Cloverdale Transportation Refinement Plan

PREPARED FOR:

Economic Development Council of Tillamook County
Tillamook County Department of Community Development
Oregon Department of Transportation

PREPARED BY:

CH2MHILL

alta PLANNING + DESIGN

Angelo planning group

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Project Staff

TILLAMOOK COUNTY

Bill Campbell
Bill Holmstrom, AICP

OREGON DEPARTMENT OF TRANSPORTATION

Valerie Grigg Devis, Project Manager (through March 2007)
David Helton, Project Manager (as of March 2007)

TILLAMOOK COUNTY ECONOMIC DEVELOPMENT COUNCIL

Christy Vail

CH2M HILL

Tim Burkhardt, AICP
Theresa Carr, AICP, Project Manager
Darren Muldoon, AICP
Tim Newkirk, EIT
Kathryn Westcott

ALTA PLANNING + DESIGN

Mia Birk
Jessica Roberts

ANGELO PLANNING GROUP

Shayna Rehberg, AICP

Project Management Team

Bill Campbell, Tillamook County Department of Community Development
Mary Lou Fletcher, Nestucca Valley Fire District
Vicki Goodman, Oregon Economic and Community Development
Valerie Grigg Devis, Oregon Department of Transportation (through March 2007)
David Helton, Oregon Department of Transportation (as of March 2007)
Bill Holmstrom, Tillamook County Department of Community Development
Larry McKinley, Oregon Department of Transportation
Matt Mumford, Tillamook County Transit District
Pat Oakes, Tillamook County Public Works
Amy Stricklin, Nestucca Valley Public Schools
Christy Vail, Tillamook County Economic Development Council
Liane Welch, Tillamook County Public Works
Laren Wooley, Oregon Department of Land Conservation and Development

Citizen Advisory Committee

Alma Baxter
Shelley Crowe
Nancy Emerson
Hal Fernandez
Royce Fletcher
Bill Goodman
George Harrell
Todd Johnson
Everett Longanecker
Bill Rock
Dick Warren

Student Representative

Alyosha Kostrikin

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1 Introduction

The Cloverdale Transportation Refinement Plan addresses key transportation issues in the unincorporated community of Cloverdale in south Tillamook County, Oregon (Figure 1). The plan focuses on Highway 101 (US 101) as it travels through Cloverdale. The plan is a refinement of the 2003 *Tillamook County Transportation System Plan* (TSP), which identifies the need for transportation refinements in Cloverdale.

The objectives of the Cloverdale Transportation Refinement Plan are as follows:

- Prepare a set of physical improvements intended to improve the function and safety of US 101, considering all modes of traffic.
- Develop a system of streets that provides off-highway circulation for local residents and encourages economic development.
- Provide for safe non-vehicular travel by identifying off-highway circulation for pedestrians and bicycles and appropriate location(s) for crosswalks, parking, and access.
- Enhance livability by establishing street design for the state highway within standards, including provision of sidewalks, bicycle lanes, and pedestrian amenities.
- Obtain broad public support for the plan and present the plan for adoption by elected officials.
- Provide solutions that are cost-effective and implementable.
- Evaluate opportunity to improve highway access points.

The plan was funded by a grant to the Tillamook County Economic Development Council (EDC) from the Oregon Transportation and Growth Management (TGM) Program and in-kind contributions from the EDC and Tillamook County (County). Working with the EDC and the County, the TGM program staff hired the consulting team of CH2M HILL, Alta Planning + Design, and Angelo Planning Group to prepare the plan.

FIGURE 1
Area Map at the Cloverdale Visitors Center

Several of the recommendations in this plan are based on concepts proposed in the *Cloverdale Downtown Plan* (2003) produced by the Oregon Downtown Development Association (ODDA).[1] This plan further develops several of the ideas proposed in the *Cloverdale Downtown Plan* through technical analysis and conceptual design.

[1] The 2003 ODDA plan includes elements of the 2002 *Cloverdale Community Plan*, the official County policy document for Cloverdale.

2 PLANNING PROCESS

This section summarizes six key elements of the project's planning process: project management, public involvement, plan and policy review, goals and evaluation criteria, existing and future conditions review, and development and evaluation of alternatives.

Project Management

A project management team (PMT) consisting of staff from the EDC, the Tillamook County Community Development and Public Works departments, the Oregon Department of Transportation (ODOT), and other local and state agencies (see list on page IV) provided guidance and policy direction for this plan.

Public Involvement

Cloverdale community members, stakeholders, and other interested parties actively participated in the development of this plan. An appointed citizen advisory committee (CAC) made up of local community members met twice (December 2006 and May 2007) to review existing conditions and to review and discuss proposed alternatives. Two public open houses (April and June 2007) allowed for the review of the draft alternatives by the CAC and interested members of the public (Figure 2). Project information, schedules, update, and materials were also available on a Web site hosted by ODOT. Documentation of the public involvement process is included in Appendix A.

Plan and Policy Review

At the beginning of the planning process, Tillamook County Department of Community Development staff reviewed local, county, and state plans and policies for the jurisdictions that own, regulate, or provide public services on the public roadways and adjacent lands in Cloverdale. This review helped ensure that proposed projects were consistent with these documents and will aid in the development of any future implementing ordinances for the plan. Results of the plan and policy review are included in Appendix B.

Goals and Evaluation Criteria

Using the grant application and the statement of work for the project, the project team developed draft goals and evaluation criteria for the project, which the CAC reviewed and approved (Appendix B). The goals and evaluation criteria create a framework to assure that the plan responds to the goals and desires of the community (Table 1). The draft alternatives were evaluated using these criteria.

