be the responsibility of the City of Brookings. However, all of these improvements were considered as part of this analysis. These design elements would be:

- Fern and Willow Streets would be maintained as two-way roadways to minimize the “out-of-direction” travel for couplet drivers.
- The portion of Spruce Street located between Wharf and Oak streets would be a single lane, one-way, going southbound with parking on one side of the street. Spruce Street would also be dead-ended between Oak and Alder Street.
- The portion of Hemlock Street located between Wharf and Oak Streets would be a single lane one-way, northbound, with parking on one side of the street. Hemlock Street would also be dead-ended between Oak and Alder Street.

### **2.4.3 Alternative 5**

#### **2.4.3.1 Design Features**

Under Alternative 5 four lanes of traffic (two lanes in each direction) would be kept on Chetco Avenue and left turn pockets at Pacific Avenue, Mill Street, Wharf Street, Fern Avenue, Oak Street and Alder Street would be added to allow safe turning from Chetco Avenue to side streets (see Figure 2-3). A raised median would be constructed in the areas that did not have left turn bays. In order to accommodate this design, on-street parking would be removed from Chetco Avenue. Traffic signals on Chetco Avenue would remain at Oak Street and 5th Street. The traffic light that is currently at Center Street would be moved to Mill Street. Other design features incorporated into Alternative 5 by ODOT would include:

- Raised medians on Chetco Avenue north of Mill Beach Road to 5th Street, and between the intersections on Chetco Avenue where there are left-turn bays proposed (Pacific Avenue, Mill Street, Wharf Street, Fern Avenue, Oak Street and Alder Street at Chetco Avenue) to prevent left turns onto Chetco Avenue from side streets.
- An eight-lane cross-section that would be needed on Chetco Avenue at the Chetco Avenue /5th Street intersection.
- Bike lanes would also be constructed along Chetco Avenue west of Pacific Avenue.

#### **2.4.3.2 Off-System Design Elements**

Other design features being considered in this analysis as part of Alternative 5 would occur on street facilities that are not part of the state highway system. Because of this, these improvements would likely be the responsibility of the City of Brookings. However, all of these improvements will be considered as part of this analysis. These design elements would be:

- Fern Avenue would be “one-way” westbound.
- Willow Street would be “one-way” eastbound.
- Both Spruce and Hemlock Streets would remain “two-way” streets.
- The Railroad Street/Wharf Street/Cove Road/Memory Lane intersection would be realigned.

The portion of Center Street located south of Railroad Street would be realigned to intersect Mill Street at the Chetco Avenue/Mill Street intersection.





**Figure 2-3: Alternative 5 Design Features**  
 Source: W&H Pacific



N.T.S.

## 2.4.4 Common Design Features of Alternatives 4 and 5

Both of the build alternatives would have several design elements in common:

- The northern portion of Center Street would no longer connect with Chetco Avenue, and the traffic signal would be relocated to the Chetco Avenue/Mill Street/Hillside Avenue intersection.
- The existing Fred Meyer access would be moved further away from the Chetco Avenue/5th Street intersection.
- A backage road would be added to provide entry to KFC/Taco Bell, McDonalds and Les Schwab, and would be reached via 5th Street at the new Fred Meyer access.
- Pedestrian amenities such as curb extensions, crosswalks, and sidewalks would be added where possible to encourage pedestrian travel, and to provide traffic calming through downtown.

## 2.4.5 Alternative Costs

Costs for Alternative 4 and 5 are based on construction costs to build the new roadway and right-of-way costs for acquiring land that is needed in order to accommodate the alignment (Table 2-1). Acquisitions could result from access related impacts or the need for property to construct the new alignment. Costs have been calculated based on preliminary designs. Costs have also been broken down to reflect a range of costs ranging from the most necessary improvements to implement an alternative to construction of all the potential improvements that include off-system improvements.

