DRAFT for REVIEW

City of Tillamook

Transportation System Plan

Prepared For:

City of Tillamook

and

Oregon Department of Transportation

Oregon State Highway Division

ANGELO EATON & Associates

Draft

City of Tillamook Transportation System Plan

Prepared for

Oregon Department of Transportation

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Preface

The Tillamook Transportation System Plan (TSP) is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by federal Transportation Equity Act for the 21st Century (TEA-21), local government, and the State of Oregon funds. The contents of this document do not necessarily reflect views or policies of the State of Oregon.

The progress of the TSP was guided by the Project Advisory Committee and the other staff listed in the Acknowledgments.

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Tillamook TSP Project Advisory Committee

The City of Tillamook and the Oregon Department of Transportation express their sincere appreciation to the following members of the Tillamook TSP Project Advisory Committee (PAC) for their participation in this project:

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Acronyms and Abbreviations

AAGR	average annual growth rate
ADA	Americans with Disabilities Act
ADT	average daily traffic
ATR	automated traffic recorder
DAR	dial-a-ride
DLCD	Department of Land Conservation and Development
DMV	Oregon Department of Motor Vehicles
HCM	Highway Capacity Manual
HOV	high-occupancy vehicle
IM	interstate maintenance
IOF	Immediate Opportunity Fund
ITS	Intelligent Transportation System
LCDC	Land Conservation and Development Commission
LOS	level of service
MEV	million entering vehicles
MP	milepost
MPO	metropolitan planning organization
mph	miles per hour
MUTCD	Manual on Uniform Traffic Control Devices
NHS	National Highway System
NWRC	Northwest Ride Center
OAR	Oregon Administrative Rule
OBPP	Oregon Bicycle and Pedestrian Plan
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
ORS	Oregon Revised Statute
OTIA	Oregon Transportation Investment Act

OTC	Oregon Transportation Commission
OTP	Oregon Transportation Plan
PAC	Project Advisory Committee
PMT	Project Management Team
RV	recreational vehicle
SETD	Sunset Empire Transportation District
SPIS	Safety Prioritization Index System
STA	Special Transportation Area
STIP	Statewide Transportation Improvement Program
TCTD	Tillamook County Transportation District
TDM	Transportation Demand Management
TPAU	Transportation Planning and Analysis Unit
TPR	Transportation Planning Rule
TSM	Transportation System Management
TSP	Transportation System Plan
UBA	urban business area
USB	urban growth boundary
v/c	volume-to-capacity

Executive Summary

The City of Tillamook Transportation System Plan (TSP) is a guide for the city to develop appropriate transportation facilities in the city. The TSP incorporates the community's vision while remaining consistent with state, regional and local plans and standards.

The City of Tillamook TSP was developed through a process that first identified the transportation needs, then developed and analyzed potential projects that address those needs. Lastly, the TSP developed a financing plan for the projects that best address Tillamook's needs for the next 20 years. The following steps were involved in this process:

- Review state, regional and local transportation plans and policies
- Establish a project advisory committee and provide public open houses to disseminate and gather information from the community at key project milestones.
- Gather existing transportation information and evaluate the current transportation system.
- Evaluate and document the needs of the transportation system as a 20-year horizon. Include only the projected growth for the city without any roadway improvements.
- Develop and evaluate various projects that address the 20-year needs, described above.
- Develop a prioritized, consultant-recommended project list that meets the city's needs and objectives and that is most feasible considering the current city funding.
- Estimate the revenue available for transportation projects based on the city's current funding level and provide additional potential revenue sources for the city.
- Compile the results of this work into the TSP document for review and adoption by the Tillamook City Council.

The TSP is divided into seven sections. Section 1 is the introduction, Section 2 describes the existing conditions, Section 3 documents Tillamook's transportation system needs, and Section 4 evaluates the projects that address the identified needs. Section 5 is the actual transportation plan and is considered a stand-alone document that contains the goals and objectives and projects included in the city's TSP. Section 6 provides information regarding the city's funding and other potential revenue streams. Section 7 recommends ordinance changes to implement the TSP and documents its consistency with the state Transportation Planning Rule. There are also several appendixes referenced in the document.

Additional technical detail prepared as part of the TSP is included in a Background Document published separately. The document, which includes further detail on methods and other technical information, includes the following technical memorandums:

- Plan and Policy Review
- Transportation System Inventory Memorandum
- Existing Operational Analysis and Deficiencies Memorandum

- Forecasting Methodology and No-Build Alternative Deficiencies Analysis Memorandum
- System Needs and Potential Projects Memorandum

A copy of the Background Document can be found at city or Oregon Department of Transportation offices.

SECTION 1

Introduction

The City of Tillamook, in conjunction with the Oregon Department of Transportation (ODOT), initiated a study of the city's transportation system in 2002. The 2003 Tillamook Transportation System Plan (TSP) addresses ways to improve the transportation system to support anticipated growth in the city and associated traffic volumes in a way that will emphasize the local street network and protect the function of U.S. 101, Oregon 6 and Netarts Highway (131) as state highways. The TSP establishes a system of transportation facilities and services adequate to meet the city's transportation needs to the planning horizon year of 2022. The TSP plans for a transportation system that includes all modes of travel, serves the entire urban growth boundary (UGB), and is well coordinated with the state, regional and county transportation network.

The Tillamook TSP identifies planned transportation facilities and services needed to support planned land uses as identified in the Tillamook County Comprehensive Plan in a manner consistent with the state Transportation Planning Rule (TPR) (Oregon Administrative Rule [OAR] 660-012) and the Oregon Transportation Plan (OTP). Preparation and adoption of a TSP for the county provides the following benefits:

- Ensures adequate planned transportation facilities to support planned land uses during the next 20 years
- Provides certainty and predictability for the siting of new streets, roads, highway improvements and other planned transportation improvements
- Provides predictability for land development
- Helps reduce the cost and maximize the efficiency of public spending on transportation facilities and services by coordinating land use and transportation decisions

This TSP will guide the management and development of appropriate transportation facilities in Tillamook, incorporating the community's vision, while remaining consistent with state, regional and other local plans. This TSP document provides the necessary elements for the TSP to be adopted as the transportation element of the city's comprehensive plan.

The Tillamook TSP addresses ways to improve the transportation system to support anticipated growth throughout the city. The TSP considered future traffic volumes and circulation patterns in a way that emphasizes the city and county street network and protects the function of state highways serving Tillamook: U.S. 101, Oregon 6 and Netarts Highway (131). This TSP pays particular attention to the tourist and recreational aspects of the area and the transportation conditions created by the unique traffic characteristics. The TSP establishes a system of transportation facilities and services adequate to meet Tillamook's transportation needs to the planning horizon year of 2022. The TSP includes plans for a transportation system that incorporates all modes of travel (that is, rail, pedestrian, bicycle, auto, marine and public transportation), serves the urban area, and is coordinated with the state, regional and county transportation network.

Specific elements of the Tillamook TSP include:

- A street network with connections and extensions to provide for local circulation and access along state highways and county facilities
- Street standards that comply with the TPR
- Appropriate improvements along the primary city, county and state highway corridors that serve Tillamook to support planned land uses and measures to protect the long-term functionality of U.S. 101, Oregon 6 and Netarts Highway (131)
- Pedestrian and vehicle circulation improvements to reduce the need for short car trips on state highways and improve pedestrian safety throughout the planning area
- Amendments to the city's zoning, subdivision and other land use-related ordinances; the comprehensive plan; and any relevant financing plans, such as a capital improvement plan or other similar documents

The contents of the Tillamook TSP are guided by Oregon Revised Statute (ORS) 197.712 and the Department of Land Conservation and Development (DLCD) administrative rule known as the TPR. These laws and rules require that jurisdictions preparing a TSP develop the following:

- A road plan for a network of arterial and collector streets
- A public transit plan
- A bicycle and pedestrian plan
- An air, rail, water and pipeline plan
- A transportation financing plan
- Policies and ordinances for implementing the transportation system plan

The TPR requires that alternative travel modes be given equal consideration with the automobile, and that reasonable effort be applied to the development and enhancement of non-auto modes in providing the future transportation system. In addition, the TPR requires that local jurisdictions adopt land use and subdivision ordinance amendments to implement the provisions of the TSP. Finally, local communities must coordinate their respective plans with the applicable county, regional and state transportation plans. This coordination occurred throughout the preparation of the Tillamook TSP.

Plans and Policies

ODOT, Tillamook County and the City of Tillamook each have jurisdiction over roadways within the city limits. These jurisdictions have plans and policies that directly affect transportation planning and decisionmaking in the city. One of the first steps in the TSP process was to review the following documents to serve as the basis for updating policies to reflect current conditions and to achieve consistency with other local, regional and state plans. The plan and policy review is provided in the Background Document. The following plans and policies were reviewed:

- City of Tillamook
  - City of Tillamook Comprehensive Plan (1981, amended 1982)
  - City of Tillamook Zoning Code
  - Oregon Downtown Development Association (2002)
- Tillamook County
  - Tillamook County Comprehensive Plan (*Draft*)
- State/ODOT
  - Transportation Planning Rule (OAR 660-12)
  - Oregon Transportation Plan (1992)
  - Oregon Bicycle and Pedestrian Plan (1995)
  - Draft 2001 Oregon Rail Plan
  - Oregon Transportation Safety Action Plan (1995)
  - Oregon Public Transportation Plan (1997)
  - Oregon Highway Plan (1999)
  - 2002-2005 Statewide Transportation Improvement Program
  - Executive Order No. EO-00-07, Development of a State Strategy Promoting Sustainability in Internal State Government Operations (2000)
  - Executive Order No. EO-00-23, Use of State Resources to Encourage the Development of Quality Communities (2000)
  - Access Management Rules (OAR 734-051)
  - Freight Moves the Oregon Economy (1999)
  - Proposed Oregon Coast Highway Corridor Master Plan (1995)
  - Pacific Coast Scenic Byway Corridor Management Plan for U.S. 101 in Oregon (1997)
- Federal
  - Transportation Equity Act for the 21st Century (TEA-21) and implementing regulations (23 CFR 450 and 49 CFR 613)

Public Involvement

The TSP planning process provided the citizens of Tillamook with the opportunity to identify priorities and provide input on future transportation projects in the city. The public involvement component of the Tillamook TSP consisted of three Project Advisory Committee (PAC) meetings and two public open house meetings.

The PAC included planners and representatives of Tillamook County, City of Tillamook, ODOT and DLCD, as well as community residents. The PAC was responsible for reviewing technical aspects of the TSP, evaluating the TSP from a policy perspective, and providing general input on transportation problems and solutions. This included reviewing the TSP goals and objectives, as well as the transportation evaluation criteria.

The PAC convened three times during the process of developing the draft TSP, including: project kickoff and review of the existing conditions analysis, presentation of the future conditions and potential projects, and presentation of the draft TSP.

Two community open houses were held to encourage broader public review and comment on the TSP, beyond those members of the public on the PAC. The purpose of the first open house, held in April 2003, was to gather community input for the development and evaluation of the proposed alternatives and the proposed projects. The purpose of the second open house, held in June 2003, was to gather public input on the draft TSP document.

Goals and Objectives

The formulation of goals and objectives represents an important component of the transportation system planning process. The TSP goals and objectives are intended to reflect the vision and character of the City of Tillamook as the community develops its transportation system.

The Tillamook TSP goals and objectives serve two main purposes: (1) to guide the development of the Tillamook transportation system during the next 20 years, and (2) to demonstrate how the TSP relates to other county, regional, and state plans and policies. The goal statements are general statements of purpose to describe how the county and the TSP intend to address the broad elements of the transportation system. The objectives are specific steps that illustrate how the goal is to be carried out.

The goals and objectives were formed as part of the Tillamook TSP planning process. They reflect the input of residents, businesses and agencies on the PAC that was obtained during the course of preparing the TSP. They also reflect current local, regional and state goals and policies, and are intended to support these policies.

The TSP goals and objectives, along with a summary of how they are implemented by the TSP, are included in Section 5 of this document.

SECTION 2

Existing Transportation Conditions

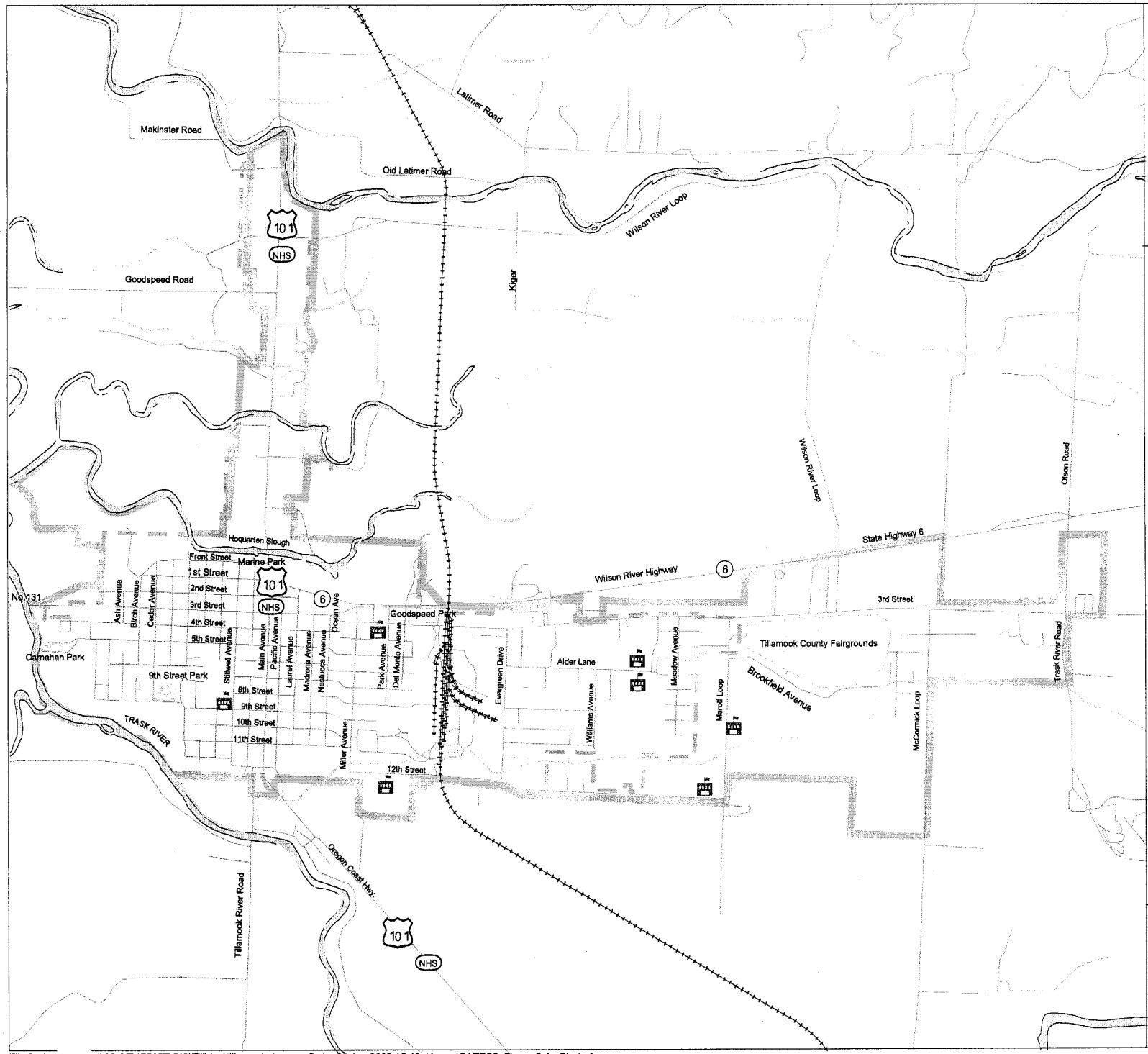
This section summarizes the state of existing transportation conditions in Tillamook, Oregon. For more detailed information, see the Background Document. The inventory of existing transportation conditions in Tillamook will serve as a baseline for the 20-year planning horizon. The following elements of the existing transportation system are discussed in this section:

- Population and Land Use
- Roadway Inventory
- Traffic Operations Analysis
- Safety Analysis
- Public Transportation Inventory
- Pedestrian and System Inventory
- Bicycle System Inventory
- Air System Inventory
- Freight System Inventory
- Rail System Inventory
- Water System Inventory
- Other Systems

Population and Land Use

Tillamook is located west of the Portland metropolitan area along the Pacific Coast. The city's 2001 population was 4,340, as reported by the Portland State University Population Research Center. The major industries in Tillamook are dairy farming, timber, tourism and fishing. Because Tillamook is heavily influenced by industrial products (such as dairy and timber), the city is recognized as a trucking community. U.S. 101 connects Tillamook with the nearby communities of Garibaldi and Bay City to the north and Lincoln City to the south; Oregon 6 connects Tillamook to U.S. 26 and Portland to the east. Tillamook serves a variety of transportation needs through a system that includes roads, public transportation, rail, air, water, and pedestrian and bicycle facilities, and pipelines. The study area for this project includes all areas within the city limits, including the city's UGB. Figure 2-1 illustrates the study area.

Commercial development in Tillamook is concentrated in the downtown core along Main and Pacific Avenues (the U.S. 101 couplet), where numerous retail shops are located. North of downtown, several national chains, such as Fred Meyer, Safeway and hotels, are located along U.S. 101. Industrial development is primarily located north of town (Tillamook Cheese Factory), east of U.S. 101 (Tillamook Lumber Company) and south of town (Port of Tillamook Bay). Residential development is concentrated to the west and east of the downtown area, south of 3rd Street. Several newer housing developments are located toward the western and eastern end of the city within the UGB. This includes single family



Study Area

City of
TILLAMOOK

CH2MHILL
ANGELO EATON

- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

Figure 2-1
Transportation System Plan
Tillamook, OR

File Path: \\...proj\ODOT\175257\GIS\Till\Aprtillamook_tsp.apr, Date: 26 Jun 2003 15:48, User: JGATES2, Figure 2-1 - Study Area

developments located along Brookfield Avenue, Colonial Way, Colonial Court, Circle Drive, Beachwood Avenue and multi-family developments located on 12th Street and Evergreen Drive and Brookfield Avenue.

Tillamook has four public schools currently operating: Tillamook High School located along 12th Street, east of downtown; Liberty Elementary School located on 9th Street, east of Stillwell Avenue; and Tillamook Junior High and East Elementary School, located on Alder Lane. Tillamook Christian School and the Tillamook Adventist School, two private schools, are just outside Tillamook on Marolf Loop and 12th Street. Wilson Elementary School was closed recently because of funding constraints, but is currently being used by the Tillamook Bay Community College and alternative education. The community college, located on 1st Street, provides higher education to approximately 3,500 individuals.

Tillamook has a number of open spaces. Carnahan Park is located in the western portion of Tillamook on the Trask River. This park includes a boat launch, picnic area and playground. Marine Park, located along Front Street on the Hoquarten Slough, also provides a boat launch. 9th Street Park is located west of U.S. 101 between 8th and 9th Streets and between Cedar Avenue and Manor Place. This park contains a basketball court and a general field area. Goodspeed Park, a small park located on the corner of 3rd Street and Del Monte Avenue, provides a tennis court, picnic area and skate park. Tillamook County Fairgrounds is located outside the city, but within the UGB. The fairgrounds entrances are on 3rd Street, Marolf Loop and Brookfield Avenue. The fairgrounds includes a wide open space for outdoor fair activities and parking, and numerous buildings. North of downtown, there is open space between the various sloughs. See Figure 2-1 for a graphic of the various parks in the city. Tillamook also contains many water features, including the Trask and Wilson Rivers, and Hoquarten, Stillwell, Dougherty and Hall Sloughs.

Currently there are two planned open spaces in Tillamook. They are at the Tillamook Inn site, which is located just north of the Farmer's Co-op on U.S. 101, and the property that previously was used by Coast Tire, south of Safeway along U.S. 101. The Inn site was purchased by FEMA and turned over to the city, while the Coast Tire building is planned for purchase.

Planned Land Use and Zoning

Land in Tillamook is divided into a relatively small number of use planning and use zones, as shown in the comprehensive plan and zoning map in Appendix A. Tillamook's zoning categories and locations are as follows:

- Commercial: Tillamook's commercial use zones include neighborhood commercial, central commercial, town center, and highway commercial. Central commercial applies to U.S. 101 and the cross streets between Hoquarten Slough and 12th Street. Within the central commercial area is the town center designation that contains the area bound by 5th Street north along Pacific Avenue to 3rd Street, along Laurel Avenue, Oregon 6, Front Street, then south along Ivy Street and connects back to 5th Street via Stillwell Avenue. Highway commercial applies to the areas adjacent to U.S. 101 north of Hoquarten Slough and also at the south end of the city. Neighborhood commercial, a mix of low density commercial and residential, is applied elsewhere.

- Residential: There are three residential zones: single family, single family and duplex, and multi-use (which also allows for small-scale commercial). These are located throughout the main east-west part of the city.
- Industrial: Tillamook has light industrial and general industrial areas. The lumber mill is the primary general industrial site. Light industrial sites are scattered elsewhere, including along 3rd Street east of U.S. 101, Marolf Loop and along Front Street west of U.S. 101.
- Public and Semi-Public: Tillamook's largest public use site is the Tillamook County Fairgrounds, located at the eastern edge of the city. This site is also designated as a future park. Other facilities that are within this category include the County Courthouse, City Hall, Museum and Tillamook County Transportation District. The many schools in the city also carry the public/semi-public designation.
- Open Space: Areas along Hoquarten Slough, Trask River and other waterways are designated as open space.

Roadway Inventory

In Tillamook, the following roadway characteristics were inventoried:

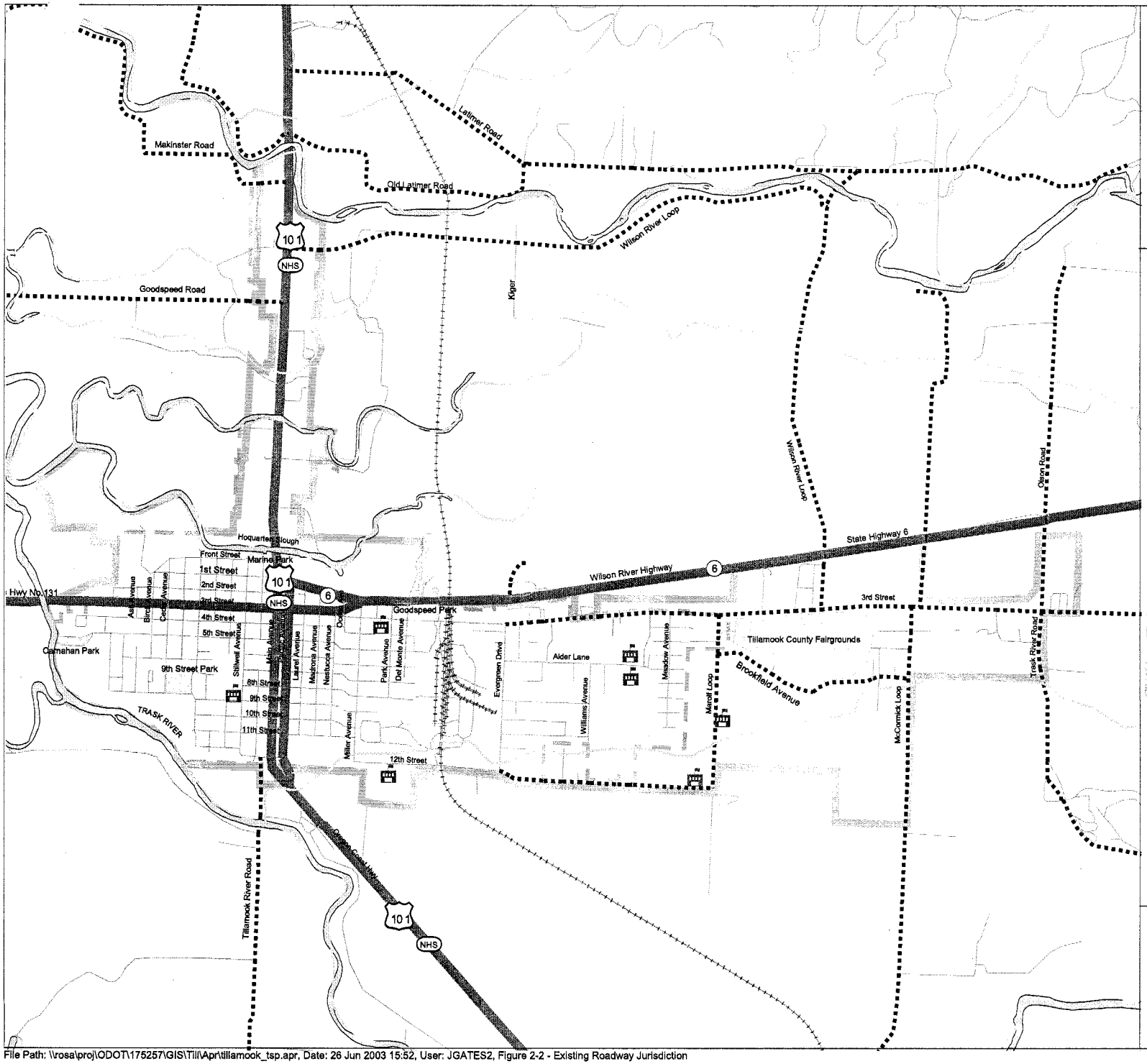
- Maintenance and jurisdiction
- Functional classification
- Pavement type (asphalt, concrete, gravel)
- Pavement condition (good, fair, poor)
- Number of travel lanes
- Roadway widths
- Speed limits
- Intersection control
- Access management
- Bridges
- Parking
- Lifeline routes
- Beach access points

Maintenance and Jurisdiction

In and near the Tillamook city limits, roads are owned and maintained by three jurisdictions: ODOT, Tillamook County, and the City of Tillamook (see Figure 2-2).