FIGURE 2
Public Open House (April 2007)

TABLE 1
Goals and Evaluation Criteria

Goals	Evaluation Criteria
Mobility	
Highway Mobility Preserve and enhance the through movement function of US 101.	● *Volume/capacity ratio for traffic along US 101 is equal to or better than the acceptable Oregon Highway Plan (OHP) mobility standard* ○ *Volume/capacity ratio for traffic along US 101 is worse than the acceptable OHP mobility standard*
Intersection Mobility Preserve operations at study intersections.	● *Major and minor movements for each of the three study intersections are equal to or better than the acceptable OHP mobility standard* ◖ *One study intersection (major or minor movement) is worse than the acceptable OHP mobility standard* ○ *Two or more study intersections (major or minor movement) are worse than the acceptable OHP mobility standard*
Safety	
Vehicular Safety Provide a transportation system that maintains adequate levels of safety for all vehicles, including regional traffic, local traffic, and commercial traffic.	● *Addresses known safety issues, reduces potential conflicts, and does not add new operational safety concerns* ◖ *Indirectly addresses, or minimally addresses known safety issues, and does not add new operational safety concerns* ○ *Does not address known safety issues, and/or adds conflict points or otherwise creates an additional safety problem for vehicles*
Pedestrian Safety Provide a transportation system that maintains adequate levels of safety for pedestrians.	● *Addresses known pedestrian safety issues, reduces potential conflicts, and does not add new pedestrian safety concerns* ◖ *Does not add new pedestrian safety concerns, does not directly address or minimally addresses known pedestrian safety issues* ○ *Adds conflict points or otherwise creates an additional safety problem for pedestrians*
Bicycle Safety Provide a transportation system that maintains adequate levels of safety for bicyclists.	● *Addresses known bicycle safety issues, reduces potential conflicts, and does not add new bicycle safety concerns* ◖ *Does not add new bicycle safety concerns, does not directly address or minimally addresses known bicycle safety issues* ○ *Adds conflict points or otherwise creates an additional safety problem for bicyclists*
Access	
Access Management Meet relevant access spacing policies, or improve access spacing over existing conditions.	● *Adds no new access points on US 101, and includes specific strategies for improving access spacing on US 101 to improve compliance with access spacing standards* ◖ *Adds no new access points on US 101, and includes strategies for minor improvements to existing access spacing on US 101* ○ *Adds new access points on US 101, and/or does not propose strategies to improve access spacing over what exists today*

TABLE 1
Goals and Evaluation Criteria

Goals	Evaluation Criteria
Off-Highway Vehicle Circulation Provide opportunities for off-highway vehicle circulation.	● *Improves opportunities for off-highway vehicle circulation* ◖ *Provides no change in opportunities for off-highway vehicle circulation* ○ *Worsens opportunities for off-highway vehicle circulation*
Livability	
Community Preservation Minimize impacts to existing residences within the study area, and encourage a strong, vital core of businesses in downtown Cloverdale.	● *Creates no impacts to existing businesses and/or residences, or minor impacts that can be mitigated; provides opportunity for redevelopment and/or new development* ◖ *Creates minor impacts to existing businesses and/or residences that can not be mitigated or major impacts that can be mitigated* ○ *Creates a major impact to existing businesses and/or residences (e.g., residential or business displacement); does not encourage continued growth of downtown core*
Parking Provide appropriate, adequate, and convenient parking for visitors and customers of local businesses.	● *Adds new on-street or off-street parking spots or substantially improves potential use and safety of existing on-street and off-street parking through defining parking areas* ◖ *Improves potential use and safety of on-street and off-street parking through defining parking areas, but without significantly changing existing on-street or off-street parking spots* ○ *Reduces the total number of on-street and off-street parking spots and/or does not improve potential use and safety of existing on-street and off-street parking through defining parking areas*
Community Support Provide recommendations that will receive support from the community and elected officials.	● *Expected to garner broad and/or strong support from community stakeholders and leaders* ◖ *Support from community stakeholders and leaders is not expected to be strong, and/or is uncertain.* ○ *Expected to receive limited or no support from community stakeholders and leaders*
Nestucca River Access Improve pedestrian access to and across the Nestucca River.	● *Provides multiple direct pedestrian accesses to and/or across the Nestucca River* ◖ *Provides one direct pedestrian access to the Nestucca River* ○ *Provides no or indirect pedestrian accesses to the Nestucca River*
Multimodal Solutions	
Bicycle and Pedestrian Facilities Provide for an interconnected system of bicycle and pedestrian facilities.	● *Creates new and/or substantially improves existing bicycle and pedestrian facilities* ◖ *Creates minor new and/or indirectly improves existing bicycle and pedestrian facilities* ○ *Does not create new and does not improve existing bicycle and pedestrian facilities*
Public Transportation Improve public transit facilities to encourage growth in transit ridership.	● *Directly and substantially improves conditions at existing public transit facilities, or provides transit facilities to serve all users of the transit system, including youth, elderly, and physically disabled populations* ◖ *Provides minor or indirect improvements at existing public transit facilities to serve some users, but provides no improvements to the youth, elderly, and physically disabled populations* ○ *Provides no improvements, or adversely impacts existing public transit facilities.*

TABLE 1
Goals and Evaluation Criteria

Goals	Evaluation Criteria
Cost	
Provide solutions that are cost-effective to design and construct (order-of-magnitude cost estimate).	● *Provides a cost effective solution with opportunities for local funding match and opportunities to be built in phases* ◖ *Cost effectiveness and/or opportunities for local funding are uncertain, or there are limited opportunities for phasing* ○ *Alternative is not considered cost effective*

Existing and Future Conditions Review

Before the first CAC meeting, the project team reviewed and documented existing and anticipated future land use and transportation conditions in Cloverdale. The review was based on existing documents, traffic operations and impacts analyses, and a field review (November 2006) conducted with the assistance of local and county representatives. The existing conditions, constraints, and opportunities review is included in Appendix C. Key findings were as follows:

- US 101 is a barrier to pedestrian comfort and safety, with seasonally high traffic volumes and truck traffic. There are no designated bicycle facilities on US 101 in Cloverdale.
- On-street parking along US 101 is not clearly striped or maintained. In some locations, on-street parking appears to be part of a wide travel lane.
- Traffic congestion in Cloverdale is not of concern for traffic mobility in current or future conditions.
- A safety analysis and speed survey did not identify substantial safety or speed concern.
- Driveway spacing in much of the study area does not meet standards for a state highway, which affects safety.