**Table 2-1 Estimated Project Costs (Preliminary)**

	Alternative 4			Alternative 5		
	Base Improvements	Optional Improvements	Total Improvements	Base Improvements	Optional Improvements	Total Improvements
Right-of-Way <sup>1</sup>	\$ 6.425 million	\$ 0.475 million	\$ 6.9 million	\$ 2.25 million	\$ 1.9 million	\$ 4.15 million
Design <sup>2</sup>	\$ 2.1 million	\$ 0.4 million	\$ 2.5 million	\$ 0.8 million	\$ 0.5 million	\$ 1.3 million
Construction <sup>3</sup>	\$ 8.3 million	\$ 1.4 million	\$ 9.7 million	\$ 3.3 million	\$ 2.0 million	\$ 5.3 million
Project Total =	\$ 16.825 million	\$ 2.275 million	\$ 19.1 million	\$ 6.35 million	\$ 4.4 million	\$ 10.75 million

<sup>1</sup> Right-of-way costs were provided the ODOT Right-of-Way Report

<sup>2</sup> Design costs assume 25% of the total construction costs for preliminary and final engineering. This percentage is based on comparing actual completed projects similar in size and type. The percentage has generally varied in the range of 20 - 40%. The percentage could be greater than the 35% assumed value, due in part to the geographic location in the state, and also the fact that the project goes through the downtown of a city. It is expected that the percentage for Alternative 4 would be greater than Alternative 5.

<sup>3</sup> Construction costs are broken out into base and optional improvements. Base improvement estimates include our understanding of general improvements that would be required in order to provide a safe and operational system. Optional improvements would enhance the transportation system downtown. A 35% contingency is assumed due to the conceptual nature and potential unknowns for this potential project.

## **2.5 Areas of Critical Concern or Controversy**

### **2.5.1 Couplet vs. Five-Lane**

For the City of Brookings the construction of a couplet has been debated and studied by various local panels and City officials for more than 20 years. With the increase in population and traffic volumes seen in the Brookings area, and the projected continued growth, the couplet-issue has renewed importance. Throughout this development of alternatives, ODOT has heard input from citizens of Brookings and some members of the Stakeholders Committee (and other Brookings community leaders) that they are opposed to the construction of a couplet in any form because of concerns over the potential negative impacts a couplet may cause to the town.

The concerns raised most often have been that the division of the state highway into two streets would divide the town further, making south-north movement (across U.S. 101), more difficult, and that if Railroad Street became one-way it would no longer function as a local alternative for Chetco residents traveling east-west through town. Other issues have been that diverting southbound U.S. 101 traffic to Railroad Street would hurt businesses on Chetco and would create noise, access, and community impacts to neighborhoods south of Railroad Street.

ODOT has also heard that the current low-level of economic vitality in the downtown area would be improved with the construction of a couplet. Some feel the couplet would provide additional development opportunities between Chetco Avenue and Railroad Street, and provide a more pedestrian friendly environment.

During the identification of alternatives to be studied in the EA, ODOT responded to the concerns of the Stakeholders Committee regarding the potential for negative economic impacts to business in town as a result of the construction of the couplet. ODOT conducted research to evaluate the impacts of couplets to other towns that are similar to Brookings in size and location. Community and business leaders in towns where couplets had been built were asked how they felt businesses were impacted by the construction of a couplet and what changes it introduced to the town. In addition, a literature review of reports and studies from other cities around the country was conducted to determine if previous research had shown definitive beneficial or detrimental impacts as a result of a couplet being built. From the interviews and literature review, both positive and negative results were described following the construction in each town, and so there was not a clear indication that a couplet was particularly good or bad in terms of the business and mobility in a town.

The results of the couplet study were unable to show an overly positive or negative result from the construction of a couplet. The interviews and literature review showed evidence of hurting some businesses (businesses that rely mainly on drive-by traffic) while having no impact on others. In cities where couplets were constructed, residents often felt there was an increase in vehicle speed, but pedestrian amenities were often able to provide for safe pedestrian crossing. The findings of the couplet study generally found that while converting streets from two- to one-way or vice versa will not in itself guarantee a resurgence of growth and activity downtown, such a change will not necessarily hinder growth. In places where couplets were installed, street conversions were generally part of a larger plan, greater vision, or other initiatives.

Throughout the project development process, ODOT has attempted to address the full range of public concerns and input regarding couplets.