ODOT maintains and has jurisdiction over the following roads:

- U.S. 101
- Oregon 6
- Netarts Highway (131)



Existing Roadway Jurisdiction

City of
TILLAMOOK

CH2MHILL
ANGELO EATON

- State Facility
- County Facility
- City/Other Facility
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

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1000 0 1000 Feet

Figure 2-2
Transportation System Plan
Tillamook, OR

File Path: \\rosa\proj\ODOT\175257\GIS\Till\Apr\tillamook_tsp.apr, Date: 26 Jun 2003 15:52, User: JGATES2, Figure 2-2 - Existing Roadway Jurisdiction

Tillamook County maintains and has jurisdiction over the following roads:

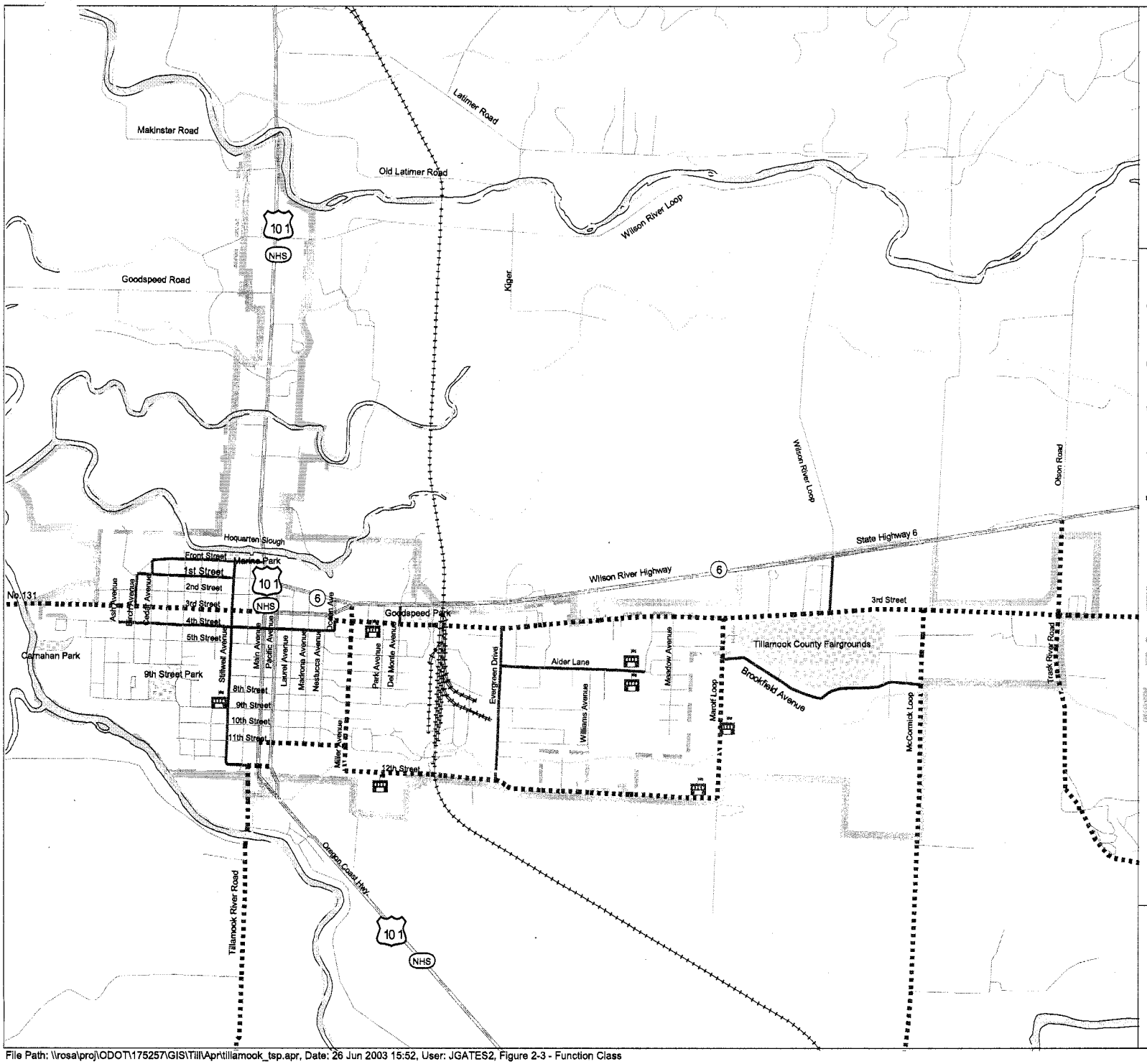
- 3rd Street, east of Evergreen Drive
- Olsen Road
- Tillamook River Road
- Wilson River Loop
- Brookfield Avenue
- Makinster Road
- Goodspeed Road
- 12th Street, Evergreen Drive to Marolf Loop
- Marolf Loop
- McCormick Loop
- Latimer Road
- Schild Road
- Trask River Road

Most other roads in the city are owned and maintained by the City of Tillamook. Brookfield Avenue recently was improved to county road standards by an access easement. There are also several smaller private road segments in the city.

Existing Functional Classification

ODOT has identified the functional classification of roadways in Tillamook. The proper classification of each roadway is important to help determine the appropriate traffic control, design standards, pedestrian and bicycle facilities, and access to adjacent properties for a roadway segment. Figure 2-3 (shows the following functional classifications for roads in Tillamook.

- **Arterial Roadways**. The primary function of an arterial roadway is to provide mobility. Therefore, arterials typically carry higher traffic volumes and allow higher travel speeds while providing limited access to adjacent properties. In Tillamook, U.S. 101 is the only designated rural principal arterial and Oregon 6 is the only designated rural minor arterial. In addition, U.S. 101 is classified by ODOT as a scenic byway in the adopted 1999 Oregon Highway Plan (OHP)
- **Collector Roadways**. The function of a collector roadway is to collect traffic from local streets and provide connections to arterial roadways. Generally, collectors operate with moderate speeds and provide more access compared with arterials. In Tillamook, 3rd Street, Miller Avenue, Marolf Loop, McCormick Loop, Tillamook River Road, 12th Street and Trask/Olsen Road are designated by ODOT as rural major collectors. Netarts Highway (131) and a small portion of 12th Street between the U.S. 101 couplet are designated as urban collectors.
- **Local Roadways**. The primary function of a local roadway is to provide access to local traffic and route users to collector roadways. Generally, local roadways operate with low speeds, provide limited mobility, and carry low traffic volumes in comparison to other roadway classifications. In Tillamook, all roadways not mentioned above are designated as local roads by ODOT.



Functional Class

City of

TILLAMOOK

CH2MHILL

ANGELO EATON

- Potential Tillamook Collector
- Collector
- Arterial
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

Figure 2-3
Transportation System Plan
Tillamook, OR

File Path: \\rosa\proj\ODOT\175257\GIS\Till\Aprt\tillamook_tsp.apr, Date: 26 Jun 2003 15:52, User: JGATES2, Figure 2-3 - Function Class

Several roadway segments classified as local roadways by ODOT were identified as potential collectors by the City of Tillamook staff. The following potential collectors also are shown in Figure 2-3:

- Front Street
- 4th Street (Ash Avenue to Miller Avenue)
- Alder Lane
- Brookfield Avenue
- Stillwell Avenue
- Del Monte Avenue (Oregon 6 to 3rd Street)
- Evergreen Drive (12th Street to 3rd Street)
- 1st Street (Main Avenue to Birch Avenue)
- Cedar Avenue (Front Street to 1st Street)
- Birch Avenue (3rd Street to 1st Street)
- 11th Street (Stillwell Avenue to Miller Avenue)
- 12th Street (Stillwell Avenue to U.S. 101)
- Ocean Place (3rd Street to 4th Street)

Pavement Type and Condition

In Tillamook, most of the roadway segments have asphalt surfacing. Evergreen Drive is an oil-base road that is considered a low-grade asphalt pavement and one section of 11th Street (between Elm Avenue and Stillwell Avenue) has concrete surfacing.

A visual inspection of pavement conditions was conducted for roads under the jurisdiction of the City of Tillamook to determine which roads were in good, fair and poor condition. Roads in good condition provided smooth driving conditions and generally were free of potholes, cracking and maintenance issues. Roads in fair condition had sections of patching and short sections that require maintenance. Roads in poor condition provided a rough driving surface, with most of their length requiring maintenance because of potholes and cracking. Generally, the pavement condition of local roads in Tillamook is fair to good with a few poor segments on a few roads. The condition of local roads near recent development that includes curbs and sidewalks is considered good.

As described in the 2001 Pavement Condition Report by ODOT and the OHP, the state has a goal of maintaining a statewide pavement condition rating at 78 percent fair or better. 2001 pavement conditions for roads under the jurisdiction of ODOT were obtained from the ODOT Web site (http://www.odot.state.or.us/otms/pavement/PavementReports.htm). The pavement condition of U.S. 101 is good within the Tillamook city limits. On Oregon 6, the pavement condition is generally fair, with a section in good condition between U.S. 101 and the grade separated railroad crossing. The pavement condition of Netarts Highway (131) from the west city limits (Trask River Bridge) to U.S. 101 is classified as poor.

As part of the Oregon Transportation Commission (OTC)-approved 2002-2005 Statewide Transportation Improvement Program (STIP), an overlay of the Netarts Highway (131) is planned from milepost (MP) 0.00 to MP 9.08 (U.S. 101). In addition, widening and shoulder paving will be conducted within the Netarts Highway (131) right-of-way. An overlay also is planned for Oregon 6 starting from the city limits, MP 0.50 (at the railroad overcrossing) to MP 18.00 (to the east).

Travel Lanes

Most roads in Tillamook allow two-way traffic with one lane in each direction. None of the roads analyzed is a one-lane road. U.S. 101 and Oregon 6 are the only roads in Tillamook that have more than two lanes.

- **U.S. 101** is two lanes from the north end of the Tillamook city limits to Makinster Road, where it becomes a three-lane section. U.S. 101 continues as three lanes to the Wilson River Loop intersection. U.S. 101 then widens to four through lanes and a two-way, left-turn lane. This lane configuration continues until just north of the Hoquarten Slough bridge, where the road narrows to three lanes. The three-lane configuration continues for only a short distance until the intersection with Oregon 6. At this point, U.S. 101 becomes a two-way couplet with two lanes in each direction (southbound is Main Avenue and northbound is Pacific Avenue). U.S. 101 merges together south of 12th Street, near the southern city limits. At this point U.S. 101 becomes a two-lane roadway.
- **Oregon 6** is a couplet with two lanes for each direction between U.S. 101 and Miller Avenue. Between Miller Avenue and where Evergreen Drive would intersect with Oregon 6, the Oregon 6 couplet joins together and becomes a four-lane cross section. At this point, Oregon 6 then becomes two lanes until the Olsen Road intersection, where it expands to four lanes for a few hundred feet on both sides of the intersection. Oregon 6 then narrows to a two-lane cross section.

Short turn pockets are provided at many intersections, which provide additional roadway width near the intersections.

Roadway Width

A visual inspection of the local roadway widths was conducted during field work. The city roadway standards call for widths between 36 feet (for residential streets) and 44 feet (for arterial streets). These widths include 8 feet for parking on each side. Travel lanes are required to be between 10 and 14 feet wide. Based on these widths, the travel lanes for all the potential local collectors in Tillamook are standard. (This width assessment does not account for shoulders and sidewalks.)

For state roadways, lane width data are available on the ODOT Web site. From the Web site, the travel lanes on all three state highways (U.S. 101, Oregon 6 and Netarts Highway [131]) are at least 10 feet wide. Lanes that are 10 feet wide include at least 8 feet of parking width. Segments that do not have parking are at least 11 feet wide.

Speed Limits

Posted speeds in Tillamook range from 20 to 45 mph. All roads in the city classified as potential local collectors are posted at 25 mph. U.S. 101, Oregon 6 and Netarts Highway (131) (3rd Street) have segments with speed limits exceeding 25 mph. The speed limit on Oregon 6 between Main Avenue and Miller Avenue is posted at 25 mph. Between Miller Avenue and the railroad crossing over Oregon 6, the speed limit increases to 35 mph. At the railroad crossing the speed limit on Oregon 6 is 45 mph for a short distance before increasing to 55 mph.

The posted speed along U.S. 101 from the northern city limits to Goodspeed Road is 45 mph. Between Goodspeed Road and the downtown area, the speed limit on U.S. 101 reduces to 35 mph. In downtown, U.S. 101 (Main and Pacific Avenues) is posted at 20 mph. Just south of the city limits, the speed limit on U.S. 101 increases to 55 mph.

Intersection Control

In Tillamook, traffic signals are located along U.S. 101 at the following locations:

- U.S. 101 and Wilson River Loop
- Main Avenue and Oregon 6 (1st Street)
- Pacific Avenue and Oregon 6 (1st Street)
- Main Avenue and 3rd Street
- Pacific Avenue and 3rd Street
- Main Avenue and 4th Street
- Pacific Avenue and 4th Street

All other intersections in Tillamook are stop-controlled. There are two four-way, stop-controlled intersections in the project limits:

- 3rd Street and Trask/Olsen Road
- Stillwell Avenue and 4th Street

There is a two-way stop at the "T" intersection of 12th Street and Evergreen Drive. All other intersections within the project limits are either two-way, stop-controlled (four approach intersections) or one-way, stop-controlled (three approach intersections).

Access Management

According to the OHP, access management means "balancing access to developed land while ensuring movement of traffic in a safe and efficient manner." The OHP states that the purposes of access management strategies include ensuring safe and efficient roadways consistent with their determined function; ensuring the statewide movement of goods and service; enhancing community livability; supporting planned development patterns; and recognizing the needs of motor vehicles, transit, pedestrians and bicyclists.

The TPR requires that local governments adopt land use or subdivision ordinance regulations to protect transportation facilities for their identified functions, such as access control (OAR Section 660-12-0045(2)). The TSP process will address the state requirement for Tillamook access control standards.

Several collectors in Tillamook have multiple vehicle access points for access to local roads or private streets or driveways. Examples of roadways with frequent vehicle access points include U.S. 101 (north of Oregon 6) and the Netarts Highway (131) (3rd Street). Multiple access points can lead to increased opportunities for vehicle-vehicle conflicts as well as conflicts with vehicles and bicyclists or pedestrians. The TSP will examine where access control issues may affect the integrity of the transportation system in Tillamook.

During the field inventory, general observations were made about access management:

- U.S. 101 has a raised median from the Wilson River Bridge to just south of the Wilson River Loop intersection that minimizes conflict points along the roadway. At specific locations in this corridor (Makinster Road intersection and the Fred Meyer and Shilo businesses) a limited number of turn movements are allowed. Recently, at the Front Street intersection with U.S. 101, a raised median was constructed to limit access with Front Street to a right-in, right-out movement. All other roads in Tillamook do not have access management treatments.
- Between the raised median portion of U.S. 101 and the Hoquarten Slough Bridge, a two-way, left-turn lane is provided for access to the numerous private business driveways along U.S. 101.
- On U.S. 101 between Hoquarten Slough and 4th Street, a limited number of access points (driveways) are provided along Main and Pacific Avenues. Access to and from U.S. 101 in this area consists mainly of cross-street intersections.
- South of 4th Street, Main Avenue has an infrequent amount of driveways, while driveways are more frequent along Pacific Avenue.
- Access points on collectors exist at intersections with local streets and private driveways. There are frequent access points in the downtown commercial area (Pacific and Main couplet) and immediately to the east and west. Near the eastern UGB, the access points become less frequent.
- Local streets provide frequent access points to private driveways.
- There are no turn restrictions or medians along U.S. 101.
- Access to businesses along U.S. 101 is limited to on-street parking or occasionally a business parking lot provided adjacent to the business.
- Local streets provide frequent access points to private driveways.

The TSP will examine where access control issues may affect the integrity of the transportation system in Tillamook.

Bridges

In Tillamook there are six bridges along the state highway system. There are no bridges on local roadways that are being assessed in the TSP.

U.S. 101

- Wilson River Slough, #01498, MP 64.23
- Hall Slough, #17370, MP 64.99
- Dougherty Slough, #17371, MP 65.12
- Hoquarten Slough, #01500, MP 65.55

Oregon 6

- Port of Tillamook Bay railroad overcrossing, #04682, MP 0.53

Netarts Highway (131)

- Trask River, #05640A, MP 8.33

Of the six bridges in Tillamook, only one is in poor condition as a result of a sufficiency rating of less than 45. The Trask River Bridge, along Netarts Highway (131) entering the city to the west, has a sufficiency rating of 37.2.

Parking

In the downtown area of Tillamook, on-street parallel parking is allowed along Main and Pacific Avenues. Parking is restricted to a 2-hour maximum. Near the City Hall and Pioneer Museum on 2nd Street and Laurel Avenue, angled parking is provided.

Public parking lots are provided at the following locations:

- Carnahan Park
- YMCA Recreation Center
- Southeast corner of 2nd Street and Ivy Avenue (metered parking)
- Southwest corner of 2nd Street and Ivy Avenue (reserved parking available)
- West side on Ivy Avenue between 3rd and 4th Streets (unoccupied building with lot)
- Tillamook County Fairgrounds (for events only)
- School parking lots—used for general parking during field events.

Many businesses also provide off-street parking for customers on their property.

Tillamook generally has sufficient on-street parking. The residential areas have a surplus of parking, because most streets allow on-street parking and most residences include off-street parking as well. Most of the pedestrian-generating areas include off-street parking to accommodate additional vehicles.

The city staff suggested that during the tourist season parking is deficient in the downtown area along U.S. 101. On-street parking during this period is usually occupied. Therefore, vehicles are forced to park off-street, but there are limited locations. The nearest off-street parking lots are located a few blocks west of U.S. 101.

Lifeline Routes

In the vicinity of Tillamook, U.S. 101, Netarts Highway (131), Oregon 6, Latimer Road and Wilson River Loop are designated as lifeline routes. U.S. 101 (south of Oregon 6), Netarts Highway (131), Latimer Road, Wilson River Loop and Oregon 6 (between U.S. 101 and Wilson River Loop) are designated as Priority 1 lifeline routes, which means they are essential for emergency responses in the first 72 hours after an incident. U.S. 101 (north of Oregon 6) and Oregon 6 (east of Wilson River Loop) are designated as a Priority 2 lifeline routes, which means they are desirable for emergency responses in the first 72 hours after an incident or are routes essential for economic recovery.

Beach Access Points

Public beach access points in Oregon have been inventoried and are summarized on the Inforain Web site (www.inforain.org). According to the Web site, there are no public beach accesses in Tillamook.

Existing Traffic Operations Analysis

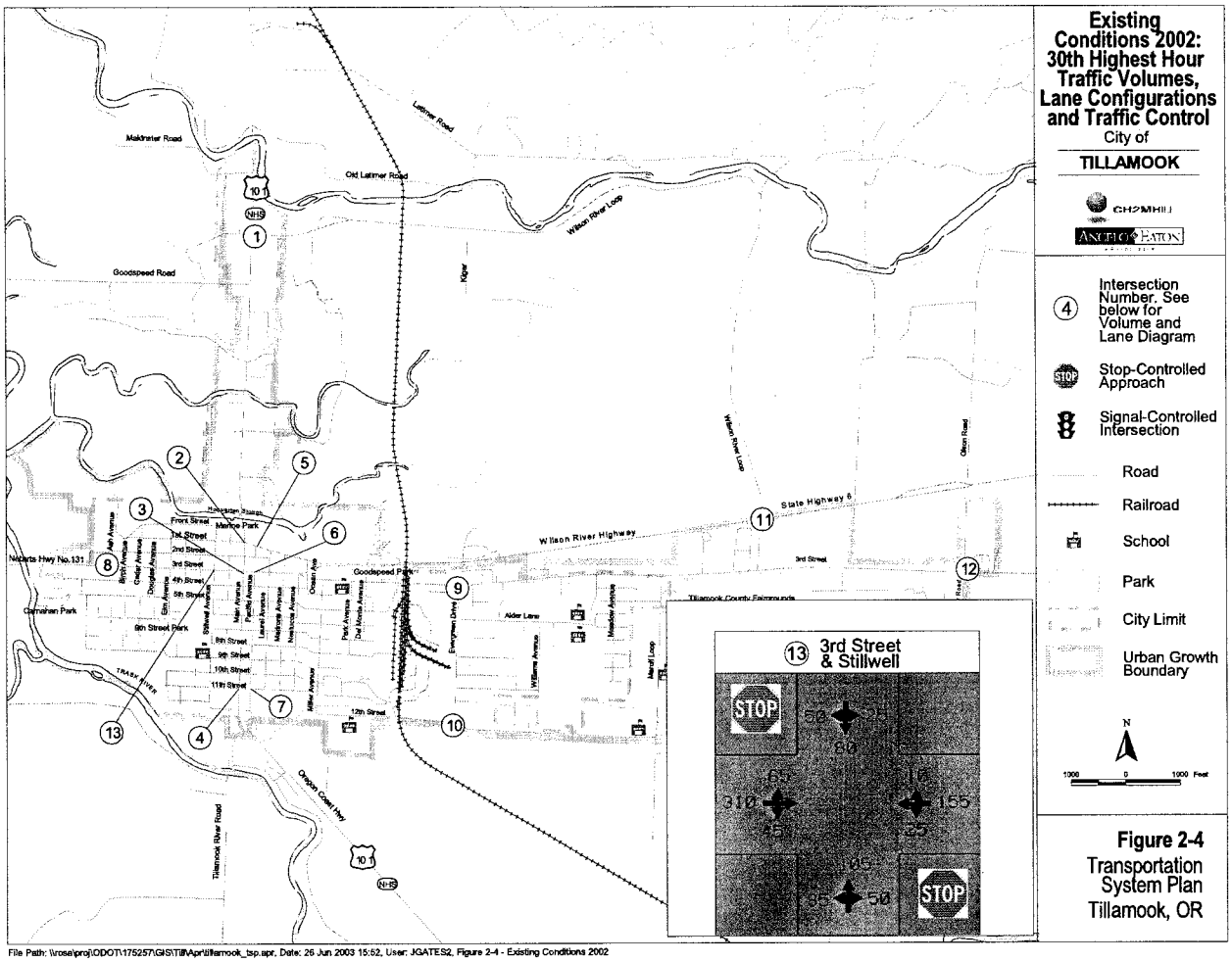
The operational analysis of existing conditions (2002) was conducted for 13 intersections in Tillamook located on state, county and city facilities. The study intersections were selected for analysis based on input from city and ODOT staffs and the availability of traffic count data. The analysis was conducted using turn movement counts conducted in 2001 and 2002, ODOT Future Volume Tables, and automated traffic recorder (ATR) data. This subsection provides a summary of the operational analysis of existing conditions (2002). See the Background Document for further information on the methodology used to conduct the operational analysis of existing conditions.