Development and Evaluation of Alternatives

Following the first PMT and CAC meetings, the project team developed alternatives to respond to the project purpose and goals. Key steps in the alternatives development process were as follows:

- Develop a range of alternatives that seek to meet project goals and evaluation criteria (identified in Table 1).
- Present alternatives to ODOT and Tillamook County for review against state and county policies and standards (March 2007); revise draft alternatives as necessary to respond to comments.
- Evaluate each potential improvement to illustrate how the improvement addresses each project goal. The alternatives evaluation process is documented in Appendix D.
- Present alternatives to the CAC and the public (April 2007).
- Modify the preferred alternative to incorporate input and discussion from CAC and the public.
- Finalize alternatives and present to PMT, CAC, the public (May 2007), and Tillamook County Planning Commission (June 2007).

Amendments to the County Code were developed to implement the preferred alternative (Appendix E).

3 RECOMMENDATIONS

Cloverdale Transportation Refinement Plan recommendations are organized into three sections: (1) US 101 Cross-Section; (2) Short-Term Improvement Concepts; and (3) Long-Term Improvement Concepts. Recommendations are illustrated in Figure 3 (Recommended US 101 Cross-Section), Figure 5 (Short-Term Improvement Concepts), and Figure 12 (Long-Term Improvement Concepts).

US 101 Cross-Section

Cloverdale is located within an ODOT-designated Special Transportation Area (STA). The Oregon Transportation Commission (OTC) designated US 101 in Cloverdale (between Mill Road and north of Clover Street) as an STA in 2005. As stated in Chapter 8 of the ODOT Highway Design Manual (HDM), the primary objective of an STA is to "provide access to community activities, businesses, and residents, and to accommodate pedestrian, bicycle, and transit movement along and across the highway." STAs provide and encourage a well-designed pedestrian, bicycle, and transit-friendly environment, meaning through traffic operations and efficiency may be reduced to improve the attractiveness and operations of other modes of travel.

The HDM provides specific guidelines for STAs. In general, highway design in STAs should reflect the change in land use, bicycle and pedestrian activity, transit, and expected motorist behavior. Design standards for STAs have been developed to meet the goals and objectives of STAs. These standards provide a range of values for lane width, sidewalk width, shoulder width, median width, and parking width. Traffic volumes, types, and environment determine the applicable standards for a particular STA.

ODOT right-of-way maps show 60 feet of public right-of-way on US 101 through Cloverdale. In general, the right-of-way consists of 30 feet on each side of the highway centerline. In most areas of Cloverdale, 60 feet is available for roadway and streetscape improvements.

Figure 3 illustrates the recommended cross-section for US 101 between Clover Street and Parkway Drive. This is a 60-foot-wide cross-section with two 12-foot-wide travel lanes, and 7-foot-wide on-street parking (1-foot shy distance) and 10-foot-wide sidewalks on both sides of US 101. Shy distance is the space between the travel lane and the parking lane. The on-street parking and 10-foot sidewalks represent preferred elements for an STA.

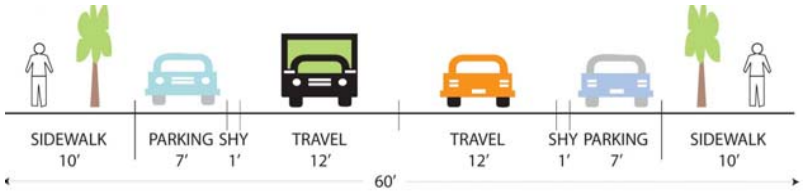

FIGURE 3
Recommended US 101 Cross-Section (Clover Street to Parkway Drive)

This plan assumes that all public right-of-way (60 feet) would be available to implement the preferred cross-section (roadway, parking, and sidewalks in Figure 3). In some locations, existing private development may be encroaching on the public right-of-way. In particular, the area immediately south of the Clover Street intersection and the area immediately north of the Parkway Drive intersection appear to have less than 60 feet between buildings. At these locations, the recommended cross-section (Figure 3) would be

constructed with narrower sidewalk width (less than 10 feet in width) to avoid displacement of encroaching structures or on-street parking would not be added. No structures in Cloverdale are currently listed on the National Register of Historic Places (Appendix F). However, there are four resources eligible for listing. Recommended cross-section improvements should seek to protect or enhance these potential historic resources.

On-street bicycle lanes were not recommended for US 101 through Cloverdale because of the short distance between Parkway Drive and Clover Street (0.20 mile), the lack of bicycle lanes on US 101 north or south of Cloverdale, and limited opportunities for bicycling off of Highway 101 through Cloverdale. In addition, the study area is located within an STA where posted speeds are low (25 miles per hour). Slow speed zones are considered an appropriate condition for shared auto/bicycle roadway facilities. The CAC and public preferred on-street parking on both sides of US 101, over bicycle lanes.

SIDEWALKS

The preferred alternative cross-section provides 10-foot-wide pedestrian sidewalks. Street trees and other pedestrian amenities, such as benches and light posts, would be located in this space. There would be at least a 6-foot clear lane for pedestrians. Sidewalks would be raised concrete sidewalks separated from the highway by a curb. The raised sidewalk offers greater protection and separation for pedestrians than other options and also better delineates parking on the highway.

Constructing raised concrete sidewalks with curbs for the entire length between Clover Street and Parkway Drive would require improvements to the existing stormwater drainage system. The increase in impervious surface associated with the improvements would require additional drainage capacity. These improvements are included in the cost estimates for this alternative.

PARKING

The paved and gravel shoulder areas of US 101 in Cloverdale currently are used for parking. To drivers, these areas appear to form a wide travel lane because there are no markings or signage for on-street parking. The recommended cross-section would implement 7-foot-wide, paved on-street parking on both sides of US 101, with a 1-foot shy distance. Signage and striping would designate on-street parking.