## **2.5.2 Parking**

To accommodate left turn pockets for the design for Alternative 5, on-street parking would need to be eliminated from Chetco Avenue between Pacific Avenue and Alder Street. The potential impacts resulting from the removal of parking are discussed in Chapter 3.

The Brookings Downtown Master Plan provides for additional off-street parking facilities in the downtown area, as well as providing for additional on-street parking. If Alternative 5 were to be identified as the preferred alternative, strategies would need to be developed to provide adequate parking opportunities for those wanting to patronize downtown area businesses that do not have off-street parking facilities. It has not been determined how this would occur, but it is agreed that this is an area of concern for Alternative 5.

## **2.5.3 Off System Improvements**

ODOT's Transportation and Planning Analysis Unit has evaluated additional circulation improvements that could be incorporated into the design of each alternative. These design elements are not necessary to make each alternative function, but they would provide better traffic movement, and would likely enhance each alternative's ability to meet the local goals and objectives of the project.

These improvements would be on local street facilities that provide access on to or off of the Oregon Highway System. They would involve side streets and connectors. Because they are City-owned streets it would not be possible to make these improvements with the same funding sources that would be pursued for the construction of the preferred alternative.

As a result, the off-system improvements for each alternative are called out in the analysis so that their impacts could be addressed separately. In the event FHWA or other federal funds were to be used for building these off-system improvements, off-system improvements were included in this NEPA analysis.

## **2.5.4 Special Transportation Area Designation**

State highways in Oregon are often a town's "Main Street" and serve many needs within a community. This is the case with U.S. 101/Chetco Avenue in Brookings. Accordingly, ODOT and the City of Brookings have evaluated the potential for designating Chetco Avenue, between Alder Street and Pacific Avenue, as a Special Transportation Area (STA). An STA designation would allow the City to have more influence on the highway system in the areas of design, traffic speeds, traffic calming, pedestrian improvements and similar urban standards that could be a better fit for the community than traditional highway standards. An STA would also allow traffic mobility standards within the STA to be lowered so that more congestion would be permissible.

In January of 2004, the City of Brookings voted to approve the STA designation. Final approval by the Oregon Transportation Commission is likely to happen in January of 2005. Because the

STA designation is not part of the Downtown Brookings—Highway 101 Transportation Solutions Project, the designation will likely occur regardless of the alternative identified as the Preferred Alternative. The STA designation does influence the decision making for the project by allowing more traffic congestion in the downtown area and placing an emphasis on the Highway’s role as a main street.

## 2.6 Required Permits and Planning Actions

Table 2-2 lists the probable permits required for this project and the issuing jurisdiction or agency.

**Table 2-2 Permits and planning actions that may be required for the Proposed Action**

Permit	Issuing Entity
<b>Cities</b>	
Construction Permits (Including clearing, grading, building, and demolition)	City of Brookings
Transportation System Plan Amendment <sup>1</sup>	City of Brookings
<b>Other</b>	
Pipeline and Utility Crossing Permits	Utility Providers
Utility Approvals (Easements and Use Agreements)	Utility Providers

<sup>1</sup> For Alternative 4 only.

## 2.7 Alternatives Considered But Withdrawn

### 2.7.1 Alternative 1

Alternative 1 would have retained four lanes of traffic on Chetco Avenue and placed a continuous left-turn lane throughout the project area (see Figure 2-4). This alternative would also have included some spot improvements to improve traffic safety. To accommodate the continuous left turn lane all on-street parking would be eliminated. Alternative 1 would also have made improvements to Railroad Street to allow it to function as an alternate route for local traffic wishing to avoid congestion in Chetco Avenue.

Alternative 1 was eliminated because the continuous left turn lane design would have forced drivers turning left out of offset driveways onto U.S. 101 to “compete” for the occupancy of the continuous left-turn lane. As a result the continuous left turn lane would not have improved safety at the top 10 percent SPIS sites located on U.S. 101 between Willow and Alder Streets.

Other elements of this alternative were able to be incorporated into Alternative 5.