The TSP guidelines adopted by ODOT require that volume-to-capacity (v/c) ratios for intersections be calculated using 30th-highest-hour traffic volumes. In urban areas, 30th-highest-hour traffic volumes typically occur during a weekday peak hour. In recreational areas such as the Oregon coast, 30th-highest-hour traffic volumes typically occur during the peak tourist season. Therefore, 30th-highest-hour traffic volumes in Tillamook occur during summer months (July and August) during the peak tourist season.

Using the Future Volume Tables available on the ODOT Web site, historical growth rates on state facilities in Tillamook have ranged from 0.7 to 2.5 percent.

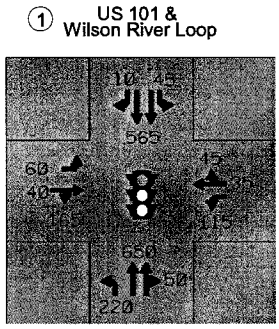
2002 30th-Highest-Hour Traffic Volumes

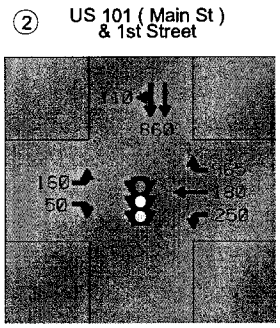
The turn movement counts for intersections in Tillamook generally were conducted outside of the peak tourist season. An analysis of the Rockaway ATR site, which is the closest ATR site to Tillamook along U.S. 101 (10 miles north of Tillamook), indicated that the counts were not representative of 30th-highest-hour conditions along U.S. 101. Seasonal factors from the Rockaway ATR site, which are available on the ODOT Web site (www.odot.state.or.us/tddtpau/DataRes.html), were used to factor counts to 30th-highest-hour conditions. Figure 2-4 presents the existing intersection lane channelization and year 2002 30th-highest-hour traffic volumes used in the operational analysis of existing conditions.

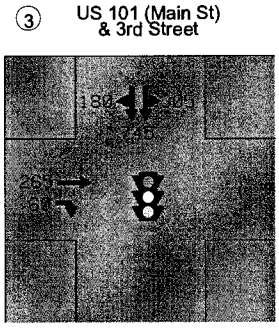


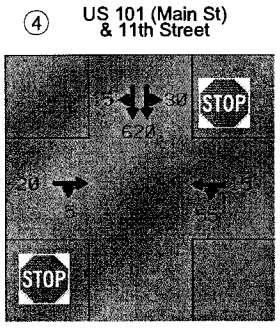
File Path: \\rose\proj\ODOT\175257\GIS\TillApr\tillamook_tsp.apr, Date: 26 Jun 2003 15:52, User: JGATES2, Figure 2-4 - Existing Conditions 2002

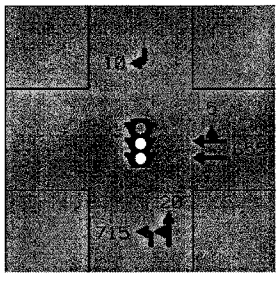
Figure 2-4
Transportation System Plan
Tillamook, OR

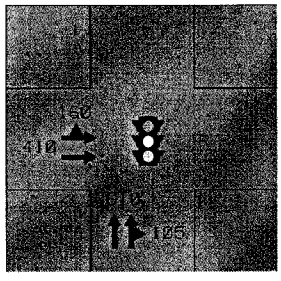


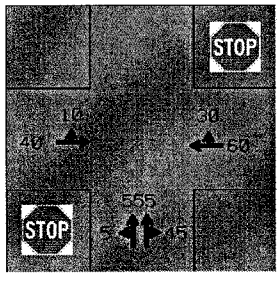


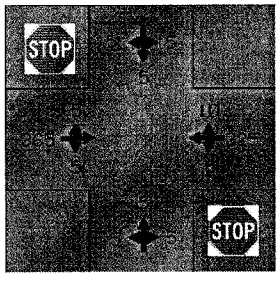


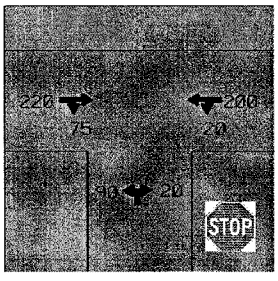


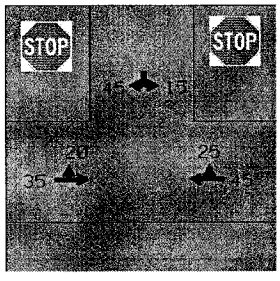


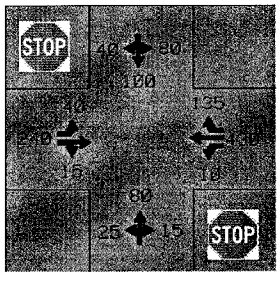


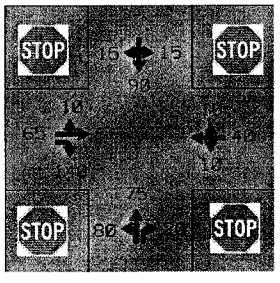












The analysis of 2001 data from the Rockaway ATR site demonstrates that traffic volumes increase by approximately 46 percent during weekends in August over average traffic volumes. Figure 2-5 demonstrates the variability in ADT volumes per month along U.S. 101 as measured by the Rockaway ATR in 2001.

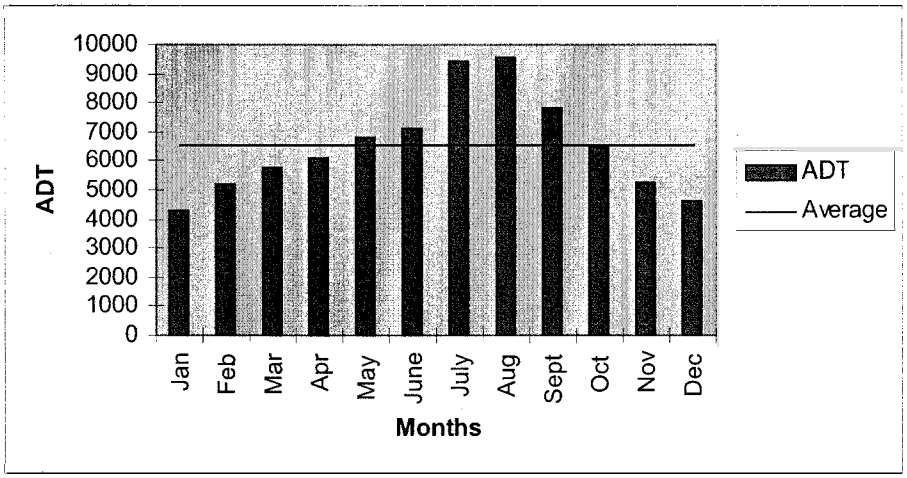


FIGURE 2-5
2002 Rockaway Automated Traffic Recorder—Average Daily Traffic Volumes

Table 2-1 presents year 2002 intersection 30th-highest-hour traffic volumes by approach at each of the study intersections. As shown in Table 2-1, U.S. 101 has the highest traffic volumes in Tillamook. During the 30th highest hour, southbound U.S. 101 (Main Avenue) has up to three times the traffic volume compared with northbound U.S. 101 (Pacific Avenue). Of the minor approaches along U.S. 101, Wilson River Loop and 1st and 3rd Streets (Oregon 6 couplet) have relatively high volumes. Most other minor streets have approach volumes less than 300 vehicles per hour.

TABLE 2-1
Entering Intersection Volumes (30th highest hour)

Number	Intersection	Major Approaches (vehicles per hour)	Minor Approaches (vehicles per hour)
1	U.S. 101 at Wilson River Loop	1,540	460
2	U.S. 101 Southbound (Main Avenue) at 1st Street	2,365	210
3	U.S. 101 Southbound (Main Avenue) at 3rd Street	1,230	325
4	U.S. 101 Southbound (Main Avenue) at 11th Street[1]	665	95
5	U.S. 101 Northbound (Pacific Avenue) at 1st Street	735	670
6	U.S. 101 Northbound (Pacific Avenue) at 3rd Street	715	570
7	U.S. 101 Northbound (Pacific Avenue) at 11th Street[1]	605	140
8	3rd Street (Netarts Highway [131]) at Ash Avenue[1]	715	30
9	3rd Street at Evergreen Drive[1]	515	110

TABLE 2-1
Entering Intersection Volumes (30th highest hour)

Number	Intersection	Major Approaches (vehicles per hour)	Minor Approaches (vehicles per hour)
10	12th Street at Evergreen Drive[1]	125	60
11	Oregon 6 at Wilson River Loop[1]	870	340
12	3rd Street at Trask River Road[1]	295	275
13	3rd Street (Netarts Highway [131]) at Stillwell Avenue[1]	610	395

[1] Unsignalized intersection.

State Highway Mobility Standards

Ten of the 13 intersections included in the operational analysis of existing conditions in Tillamook are along a state highway. The 1999 OHP designates U.S. 101 as a statewide National Highway System (NHS) non-freight route. In Tillamook, the speed limit on U.S. 101 varies between 45 and 20 mph. Because this portion of U.S. 101 is also inside the Tillamook UGB and in a non-metropolitan planning organization (MPO) area, the mobility standard designated by the OHP for U.S. 101 is a v/c ratio of either 0.80 or 0.75, depending on the posted speed. Refer to Table 2-2 for U.S. 101 mobility standards.

According to the OHP, Oregon 6 is a regional highway and Netarts Highway (131) is a district highway. Both are in a non-MPO area with speed limits of less than 45 mph. Therefore, the mobility standard for Oregon 6 is a v/c ratio of less than 0.80 and the Netarts Highway (131) has a v/c ratio of less than 0.85. Because the Oregon 6 and Wilson River Loop intersection is outside Tillamook's UGB and Oregon 6 has speeds exceeding 45 mph, the v/c ratio standard is 0.75. Table 2-2 displays OHP mobility standards for applicable facility types in Tillamook.

TABLE 2-2
Oregon Highway Plan Mobility Standards

Highway Category	Mobility Standard (v/c ratio)
Statewide NHS Non-Freight Routes, Non-MPO Area, Speeds Equal/Greater Than 45 mph (for example, U.S. 101)	0.75
Statewide NHS Non-Freight Routes, Non-MPO Area, Speed Less than 45 mph (for example, U.S. 101)	0.80
Region Highways, Non-MPO Area, Speed Less Than 45 mph (for example, Oregon 6)	0.80
Region Highways, Non-MPO Area, Outside Urban Growth Boundary, Speed Equal/Greater Than 45 mph (for example, Oregon 6)	0.75
District Highways and Local Roads, Non-MPO Area, Speed Less Than 45 mph (for example, Netarts Highway [131])	0.85
Signalized Intersection with Differing State Highway Designations	Use road with stricter v/c standard
Signalized Intersection Between State Highway and Local Road	Use state highway v/c standard
Unsignalized Intersection, Local Road Approaches in UGB with Speeds Less Than 45 mph	0.85
Unsignalized Intersection, Local Road Approaches Outside UGB	0.80
Unsignalized Intersection Between Two Local Roads (within UGB and speeds less than 45 mph)	0.85

Notes: Table 6 and Pages 74-79, 1999 Oregon Highway Plan.
NHS = National Highway System.
MPO = metropolitan planning organization.
UGB = urban growth boundary.
v/c = volume-to-capacity.

In Tillamook, there are several unsignalized intersections along U.S. 101, Oregon 6 and Netarts Highway (131). The OHP designates a maximum v/c ratio of 0.85 for local road approaches in the UGB (non-MPO areas, speed limit less than 45 mph) and a maximum v/c ratio of 0.80 for local road approaches outside the UGB.

For signalized intersections on U.S. 101 with local roads, the OHP designates that the maximum v/c ratio on the local approach is equal to the mobility standard designated for U.S. 101. For signalized intersections on U.S. 101 with other state arterials (such as Oregon 6), the OHP designates that the maximum v/c ratio on the local approach is equal to the strictest mobility standard. In this case, each road has a mobility standard of 0.80.

For local road intersections, the OHP does not specify a mobility standard. In these instances a v/c ratio of 0.85 is used as the mobility standard.

Level of Service Analysis

Level of service (LOS) is a measure of effectiveness for traffic operations at an intersection. Traffic is able to move freely at an intersection operating at LOS A, B or C. Traffic operations become progressively worse as traffic operations move toward LOS D and E. LOS F represents conditions where traffic volumes exceed capacity, resulting in long queues and delays.

LOS is based on control delay time at an intersection (signalized and unsignalized). Table 2-3 summarizes the LOS range based on delay at signalized and unsignalized intersections.

TABLE 2-3
LOS Control Delay Ranges

LOS	Signalized Intersection (seconds/vehicle)	Unsignalized Intersection (seconds/vehicle)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	>80	>50

Source: 2000 Highway Capacity Manual, Transportation Research Board.
LOS = level of service.

Analysis Methodology

For the analysis of existing conditions at the 13 study intersections, Synchro, Version 5 was used. This methodology is based on the Highway Capacity Manual (HCM). An analysis of existing conditions was conducted using the 30th-highest-hour traffic volumes shown in Figure 2-5 to evaluate how the existing transportation performs during the peak tourist season.

Traffic Operations at Intersections (30th-Highest-Hour Conditions)

Tables 2-4 and 2-5 present intersection LOS, OHP mobility standard, v/c ratio and delay experienced at each intersection under existing 30th-highest-hour conditions. LOS is calculated on the basis of intersection delay using the 2000 HCM. For each intersection, Tables 2-4 and 2-5 compare the OHP v/c mobility standard against 30th-highest-hour operating conditions. In Tables 2-4 and 2-5, rows with a black background and white text highlight intersections that currently exceed OHP mobility standards.

Signalized Intersections

Table 2-4 summarizes the results of the operational analysis of existing conditions for the 30th highest hour for the five signalized intersections in Tillamook. As shown in Table 2-4, all of the signalized intersections included in the analysis of existing conditions met the

applicable mobility standard, except the intersection of U.S. 101 (Main Avenue) and 1st Street.

TABLE 2-4
Operational Analysis for Signalized Intersections—30th Highest Hour

Intersection	V/C Ratio	LOS	Delay (seconds/vehicle)	Mobility Standard (v/c ratio)[1]
U.S. 101 (Main Avenue) and Wilson River Loop	0.59	B	13.1	0.75
U.S. 101 (Main Avenue) and 1st Street (Oregon 6)	**1.15**	**F**	**116.6**	**0.80**
U.S. 101 (Pacific Avenue) and 1st Street (Oregon 6)	0.58	B	13.4	0.80
U.S. 101 (Main Avenue) and 3rd Street (Oregon 6)	0.75	A	9.8	0.80
U.S. 101 (Pacific Avenue) and 3rd Street (Oregon 6)	0.53	B	14.7	0.80

[1] If two state highways intersect, the lower mobility standard (v/c ratio) applies. When a local road intersects with a state highway, the state highway mobility standard applies.

LOS = level of service.

v/c = volume-to-capacity.

Unsignalized Intersections

Table 2-5 summarizes the results of the operational analysis of existing conditions for the 30th highest hour at unsignalized intersections (two-way and all-way stop-controlled) in Tillamook. For a two-way, stop-controlled intersection, Table 2-5 reports results for the movement with the worst operating performance on both the major and minor approaches at each intersection. The reported v/c ratio represents the maximum (or worst) for any intersection movement. Currently, all of the unsignalized intersections meet OHP standards, except for the Wilson River Loop minor street southbound approach at Oregon 6 and 3rd Street (Netarts Highway [131]) at Stillwell Avenue.

TABLE 2-5
Operational Analysis for Unsignalized Intersections—30th Highest Hour

	Major Road Approaches				Minor Road Approaches			
Intersection	LOS	V/C Ratio	Delay (seconds/ vehicle)	Mobility Standard (v/c ratio)[1]	LOS	V/C Ratio	Delay (seconds/ vehicle)	Mobility Standard (v/c ratio)[1]
11th Street and Main Avenue (U.S. 101)[2]	A	0.20	0.4	0.80	C	0.17	16.5	0.85
11th Street and Pacific Avenue (U.S. 101)[2]	A	0.20	0.0	0.80	C	0.23	15.7	0.85
3rd Street (Netarts Highway) and Ash Avenue[2]	A	0.00	0.1	0.85	B	0.02	14.6	0.85
3rd Street (Netarts Highway) and Stillwell Avenue[2]	**A**	**0.05**	**1.6**	**0.85**	**F**	**0.94**	**77.9**	**0.85**
3rd Street and Evergreen Drive[2]	A	0.19	0.9	0.85	B	0.25	14.1	0.85

TABLE 2-5
Operational Analysis for Unsignalized Intersections—30th Highest Hour

Intersection	Major Road Approaches				Minor Road Approaches			
	LOS	V/C Ratio	Delay (seconds/ vehicle)	Mobility Standard (v/c ratio)[1]	LOS	V/C Ratio	Delay (seconds/ vehicle)	Mobility Standard (v/c ratio)[1]
3rd Street and Trask/Olsen Road[3]	A	0.26	8.8	0.85	N/A	N/A	N/A	0.85
12th Street and Evergreen Drive[2]	A	0.01	2.4	0.85	A	0.10	9.9	0.85
Oregon 6 and Wilson River Loop Road[2]	**A**	**0.26**	**1.1**	**0.75**	**F**	**0.89**	**71.7**	**0.80**

[1] If two state highways intersection, the lower mobility standard (v/c ratio) applies. When a local road intersects with a state highway, the state highway mobility standard applies.

[2] Two-way, stop-controlled intersection. Results are reported for the movement with the worst operating performance on both the major and minor approaches.

[3] All-way, stop-controlled intersection. Results reported are for the whole intersection.

LOS = level of service.

v/c = volume-to-capacity.

The operational performance of the major road is reported to show delay and LOS experienced by a majority of the traffic moving through an intersection. The minor approaches to a two-way, stop-controlled intersection may operate at a LOS of E or F because the minor movements are required to stop and wait for an acceptable gap in traffic along the major road. For minor approach movements with LOS E or F, safety or geometric improvements may improve operations. Traffic signal warrants also can be investigated to determine if a signal would improve the overall operating conditions of the network.

Operational Analysis Results (30th Highest Hour). As shown in Tables 2-4 and 2-5, 11 of the 13 intersections in the study area meet mobility standards designated in the OHP under existing 30th-highest-hour volumes. The following intersections do not meet mobility standards designated in the OHP:

- **U.S. 101 (Main Avenue) and 1st Street (Oregon 6).** The failing operation of this intersection can be attributed to the westbound right-turn movement on 1st Street, where one travel lane is handling more than 900 vehicles. This movement has a v/c ratio of 1.50, while all other movements at the intersection have v/c ratios less than 0.80. Compared with other intersections in Tillamook, this intersection experiences the highest entering peak hour volumes (see Table 2-1).

- **Oregon 6 and Wilson River Loop Road.** The failing operation of this intersection can be attributed to the southbound approach on Wilson River Loop Road. This approach, along with the northbound leg, is stop-controlled and has one travel lane for all movements (left, through, right). While the intersection's total entering volumes are not high, Oregon 6 (east and westbound approaches) experiences a steady traffic stream.

- The number of left-turning vehicles is the reason the southbound approach has a high v/c ratio. Left-turning vehicles, along with through movements, require the most gap in the opposing traffic stream to complete their maneuver. As it becomes more difficult for

a vehicle to find an acceptable gap, as in this case, the delay increases. The combination of all movements sharing one southbound lane (one left-turning vehicle will delay all other movements) and the steady stream of traffic on Oregon 6 causes a high degree of delay.

- **3rd Street (Netarts Highway [131]) and Stillwell Avenue.** The failing operation of this intersection can be attributed to the northbound approach on Stillwell Avenue. This approach, along with the southbound leg, is stop-controlled and has one travel lane for all movements (left, through, right). While the intersection's total entering volumes are not high, 3rd Street (east and westbound approaches) experiences a steady traffic stream.

  The number of left-turning vehicles is the reason the northbound approach has a high v/c ratio, although it does not exceed the mobility standard. Left-turning vehicles, along with through movements, require the most gap in the opposing traffic stream to complete their maneuver. As it becomes more difficult for a vehicle to find an acceptable gap, as in this case, the delay increases. The combination of all movements sharing one northbound lane (one left-turning vehicle will delay all other movements) and the steady stream of traffic on Netarts Highway (131) causes a high degree of delay.

Safety Analysis

A safety analysis was conducted using data obtained from ODOT for intersections and roadway segments in Tillamook. The safety analysis included intersections in Tillamook, the top 10 percent Safety Prioritization Index System (SPIS) sites, and state road segments. This subsection also includes discussion about the causes of accidents at intersections with geometric deficiencies. The safety analysis was conducted on the basis of reported crashes to ODOT. More detailed information about the analysis is available in the Background Document.

Intersection Crash Analysis

A crash analysis was conducted using data obtained from ODOT for intersections in Tillamook. A list of the top 11 crash sites by the total number of crashes from Jan. 1, 1997, to Dec. 31, 2001, was obtained from ODOT for Tillamook and is summarized in Table 2-6. Crash data also were obtained for the intersection of Oregon 6 and Wilson River Loop, which is located outside the Tillamook city limits.

TABLE 2-6
Crash Analysis Study Intersections (Year 1997 to 2001)

Number	Intersection	Total Number of Crashes	Property Damage Only	Injury	Fatality	Crash Rate[1]
1	U.S. 101 (Main Avenue) and Hadley Road[2]	11	10	1	0	N/A
2	U.S. 101 (Pacific Avenue) and 3rd Street	27	21	6	0	1.10
3	U.S. 101 (Main Avenue) and 1st Street	14	11	3	0	0.30
4	U.S. 101 and Wilson River Loop	23	15	8	0	0.67
5	U.S. 101 (Main Avenue) and 3rd Street	24	18	6	0	0.83
6	U.S. 101 (Main Avenue) and Front Street	20	15	5	0	N/A
7	Netarts Highway (131) (3rd Street) and Stillwell Avenue	16	12	4	0	1.10
8	U.S. 101 (Main Avenue) and 4th Street	17	15	2	0	N/A
9	U.S. 101 (Pacific Avenue) and 4th Street	18	17	1	0	N/A
10	U.S. 101 (Pacific Avenue) and 5th Street	13	8	5	0	N/A
11	U.S. 101 (Main Avenue) and 2nd Street	17	14	3	0	N/A
-	Oregon 6 and Wilson River Loop[3]	28	9	17	2	2.12

Source: Oregon Department of Transportation crash data, years 1997 to 2001.

[1] Crash rate in units of million entering vehicle miles. N/A indicates average daily traffic volumes not available.

[2] At the intersection of U.S. 101 and Hadley Road, there were 31 reported accidents from 1997 to 2001. A majority of these accidents occurred at existing driveways near the intersection. The crash data reported in Table 2-6 do not include the accidents that occurred at the driveways.

[3] Outside city limits.