ACCESS MANAGEMENT

Installation of curbs and sidewalks on US 101 in the study area would be accompanied by construction of driveway approaches to ensure property access. Access would be provided to all properties. Access details such as driveway locations and dimensions would be developed through a detailed access management plan that would be prepared through implementation of the US 101 cross-section. The following access management opportunities are recommended for consideration:

- Close any approaches where reasonable alternate accesses from local streets are or can be made available to serve the current or planned use of the property.
- Consolidate approaches where the result provides reasonable access to serve the current or planned use of the property.
- Close or relocate public or private approaches after property redevelopment or road improvements occur, if reasonable alternate access off local streets can be made available to serve the planned use of the property.

Short-Term Improvement Concepts

The short-term improvement concepts are elements for implementation in the next 10 years, and are organized into four categories: (1) Pedestrian Recommendations; (2) Parking and Access Recommendations; (3) Safety and Speed Recommendations; and (4) Transit Recommendations. The numbers before each improvement concept correspond to the numbers illustrated in Figure 5.

PEDESTRIAN RECOMMENDATIONS

1. Construct Sidewalks between Clover Street and Parkway Drive (Both Sides of US 101)

Cross-section improvements are recommended on US 101 between Clover Street and Parkway Drive. The recommended cross-section includes 10-foot-wide sidewalks on both sides of US 101, which would create a continuous sidewalk network on both sides of the highway between Clover Street and Parkway Drive, encourage pedestrian activity, and improve pedestrian safety.

2. Extend Sidewalk between Parkway Drive and Veterinary Clinic (West of US 101)

As a result of topographical on the west side of the highway, the full 10-foot sidewalk width cannot be constructed west of the highway to the south edge of the study area. Therefore, extending the 10-foot sidewalk to the south side of the veterinary clinic parcel is recommended so as to continue the sidewalk network as far south of Parkway Drive as feasible on the west side of US 101 in the short-term.

3. Improve Sidewalk between Parkway Drive and Mill Road (East of US 101)

The sidewalk between Parkway Drive and Mill Road that traverses the top of a steep embankment on the east side of US 101 is in poor condition. It is 4 feet in width, with multiple cracks and overgrown grass. An improvement concept that would construct a retaining wall and implement sidewalks adjacent to the east side of US 101 was considered, but topography constraints and cost made this concept unfeasible. For these reasons, rehabilitation of the existing sidewalk is recommended. The width should be at least 6 feet and provide a smooth (uncracked) surface.

4. Enhance Crosswalk at Parkway Drive

Improving the crosswalk on the north side of the Parkway Drive intersection is recommended to enhance pedestrian safety, increase driver awareness of pedestrians, and slow motorists. Figure 4 illustrates the recommended cross-section. The Tillamook County Public Works building is located close to the highway at this location and only 51 feet is available between the building and the right-of-way line on the east side of the highway. Therefore, the full 60 feet of right-of-way is not used. The east and west sides of US 101 at this location would have a 4-foot curb extension (also referred to as a "bulb-out").

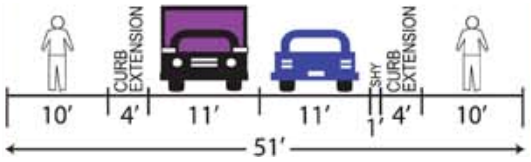

FIGURE 4
North Side of Parkway Drive Intersection Cross-Section

There is currently one curb extension in Cloverdale, at a mid-block crossing near the visitor's center and the market (Figure 6). Curb extensions and 11-foot travel lanes on the north side of the Parkway Drive intersection are intended to slow northbound US 101 vehicles prior to the curve near the Post Office, and discourage southbound US 101 vehicles from speeding up after passing this curve.