### 2.7.2 Alternative 1A

Alternative 1A was developed as a modification of Alternative 1. All design elements for Alternative 1A would have been the same as Alternative 1: four lanes of traffic, and a left turn

lane, and retain all on-street parking in the downtown area (see Figure 2-5). In order to keep on-street parking on Chetco Avenue ODOT would have needed to purchase right-of-way along the north side of Chetco Avenue. The amount of right-of-way to accommodate on-street parking would have involved property acquisitions that displaced many of the businesses along Chetco Avenue. Alternative 1A also would have made improvements to Railroad Street to allow it to function as an alternate route for local traffic wishing to avoid congestion in Chetco Avenue.

Alternative 1A was eliminated because of the same safety concerns listed for Alternative 1 related to the continuous left turn lane. In addition, the need for additional right-of-way to accommodate on-street parking would have caused an unreasonable amount of business displacements in the downtown area. Up to 13 businesses would have needed to be displaced. Property acquisition costs for those 13 businesses could have been as high as \$6.3 million.

### **2.7.3 Alternative 2**

Alternative 2 was a couplet design that diverted traffic off Chetco Avenue at Pacific Avenue, and utilized Cottage Street to connect southbound traffic with Railroad Street (see Figure 2-6). Additional right-of-way would have been needed to connect Cottage Street to Railroad Street. Alternative 2 would have used the same connection design from Oak Street to connect southbound traffic back to Chetco Avenue, around the Chetco Community Public Library, that is used with Alternative 4.

Alternative 2 was eliminated because several large property acquisitions would have been required around Wharf, Center, and/or Mill streets; five businesses would have to be relocated at a cost of \$4.9 million. In addition, because this alternative began closer to downtown, it did not solve traffic issues on Chetco Avenue north of Pacific Avenue.

Because of the likely property acquisitions and access impacts to the post office the Stakeholder Committee felt the design was an undesirable solution for downtown Brookings, and unanimously recommended to the PDT that all of the shortened couplet alternatives be withdrawn from consideration. The PDT agreed with this recommendation.

### **2.7.4 Alternative 2A**

Alternative 2A was a couplet design that diverted traffic off Chetco Avenue at Pacific Avenue and would have added a connection to Hemlock Street (see Figure 2-7). Southbound traffic would have traveled along Hemlock Street and rejoined the highway at Alder Street. Detailed designs of the Alternative 2A connection at Alder Street were not completed before this alternative was eliminated.

Alternative 2A was eliminated because of several large property acquisitions would have been required around Wharf, Center, and/or Mill streets; five businesses and the Post Office would be relocated at a cost of \$5.4 million. Alternative 2A brought the southbound portion of the couplet one block closer to Chetco Avenue, which was seen as a positive design element but evaluation revealed that because the alternative began closer to the downtown business district, it did not solve traffic issues on Chetco Avenue north of Pacific Avenue.

As with Alternative 2, because of the property acquisitions required for Alternative 2A, the Stakeholder Committee felt the design was an undesirable solution for downtown Brookings and unanimously recommended to the PDT that all of the shortened couplet alternatives be withdrawn from consideration. The PDT agreed with this recommendation.

### **2.7.5 Alternative 2B**

Alternative 2B was a shortened couplet that diverted traffic off Chetco Avenue at Pacific Avenue and would have added a connection to Spruce Street. Southbound traffic would have traveled along Spruce Street and rejoined the highway at Alder Street (see Figure 2-8). Detailed designs of the Alternative 2B connection at Alder Street were not completed before this alternative was eliminated.

Alternative 2B was eliminated because of several large property acquisitions would have been required around Wharf, Center, and/or Mill streets; 2 businesses would be relocated at a cost of \$5.1 million. In addition, Alternative 2b would not have resolved traffic problems on Chetco Avenue north of Pacific Avenue.

As with Alternatives 2A and 2B, because of the likely property acquisitions and impacts to the post office, the Stakeholder Committee felt the design was an undesirable solution for downtown Brookings and unanimously recommended to the PDT that all of the shortened couplet alternatives be withdrawn from consideration. The PDT agreed with this recommendation.