Crash rates were determined for each intersection where ADT volumes were available and are summarized in Table 2-6. A crash rate of more than 1.0 crash per million entering vehicles (MEV) generally indicates that crash causes should be studied further at an intersection. In the following subsection, the following intersections are further evaluated:

- U.S. 101 and Hadley Road (top-ranked crash site by ODOT as a result of driveway accidents)
- U.S. 101 (Pacific Avenue) with 3rd Street (crash rate higher than 1.0 MEV)
- Netarts Highway (131) with Stillwell Avenue (crash rate higher than 1.0 MEV)
- Oregon 6 with Wilson River Loop (crash rate higher than 1.0 MEV)
- U.S. 101 (Main Avenue) with 3rd Street (two accidents involving pedestrians in the 5-year period)

U.S. 101 and Hadley Road (three-leg intersection, unsignalized)

The top crash site in Tillamook, as reported by ODOT on the top 11 crash site list, was along U.S. 101 near Hadley Road. This location was the top crash site partially because of the

inclusion of driveway accidents near the intersection. As shown in Table 2-6, the driveway crashes greatly influence the ranking of this intersection. When the crashes that occurred at existing driveways are removed from the total, as shown in Table 2-6, this intersection had the lowest number of reported crashes of the intersections included in the 5-year analysis period. The two driveways are located 0.01 mile north of the intersection and 0.02 mile south of the intersection.

At the driveway located northwest of the intersection of U.S. 101 and Hadley Road, there were two crashes during the 5-year period, with one resulting in property damage only and the other resulting in an injury. Both crashes were caused by conflicts between left-turning northbound drivers against southbound through traffic on U.S. 101. At the south driveway, which provides access to a Safeway store, there were 18 reported crashes during the 5-year period, with 9 crashes resulting in injuries and 9 crashes resulting in property damage only. Most of the reported crashes (89 percent) at the southern driveway were a result of drivers failing to yield right-of-way to northbound through-traffic when making a southbound left turn from the driveway onto U.S. 101.

U.S. 101 (Pacific Avenue) and 3rd Street (four-leg intersection, signalized)

At the intersection of U.S. 101 (Pacific Avenue) and 3rd Street, there were 27 reported crashes in the 5-year period. Most of the crashes were the result of a driver disregarding the signal (30 percent), turning from the wrong lane (26 percent) and rear-end crashes (26 percent). As shown in Table 2-6, a majority of the crashes resulted in property damage only at this intersection (78 percent).

Netarts Highway (131) (3rd Street) and Stillwell Avenue (four-way-stop intersection, unsignalized)

At the intersection of Netarts Highway (131) and Stillwell Avenue, there were 16 reported crashes in the 5-year period, with 12 crashes resulting in property damage only and 4 crashes resulting in injuries. Most of the reported crashes at this intersection were a result of drivers failing to yield right-of-way (56 percent), improper parking (13 percent) and drivers running a stop sign (13 percent).

Oregon 6 and Wilson River Loop (two-way-stop intersection, unsignalized)

At the intersection of Oregon 6 and Wilson River Loop, there were 28 reported crashes in the 5-year period, with 2 of the crashes resulting in fatalities, 17 resulting in injuries, and 9 resulting in property damage only. Causes of crashes at this intersection included failing to yield right-of-way (82 percent), failing to stop (11 percent) and rear-end accidents (7 percent). The number of crashes per year at this location appear to be fairly consistent during the 5-year period, with 21 percent in 1997, 18 percent in 1998, 21 percent in 1999, 7 percent in 2000, and 32 percent in 2001. The two fatalities were caused by a driver who failed to stop at the stop sign and by a driver who failed to yield right-of-way to traffic on Oregon 6. At this location, an interchange has been studied by ODOT to improve the safety performance of the intersection.

U.S. 101 (Main Avenue) and 3rd Street (four-leg intersection, signalized)

Although this intersection has a low crash rate it is included because two pedestrians accidents occurred during the 5-year period. Of the 24 reported crashes during the 5-year

period, 2 involved pedestrians. One of the pedestrian accidents was caused by a driver who failed to yield to a pedestrian in a crosswalk and the other was a result of a pedestrian who failed to yield to drivers who had the right-of-way.

At the intersections along U.S. 101 (Main and Pacific Avenues), including the intersection of U.S. 101 (Main Avenue) and 3rd Street, the PAC indicated that trucks and recreational vehicle (RV) traffic have difficulty making turns under existing conditions because of constrained intersection geometry. Of the 24 reported crashes during the 5-year period, 2 involved trucks and 1 involved an RV. The two crashes that involved trucks were rear-end crashes caused by excessive speeds. The crash that involved an RV was caused by improper lane change. None of the crashes that involved trucks or RVs was caused by difficulty in making turns. Of the three reported crashes that involved trucks or RVs, none involved pedestrians.

Safety Priority Index System Sites

The SPIS method is used by ODOT to identity locations with safety problems caused by the crash frequency, crash rate and crash severity at the site. The top 10 percent of SPIS sites are evaluated each year by ODOT to identify improvements that may reduce the number and severity of crashes. SPIS data were provided by ODOT for the period between 1998 and 2001. In Tillamook, three intersections were ranked as top 10 percent SPIS sites in years 1999, 2000 and 2001: U.S. 101 and Front Street; U.S. 101 (Pacific Avenue) and 2nd Avenue; and U.S. 101 (Pacific Avenue) and 3rd Street. The intersection of U.S. 101 (Pacific Avenue) and 3rd Street was discussed in the subsection above.

U.S. 101 at Front Street

At the intersection of U.S. 101 and Front Street, there were 20 reported crashes. Most of the crashes were caused by a combination of rear-end accidents (55 percent), excessive speeding (45 percent) or drivers failing to yield right-of-way to traffic on the mainline (30 percent). In some instances, an accident at this location included two of these factors.

Safety improvements recently have been made to this intersection, including a median delineator that restricts turns from Front Street to only right-in/right-out access. Left turns onto Front Street are no longer permitted. These improvements are expected to decrease the number of rear-end crashes because northbound vehicles will not be able to stop and turn left onto Front Street. With the recent intersection modifications, crashes caused by drivers failing to yield right-of-way at the intersection should diminish. This intersection should continue to be monitored by ODOT and the City of Tillamook to ensure that the recently constructed intersection modifications improve the safety of this intersection.

U.S. 101 (Pacific Avenue) at 2nd Street

At the intersection of U.S. 101 (Pacific Avenue) and 2nd Street, there were 10 reported crashes during the 5-year period. Causes of reported crashes at this intersection include rear-end accidents (30 percent) and drivers who made turns from the wrong lane (20 percent). During the 5-year period, there was one accident involving a pedestrian crossing Pacific Avenue outside of a crosswalk and one accident involving a bicyclist.

Segment Crash Rates

As described in the 2000 State Highway Crash Rate Tables published by the Crash Analysis and Reporting Unit, Netarts Highway (131) is a non-freeway secondary highway and Oregon 6 and U.S. 101 are non-freeway primary highways. Table 2-7 summarizes the year 2000 crash rates and the 5-year average crash rates (1996 to 2000) along each of these roadways with a comparison to the statewide averages for the same conditions.

TABLE 2-7
Crash Rates Along State Highway Segments in Tillamook

Roadway	Year 2000 Crash Rate[1]	Year 2000 Statewide Average Crash Rate[1]	5-year Average Crash Rate[1]	5-year Statewide Average Crash Rate[1]
U.S. 101—Tillamook (Urban)	5.31	2.95	5.06	3.52
Oregon 6—Tillamook (Urban)	6.18	2.95	4.84	3.52
Oregon 6—Tillamook (Rural)	0.87	0.89	2.06	0.87
Netarts Highway (131)—Tillamook (Urban)	7.47	2.67	5.98	3.93

Source: 2000 State Highway Crash Rate Table, Crash Analysis and Reporting Unit, ODOT.
[1] Crash rate in units of million vehicles miles.

As shown in Table 2-7, both the year 2000 and 5-year average crash rates in Tillamook on U.S. 101 and the urban sections of Oregon 6 exceed the statewide averages. The year 2000 crash rate for the rural sections of Oregon 6 is average compared with other rural non-freeway primary highways in Oregon. However, the 5-year average crash rate of the rural sections of Oregon 6 exceeds the statewide 5-year average crash rate on other rural non-freeway primary highways in Oregon. The 2001 crashes were checked determine if there is a trend of increased number of crashes along the rural segment of Oregon 6. In year 2001, the number of crashes reverted to pre-2000 crash conditions. Therefore, the low crash rate in year 2000 is not attributed to any change in roadway condition or operations. Both the year 2000 and 5-year average crash rates in Tillamook on urban sections of Netarts Highway (131) exceed the statewide averages. This could be the result of the numerous conflict intersections along Netarts Highway (131) in the Tillamook city limits.

State Highway Segment Crash Rate Analysis

As described above, all of the state highways within the Tillamook city limits have higher-than-average crash rates. To determine the causes of the high crash rates on state highways, the detailed crash data for Netarts Highway (131), Oregon 6 and U.S. 101 were further examined.

Netarts Highway (131)

Along Netarts Highway (131) within the Tillamook city limits (MP 8.56 to 9.07), a majority of the reported crashes resulted in property damage only. Of the 34 crashes during the 5-year period on the Netarts Highway (131), 19 of the crashes were caused by drivers who failed to yield right-of-way to drivers along the mainline and 5 were caused by rear-end-type crashes. Of the total crashes, 14 were caused by drivers who stopped at a cross-street

and then continued onto or across Netarts Highway (131). Six accidents were caused by drivers who were parallel parking along the highway. Overall, most of the crashes appear to be caused by the numerous conflict points (intersections and driveways) or parallel parking along Netarts Highway (131), which is typical of an urban, low volume collector.

Oregon 6

Along Oregon 6 within the vicinity of Tillamook (MP 0.0 to 2.54), there were 65 crashes during the 5-year period (3 resulted in fatalities, 26 resulted in injuries and 36 resulted in property damage only). Two of the crashes that resulted in fatalities occurred at MP 1.80 (Wilson River Loop Road) and one occurred at MP 2.50 (Olsen Road). At the intersection of Oregon 6 with Wilson River Loop Road, one of the crashes resulting in a fatality was caused by a driver who failed to stop at the stop sign and the other was caused by a driver who failed to yield right-of-way to traffic on Oregon 6. At the intersection of Oregon 6 with Olsen Road, the crash resulting in a fatality was caused by a driver driving on the wrong side of the highway. Of the 65 reported crashes on Oregon 6, 30 were caused by drivers who failed to yield right-of-way and 11 were caused by rear-end accidents.

U.S. 101

Along U.S. 101 within the Tillamook city limits (MP 64.23 to 66.26), there were 240 reported crashes during the 5-year period (63 resulted in injuries and 177 resulted in property damage only). Of the 240 reported crashes, 106 were at an intersection and 208 occurred during daytime hours. Most of the crashes were rear-end accidents (72). There was a high number of crashes caused by drivers failing to yield right-of-way (69), improper lane changes (25) and drivers making a left turn in front of oncoming traffic (17). Of the 240 reported crashes, 75 involved a driver stopped in traffic, 41 involved a driver exiting a driveway or access point, 25 involved parallel parking and 13 involved a driver who continued across or onto U.S. 101 after stopping at a stop sign.

Intersection Geometry and Safety Deficiencies

During a field visit to Tillamook in September 2002 and through comments from PAC members, the following intersections with skewed geometry, potential safety issues or sight distance issues were identified:

- 4th Street at Ocean Place
- Oregon 6 (3rd Street) at Ocean Place
- 12th Street and U.S. 101 (Pacific Avenue)
- U.S. 101 and Oregon 6
- Netarts Highway (131) (3rd Street) at U.S. 101 (Main Avenue)
- Alder Lane at Dogwood Street and Cypress Street (offset without intersection control)

In addition to these six intersections, RV traffic making turn movements in the downtown area has difficulty because of constrained intersection geometry. At the PAC meeting, committee members stated RV turns are especially a problem at U.S. 101 (Main Avenue) and 3rd Street. Potential improvements at intersections with skewed approaches or offsets are addressed in Section 4.

Intersections with skewed geometry or steep approaches can have poor sight distance and awkward turning angles, which can lead to safety problems. These deficiencies are based on a visual inspection relating to typical design standards, such as intersection sight distance. Potential improvements (such as restriping/channelization, turn movement restrictions, intersection rebuild/configuration) are addressed in Section 4.

Public Transportation Inventory

The Tillamook County Transportation District (TCTD) provides the following public transportation services in Tillamook:

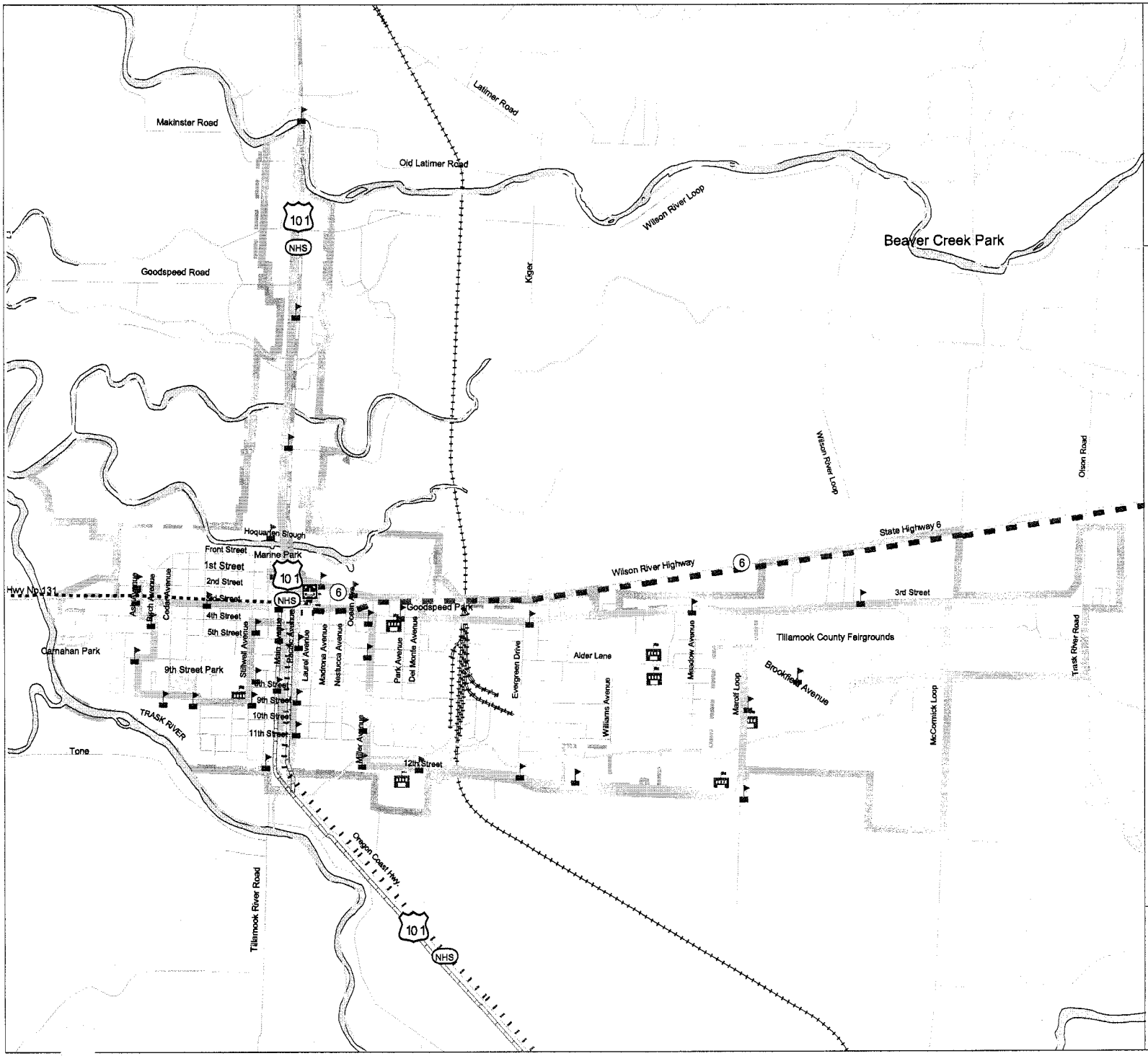
- Fixed-route service in Tillamook and various cities in Tillamook County. There are four transit routes between Tillamook and other cities (Oceanside/Netarts, Manzanita, Pacific City and Portland). The routes also stop at other points between the destination cities. There is a city-wide transit loop that is entirely within the Tillamook city limits. The mean age of the seven fleet vehicles used for the fixed route service is 2.62 years. A new vehicle is currently being purchased.
- Countywide dial-a-ride (DAR) service. The mean age of the three vehicles used for the paratransit/dial-a-ride service is 2.72 years.
- Greyhound Lines and Amtrak service is not provided in the Tillamook area.
- Tillamook Taxi provides a private taxi service in the city.

Other public transportation services available in Tillamook include medical appointment transportation through the Northwest Ride Center and school bus service.

Fixed-Route Service—TCTD

The following TCTD routes serve Tillamook, as shown in Figure 2-6. The only transit shelter is located at the 2nd Street and Laurel Avenue transit stop. This stop is considered the transit transfer station for TCTD. All other stops in Tillamook are designated with a post and sign.

- **Tillamook-Oceanside/Netarts Route** operates Monday through Saturday. This route has one stop in Tillamook at 2nd Street and Laurel Avenue. The bus leaves Tillamook at 9:15 a.m. and 2:15 p.m. and arrives in Tillamook at 10 a.m. and 3 p.m.
- **Tillamook-Manzanita Route** operates Monday through Saturday between 6 a.m. and 7:25 p.m. The bus stops in Tillamook at the main transit stop (2nd Street and Laurel Avenue). In Tillamook, buses on this route depart and arrive three times in the morning and afternoon with 2-hour headways. On Saturday, buses on this route arrive and depart twice in the morning and afternoon with 4-hour headways. This route has the highest ridership and serves a high number of commuters.



Existing Transit Lines and Stops

City of

TILLAMOOK

CH2MHILL

ANGELO EATON

- Tillamook-Portland
- Tillamook-Manzanita
- Tillamook-Town Loop
- Tillamook-Pacific City
- Tillamook-Netarts
- Port Loop
- Transit Shelter
- Bus Stop
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

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Figure 2-6
Transportation System Plan
Tillamook, OR

File Path: \\road\proj\ODOT\175257\GIS\Till\Apr\tillamook_tsp.apr, Date: 26 Jun 2003 15:53, User: JGATES2, Figure 2-6 - Transit

- **Tillamook-Pacific City Route** operates Monday through Friday between 6:10 a.m. and 7:55 a.m., and 12:55 p.m. and 7:15 p.m. This route has one stop in Tillamook (2nd Street and Laurel Avenue). The buses on this route arrive and depart three times a day.
- **Tillamook-Portland Route** operates Monday through Saturday between 8 a.m. and 5:30 p.m. In Tillamook, the bus stops at the main transit stop (2nd Street and Laurel Avenue) four times a day (twice in the morning to begin the eastbound trip and twice in the afternoon to complete the westbound trip). The route includes stops in Portland at Union Station (Amtrak) and at the Greyhound Station near Highway 26. On Monday through Friday, the bus also stops at various locations between Tillamook and Portland (Beaverton, Hillsboro and Forest Grove); on Saturday this route is a direct service between Tillamook and Portland. This route has the second highest ridership, but generates the greatest revenue of all the TCTD routes.
- **Tillamook Town Loop Route** operates Monday through Saturday. This service provides 12 stops in Tillamook, including the main transit stop at 2nd Street and Laurel Avenue. This route operates on approximately 1-hour headways starting at 7 a.m. and ending at 5 p.m. On Saturday service starts 1 hour later. This route has the third highest ridership.
- Lincoln City service is provided by the TCTD's DAR service.
- A port loop is also provided by TCTD, but it is outside the city limits.

In-county service is $1 per zone for one way. There are three zones defined in Tillamook County. Tillamook is in Zone 1. In the City of Tillamook, the fare is $1 for the day (unlimited use). The Tillamook to Portland route is $10 one-way and $15 round trip. Monthly passes are available for unlimited in-county transit service. Regular price is $35 per month. A reduced rate of $25.00 per month is available for seniors, students and disabled persons.

The TCTD headquarters is located on 3rd Street, east of Linden Avenue. TCTD currently has one park-and-ride, located in the south side of the Fred Meyer parking lot along U.S. 101 north of the downtown. This park-and-ride lot is currently unmarked, with minimal use.

Each transit bus is Americans with Disabilities Act (ADA) accessible and is equipped with a bike rack. Also, each bus displays route information for easy identification.

A new transit facility is being constructed in two phases with the expected completion set for late 2004. The facility will include a new headquarters, maintenance facility and a park-and-ride lot. This project is part of the OTC-approved 2002-2005 STIP.

Dial-A-Ride—TCTD

DAR service in Tillamook County currently is provided by TCTD. Three vehicles operate on weekdays between 8 a.m. and 4:30 p.m., except on holidays. Depending on demand and driver availability, service hours can be extended. DAR service is available to all users, with priority service to seniors and disabled passengers. All DAR vans are wheelchair accessible and personal care attendants are available when needed. Riders are asked to call 2 hours in advance to schedule a ride. The call center is located at the TCTD headquarters in Tillamook on 3rd Street. Currently, the cost is $1 to ride DAR per one-way trip per zone.

Northwest Ride Center

The Northwest Ride Center (NWRC) provides free transportation to medical appointments in Clatsop, Columbia and Tillamook Counties for those passengers eligible under the Oregon Health Plan. The call center, which is stationed at the transit headquarters in the City of Warrenton, is open Monday through Friday from 8 a.m. to 5 p.m.. Transportation services are scheduled through the call center and are provided 24 hours a day, 365 days per year, by reservation. Riders are asked to call at least 2 hours in advance to schedule a ride. However, NWRC will schedule rides with less notice when possible.

School Bus

School bus service in Tillamook is provided by the Tillamook School District. Fourteen buses operate fixed-routes each school day. Bus routing in Tillamook is extensive and encompasses most of the city's major roads (including state-designated facilities and local collectors).

Greyhound, Amtrak, and Tri-Met Connections

Greyhound bus stops are located in Lincoln City (45 miles south of Tillamook) and Portland (73 miles east of Tillamook). Currently, there is no fixed-route transit service between Tillamook and Lincoln City. The Tillamook-Portland transit fixed-route service connects with the Greyhound station in downtown Portland. The Tillamook-Portland transit fixed-route service also connects with Amtrak and Tri-Met in Portland. The Amtrak and Tri-Met services in Portland are the nearest passenger rail services. The Port of Tillamook Bay has a rail line in Tillamook, but it is not equipped for passenger rail service.

Transit Opportunities

The TCTD staff outlined opportunities to improve public transportation services offered by TCTD, including the following items:

- Provide annual incremental route expansion.
- Provide park-and-ride services at the TCTD's building headquarters. This is a planned facility included in the Phase 2 construction of the TCTD's new headquarters building. It is expected that the park-and-ride will provide 25 stalls.
- Provide connections to other transit service providers such as Sunset Empire.
- Expand service to Oceanside on the Netarts Highway (131) and weekend service to Pacific City.
- Encourage growth in ridership between Tillamook and the Port of Tillamook Bay.
- Provide transit vehicle pull-outs at stops. (This is considered one of TCTD's immediate priorities.)
- Enlarge transit shelters. This is a current proposal to the Tillamook City Council. It includes expansion of the transit center on 2nd Street and Laurel Avenue and adds shelters at stops without them.

- Provide additional services at the 2nd Street and Laurel Avenue transit center stop. Includes providing restrooms, customer service station and bike racks.

Pedestrian System Inventory

Pedestrian facilities are an important component of the transportation system. As the *1995 Oregon Bicycle and Pedestrian Plan* (OBPP) explains, virtually everyone is a pedestrian at some point during the day. For example, pedestrians include children walking to and from school, people using wheelchairs or other forms of mobility assistance, people at bus stops, and people walking to and from their vehicles. Walking meets transportation needs for a significant segment of the population that does not have access to vehicles. Aside from providing a necessary mode of transportation, a community's pedestrian system also offers recreational opportunities for both local and out-of-town users.

The Tillamook community has identified a compact residential development as an important component of the city's character and high quality of life. Tillamook's 2020 Vision Statement identifies a comprehensive non-motorized system as key to creating an attractive and inviting walking atmosphere in the community. The vision also includes a mix of commercial uses downtown to reinforce the pedestrian-friendly aspect of the city center.