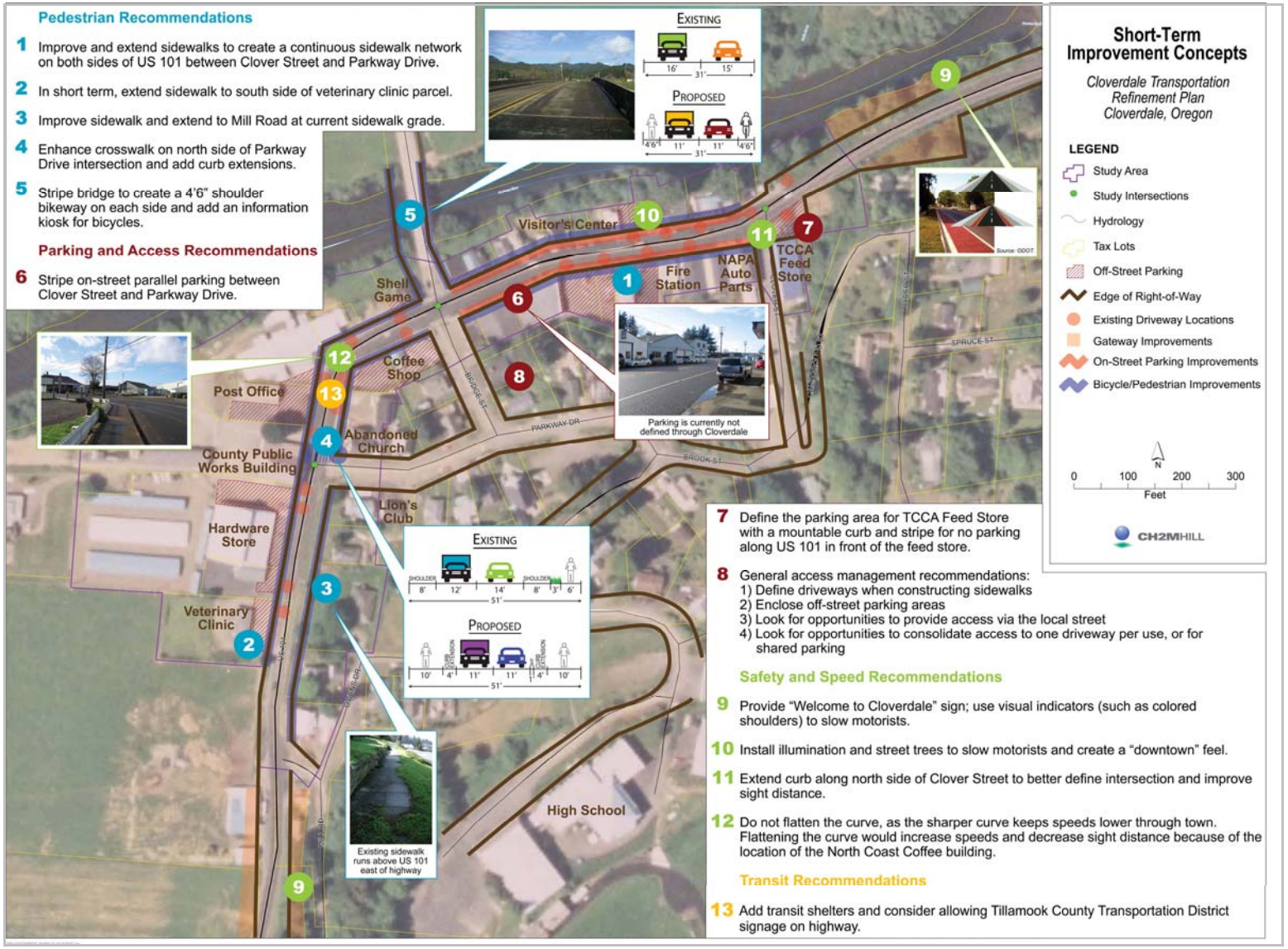

FIGURE 5
Short-Term Improvement Concepts

FIGURE 6
Existing Curb Extension and Crosswalk in Cloverdale

5. Stripe Old Woods Road Bridge and Add Information Kiosk

Striping of Old Woods Road Bridge is recommended to create a 4.5-foot-shoulder bikeway on each side of the bridge to safely accommodate bicyclists and pedestrians (Figure 7). The shared bicycle/pedestrian shoulder on both sides of the bridge would be separated from the roadway by a white painted stripe and could be marked with symbols indicating it is not a driving or parking lane. This recommendation requires no structural changes to the bridge.

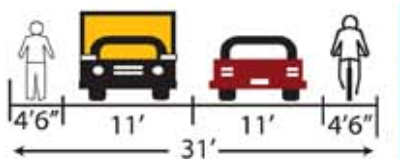

FIGURE 7
Old Woods Road Bridge Cross-Section

An information kiosk for bicyclists and visitors is recommended at the US 101/Old Woods Road intersection (the western base of the Old Woods Road Bridge) to provide bicyclists information about the Oregon Coast Bike Route and visitors information on Cloverdale. Figure 8 illustrates an example of an information kiosk.

FIGURE 8
Example of an Information Kiosk (near Fort Rock, OR)

PARKING AND ACCESS RECOMMENDATIONS

6. Define On-Street Parking

US 101 cross-section improvements would implement on-street parallel parking on each side of the highway between Clover Street and Parkway Drive. In conjunction with this improvement, on-street parking should be striped to designate parking spaces and define the highway travel lanes. Existing parking areas are ill-defined and inefficiently used. Defining on-street parking would more efficiently use the available locations for on-street parking, causing an effective increase in the amount of on-street parking in Cloverdale.

7. Define TCCA Feed Store Parking/Loading Area

The TCCA Feed Store parking/loading area immediately north of Clover Street is a large, paved open area that appears to drivers to be

part of US 101. Defining this area is recommended to differentiate between the parking/loading area and the highway. Because trucks use this area to access the loading bays on the front of the feed store, a mountable curb is recommended. A mountable curb would continue to allow trucks to pull in and back out along the entire parking/loading area. Striping of the mountable curb is also recommended to define the preferred in/out access points. Striping and signage for no parking along US 101 in front of the feed store would be needed to keep the curb area clear.

8. General Access Management Recommendations

Several driveways along US 101 in Cloverdale are wide and undefined, in some cases spanning the entire frontage of the parcel. These conditions can cause conflicting movements from US 101 and decrease safety as a result of limited visibility and overlapping movements. Open pavement areas also do not provide a safe refuge for pedestrians to maneuver along US 101. They create a potential conflict with vehicles and may interfere with safe and efficient traffic operations on US 101.

Access management would enhance the safety of the highway by minimizing the number of potential conflict points where traffic flow may be disrupted by entering and exiting traffic at driveways and local streets. In conjunction with the implementation of the recommended US 101 cross-section (Figure 3), general access management points to be employed include the following:

- Maintain access to all properties
- Define driveways when constructing sidewalks
- Enclose off-street parking areas
- Look for opportunities to provide access via the local street
- Look for opportunities to consolidate access to one driveway per use, or for shared access points

SAFETY AND SPEED RECOMMENDATIONS

9. Provide Visual Indicators

"Welcome to Cloverdale" signs are recommended on US 101 at the north (north of Clover Street) and south (immediately south of Mill Street) entrances of Cloverdale. These signs would provide an important "gateway" feature to Cloverdale and alert motorists that they are entering a community.

A high-contrast paved shoulder at the north and south entrances of Cloverdale also is recommended to slow motorists and provide a visual indicator for motorists that they are entering a community. Figure 9 illustrates what a colored shoulder could look like at the north entrance to Cloverdale. The high-contrast shoulder also would serve to better mark the pedestrian/bicycle space as separate from the roadway. The colored shoulder would be separated from the roadway by a white painted stripe and could be marked with symbols indicating it is not a driving or parking lane.

FIGURE 9
Illustration of a High-Contrast Colored Shoulder

10. Implement Streetscape Improvements

Visual amenities such as pedestrian-scale lighting, banners, hanging flower baskets, benches, and street trees are recommended to slow motorists and create a "downtown" feel. These improvements encourage visitors to stop and could support the local economy.