### **2.7.6 Alternative 3**

Alternative 3 was a shorter version of the Alternative 4 couplet design that would use Chetco Avenue and Railroad Street (see Figure 2-9). The Alternative 3 design would have started with southbound traffic turning south on 5th Street before turning onto Railroad Street. The southbound traffic would have rejoined Chetco Avenue at Alder Street, and would have used the same connection design from Oak Street to connect southbound traffic back to Chetco Avenue around the Chetco Community Public Library that is used with Alternative 4.

This alternative was carried forward on a short list of alternatives following the Stakeholders Committee meeting in November 2003. Following further analysis and a more detailed level of design, the Stakeholders Committee recommended that Alternative 3 be eliminated at the final meetings in December 2003. The PDT accepted that recommendation.

Alternative 3 was eliminated because, as a result of the required design configuration to create the couplet and the predicted volume of traffic, the 5th Street and Chetco intersection would have failed to meet mobility standards for the planning year, 2027.

### **2.7.7 Alternative 6**

This alternative would have taken the downtown business district off of the state highway system and diverted all traffic off Chetco Avenue and redirected it to Railroad Street via Mill Beach Boulevard and Railroad Street (see Figure 2-10). Railroad Street would have become a five lane

facility, with two travel lanes in each direction and a continuous center turn lane. Traffic would have continued along Railroad Street until it reconnected with Chetco Avenue at Alder Street.

Alternative 6 was eliminated primarily because of the substantial socioeconomic impacts that would have occurred in order to improve Railroad Street to five lanes. The construction and property acquisitions costs would have made total costs higher than the level of funding that would likely be available for this project. Property acquisition costs alone were estimated to be as high as \$13.4 million, and construction costs were estimated to be \$9.4 million.

Traffic safety and mobility were also a concern with Alternative 6. Even though the v/c ratios for the two intersections that would have connected Chetco Avenue with the new U.S. 101 alignment on Railroad Street would have met operating standards, traffic modeling indicated flows would have been congested on Chetco Avenue in the southbound direction. Under those conditions, vehicles stopped at the southerly connection point near Alder Street would have had a queue that backed up through the Business 101/Oak Street intersection. Also, even with the diversion of traffic from Chetco Avenue, the 5th Street and Chetco Avenue intersection would have failed to meet mobility standards for planning year, 2027

For all of these reasons, the Stakeholder Committee felt that rerouting five lanes of U.S. 101 traffic onto what is now a local street was not a solution that met the goals and objectives established for the project. The PDT concurred with this recommendation and Alternative 6 was eliminated.

## **2.8 Related Projects**

Cumulative impacts are based on the past, present and future projects in the City of Brookings. Those projects, in conjunction with the alternatives being considered as part of the Downtown Brookings – Highway 101 Transportation Solutions Project, may have impacts beyond those that have been evaluated for this project alone. The following projects were considered as part of the cumulative impacts assessment. (Not all of these projects were considered as relevant for each of the environmental elements considered in this EA.)

- Preservation/Restoration project to reconstruct and repave U.S. 101 from the Thomas Creek Bridge to the Chetco River Bridge.
- In-street improvements to water and sewer lines along Chetco Avenue from 5th Street to Arnold Lane.
- The possible construction of the Curry General Hospital’s Imaging Center, Urgent Care Facility on 5th Street between KFC and U.S. Bank.
- A development by U.S. Borax Inc. on an existing industrial property a mile north of the project area. This project has been approved by the Brookings Planning Commission and was approved by the City Council in November 2004. The project’s 20-year master plan includes 1,000 residential units, 2 acres of retail uses, and 10-acre parcel for Southwestern Oregon Community College.



**Figure 2-4: Alternatives Eliminated \* Alternative 1**  
 Source: W&H Pacific



N.T.S.



**Figure 2-5: Alternatives Eliminated \* Alternative 1A**  
 Source: W&H Pacific



N.T.S.