According to the OBPP, pedestrian facilities are walkways, traffic signals, crosswalks and other amenities, such as illumination or benches. Tillamook has several types of walkways, which are defined in the OBPP as "transportation facilities built for use by pedestrians and persons in wheelchairs," including the following:

- **Sidewalks:** Sidewalks are located along roadways, are separated from the roadway with a curb and/or planting strip, and have a hard, smooth surface, such as concrete. Examples of sidewalks in Tillamook include the sidewalks through downtown along Main and Pacific Avenues.

- **Multi-Use paths**: Multi-use paths can be used by a variety of people, including pedestrians, cyclists, skaters and runners. Multi-use paths may be paved or unpaved, and are often wider than the average sidewalk (for example, 10 feet). Tillamook has no multi-use paths.

- **Roadway shoulders**: Roadway shoulders often serve as pedestrian routes in many Oregon communities. On roadways that experience low volumes of traffic, roadway shoulders are often adequate for pedestrian travel. These roadways should have shoulders wide enough so that both pedestrians and bicyclists can use them. Many local roadways in Tillamook are examples of roadway shoulder pedestrian facilities, including 3rd Street, east of Evergreen Drive, 12th Street from Evergreen Drive to Marolf Loop, Alder Lane and Marolf Loop.

The Tillamook pedestrian system generally can be characterized as comprehensive in certain areas of the city (such as the downtown area surrounding U.S. 101; Main and Pacific Avenues) and lacking in other areas (such as the eastern portion of Tillamook). There are gaps in connectivity between neighborhoods with regard to pedestrian facilities. The existence of a high number of private accesses and conflict opportunities in certain locations

create a barrier to continuous, connected pedestrian facilities in certain portions of Tillamook.

Sidewalk Locations

The sidewalks in Tillamook are generally concentrated in the downtown commercial core (along Main and Pacific Avenues and the immediate side streets) and the newer residential areas near the eastern city limits. Some streets, particularly where newer development exists, have sidewalks on both sides of the street, while others have sidewalks on just one side. On roads where there are significant traffic and pedestrian areas, such as Liberty Elementary School and Tillamook High School, sidewalks are present, but only for short distances. Figure 2-7 describes the sidewalk locations in Tillamook.

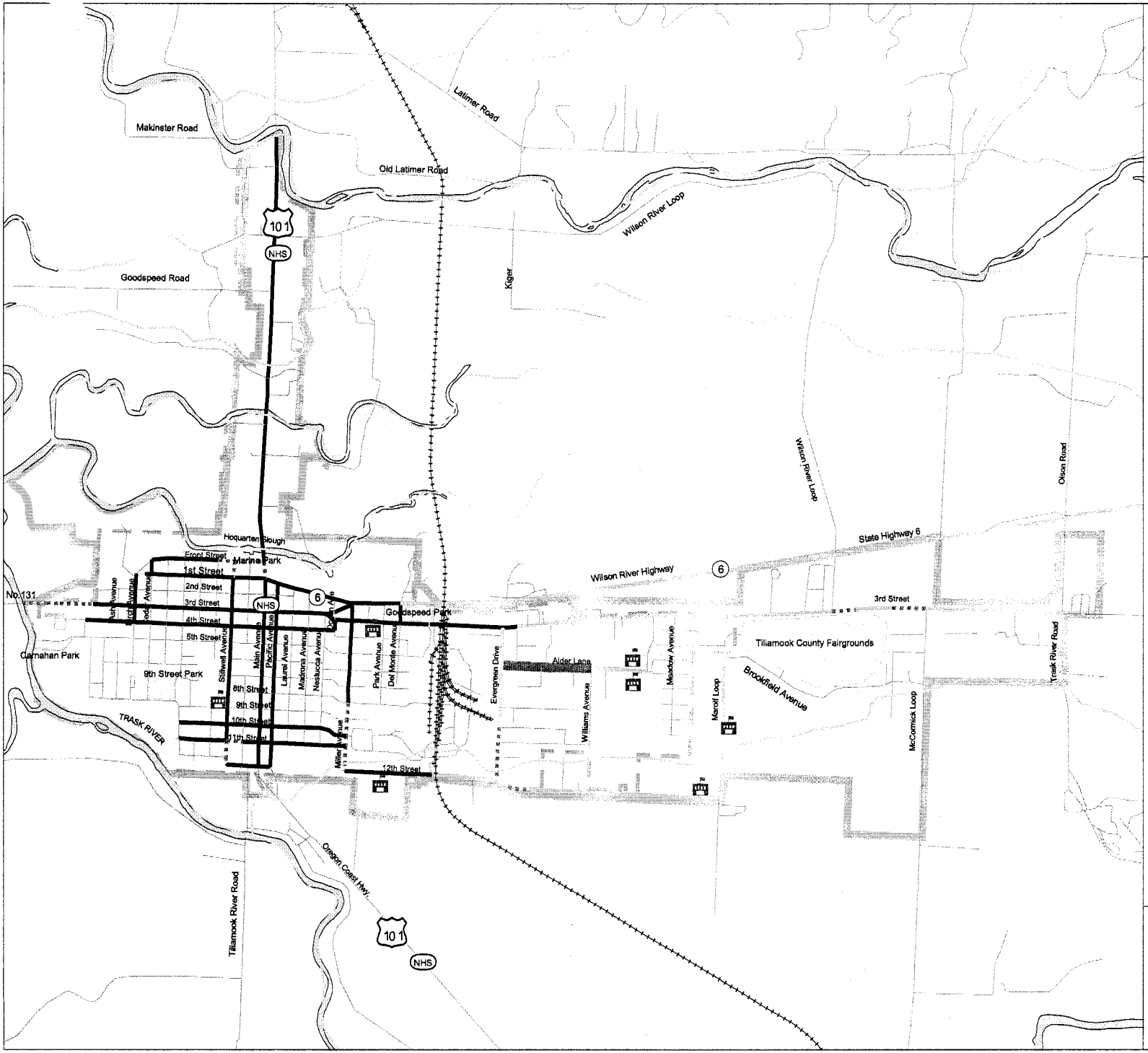
Most local streets have sidewalks, but the sidewalk system lacks connectivity in some areas, and, therefore, pedestrians have to share the roadway with bicycle and vehicle traffic. In some instances (such as 3rd Street, east of Evergreen Drive) pedestrians are provided with a shoulder (paved and/or gravel). Sidewalks are on only one side along the following roadways:

- U.S. 101 between Hoquarten Slough and Oregon 6 intersection, west side
- Evergreen Drive, north of 12th Street, east side for a few hundred feet
- 3rd Street, west of Ash Avenue, south side
- Stillwell Avenue, west side between Front Street and 1st Street, and between 11th Street and 12th Street
- Miller Avenue, west side, south of 8th Street
- 11th Street, between Stillwell and Ivy Avenues, south side
- 12th Street, east of Evergreen Drive on the north side for a few hundred feet
- 3rd Street, between Wilson River Loop and McCormick Loop, sporadic sidewalks north side where new development has occurred

All other locations where sidewalks are noted are along both sides of the road.

Sidewalk Condition

Sidewalks in Tillamook are generally in fair condition in many areas of the city. Most of the sidewalks along U.S. 101 are 4 to 6 feet wide and well-connected with relatively smooth surfaces. Most areas of the city outside the downtown blocks have intermittent sidewalks. Sidewalks generally exist in front of newer development, but do not connect with other sidewalks.



Existing Sidewalks and Trails

City of

TILLAMOOK

CH2MHILL

ANGELO EATON

- Sidewalk - Both Sides
- Sidewalk - One Side Only
- Unpaved Shoulder
- Striped Walkway
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

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Figure 2-7
Transportation System Plan
Tillamook, OR

File Path: \\rosa\proj\ODOT\175257\GIS\Till\Apr\tillamook_tsp.apr, Date: 26 Jun 2003 15:53, User: JGATES2, Figure 2-7 - Sidewalk and Trail

Americans with Disabilities Act (ADA) Facilities

Most of the ADA ramps in Tillamook are located on sidewalks in the downtown core, along U.S. 101, and in front of newer development. Some of the ramps in the downtown core are not to ADA standard (for example, too steep or cracked). Generally, ramps near the commercial center or the newer residential areas are compliant with ADA specifications. However, some of the older ramps in the downtown core are not to ADA standard (for example, some are too steep or cracked). The downtown area also features pedestrian bulb-outs at the intersection corners (U.S. 101 and 2nd Street).

Crosswalks

Numerous crosswalks are located in Tillamook. Most of the crosswalks are located along U.S. 101 and the cross streets in the downtown area. Crosswalks also are located near the pedestrian generators, such as the schools, YMCA recreation facility and hospital. Some of the crosswalks are faded and difficult to see (for example, along 3rd Street near Goodspeed Park and Wilson School). All the crosswalks along U.S. 101 and near Liberty Elementary School and Tillamook High School are clearly striped and in good condition. Most of the intersections with crosswalks are striped on all approaches although a few intersections are only striped along certain approaches.

Pedestrian Generators

It is important for a city's pedestrian system to connect residential areas with commercial centers, schools, community focal points and transit facilities, which are collectively referred to as pedestrian generators. The following descriptions characterize the pedestrian system near significant pedestrian generators in Tillamook:

- **Liberty Elementary School**. Good pedestrian facilities surround Liberty Elementary School, especially on Stillwell Avenue. There are sidewalks on both sides of Stillwell Avenue from 10th Street to Front Street, and along the north side of 9th Street from Stillwell Avenue to Manor Place. Crosswalks are located along 9th Street at Grove Avenue and along Stillwell Avenue at 9th, 8th and 7th Street. Severely faded crosswalks are located at 11th and 5th Streets. The crosswalks at 7th and 8th Streets do not have ramp connections with the sidewalks. There is also signage for school crossings near the school.

- **Tillamook Junior High School and East Elementary School**. Pedestrian facilities around these two schools are generally poor. There are no sidewalks along Alder Lane. There is only one striped crosswalk between the two schools. There is a faded striped walkway (for pedestrians or bicyclist) along the south side of Alder Lane. This walkway is visible only at the west end of Alder Lane, then it disappears near the middle of the street.

- **Tillamook High School**. Pedestrian facilities immediately surrounding Tillamook High School are good, but adequate pedestrian connections to the east are missing. Evergreen Drive and 12th Street east of Evergreen Drive have no pedestrians facilities except for two short sidewalk sections (eastside of Evergreen Drive and the north side of 12th Street) at the Evergreen Drive and 12th Street intersection. Miller Avenue has sidewalks

only on the west side of the street from 12th Street to 8th Street, then on both sides north of 8th Street.

- **Tillamook Christian and Adventist School**. There are no pedestrian facilities on 12th Street or Marolf Loop around these two schools. Shoulder width is minimal with a ditch alongside the roads.

- **Wilson Elementary School**. Although this school is currently closed for use as an elementary school, it is being used by the community college and alternative education. Sidewalks and crosswalks are present near the school. Along 3rd Street, sidewalks are constructed on both sides of the road. Crosswalks are located along 3rd Street at Park Avenue, Miller Avenue and Del Monte Avenue. At each of these intersections either the west or east approach is not marked as a crosswalk. With the school located near residential streets, a common complaint is people parking in the residential areas. In addition, people are parking their vehicles along Oregon 6 and crossing the state highway to go to the school. A site-specific solution to these parking issues may need to be developed.

- **Downtown Tillamook (Main and Pacific Avenues from 1st Street to 6th Street).** Downtown Tillamook is fairly well served in terms of pedestrian facilities. Both Main Avenue and Pacific Avenue are served by sidewalks on both sides of the street, and have striped crosswalks at numerous intersections. This area is also mostly compliant with ADA standards and provides some pedestrian amenities, such as benches and pedestrian bulb-outs at the Main Avenue and 2nd Street intersection. On-street parking is allowed, which can cause pedestrian sight-distance issues at the intersections. Even though U.S. 101 is designated and signed as the Oregon Coast Bike Route, there are no bicycle facilities in the downtown core along U.S. 101.

- **Commercial Strip north of Downtown on U.S. 101.** The commercial strip along U.S. 101 from Hoquarten Slough to the northern city limits (Fred Meyer, Safeway, Shilo Inn, etc.) has a comprehensive pedestrian system along U.S. 101, but the system does not connect to facilities to the east or west. Because U.S. 101 is mostly a five-lane cross section for this portion of the road, crosswalks are located only at the signalized Wilson River Loop intersection. The high number of private mid-block accesses through this area is potentially hazardous for bicyclists. This area is also mostly compliant with ADA standards because the commercial development is fairly recent.

- **Tillamook County Fairgrounds.** The pedestrian facilities surrounding the Tillamook County Fairgrounds are inadequate and provide minimal connections. Sidewalks along 3rd Street are sporadic near the fairgrounds and no crosswalks are provided across 3rd Street in this area. Gravel shoulder is provided, but it is used for on-street parking, therefore, forcing pedestrians to walk near the road. No pedestrian or bicycle facilities (sidewalks, shoulders or crosswalks) are located along Brookfield Avenue.

- **9th Street Park.** No pedestrian or bicycle facilities serve the area surrounding 9th Street Park. A small gravel area is directly in front of the park, but it is used for parking.

- **Carnahan Park.** Even though sidewalk is provided along both sides of 5th Street, ramps are not always provided especially near Carnahan Park. Because the park is at the west

end of 5th Street, even though a crosswalk is not provided at the entrance, it is not needed.

- **Marine Park (on Front Street).** Sidewalks and ramps recently were constructed along Front Street as part of the roadway improvements. The sidewalks connect well with U.S. 101. Crosswalks are not located near Marine Park.
- **Goodspeed City Park (corner of 3rd Street and Del Monte Avenue).** Pedestrian facilities serve Goodspeed City Park on 3rd Street and Del Monte Avenue. Del Monte Avenue and 3rd Street are designated truck routes, which can cause pedestrian discomfort, but with the integrated sidewalk system surrounding this park, pedestrians are removed from interacting with vehicles. There are crosswalks providing access to the park.
- **Transit Stops/Multimodal Connections.** There are 14 transit stops in Tillamook that are served by the TCTD. Only the main transit stop at 2nd Street and Laurel Avenue includes a landing pad and shelter. Transit facilities and amenities are not provided at any other transit stops. Many of the transit stops are provided in locations where sidewalks are provided, although transit stops east of the city are located in areas where pedestrian facilities are lacking. There are no bicycle facilities at any of these stops, although the transit vehicles have bicycle racks.

Trails

There are no defined trails in Tillamook. Currently, a trail along the Hoquarten Slough is under development. Further details are provided elsewhere in this document.

Bicycle System Inventory

Introduction

Bicycle travel offers commuters, children and others a significant option for transportation. Cycling is also a transportation choice for people who do not own vehicles and is an important recreational option in Oregon, especially in scenic portions of the state, such as the Oregon Coast.

According to the OBPP, there are several different types of bicycle facilities. Bikeways are design treatments, such as signage or striped shoulders, located on roadways to accommodate bicycles. Multi-use paths are facilities separated from a roadway for use by cyclists, pedestrians, skaters, runners or others. Multi-use paths are discussed in the review of existing conditions for the Tillamook pedestrian system. The different types of bikeways are as follows:

- **Shared Roadway**: Shared roadways include roadways on which cyclists, motorists and pedestrians share the same travel lane. Shared roadways are common on neighborhood streets and rural roads. All local roads in Tillamook are considered shared roadways. None of these roadways includes accommodations for bicycles, except Alder Lane, which has a faded striped bicycle/walking lane on the south side. According to the OBPP, two design treatments can enhance travel on a shared roadway:

  - **Wide Outside Lane** (where shoulder bikeways or bike lanes are warranted, but limited because of physical constraints – wide enough so that a vehicle can comfortably pass a bicycle)
  - **Bicycle Boulevard** (a modification of the operation of a local street to function as a through street for bicycles while maintaining local access for vehicles, often via traffic control devices)

- **Shoulder Bikeway**: Paved roadways are striped shoulders wide enough for bicycle travel. According to the OBPP, most rural bicycle travel on state highways occurs on shoulder bikeways. Sometimes shoulder bikeways are signed as a signal to motorists to expect bicycle travel along the roadway. An example of this type of wide shoulder bikeway is Oregon 6 from the city limits between the Wilson River Loop Road and Olsen Road intersections.
- **Bike Lane:** Bike lanes are portions of the roadway designated specifically for bicycle travel via a 6-foot-wide striped lane, and are particularly appropriate on arterials and major collectors. Bike lanes are often signed. An example of a roadway with a bike lane in Tillamook is U.S. 101 north of the downtown area.

Bikeway Locations

The Tillamook pedestrian system generally can be characterized as comprehensive in certain areas of the city and lacking in other areas. There are some gaps in connectivity between neighborhoods with regard to pedestrian facilities. In general, the high number of private accesses and conflict opportunities proves a barrier to continuous, connected pedestrian facilities in certain portions of Tillamook.

The bicycle system in Tillamook is minimal with designations occurring only on the state facilities mentioned above (U.S. 101 and Oregon 6). Only U.S. 101 has bicycle signage. The bicycle system does not provide any connectivity in Tillamook. Only U.S. 101 has a signed bicycle lane north of downtown (to the northern city limits). Even though this area along U.S. 101 is designated with a bike lanes, the signing is minimal. In the downtown core area (Main and Pacific Avenues), the bike lane is replaced by on-street parking. South of downtown near the southern city limit, there is a designated bicycle shoulder. Oregon 6 is designated as a bicycle shoulder without any signage. No separate bicycle facilities are provided on the local streets; bicyclists are required to share the roadway with vehicle traffic and pedestrians. Alder Lane provides a narrow faded striped bicycle/walking lane on the south side of the road from Evergreen Drive to Tillamook Junior High School and East Elementary School.

With the limited amount of bicycle facilities in Tillamook, the system can be characterized as recreational as is most of the bicycling along the Oregon Coast. From discussions with the city staff, a minimal amount of bicyclists are commuters. TCTD vehicles are equipped with bicycle racks to make facilitating between travel modes easier.

Bikeway Condition

Generally, existing bicycle facilities are characterized by good pavement condition. The U.S. 101 bicycle route in Tillamook has a high number of vehicle access points, both at

intersections and mid-block, which can cause barriers and hazards for cyclists. Only U.S. 101 in Tillamook is designated via signage. The Oregon 6 shoulder is in good condition and has limited access points.

Air System Inventory

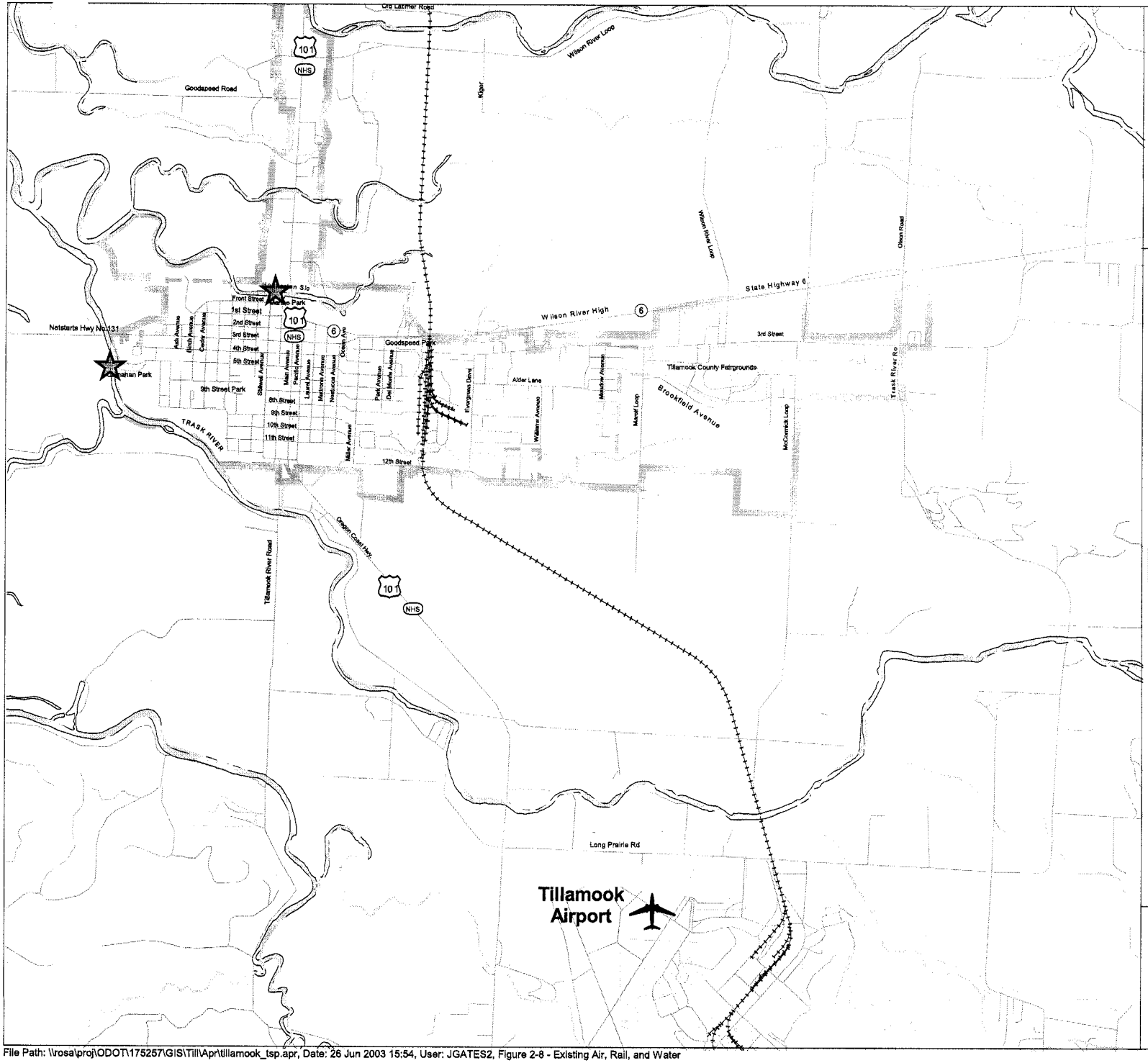
The Tillamook Airport, owned and operated by the Port of Tillamook Bay, is located south of Tillamook, outside the city limits adjacent to U.S. 101 as shown in Figure 2-8. The airport provides services ranging from light passenger planes and modern military fighters to experimental aircraft and airships, as well as daily freight. Currently, Tillamook Airport provides no commercial air passenger service, but the airport is suitable for most private or commercial aircraft. The Portland International Airport, which is located approximately 75 miles east of Tillamook, is the closest commercial air passenger service provider. The location of the airport is shown in Figure 2-10.

Freight System Inventory

Tillamook has designated various roads in the city as truck routes. The truck routes provide a connection between state facilities (U.S. 101, Oregon 6 and Netarts Highway [131]) and major freight destinations in the city (TP trucking, Tillamook Lumber Company and the industrial businesses on Front Street). U.S. 101, Oregon 6 and Netarts Highway (131) are not classified as freight routes in the OHP, but trucks use these state and regional facilities to access Tillamook. Sidewalks are provided along each of these roads, but bicycles share the road with vehicles. Signs are posted along these streets stating the truck designation.