As proposed in the Cloverdale ODDA plan, pedestrian-scale lighting is recommended. These 8- to 10-foot light posts would provide lighting for sidewalk areas, creating a safe environment, while increasing the attractiveness of Cloverdale during both day and night.

To increase the attractiveness of Cloverdale, trees and landscaping should be added to the streetscape where possible. In addition to their aesthetic value, trees also function as a physical buffer between automobile traffic and pedestrians, increasing the comfort of people walking on US 101 in Cloverdale. Trees along roadways also tend to have a slowing effect on vehicle speeds. Trees that have deep roots should be selected so they do not affect the sidewalk or paved areas. Also, trees should be limbed and pruned so they allow for a vertical clear zone of at least 8 feet and their branches do not impede sight distance for motorists or pedestrians, or interfere with visibility of signage for businesses. The trees and vegetation will require regular watering for the first 2 years. Volunteers may handle the watering duties, or an irrigation system could be installed.

11. Define Clover Street Curb

The existing stop sign at the US 101/Clover Street intersection is set back from US 101 and is mounted from the roof of the TCAA Feed Store. Vehicles at the stop sign cannot see oncoming traffic along US 101. Vehicles move beyond the stop sign into the intersection to improve the view (sight distance) of US 101 traffic. The curb along the north side of Clover Street should be extended to better define the US 101/Clover Street intersection, and to improve the sight distance of US 101 from vehicles on Clover Street. A curb along the north side of Clover Street would define the intersection, and encourage vehicles to stop at this location. A new curb would also establish a proper location for the stop sign at this intersection.

12. Do Not Change Curve in Highway near Post Office

Flattening the existing curve (reducing the degree of curvature) on US 101 at the Post Office is not recommended because the curve as it is helps keep speeds lower through Cloverdale (Figure 10). Flattening the curve would increase travel speeds, and would decrease sight distance for US 101 northbound and southbound vehicles, because of the location of the North Coast Coffee building. Sight distance of US 101 northbound traffic would also be reduced for vehicles making a left turn from Bridge Street to US 101 southbound if the curve were flattened.

FIGURE 10
Curve on US 101 near Post Office

TRANSIT RECOMMENDATIONS

13. Install Transit Shelters and Signage

Transit shelters are recommended at the two Tillamook County Transportation District (TCTD) bus stops near the Post Office. The

shelters would be installed by TCTD. These shelters would provide protection from the weather; a safety buffer from US 101 traffic; and a visual indicator for motorists passing the bus stop, which could potentially slow vehicle travel speeds. ODOT should also consider allowing TCTD to install new signage at its stops in Cloverdale, consistent with TCTD bus stop signage throughout the rest of Tillamook County. While the bus stops and shelters are primarily for public transit use, they also could be used for school buses if desired.

Long-Term Improvement Concepts

The long-term improvements concepts are elements for implementation in the next 10 to 20 years, and are organized into three categories: (1) Bicycle/Pedestrian Recommendations; (2) Parking and Access Recommendations; and (3) Transit Recommendations. The numbers before each improvement concept correspond to the numbers illustrated in Figure 12.

BICYCLE/PEDESTRIAN RECOMMENDATIONS

1. Extend Sidewalk between Veterinary Clinic and Mill Road (West of US 101)

Short-term improvements would implement sidewalks on the west side of US 101 to the southern edge of the veterinary clinic parcel. The project team recommends a long-term improvement concept that would construct a sidewalk from the southern edge of the veterinary clinic to Mill Road as a boardwalk over the detention pond. This improvement was identified as a long-term improvement because of the high cost of constructing a sidewalk/boardwalk over a detention pond.

2. Define Local Road Shoulder Area and Improve Path

Defining the shoulder area on one or both sides of Parkway Drive and Bridge Street leading to Nestucca High School is recommended. A paved or gravel shoulder area would define a marked area for pedestrians and bicyclists, and improve safety for students traveling to and from Nestucca High School. This could also encourage greater levels of pedestrian and bicyclist activity. Improvements to an informal path that allow pedestrians to avoid a curve in the roadway directly below the high school are recommended.

3. Construct Bicycle/Pedestrian Bridges

Two bicycle/pedestrian bridges at the north and south ends of Cloverdale across the Nestucca River are recommended in the long-term. The paths originally were recommended in the ODDA plan. One bridge would be located near the existing boat launch on the south end of Cloverdale, and the other would be located at the potential county park location on the north end of Cloverdale (see long-term improvement concept 7). These bridges would provide greater pedestrian safety and comfort for those wishing to cross the river; encourage pedestrian and bicyclist activity; and serve as an important connection to the proposed multiuse path west of the Nestucca River (see long-term improvement concept 4). Figure 11 illustrates an example of a bicycle/pedestrian bridge.

FIGURE 11
Example of a Bicycle/Pedestrian Bridge (Eugene, OR)