**Figure 2-6: Alternatives Eliminated \* Alternative 2**  
 Source: W&H Pacific



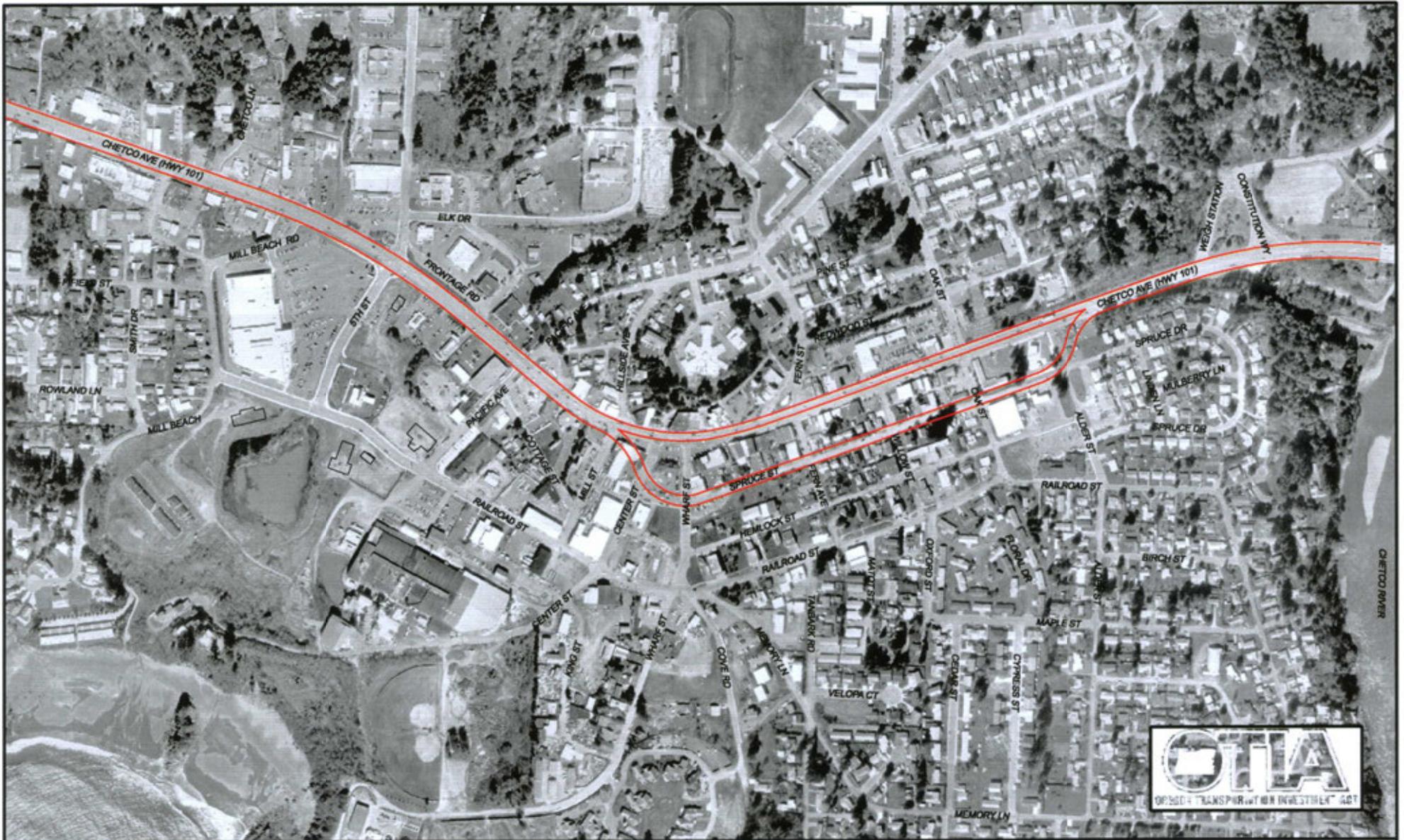
N.T.S.