The following are the city's designated freight routes (see Figure 2-9):

- Wilson River Loop
- 3rd Street
- Front Street
- Cedar Avenue (short segment)
- Birch Avenue (short segment)
- 1st Street
- Stillwell Avenue
- Latimer Road
- Trask River Road (south of Oregon 6)
- 10th Street
- 12th Street
- Del Monte Avenue (short segment)
- U.S. 101 (Main and Pacific Avenues) and Oregon 6 (although these are state highways, the city designates these roads as city freight routes)



Existing Air, Rail, and Water Facilities

City of

TILLAMOOK

CH2MHILL

ANGELO EATON

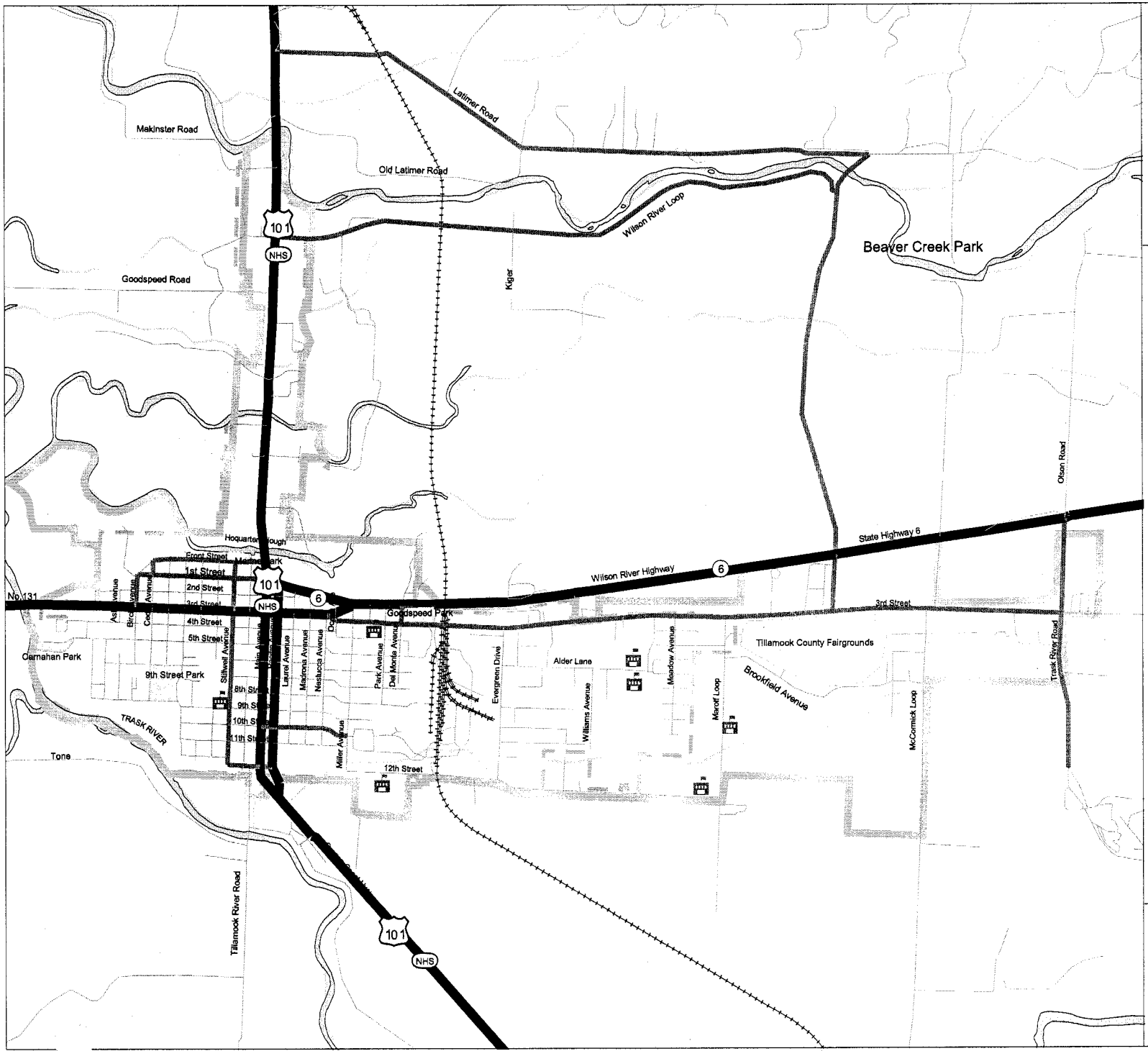
- Road
- Railroad
- Park
- City Limit
- Urban Growth Boundary
- Boat Ramp
- Airport

N

1000 0 1000 Feet

Figure 2-8
Transportation System Plan
Tillamook, OR

File Path: \\rosa\proj\ODOT\175257\GIS\Till\Apr\tillamook_tsp.apr, Date: 26 Jun 2003 15:54, User: JGATES2, Figure 2-8 - Existing Air, Rail, and Water



Existing Designated Truck Routes

City of

TILLAMOOK

CH2MHILL

ANGELO EATON

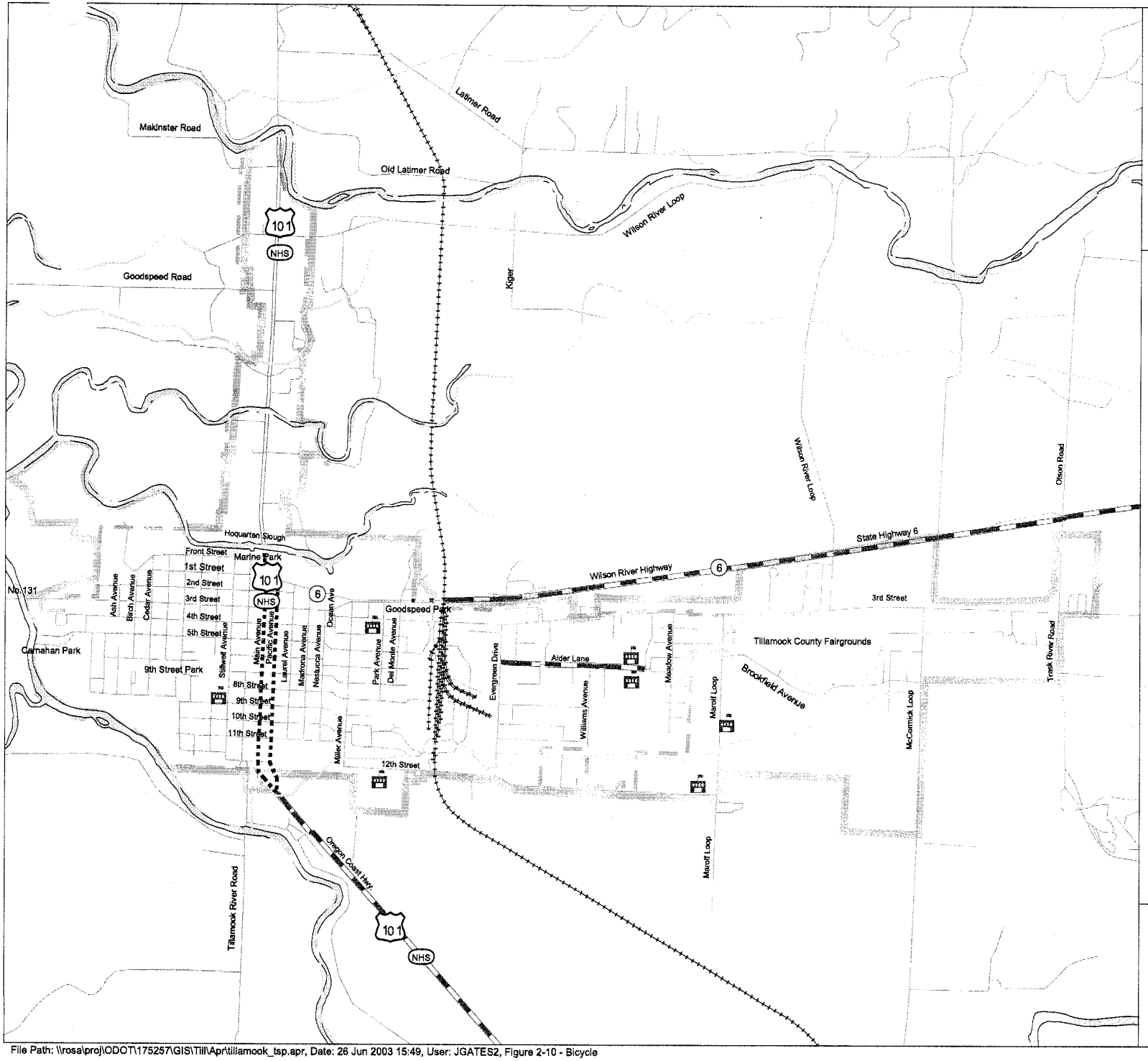
- Truck Route
- State Non-Designated Freight Route
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

N

1000 0 1000 Feet

Figure 2-9
Transportation System Plan
Tillamook, OR

File Path: \\ ...proj\ODOT\175257\GIS\Till\Apr\tillamook_tsp.apr, Date: 26 Jun 2003 15:54, User: JGATES2, Figure 2-9 - Truck Routes



Designated Bicycle Lanes

City of

TILLAMOOK

CH2MHILL

ANGLO EATON

- Signed Bicycle Lane
- Shared Roadway
- Shoulder Bikeway
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

N

1000 0 1000 Feet

Figure 2-10
Transportation System Plan
Tillamook, OR

File Path: \\rosa\proj\ODOT\175257\GIS\Till\Apr\tillamook_tsp.apr, Date: 26 Jun 2003 15:49, User: JGATES2, Figure 2-10 - Bicycle

The current truck routes lead to conflicts between trucks and pedestrians (that is, downtown Tillamook and Stillwell Avenue). It is preferred to separate trucks from other modes as much as possible. An alternative truck route that moves trucks onto non-residential roads without large traffic volumes may be preferred. It is noted that even with a truck route, trucks still may need to use other roads to achieve their destination. The intent of a truck route is to provide the most efficient route that minimizes the modal conflicts while providing adequate connections between the state and local systems.

Because of the trucking significance in Tillamook, truck percentages were calculated for the three state facilities in Tillamook. Along U.S. 101, 7 percent of the traffic is considered trucks. The percentage of truck traffic along Oregon 6 is 19 percent. This increased percentage is expected because Oregon 6 is one of the few east-west highways to the Portland metropolitan area from the coast. Netarts Highway (131) has the lowest percentage of truck traffic (6 percent) of the three highways. The alternative truck route study conducted by OTAK in 2001 indicated that the Tillamook Lumber Mill operates 130 to 150 trucks per day.

Rail System Inventory

There is one Class II rail facility in Tillamook, as shown in Figure 2-8. It is owned and operated by the Port of Tillamook Bay and is used on a daily basis by the Tillamook Lumber Company, located in the center of the city, and the Port of Tillamook Bay tenants, located immediately south of the city limits. The southern terminus of the rail line is at the Port of Tillamook Bay. In Tillamook, the rail line proceeds in the north-south direction between Miller Avenue and Evergreen Drive. There are two at-grade crossings—one at 3rd Street and the other at 12th Street. At the 3rd Street crossing, flashing lights and an automatic gate warn vehicles of oncoming trains. The 12th Street crossing is a spur line crossing with only static railroad signs placed on both sides of the track. At Oregon 6, the rail line is grade-separated above the roadway, then continues north, east of Tillamook.

In Tillamook, there is one freight train per day. The train performs two switching moves (between the main line and spur line) on the Tillamook Lumber Company property. Train speed on the track is limited to 25 mph, with the train speed usually at a maximum of 20 mph.

The Amtrak and Tri-Met services in Portland are the nearest passenger rail services. The Port of Tillamook Bay has a rail line in Tillamook, but it is not equipped for passenger rail service.

Water System Inventory

There are no boat moorage facilities in Tillamook. There are two boat ramps, one for the Trask River (at Carnahan Park) and one for the Hoquarten Slough (at Marine Park) as shown in Figure 2-10. A boat launch fee box is located at Carnahan Park, requesting a $2 fee.

Other Systems

The city sewage plant is located on the Trask River at the west end of 5th Street. One cellular communications tower is located in the city along U.S. 101 near the northern city limits and the Tillamook Cheese Factory. High-speed Internet equipment is being constructed along Oregon 6 and will be available to city residents in the near future.

SECTION 3

Future Transportation Conditions (2022) and Transportation System Needs

This section summarizes the methodology used to determine future travel demand and the results of the operational analysis of future, forecasted (2022), no-build, 30th-highest-hour conditions in Tillamook. The no-build analysis of future, forecasted conditions in year 2022 assumes existing roadway geometry and traffic control. This section also summarizes the needs of the transportation system as determined through the analysis of existing and future conditions. See the Background Document for more information on the methodology used in the analysis of future, forecasted, no-build conditions.

Population Growth

Anticipated population growth and increases in traffic (including tourist traffic) are important considerations for determining the future needs of the Tillamook transportation system. Within the next 20 years, population growth is expected in Tillamook and other incorporated communities in Tillamook County. The forcasted county population for 2020 is 41,788, corresponding to an 0.80 percent annual average between 2000 and 2020. In Tillamook, a 1.7 percent average annual growth rate is expected between 2000 and 2020, substantially greater than the county as a whole. Table 3-1 shows the historic and projected population for Tillamook, the incorporated areas, the unincorporated areas of the county and the county as a whole.

TABLE 3-1
Population Data for Tillamook and Tillamook County

	Actual[1]		Percent of County Population		New Forecasts		
Jurisdiction	1990	2000	1990	2000	2020 Urban Area Totals[2]	Percent of County Population	Average Annual Growth Rate 2000-2020
Tillamook[3]	4,006	4,352	18.57 percent	17.94 percent	5,757[4]	13.74 percent	1.41 percent
County Total	21,570	24,262	-	-	30,604	-	1.17 percent

[1] Center for Population Research and Census, Portland State University; U.S. Census.

[2] City totals projected based on previous percentages of county population and percent growth.

[3] County projection from the Office of Economic Analysis, Department of Administrative Services, State of Oregon.

[4] The City of Tillamook estimates a range from 4,190 to 5,811.

Future Development

According to the city staff, residential development is anticipated in the following locations:

- East of the downtown, outside the city limits, but within the UGB. Specifically Champion Park Phase II on Brookfield Avenue.
- Along 12th Street between Evergreen Drive and Marolf Loop and also within the area bound by 3rd Street, Evergreen Drive, Alder Lane and Linden Avenue. This area is zoned for apartment-level density. However, at this time, there are no specific development proposals.
- Along 3rd Street between Linden Avenue and Marolf Loop. The city is planning to bring this area inside the UGB for residential development with some commercial development. There have been discussions of creating a loop roadway system between Linden and Marolf to provide residential accesses.

Commercial development is planned in the following locations:

- Currently, TCTD is moving to the previous Human Service Building on 3rd Street, near Linden Avenue. This project is currently under construction.
- Along U.S. 101 on both sides of the road (north of downtown)
- Expansion of Blue Heron cheese facility along U.S. 101 north of downtown
- Expansion of Tillamook County Health Department at U.S. 101 (Main Avenue) and 8th Street intersection
- A potential storage unit on 3rd Street across from the fairgrounds
- Expansion of the Ford Dealership between 5th and 6th Streets and Main and Pacific Avenues
- Expansion of the Tillamook Credit Union, south of 5th Street between Pacific and Laurel Avenues
- Expansion/redevelopment of the 911 call center on 3rd and Madrona

Potential industrial development has been discussed in the following locations:

- Within the current Tillamook Lumber Company mill property to provide a wood chip mill.
- Warner meat warehouse on 5th Street

There is also potential for future residential or commercial development along 3rd Street, east of the downtown area.

Future Travel Demand

Several methodologies for determining future travel demand in Tillamook were considered, including use of the Oregon Statewide Model and historical growth rates. Through

discussions with ODOT's Transportation Planning and Analysis Unit (TPAU), historical growth rates calculated using the Future Volume Tables available on the ODOT Web site (http://www.odot.state.or.us/tddtpau/SysAnalysis.html) were used to determine future travel demand. This methodology is consistent with a Level 1 Trending Forecast as discussed in the ODOT TSP Guidelines. The forecasted average annual growth rate (AAGR) used in the analysis of future, forecasted, no-build conditions at study intersections in Tillamook is shown in Table 3-2. Forecasted, year 2022, 30th-highest-hour, no-build volumes are presented in Figure 3-1.

TABLE 3-2
State Highway Annual Growth Rates

Highway	Annual Growth Rate
U.S. 101, north of Oregon 6	1.9 percent
U.S. 101, south of Oregon 6	0.7 percent
Oregon 6	1.6 percent
Netarts Highway (131)	2.5 percent

Source: ODOT Transportation Volume Tables.
http://www.odot.state.or.us/tddtpau/DataRes.html#Future%20Traffic%20Volumes

The growth rate variance on U.S. 101 reflects regional and state travel patterns. U.S. 101 between Tillamook and Lincoln City (the major coastal city on U.S. 101 to the south) is expected to have minimal growth relative to other state facilities because other roads are more attractive to drivers (especially tourism from the Portland metropolitan area).

The analysis of future, forecasted, no-build conditions assumes that the growth rates that have been observed in the past 20 years will continue through the 20-year planning horizon. If conditions change unexpectedly between existing conditions (2002) and the 20-year planning horizon (2022), the future, forecasted, traffic volumes will need to be revised.

Future, Forecasted, No-Build Conditions (2022)

For the analysis of future, forecasted, no-build conditions (2022) at the 13 study intersections, Synchro, Version 5 was used. This methodology is based on the HCM. For unsignalized intersections, results from the Synchro HCM Unsignalized Report are reported in this subsection.

An analysis of future, forecasted, no-build conditions was conducted using the 30th-highest-hour traffic volumes shown in Figure 3-1 to evaluate how the existing transportation will perform during the peak tourist season compared with OHP mobility standards.

A review with the city staff concluded that no defined improvements are expected to be constructed on the roadway network in the near future. Therefore, the no-build condition assumes the current traffic control and lane channelization at the intersections.

Traffic Operations at Intersections (30th-Highest-Hour Conditions)

This analysis predicts 8 of the 13 study intersections to operate within the established OHP standards under future, forecasted, no-build, 30th-highest-hour conditions. In Section 4, alternatives will be developed and analyzed to improve the operating conditions at the five study intersections that are not expected to meet OHP mobility standards.

Signalized Intersections

Table 3-3 summarizes the results of the operational analysis of future conditions for no-build, 30th-highest-hour volumes at the five signalized intersections in Tillamook. With the existing geometric configuration of each intersection and the forecasted, future traffic volumes, three signalized intersections will exceed OHP v/c mobility standards: U.S. 101 (Main Avenue) at Wilson River Loop, 1st Street and 3rd Street. In Table 3-3, white italic text on a black background indicates intersections that fail to meet OHP mobility standards.

TABLE 3-3
2022 No-Build Operational Analysis for Signalized Intersections—30th Highest Hour

Intersection	V/C Ratio	LOS	Delay (seconds/ vehicle)	Mobility Standard (v/c ratio)[1]
U.S. 101 (Main Avenue) and Wilson River Loop	***0.80***	***C***	***21.9***	***0.75***
U.S. 101 (Main Avenue) and 1st Street (Oregon 6)	***1.52***	***F***	***196.3***	***0.80***
U.S. 101 (Pacific Avenue) and 1st Street (Oregon 6)	0.77	B	18.6	0.80
U.S. 101 (Main Avenue) and 3rd Street (Oregon 6)	***1.00***	***C***	***33.8***	***0.80***
U.S. 101 (Pacific Avenue) and 3rd Street (Oregon 6)	0.70	B	14.1	0.80

[1] If two state highways intersect, the lower mobility standard (v/c ratio) applies. When a local road intersects with a state highway, the state highway mobility standard applies.

Note: Italicized text indicates intersections that fail to meet 1999 OHP mobility standards.

v/c = volume-to-capacity.

- The U.S. 101 at Wilson River Loop intersection will fail to meet mobility standards under future, forecasted, no-build conditions because two movements (westbound and northbound left-turn) are expected to have v/c ratios that exceed 0.75.
- The U.S. 101 at 1st Street intersection will fail to meet mobility standards under future, forecasted, no-build conditions. The westbound right turn is expected to be over capacity, with a v/c ratio of 1.92. Because of the high percentage of westbound right-turn vehicles at this intersection, operations on the southbound movement degrade because of less green time.

Future No-Build 2022 Traffic Volumes, Lane Configurations and Traffic Control

City of

TILLAMOOK

CH2MHILL

ANGELO EATON

(4) Intersection Number. See below for Volume and Lane Diagram

STOP Stop-Controlled Approach

Signal-Controlled Intersection

Road

Railroad

School

Park

City Limit

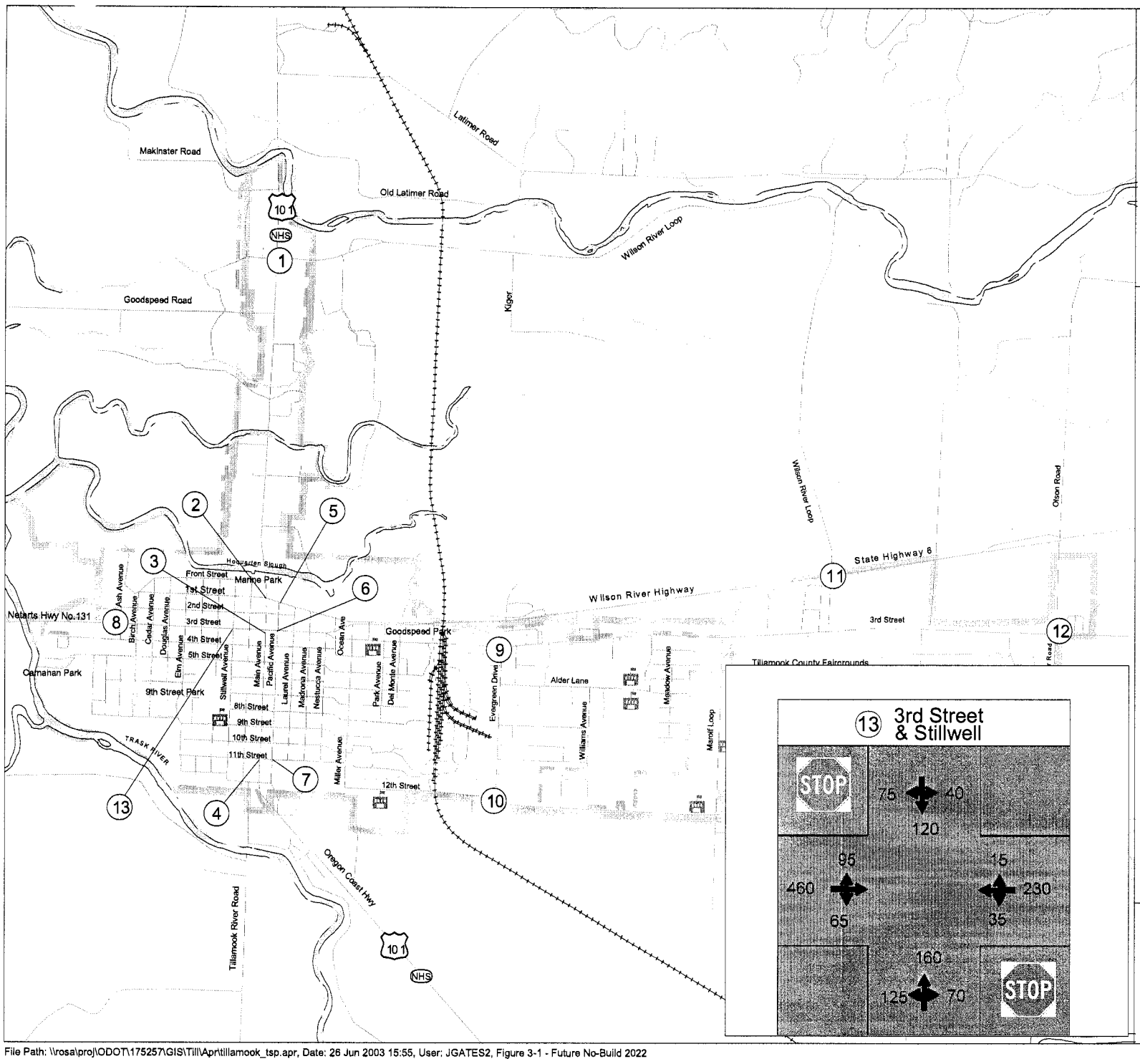
Urban Growth Boundary

N

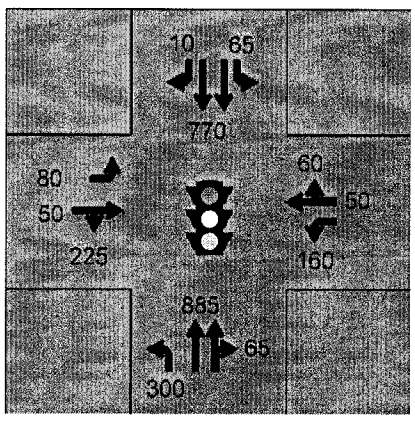
1000 0 1000 Feet

Figure 3-1
Transportation System Plan
Tillamook, OR

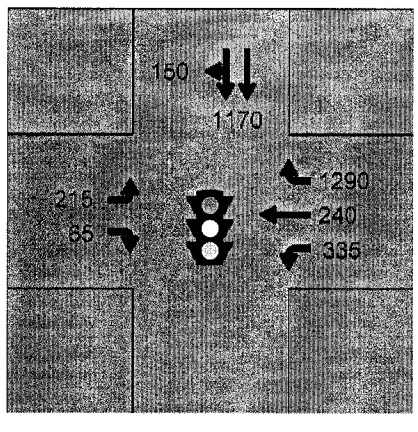
File Path: \\rosa\proj\ODOT\175257\GIS\Till\Apr\tillamook_tsp.apr, Date: 26 Jun 2003 15:55, User: JGATES2, Figure 3-1 - Future No-Build 2022