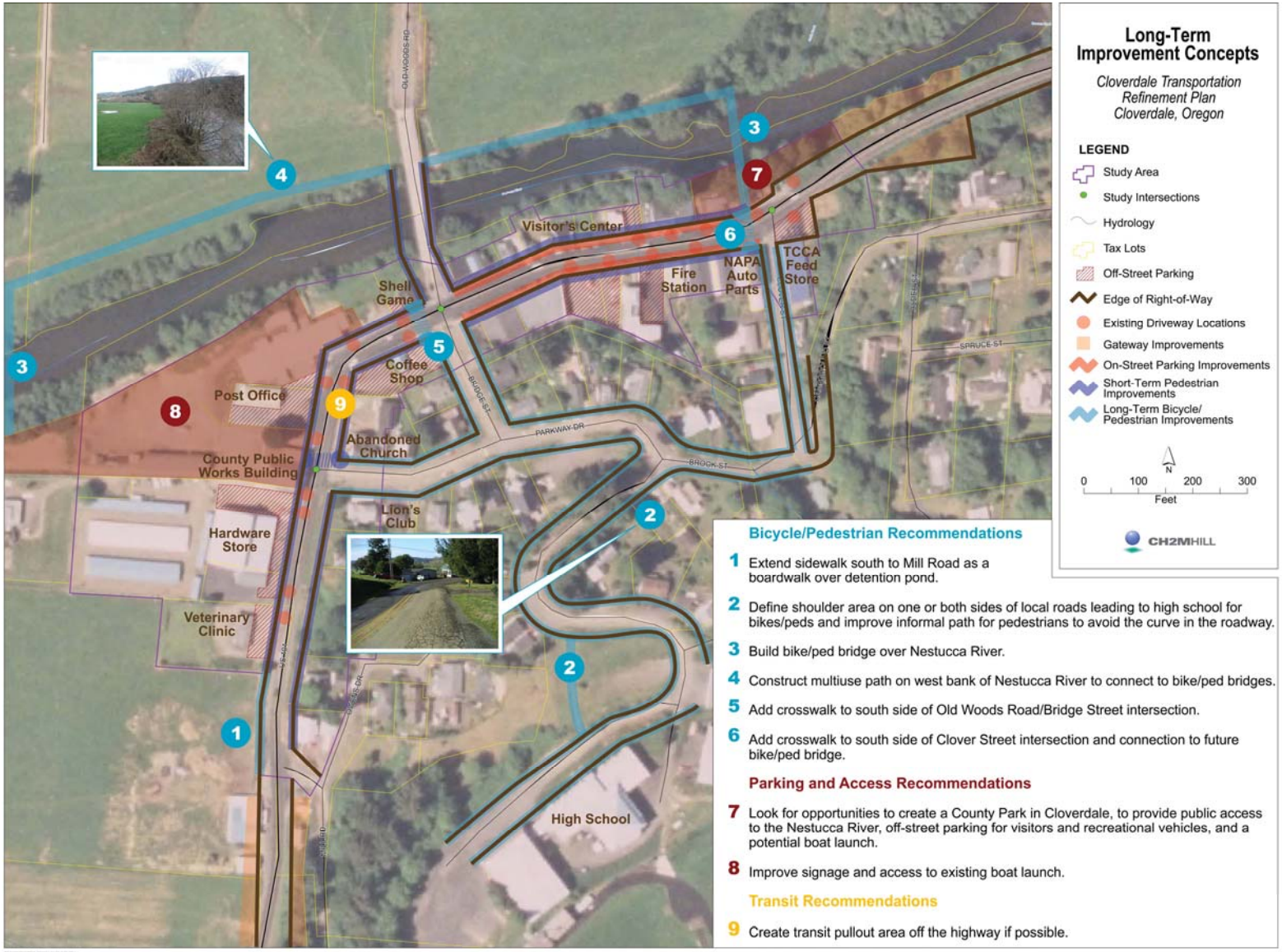

FIGURE 12
Long-Term Improvement Concepts

4. Construct a Multiuse Path

A multiuse path on the west bank of the Nestucca River is recommended to connect to the bicycle/pedestrian bridges (previously described in long-term improvement concept 3). This path would parallel the Nestucca River between the two bicycle/pedestrian bridges. Because this area is private property, implementation of the path would require the support of the property owners that own land in the area, in the form of an easement or other agreement. The path would provide an additional off-highway pedestrian and bicycle connection in Cloverdale. The path should be constructed to meet American with Disabilities Act (ADA) requirements to be accessible to all users, and the surface should be firm and stable. Figure 13 illustrates an example of a multiuse path.

FIGURE 13
Example of a Multiuse Path

5. Construct Crosswalk at Old Woods Road/Bridge Street

A crosswalk and curb extensions on the south side of the US 101 at Old Woods Road/Bridge Street intersection is recommended, subject to ODOT approval, to improve pedestrian safety between the east and west sides of US 101 and to/from the Old Woods Road Bridge. This crosswalk would also delineate the appropriate location for pedestrians to cross US 101 at this intersection, and provide a safe crossing of US 101 for visitors parking in the overflow parking lot (described in long-term improvement concept 8).

Approval by the State Traffic Engineer is required before establishing marked crosswalks on a state highway at locations other than at intersections with a signal or stop sign. Crosswalks outside of controlled intersections may be installed by ODOT or a local jurisdiction, but maintenance of these crosswalks is primarily the responsibility of the local jurisdiction.

6. Construct Crosswalk at Clover Street

A crosswalk and curb extensions on the south side of the US 101/Clover Street intersection is recommended, subject to ODOT approval, to improve pedestrian safety between the east and west sides of US 101 on the north end of Cloverdale. This crosswalk would also provide access to and from the potential county park (described in long-term improvement concept 7) and the bicycle/pedestrian bridge over the Nestucca River (previously described in long-term improvement concept 3).

PARKING AND ACCESS RECOMMENDATIONS

7. Explore Opportunities to Create a County Park

Exploring opportunities to create a park at the north end of Cloverdale along the Nestucca River are recommended. A potential park site is on the north end of Cloverdale along the Nestucca River at the entrance to Cloverdale. A new park at this location would provide public access to the Nestucca River, off-street parking for

visitors and recreational vehicles, a public rest area, and a potential boat launch.

8. Improve Boat Launch Parking Lot and Signage

There are currently two access points to the existing boat launch north of the public works maintenance facility (official access) and north of the hardware store (most commonly used). Current navigation between the highway and the boat launch area is considered confusing. Signage should be installed on US 101 and the Post Office parking lot to clearly navigate vehicles to the boat launch. In addition, improving the area near the boat launch to better accommodate parking is recommended.

TRANSIT RECOMMENDATIONS

9. Create Pullout Area

A transit pullout area for TCTD buses adjacent to US 101 is recommended for buses to safely pull off the highway. The new pullout would be located at or near the existing bus stop where buses could pull off the highway to load and unload passengers. The pullout area also could be used for school buses if desired.