**Figure 2-7: Alternatives Eliminated \* Alternative 2A**  
 Source: W&H Pacific



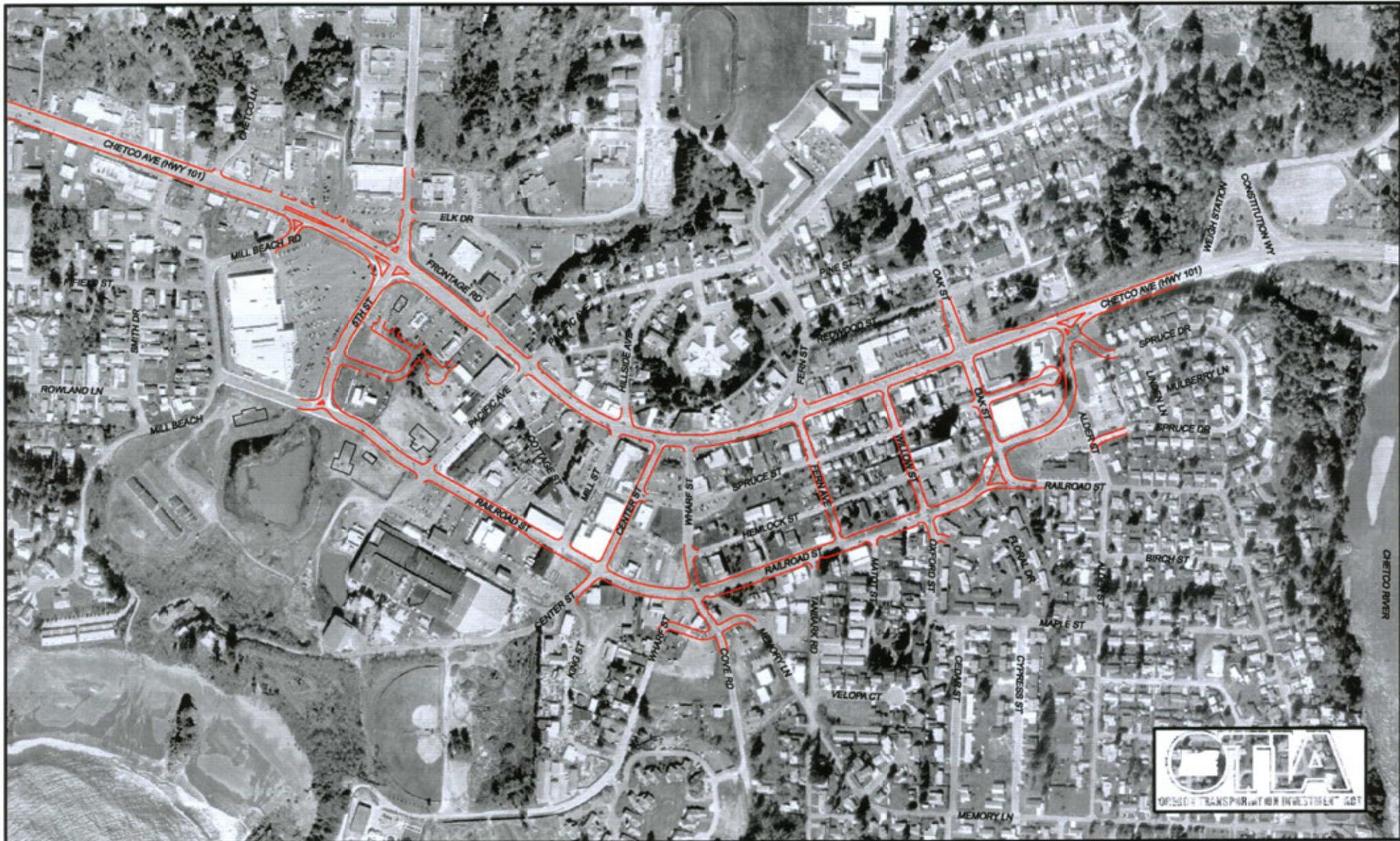
N.T.S.



**Figure 2-8: Alternatives Eliminated \* Alternative 2B**  
 Source: W&H Pacific



N.T.S.



**Figure 2-9: Alternatives Eliminated \* Alternative 3**  
 Source: W&H Pacific





**Figure 2-10: Alternatives Eliminated \* Alternative 6**  
 Source: W&H Pacific