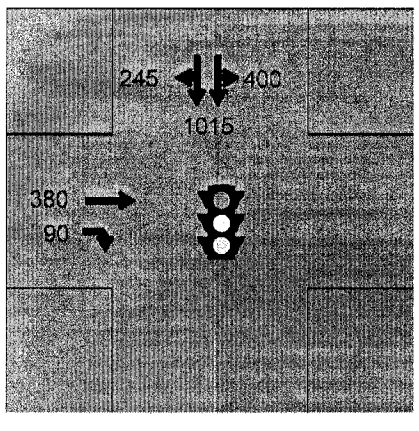
(1) US 101 & Wilson River Loop



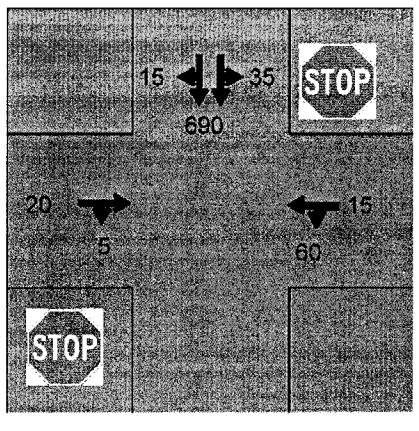
(2) US 101 (Main St) & 1st Street



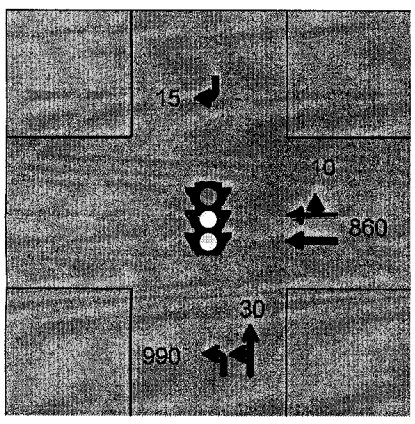
(3) US 101 (Main St) & 3rd Street



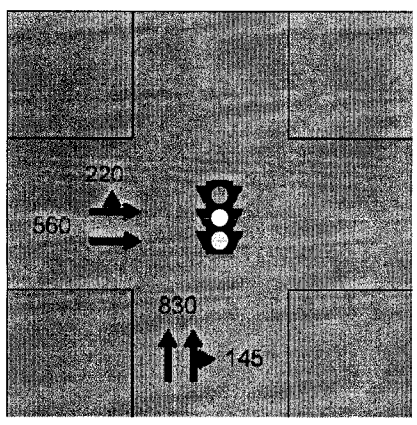
(4) US 101 (Main St) & 11th Street



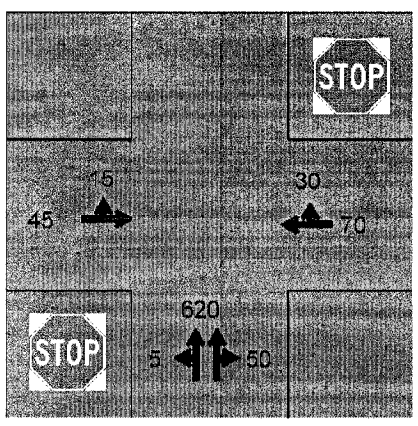
(5) US 101 (Pacific St) & 1st Street



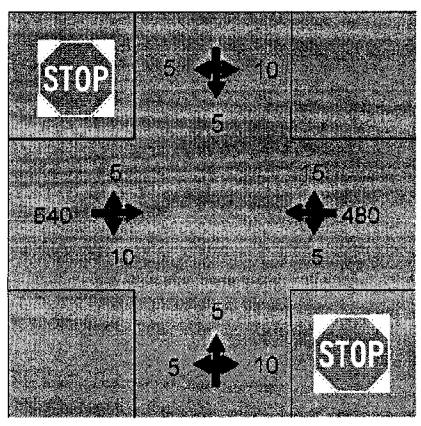
(6) US 101 (Pacific St) & 3rd Street



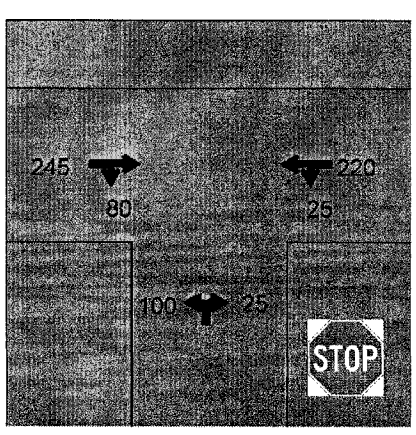
(7) US 101 (Pacific St) & 11th Street



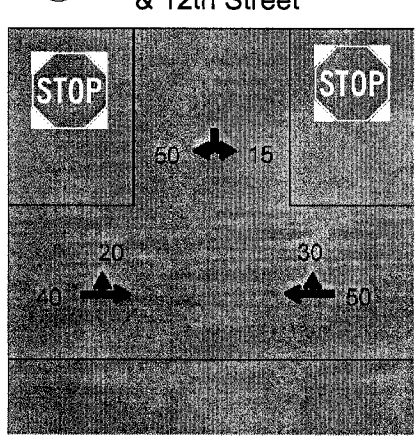
(8) Ash Street & 3rdStreet



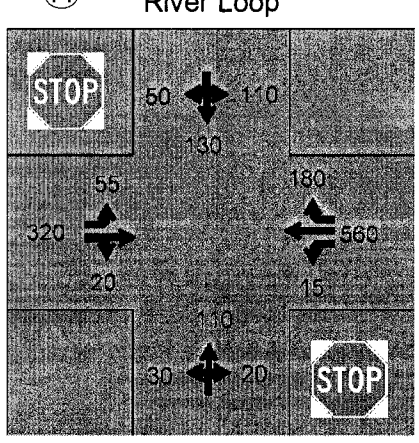
(9) Evergreen Drive & 3rd Street



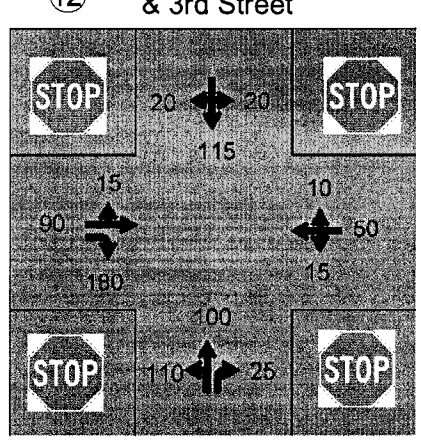
(10) Evergreen Drive & 12th Street



(11) OR 6 & Wilson River Loop



(12) Trask River Road & 3rd Street



- The U.S. 101 at 3rd Street intersection is predicted to fail mobility standards because of the high volumes of southbound turning movements (400 left turns and 245 right turns) and the shared lane channelization. The shared lane reduces the potential through capacity because left- and right-turn movements restrict a through vehicle's ability to pass through the intersection. These factors contribute to the poor operating conditions on the southbound approach under future, forecasted, no-build conditions and push the overall intersection v/c ratio to exceed the mobility standard.

Unsignalized Intersections

Table 3-4 summarizes the results of the no-build operational analysis of future conditions for the 30th highest hour at the unsignalized (two-way, stop-controlled, and all-way, stop-controlled) intersections in Tillamook. With the existing geometric configuration of each intersection and future, forecasted, traffic volumes, two intersections (Netarts Highway [131] and Stillwell Avenue, and Oregon 6 and Wilson River Loop) are expected to exceed OHP v/c mobility standards.

TABLE 3-4
2022 No-Build Operational Analysis for Unsignalized Intersections—30th Highest Hour

Intersection	Major Road Approaches				Minor Road Approaches			
	LOS	V/C Ratio	Delay (seconds/ vehicle)	Mobility Standard (v/c ratio)[1]	LOS	V/C Ratio	Delay (seconds/ vehicle)	Mobility Standard (v/c ratio)[1]
11th Street and Main Avenue (U.S. 101)[2]	A	0.22	0.8	0.80	C	0.21	18.1	0.85
11th Street and Pacific Avenue (U.S. 101)[2]	A	0.22	0.0	0.80	C	0.28	17.4	0.85
3rd Street (Netarts Highway) and Ash Avenue[2]	A	0.00	0.1	0.85	C	0.06	22.1	0.85
3rd Street (Netarts Highway) and Stillwell Avenue[2]	***A***	***0.08***	***2.0***	***0.85***	***F***	***4.29***	***>1000***	***0.85***
3rd Street and Evergreen Drive[2]	A	0.21	0.9	0.85	C	0.30	15.6	0.85
3rd Street and Trask/Olsen Road[3]	A	0.37	10.0	0.85	N/A	N/A	N/A	0.85
12th Street and Evergreen Drive[2]	B	0.11	10.1	0.85	A	0.07	8.9	0.85
Oregon 6 and Wilson River Loop Road[2]	***A***	***0.35***	***1.2***	***0.75***	***F***	***2.17***	***598.4***	***0.80***

[1] If two state highways intersection, the lower mobility standard (v/c ratio) applies. When a local road intersects with a state highway, the state highway mobility standard applies.

[2] Two-way, stop-controlled intersection. Results are reported for the movement with the worst operating performance on both the major and minor approaches.

[3] All-way, stop-controlled intersection. Results reported for the intersection.

Note: Italicized text indicates intersections that fail to meet 1999 OHP mobility standards.

v/c = volume-to-capacity.

The minor approaches at the two two-way, stop-controlled unsignalized intersections that are not expected to meet OHP mobility standards would operate at LOS F in year 2022. At both of the intersections that will not meet OHP mobility standards under future,

forecasted, no-build conditions (3rd Street and Stillwell Avenue, and Oregon 6 and Wilson River Loop), the minor approaches will not meet standards. This occurs because the minor movements are required to stop and wait for an acceptable gap in traffic along the major road, causing high delay times for the minor movements. In Section 4, alternatives are developed and analyzed to improve the operating conditions at each of these intersections. These alternatives can range from additional minor street turn lanes to a traffic signal installation.

Preliminary, No-Build, Year 2022, Traffic Signal Warrant Analysis

A preliminary traffic signal warrant analysis was conducted for all of the unsignalized intersections included in the future, no-build, 2022 analysis to determine if a traffic signal needs to be installed. The preliminary traffic signal warrant analysis is based on Warrant 1 (Eight-Hour Vehicular Volume), Case A and Case B, from the Manual on Uniform Traffic Control Devices (MUTCD). The analysis was based on forecasted, 30th-highest-hour, 2022, ADT volumes, as directed by the TPAU. To predict 2022 ADT volumes, the same percent of existing 30th highest hour to daily volumes was used.

Case A of Warrant 1 (Minimum Vehicular Volume) is designed to warrant the installation of traffic signals at intersections where there are high volumes of intersecting traffic on the minor street. Case B of Warrant 1 (Interruption of Continuous Traffic) is designed to warrant the installation of a traffic signal at intersections where high volumes on the major street restrict movements to and from the minor street. A location must meet one of these two conditions to advance to a more detailed examination of the installation of a traffic signal. Even if a location meets one of the two cases, it does not guarantee a signal installation. The MUTCD Millennium Edition provides more discussion on specifics of the warrant analysis.

As described in the TPAU procedure manual, the preliminary traffic signal warrant analysis can be performed under the 70 percent column "if the 85 percentile speed of major street traffic exceeds 40 mph in either an urban or rural area, or when the intersection lies within the built-up area of an isolated community having a population of less than 10,000"[1]. Using the forecasted population growth rate for Tillamook County on the Portland State University Population Research Center Web site, Tillamook is expected to have a population of less than 10,000 in year 2022. Therefore, the 70 percent column for the preliminary signal warrant analysis was used as the threshold. The MUTCD Millennium Edition provides more discussion on specifics of the warrant analysis.

As shown in Table 3-5, the intersections of 3rd Street (Netarts Highway [131]) at Stillwell Avenue, and Oregon 6 and Wilson River Loop will meet the preliminary signal warrants in year 2022 under forecasted, no-build conditions. Both Case A and Case B warrant volumes were exceeded by the approach volumes at each intersection, thereby meeting the signal warrant.

[1] Based on the Manual of Uniform Traffic Control Devices, MUTCD.

TABLE 3-5
Results of Preliminary Traffic Signal Warrant Analysis (2022)—No-Build Conditions

Intersection	Meets Preliminary Warrant Analysis (70%)?
11th Street and Main Avenue (U.S. 101)	No
11th Street and Pacific Avenue (U.S. 101)	No
3rd Street (Netarts Highway) and Ash Avenue	No
3rd Street (Netarts Highway) and Stillwell Avenue	Yes
3rd Street and Evergreen Drive	No
3rd Street and Trask/Olsen Road	No
12th Street and Evergreen Drive	No
Oregon 6 and Wilson River Loop Road	Yes

As described in the TSP guidelines, an analysis was done to document when the 3rd Street (Netarts Highway [131]) and Stillwell Avenue, and Oregon 6 and Wilson River Loop Road intersections fail. The interim (from existing to 2022 planning horizon) traffic volumes were forecasted using the same growth rate methodology described in the previous section. From this analysis it was found that the intersections currently (2002) warrant a traffic signal.

It should be noted that a traffic signal may not be installed at all the locations meeting the preliminary signal warrant, per the preliminary traffic signal warrant analysis worksheets. In Section 4, alternatives are developed to provide adequate mobility while minimizing the installation of additional traffic signals along state facilities.

Conclusions

Under existing, 30th-highest-hour operating conditions (2002), 3 of the 13 intersections in the study area do not meet OHP mobility standards in Tillamook.

Assuming continuation of historical growth trends during the next 20 years, operating conditions at 5 of the 13 intersections will not meet OHP mobility standards under forecasted, 30th-highest-hour, no-build conditions in year 2022. Of the eight unsignalized intersections in Tillamook, two most likely will meet traffic signal warrants in year 2022 under no-build conditions.

Projects to improve operating conditions in year 2022 in Tillamook are evaluated in Section 4. Projects are developed on the basis of goals and objectives, including preservation of the state highway system by minimizing the need for future signalization.

Transportation System Needs

This subsection describes the short- and long-term (20-year planning horizon) transportation system needs in Tillamook. Roadway, pedestrian and bicycle, transit, rail, air and water needs were identified on the basis of the analyses of existing and future, forecasted, no-build

conditions, and projects that have been recommended in relevant planning documents and policies. The needs included in this subsection have not been prioritized. In Section 4, projects are developed to address the needs described in this section.

Roadway System Needs

Introduction

Through the analysis of existing and future, forecasted, no-build, 30th-highest-hour conditions; capacity, safety and other roadway deficiencies were identified for state, county and local facilities in Tillamook. This subsection summarizes those deficiencies along with deficiencies identified in other relevant planning documents. Potential projects to address those needs are listed in Appendix B.

Operational Deficiencies—30th-Highest-Hour Conditions

In the existing and future, forecasted, no-build, 30th-highest-hour operational analysis, 13 study intersections were evaluated in Tillamook. The OHP mobility standards were used in the analysis.

Under the existing 30th-highest-hour conditions, there are operational deficiencies at 3 of the 13 study intersections relative to OHP mobility standards:

- U.S. 101 and 1st Street (Oregon 6) (signalized)
- Netarts Highway (131) (3rd Street) and Stillwell Avenue
- Oregon 6 and Wilson River Loop

Under future, forecasted, no-build, 30th-highest-hour conditions, traffic conditions become progressively worse and there are operational deficiencies at two more study intersections relative to OHP mobility standards:

- U.S. 101 and Wilson River Loop (signalized)
- U.S. 101 (Main Avenue) and 3rd Street (signalized)

Improvements at unsignalized intersections are not proposed unless the intersection fails to meet preliminary signal warrants. At that time, channelization improvements will be evaluated. If additional turn lanes do not improve the conditions to acceptable levels then a traffic signal may be recommended to achieve an acceptable intersection v/c ratio.

Preliminary Traffic Signal Warrant Analysis

The preliminary traffic signal warrant analysis was based on forecasted, year 2022, 30th-highest-ADT volumes, as directed by the TPAU, and does not take into account seasonal increases in traffic on state highways resulting from tourism.

Under future, forecasted, no-build conditions, the following locations meet the preliminary traffic signal warrant:

- Netarts Highway (131) (3rd Street) and Stillwell Avenue
- Oregon 6 and Wilson River Loop

ODOT has prepared a preliminary interchange configuration for the Oregon 6 and Wilson River Loop intersection. This improvement is recommended as the long-term solution. The new interchange would provide incentive for trucks to use Wilson River Loop as a northern bypass around Tillamook. If the interchange is not feasible, installing a traffic signal is suggested to provide a short-term remedy to the capacity and safety issues at this intersection. Installation of a traffic signal would be subject to ODOT approval.

An iterative traffic volume forecasting process was conducted to identify when these intersections are warranted for a traffic signal. From this analysis, both of these intersections are warranted for a traffic signal in the near future (less than 5 years).

Safety Needs

Through the analysis of existing conditions, comments from the PMT, PAC and recommendations in relevant planning documents, several safety-related issues were identified. Appendix B contains this list of the potential safety projects (not prioritized).

Improvements to the following intersections with geometric, sight distance or safety issues are recommended:

- U.S. 101 at Hadley Road (high accident rate)
- U.S. 101 (Pacific Avenue) at 3rd Street (top 10 percent SPIS site)
- Netarts Highway (131) at Stillwell Avenue (high accident rate)
- Oregon 6 at Wilson River Loop (high accident rate)
- U.S. 101 and Front Street (top 10 percent SPIS site)
- U.S. 101 (Pacific Avenue) at 2nd Street (top 10 percent SPIS site)
- U.S. 101 and Oregon 6 (skewed geometry, potential safety issues with confusing operations)
- Ocean Place at 4th and 3rd Streets (skewed intersections)
- Alder Lane at Dogwood and Cypress Streets (offset intersection near school)
- 12th Street and U.S. 101 (Pacific Avenue)—recommended by the PAC

Other Safety Deficiencies

In addition to the intersections listed above, RVs making turn movements in the downtown area have difficulty because of the constrained intersection geometry (minimal turning radii). This is especially a problem at U.S. 101 (Main Avenue) and 3rd Street. The downtown intersections are constrained from any major widening because of the surrounding properties and impacts it would cause.

During the PAC meetings, several attendees commented that unless trucks are removed from the downtown area, the livability and economic vitality of the city will continue to degrade. An alternative that removes trucks from U.S. 101 could alleviate some of the intersection issues. Another possible solution is to remove parking at the intersection and

reconstruct the intersection corners to fit a large, turning vehicle. This would have parking and possible right-of-way impacts. (See further discussion in the freight needs and freight projects sections.)

The 12th Street railroad crossing is another safety concern for the city because it does not include any safety measures other than static signing, even though it is next to a pedestrian generator (Tillamook High School).

Bridge Needs

The project list in Appendix B includes bridges with sufficiency ratings less than or equal to 50, and bridge projects listed in corridor plans and STIP project lists. Bridges with a sufficiency rating less than 50 are considered structurally deficient or functionally obsolete, and are recommended for replacement. In Tillamook, bridges with a rating less than 50 include:

- U.S. 101 at Wilson River, #1499.

This bridge is included in STIP Project #11667. This project will widen U.S. 101 to five lanes from Suppress Road to Wilson River Road, rebuild the bridge, and add a signal at the Latimer Road intersection.

Overlay Needs

Overlay locations were recommended on the basis of the analysis of existing conditions. Only roadways that were included in the study area (see existing conditions and inventory memoranda) are analyzed.

- Netarts Highway (131) (MP 0.00 to MP 9.08) (in 2003-2007 STIP Project #12308)
- Oregon 6 (various segments between MP 0.50 to MP 18.00) (in 2002-2005 STIP Project #10748)
- 11th Street (Stillwell Avenue to Miller Avenue)
- Alder Lane (Evergreen Drive to Williams Avenue)
- 12th Street (Evergreen Drive to Marolf Loop)

Roads qualitatively assessed a "fair" pavement condition are less of a priority, but will most likely need to be overlaid in the future. These roads include:

- 3rd Street (Nestucca Avenue to city UGB)
- 10th Street (Elm Avenue to Miller Avenue)
- 11th Street (Stillwell Avenue to Main Avenue)
- 12 Street (between Main and Pacific Avenues, and between Miller Avenue to Evergreen Drive)
- Marolf Loop (south end of the road)
- Evergreen Drive (Walnut Lane to 3rd Street)

Capacity Needs on Local and State Roadway Segments

Non-intersection major road widening to provide additional vehicle capacity is not recommended in Tillamook. Roadway widening is recommended to provide sidewalk/bike lanes on the following roads because many roads do not have sidewalk and pedestrian facilities. Most of these locations are near or connect to pedestrian generators. These projects also are described in the pedestrian and bicycle subsection.

- 3rd Street, Evergreen Drive to Trask River bridge (bike lane)
- 3rd Street (Netarts Highway [131]), Trask River bridge to Ash Avenue (sidewalk)
- 3rd Street, east of Evergreen Drive to McCormick Loop (bike lane/sidewalk)
- Evergreen Drive (sidewalk)
- 11th Street, U.S. 101 to Stillwell Avenue (bike lane)
- 12th Street, east of railroad to Marolf Loop (sidewalk)
- Stillwell Avenue, Front Street to 11th Street (bike lane)
- Front Street (sidewalk with bike lane between Stillwell Avenue and U.S. 101)
- Alder Lane (bike lane/sidewalk)
- Brookfield Avenue (shoulder)
- Wilson River Loop, Oregon 6 to 3rd Street – (shoulder)
- McCormick Loop (shoulder)
- Marolf Loop (shoulder)

Operations Needs

Current information regarding parking, flooding and truck routing is lacking in Tillamook. Given the number of trucks driving through Tillamook, truck signing is a potential need especially if trucks are going to be rerouted off U.S. 101. Potential operations projects include variable message signing along U.S. 101 to improve driver/truck information.

Access Management Needs

U.S. 101, north of Oregon 6 (1st Street), is a segment of roadway with many driveways and conflicting movements that have led to accidents. Safety measures, such as consolidation of driveways and/or the addition of a median barrier, would improve the operations in this corridor. Limiting the turn movements to right-in, right-out is another possibility to provide access management. Treatments could be similar to the U.S. 101 access restrictions north of Goodspeed Road. Providing access management through this corridor also is recommended in the Draft Oregon Coast Highway Corridor Master Plan.

One specific location in this area, U.S. 101 and Hadley Road, has the highest crash rate in the city. Most of the crashes at this location are partially caused by the proximity of the driveway location. At this location, remedies should be examined that will improve the safety of the intersection. Typical access management treatments include consolidation of the driveways near the U.S. 101 and Hadley Road intersection and/or relocation of the driveways farther from the intersection. Another option is to the restrict the movements to right-in, right-out at the driveways by means of a raised median. Removing the driveway accidents from the intersection would remove this intersection from the Top 10 crash sites list in Tillamook.