4 IMPLEMENTATION

Construction Cost Estimates

Costs to design and construct the various improvement concepts were estimated at a planning level (Table 2). Based on the conceptual design of each concept, a 40 percent contingency has been included in the construction cost estimate to account for potential unknowns typically identified during preliminary and final design. The estimates are in 2007 dollars, and include engineering design fees and right-of-way costs. The estimates do not include potential environmental permitting or utility relocation costs.

TABLE 2
Construction Cost Estimates

Project/Improvement Concepts	Estimated Cost (2007 dollars)
US 101 Cross-Section	
Construct Preferred 60-Foot Cross-Section	$348,500
Short-Term Improvement Concepts	
1. Construct Sidewalks between Clover Street and Parkway Drive (Both Sides of US 101)	Included in Cross-Section Improvements
2. Extend Sidewalk between Parkway Drive and Veterinary Clinic (West of US 101)	$123,120
3. Improve Sidewalk between Parkway Drive and Mill Road (East of US 101)	$62,100
4. Enhance Crosswalk at Parkway Drive	$15,000
5. Stripe Old Woods Road Bridge and Add Information Kiosk	$12,900
6. Define On-Street Parking	$10,500
7. Define TCCA Feed Store Parking/Loading Area	$19,000
8. General Access Management Recommendations	Included in Cross-Section Improvements
9. Provide Visual Indicators	$84,000
10. Implement Streetscape Improvements	$207,000
11. Define Clover Street Curb	$20,000
12. Do Not Change Curve in Highway near Post Office	Included in Cross-Section Improvements
13. Install Transit Shelters and Signage	$92,000
Short-Term Improvements Total Cost (including Cross-Section Improvements)	**$994,120**
Long-Term Improvement Concepts	
1. Extend Sidewalk between Veterinary Clinic and Mill Road (West of US 101)	$470,870
2. Define Local Road Shoulder Area and Improve Path (gravel)	$40,000
3. Construct Bicycle/Pedestrian Bridges	$1,848,000
4. Construct a Multiuse Path	$54,720
5. Construct Crosswalk at Old Woods Road/Bridge Street	$23,000
6. Construct Crosswalk at Clover Street	$23,000

TABLE 2
Construction Cost Estimates

Project/Improvement Concepts	Estimated Cost (2007 dollars)
7. Explore Opportunities to Create a County Park	Not Estimated
8. Improve Boat Launch Parking Lot and Signage	$26,300
9. Create Pullout Area	$31,200
Long-Term Improvements Total Cost	**$2,517,090**
TOTAL SUM OF SHORT-TERM AND LONG-TERM IMPROVEMENTS	**$3,511,210**

The total sum of short-term improvements is approximately $1 million. The total sum for long-term improvements is approximately $2.5 million. Cross-section improvements represent approximately 35 percent of the total short-term improvement cost. The two bicycle/pedestrian bridges over the Nestucca River represent more than 70 percent of the total long-term improvement cost.

Funding

A variety of local, state, and federal funding sources could be explored to improve the transportation system. Most of the federal and state programs are competitive, and involve clear documentation of the project need, costs, and benefits. Local funding for the projects in this plan would typically come from Tillamook County, potential future bonds, or other local revenues such as grants and private funds.

Table 3 summarizes potential public funding sources for the Cloverdale short-term and long-term improvement concepts. Some of these funds are restricted to the types of improvements that qualify for assistance. Typically, state and federal funds require projects to comply with current ADA guidelines for accessibility.

Phasing

It is not expected that the funds to construct all the proposed project components would be available at the same time or necessarily over the short-term. To address this issue, the project recommendations would be implemented in phases, beginning with any components that are stand-alone and that have an identified funding source.

Some components of the project may be funded by or in association with development or redevelopment of private properties. Sidewalks and related features, for example, often are required to be constructed and paid for by a property owner at the time of property redevelopment. Such funding mechanisms could be instituted in Cloverdale through changes to the County development code.

Construction Engineering

Additional design and engineering will be needed to construct any improvement concept identified in this plan. Design and engineering would occur when improvement concepts are selected for implementation through the State and County capital funding process. There will be opportunities for additional public input on the design of the improvement concepts.

Projects affecting Highway 101 must conform to ODOT's standards and guidelines for state highways. In addition, some improvements may require ongoing costs for operation or maintenance. A formal agreement between the County and ODOT may be required for such elements. Tillamook County should coordinate with ODOT to ensure that the improvement concepts meet state highway standards and that maintenance agreements are established.

TABLE 3
Potential Funding Sources

Source	Description	Type(s) of Eligible Project	Funding Cycle
Oregon State Transportation Improvement Program (STIP)	Administered by ODOT. The STIP provides funding for capital improvements on federal, state, county, and city transportation systems. Projects must be regionally significant.	Roadway, public transportation, bicycle, pedestrian, air, freight, bridge	4 years
Transportation Enhancements	Must serve transportation need.	Bike and pedestrian	2 years
Oregon Bike/Pedestrian Grants	Administered by ODOT's Pedestrian and Bicycle Program. Must be in public right-of-way.	Bike and pedestrian	2 years
System Development Charges (SDCs)	Fees on new construction allocated for parks, streets, and public improvements. Where available, funds can be used for right-of-way acquisition and trail construction.	Roadway, bike, pedestrian	Varies
Local/County Bond Measures Approved by Voters	Funds can be used for right-of-way acquisition, engineering, design, and construction.	Roadway, bike, pedestrian	Varies
Local Improvement Districts (LIDs)	Districts typically are created by local property owners, imposing a "new tax" to fund improvements. Funds can be used for right-of-way acquisition and construction.	Roadway, bike, pedestrian	Varies
State Parks Recreational Trails Fund	Construction funds for trail projects.	Off-roadway bike and pedestrian	Annual
Parking Fees	Paid parking or parking fines for illegal parking.	Varies	Varies