Mobility/Connectivity Needs

From discussions with city staff and reviewing city documents, there are numerous potential connectivity projects to accommodate possible future development and to complete the city's roadway grid systems. The following are possible street extensions:

- Extend Meadow Avenue to 12th Street
- Extend Trout Avenue between 3rd Street and Oregon 6
- Extend 12th Street to U.S. 101 (Pacific Avenue) and to McCormick Loop
- Extend Beech Street to Marolf Loop
- Designate Spruce Avenue as a public road and remove the barriers at Apple and Beech Streets. Connect Spruce to Cypress to complete roadway grid system
- Extend 1st Street to Netarts Highway (131)
- 9th Street, cul-de-sac one side of the park and add parking on the other side
- Extend Filbert Street to Marolf Loop
- Connect Hawthorne Lane between Meadow Avenue and Williams Avenue
- Extend Williams Avenue to 12th Street
- Other extensions to address freight needs (potential alternate route – see Freight Needs section)

These potential extensions will be examined in more detail in Section 4. Opportunities to gain private-public partnerships to provide some of these connectivity projects should be examined when or if development occurs in these areas.

Currently, U.S. 101 is a lifeline route for many of the coastal cities; however, the roadway segment between Oregon 6 and the northern city limits is below the floodplain. In the Freight Needs subsection, options for a parallel roadway that could be used as an alternative flood route will be examined. If these options are not feasible, then a feasibility study should be considered to analyze raising U.S. 101 above the floodplain with minimal impact to the surrounding properties.[2]

Parking Needs and Projects

PAC members have stated that during the tourist season parking in the downtown area is limited. While this may be a problem during peak times, visual inspection suggests there is otherwise sufficient on-street parking in Tillamook. Parking in the downtown is available along all parallel streets and cross-streets with U.S. 101. Because there are limited opportunities to expand on-street parking, opportunities for off-street parking might be more feasible. Visual inspection during field work indicated that parking along the cross-streets off U.S. 101 was available. Better signing to direct drivers to these locations could help resolve the parking issue in the downtown area.

To sufficiently understand the parking during peak and non-peak seasons, a parking study is recommended. If the recommendations from this study suggest a problem, there are minimal locations to expand the amount of on-street parking. Therefore, opportunities to create additional off-street parking area should be examined. One lot that was recently purchased by the city is along Ivy Avenue between 3rd and 4th Streets. This lot is centrally

[2] Draft Oregon Coast Highway Corridor Master Plan.

located and with visible signing could be used efficiently as a central downtown parking lot. If off-street parking is provided, U.S. 101 could be widened to three lanes at 3rd Street (eliminating on-street parking in this location) to improve the operations at some of the intersections[2].

Parking along Laurel Avenue serves several key facilities (museum, transit stop, county courthouse and city hall) and, therefore, parking stalls typically are occupied. The parking study should examine opportunities with private business to use portions of their lots during peak times.

Pedestrian and Bicycle System Needs

Introduction

Recommended pedestrian and bicycle system improvements in Tillamook include projects on state, county and local roadways, as well as off-street pedestrian and bicycle facilities. The recommended projects are based on review of existing pedestrian and bicycle system conditions and existing pedestrian and bicycle system deficiencies and needs, as well as a review of existing state, county and local pedestrian and bicycle plans. Because of cost efficiencies, pedestrian and bicycle improvements—ranging from sidewalks to widened shoulders—should be considered any time a roadway is improved for any reason.

The recommended pedestrian and bicycle system improvements address gaps in connectivity and lack of crosswalks or other safety considerations. Addressing these needs would improve the system for users, including the transportation disadvantaged. Regular maintenance of sidewalks and bicycle lanes/shoulders also should be a priority, to promote bicyclist and pedestrian access and safety. Access management also should be addressed with regard to pedestrian and bicyclist safety (in addition to roadway capacity preservation).

Functional Classification and Bicycle and Pedestrian Systems

The Tillamook TSP contains a functional classification system for Tillamook, as well as recommended street standards for incorporation into city code. According to the recommended street standards, bicycle lanes and sidewalks should be provided on both sides of all new arterial and collector roadways. The following roadways should be retrofitted with bicycle and pedestrian improvements because these roadways undergo roadway maintenance or other projects:

- 3rd Street (Trask River bridge to McCormick Loop)
- Evergreen Drive
- 10th Street
- 11th Street
- Stillwell Avenue
- Marolf Loop
- McCormick Loop
- Miller Avenue
- Brookfield Avenue

- Alder Lane
- Wilson River Loop (Oregon 6 to 3rd Street)
- Front Street
- 1st Street
- 4th Street (U.S. 101 to Ocean Place)

The street standards will help to provide a more connected and safer Tillamook pedestrian and bicycle system as development occurs.

Pedestrian System Improvements on State Facilities

According to the ODOT Bikeway, Sidewalk and Crosswalk Report, sidewalks should be added to the segments of the state roadways listed in Table 3-6. These locations are in Tillamook.

TABLE 3-6
ODOT Recommended State Facility Sidewalk Locations

Roadway	Milepost	Location	Facility Type
U.S. 101	65.64 to 65.55	1st Street to Hoquarten Slough	Install sidewalk on east side of street
Oregon 6	0.22 to 0.28	Ocean Place to Miller Avenue	Install sidewalks on both sides of street
Netarts Highway (131)	8.56 to 8.62	Trask River Bridge to Ash Avenue	Install sidewalks on both sides of street[1]

Source: Oregon Department of Transportation Bike Inventory Program, www.odot.state.or.us/transview/highway reports/bikeway_report.cfm

[1] Excludes the south side of 3rd Street, at the Senior Apartment property. This property has sidewalks.

In addition to these identified locations, the city has identified a need to improve the pedestrian atmosphere in the general downtown area. The city applied for, but did not receive, a Transportation Enhancement Grant in 2003 for a project to replace sidewalks along U.S. 101 (Main Avenue and Pacific Avenue) from Hoquarten Slough to 4th Street. This project would provide new curbs and sidewalks, bulb-outs at three locations, decorative streetlights and underground utilities. These tasks describe Phase 1 of the project. The complete project would extend south of 12th Street. These improvements would meet a need to improve the pedestrian system in the downtown while stimulating the downtown business core. Installation of bulb-outs (curb extensions) on U.S. 101 would need to be coordinated with ODOT and designed to accommodate turning vehicles.

Recommended pedestrian system improvements on county or local facilities in Tillamook are derived from two sources: a review of relevant planning documents and policies, and an analysis of existing conditions and deficiencies based on field visits to Tillamook in fall 2002. With the lack of bicycle facilities in Tillamook, a general recommendation from a previous study was to develop a detailed bicycle/pedestrian circulation plan to improve the safety of bicyclists. As part of the TSP process, a system pedestrian/bicycle plan will be developed. The improvements to achieve a comprehensive, multimodal system are summarized in Table 3-7.

TABLE 3-7
Recommended Local Street Sidewalk Locations

Roadway	Location	Facility Type
3rd Street	Evergreen Drive to Trask River Road	Sidewalks on both sides
12th Street	Railroad crossing to Marolf Loop	Installation of sidewalks on both sides—school access
Evergreen Drive	3rd Street to 12th Street	Installation of sidewalks on both sides—residential/school connectivity
Alder Lane	Evergreen Drive to Dogwood Street	Installation of sidewalks on both sides—school access
4th Street	Nestucca to Miller Avenues	Construct sidewalk on both sides
Front Street	U.S. 101 to Cedar Avenue	Complete sidewalk on both sides
Stillwell Avenue	Front to 1st Street and 11th to 12th Streets	Construct sidewalk on east side of road
Netarts Highway (131) (3rd Street)	Trask River Bridge to Ash Avenue	Sidewalks where missing (short segments on the north and south sides)

In addition to the recommended sidewalk locations, the downtown sidewalk and ramps are in poor condition and are a safety hazard with segments of sidewalk cracked and uprooted. It is recommended to create an annual pedestrian maintenance program to modernize the critical sections or require it during redevelopment.

Pedestrian System Improvements on Local Facilities

Other pedestrian system improvements are recommended on facilities in Tillamook (see Table 3-8). Many local roadways in Tillamook have low traffic volumes and, therefore, pedestrians can safely share the roadway with motorists and bicyclists. However, several local roadways warrant improved pedestrian facilities. The downtown Tillamook area would benefit by the addition of pedestrian amenities, such as benches, drinking fountains, trash receptacles, and informational signage or historical kiosks.[3]

[3] Draft Oregon Coast Highway Corridor Master Plan and Tillamook Oregon Downtown Development Association's Report.

TABLE 3-8
Recommended Pedestrian System Improvements

Roadway	Location	Facility Type
U.S. 101 (Main Avenue) Downtown Intersections	2nd, 3rd, 4th, 9th and 11th Street intersections	Install pedestrian bulb-outs at the intersection corners. Main Avenue and 2nd Street intersection already has one corner with a bulb-out.[1]
U.S. 101 (Pacific Avenue) Downtown Intersections	2nd, 3rd, 4th, 9th and 11th Street intersections	Install Pedestrian bulb-outs at the intersection corners.[1]
U.S. 101	Between Wilson River Loop and Hoquarten Slough	Pedestrian activated signal crossing
Laurel Avenue	1st Street and 3rd Street	Install pedestrian bulb-outs at the intersection Corners
3rd Street	Tillamook Fairgrounds	Install marked crosswalks
Miller Avenue	Where ramps are located	Stripe crosswalks
Stillwell Avenue	Liberty Elementary School	Restripe marked crosswalks
3rd Street	Wilson Elementary School/Goodspeed Park	Restripe marked crosswalks

[1] Included in Tillamook's Transportation Enhancement Project.

Americans with Disabilities Act Compliance

New sidewalks should be constructed to ADA standards, including adequate width (3 feet minimum clear area), grade and cross-slope. Existing sidewalks should be retrofitted with ADA-compliant facilities where necessary and when possible. These changes would improve the system for users, including the transportation disadvantaged.

Tillamook has some ADA-compliant facilities, such as pedestrian ramps, in the downtown area and at the TCTD's main transit hub. Pedestrian ramps should be constructed to federal and state standards, including proper grade, landing area dimensions and pavement quality.

The following locations should be examined with regard to ADA facility improvements:

- **Downtown Tillamook.** Main and Pacific Avenues and their approaches should be serviced with pedestrian ramps for access and connectivity, particularly in the downtown commercial area. Sidewalks along Main and Pacific Avenues and approaching roadways should maintain a 3-foot-wide minimum clear area. Business owners should be encouraged to help maintain this standard by keeping street furniture and signs out of the clear area.
- **Liberty Elementary School.** Sidewalk/Crosswalks should be upgraded with ADA ramps at 7th and 8th Streets.
- **Goodspeed Park and Wilson Elementary School.** Ramps in this area along 3rd Street should be modernized for ADA compliance.

- **Miller Avenue.** Ramps should be constructed to ADA standards, where missing.
- **10th Street.** Ramps should be constructed to ADA standards, where missing. Ramps are currently only at Stillwell Avenue and U.S. 101 intersections.

Tillamook Bicycle System

Bicycle routes in Tillamook fall into two major categories:

- Shoulder Bikeways/Bike Lanes – 6-foot-wide striped shoulders with signage/markings
- Shared Roadways – General minimum of 28-foot roadway width with signage/markings

Other unmarked and unsigned roadways may accommodate bicyclists as shared roadways, but all components of the official Tillamook bicycle system should be signed and/or marked as bicycle routes per 1995 OBPP standards.

The Tillamook bicycle system should include the following roadways with the following classifications:

- 3rd Street (Madrona Avenue to McCormick Loop) – Bike lanes
- Wilson River Highway – Shoulder bikeway (MP 0.0 to MP 0.48, city limits)
- U.S. 101 – Shoulder bikeway, outside of downtown area, MP 66.26 (city limits) to MP 66.10 (10th Street) and from MP 65.59 (Front Street) to MP 64.23 (city limits)
- Stillwell Avenue – Bike lane
- Alder Lane – Bike lane
- Front Street (Stillwell Avenue to U.S. 101) – Bike lane
- 11th Street (Stillwell Avenue to U.S. 101) – Bike lane
- 12th Street (Miller Avenue to Marolf Loop)- Shared roadway
- Evergreen Drive- Shared roadway
- Miller Avenue – Shared roadway
- 10th Street – Shared roadway
- 1st Street – (U.S. 101 to Birch Avenue) – Shared roadway
- Birch Avenue (1st Street to 2nd Street) – Shared roadway
- 2nd Street (Birch Avenue to Ash Avenue) – Shared roadway
- Ash Avenue (2nd Street to 4th Street) – Shared roadway
- 4th Street (Ash Avenue to Madrona Avenue) – Shared roadway
- Madrona Avenue (4th Street to 3rd Street) – Shared roadway
- Ocean Place (3rd Street to Oregon 6) – Shared roadway

- Brookfield Avenue – Shared roadway
- Marolf Loop – Shared Roadway
- McCormick Loop – Shared roadway

There is a need to create a north-south bicycle route through to downtown area and to provide an east-west bicycle route through the city to connect with Netarts Highway (131). Stillwell Avenue is proposed as a bicycle route bypass through the downtown area. Bicycle connections between U.S. 101 and Stillwell Avenue would need to be constructed at Front Street and 11th Street. This could require a grade separated crossing near Front Street. Signing also would be required to direct bicyclists onto Stillwell Avenue.

To create a east-west bicycle route through the city, options will be examined that look at widening 3rd Street to accommodate an additional bike lane, wider sidewalks, or reroute bicycles along lower volume parallel local roads.

Bicycle System Improvements on State and County Facilities

Recommended bicycle system improvements on state and county facilities in Tillamook were derived from:

- A review of relevant existing planning documents and policies (such as the Draft Oregon Coast Highway Corridor Master Plan)
- An analysis of existing conditions and deficiencies based on a field visit to Tillamook in fall 2002

These improvements are summarized in Table 3-9.

TABLE 3-9
Recommended Bicycle System Improvements on State and County Roadways

Roadway	Location	Facility Type
U.S. 101	Hoquarten Slough	Construct a bicycle path from U.S. 101 to Stillwell Avenue. May require bike crossing near Hoquarten Slough bridge for bicyclists. Include signage for bicyclists.
U.S. 101	11th Street	Signage for bicyclists to use Stillwell Avenue as bike route through downtown area.
Oregon 6	Ocean Place to U.S. 101	Restripe road to allow one direction of bike travel.
Netarts Highway (131)	Trask River Bridge to Ash Avenue	Widen roadway to accommodate 6-foot-wide bike lane.

Bicycle System Improvements on Local Facilities

Bicycle system improvements are recommended on certain local facilities in Tillamook. Many local roadways in Tillamook have low traffic volumes, therefore, bicyclists can safely share the roadway with pedestrians and motorists. However, several local roadways are

suggested for improved bicycle facilities. These improvements are summarized in Table 3-10.

TABLE 3-10
Local Bicycle System Improvements

Roadway	Location	Facility Type
3rd Street	Madrona Avenue to McCormick Loop	Install 6-foot-wide bike lanes on both sides
12th Street	Miller Avenue to Marolf Loop	Designate as shared roadway; provide adequate shoulder
Evergreen Drive	3rd Street to 12th Street	Designate as shared roadway; provide adequate shoulder if road is modernized
Alder Lane	Evergreen Drive to Dogwood Street	Provide for 6-foot-wide bike lanes on both sides and extend to elementary and junior high schools
1st Street	U.S. 101 to Birch Avenue	Designate as shared roadway; widen shoulders to provide adequate width where deficient
Birch Avenue	1st Street to 2nd Street	Designate as shared roadway; widen shoulders to provide adequate width where deficient
2nd Street	Birch Avenue to Ash Avenue	Designate as shared roadway; widen shoulders to provide adequate width where deficient
Ash Avenue	2nd Street to 4th Street	Designate as shared roadway; widen shoulders to provide adequate width where deficient
4th Street	Ash Avenue to Madrona Avenue	Designate as shared roadway; widen shoulders to provide adequate width where deficient
Madrona Avenue	4th Street to 3rd Street	Designate as shared roadway; widen shoulders to provide adequate width where deficient
Ocean Place	3rd Street to Oregon 6	Designate as shared roadway; widen shoulders to provide adequate width where deficient
Miller Avenue	3rd Street to 12th Street	Designate as shared roadway; widen shoulders to provide adequate width where deficient
Wilson River Loop	Oregon 6 to 3rd Street	Designate as shared roadway; widen shoulders to provide adequate width where deficient
Marolf Loop	3rd Street to 12th Street	Designate as shared roadway; widen shoulders to provide adequate width where deficient
McCormick Loop	3rd Street to UGB	Designate as shared roadway; widen shoulders to provide adequate width where deficient
Brookfield Avenue	Marolf Loop to McCormick Loop	Designate as shared roadway; widen shoulders to provide adequate width where deficient
Stillwell Avenue	Front Street to 12th Street	Install 6-foot-wide bike lanes on both sides

TABLE 3-10
Local Bicycle System Improvements

Roadway	Location	Facility Type
Front Street	Stillwell Avenue to U.S. 101	Install 6-foot-wide bike lanes on both sides
11th Street	Stillwell Avenue to U.S. 101	Install 6-foot-wide bike lanes on both sides

UGB = urban growth boundary.

Bicycle Parking

Bicycle parking in Tillamook should comply with design standards set forth in the 1995 OBPP. Bicycle parking should be considered at the following activity centers in Tillamook:

- Downtown Tillamook (to serve local businesses, offices and government buildings)
- 2nd Street and Laurel Avenue (TCTD station)
- Sport fields on Alder Lane
- Tillamook County General Hospital
- Carnahan, Goodspeed and 9th Street Parks
- Tillamook County Fairgrounds

Trails

Tillamook does not have any off-street trails. The following off-street pedestrian and bicycle improvements are recommended for Tillamook:

- Construct paved bicycle/pedestrian path in the flat basin, north of the downtown area. This trail could connect with the regional roadway network or the proposed Hoquarten Slough trail.
- Develop a trail along the Hoquarten Slough[4]. This trail would be along the south of the slough and connect with the city parks along the slough. The trail also could connect with the bicycle facilities along U.S. 101.
- Develop a trail plan that will address the lack of off-street trails in Tillamook and establish goals, needs and alternatives to enhance the trail system in Tillamook.

Transit Needs

The Tillamook Transit Transportation District (TCTD) has outlined the following opportunities to improve public transportation services offered by TCTD:

- **Provide annual incremental route expansion.**
- **Provide park-and-ride services at the TCTD's building headquarters.** This is a planned facility included in the Phase 2 construction of the TCTD's new headquarters building. It

[4] Tillamook Town Center Plan and Tillamook ODDA Report.

is expected that the park-and-ride will provide 25 stalls. Two STIP projects (#12484 and #12089) were awarded to TCTD for the new bus facilities.

- **Improve connections with other transit service providers.** Currently, connections between transit service providers, including Sunset Empire, Pacific Transit and Oregon Coachways are not available or not well coordinated.
- **Expand service to Oceanside on Netarts Highway (131).**
- **Expand service (weekends only) to Pacific City.**
- **Provide transit vehicle pull-outs at all stops.** This is one of TCTD's immediate priorities.
- **Enlarge transit shelters**. This is a current proposal to the Tillamook City Council. It includes expansion of the transit center on 2nd Street and Laurel Avenue, and adds shelters at stops that have none.
- **Provide additional services at the 2nd Street and Laurel Avenue transit center stop.** Includes providing restrooms, customer service station and bike racks.
- **Advertise and promote TCTD services.**

Other issues that have been identified include the addition of transit amenities at each transit stop in Tillamook. Transit amenities, including covered benches, signage and concrete landing pads, should be considered for stops with high ridership in Tillamook. These amenities would make the system more visible to potential users (including the transportation disadvantaged) and possibly attract new riders. Also, as mentioned previously, all transit stops should be accessible to all potential riders per ADA standards.

Freight Needs

As part of the TSP process, Tillamook County and City of Tillamook staff identified the need and desire to minimize the impacts of local and through freight truck traffic and large recreational vehicles in the City of Tillamook downtown commercial area and in residential neighborhoods in the city. The issue and potential solutions affect both the City of Tillamook and unincorporated areas of Tillamook County. This section, which is being included in both the City of Tillamook TSP and the Tillamook County TSP, describes the efforts to identify and define the problem. Potential solutions are addressed in Sections 4 and 5. As described below, specific solutions are not recommended in the TSP.

Preliminary Study

Because of the complex nature of this problem, a brief study of large vehicle alternative routes was undertaken jointly as part of the county and city TSP processes. The purposes of the study were:

- To clearly document the nature of the problem facing the city and the county relating to conflicts between trucks and other uses
- To identify and evaluate proposed solutions

- To initiate discussion among the City of Tillamook, Tillamook County, ODOT, and other stakeholders regarding a preferred solution or solutions

These initial steps were conducted in May 2003 and resulted in the further identification of the problem and a number of potential solutions. Documentation of this process, including the proposed solutions, is included in Appendix C.

Problem Statement

As described in Appendix C, identified needs related to truck and large vehicle traffic are:

- Improve truck and other large vehicle movements through the City of Tillamook
- Improve access to the Tillamook Lumber Company Mill
- Develop solutions that are cost-effective and that will be used (for example, minimize out-of-direction travel or trip time)
- As part of the above solutions, minimize adverse impacts of truck traffic on the commercial and residential areas of Tillamook to ensure the future economic health and livability of the city.

Freight needs and the potential large vehicle alternate routes are further discussed in Section 5 and in Appendix C.

Rail System Needs

The Port of Tillamook Bay rail line through Tillamook currently is being upgraded to a Class II facility. With this upgrade, trains potentially travel at higher speeds. If trains are moving at higher speeds, safety measures and equipment at the railroad crossings become a higher priority. However, at this time the Port of Tillamook Bay has indicated it intends to continue to operate trains at slow speeds (10 mph) through Tillamook and other developed locations.

Even though this is considered a safety need, the 12th Street railroad crossing is not considered critical because of the slow train speeds at this location, but safety measures should be examined at this location because of the proximity to pedestrian generating areas, such as the Tillamook High School.

Air System Needs

There are no air system needs in Tillamook.

Water System Needs

Tillamook Boat Launch

Parking facilities at the two Tillamook boat launches are adequate for the demand. There is no need for additional boat launch sites in Tillamook.

SECTION 4

Transportation System Plan Projects and Evaluation

Introduction

The OARs direct the TSP to be based on an evaluation process to identify potential impacts of the projects contained in the plan. It is required that the evaluation process be consistent with TSP guidelines and the TPR, but smaller communities such as Tillamook "... are advised to scale their analysis to a reasonable level based on the size of the community and the complexity of the transportation issues."[5] Based on this recommendation, the projects developed for the Tillamook TSP are not packaged into sets of alternatives, but are assessed individually. Creating alternatives for Tillamook would be ineffective with the limited type and number of projects. Projects that fail to meet the city's goals and objectives for the TSP will be rejected and the remaining projects will be packaged as the preferred alternative in the TSP (see Section 5).

The projects listed below were identified through several sources including the assessment of needs and deficiencies described in Section 3, recommendations from existing plan and policy documents, and recommendations from project stakeholders including city and other agency staff, PAC members and the general public. To address the deficiencies and needs of the transportation system in Tillamook, the projects are grouped into seven types (see below) and evaluated. Each project is evaluated on the basis of evaluation criteria (measures of effectiveness) developed using the TSP goals and objectives. In some cases, multiple projects are created that resolve the same need. In these cases, these projects are evaluated relative to each other, with the most effective projects being recommended as part of the preferred alternative.

The seven project types analyzed are:

Freight: Projects include improvements for the movement and mobility of freight to and through Tillamook and minimizing adverse impacts of freight traffic.

Mobility: Projects identify locations where new roadway construction should be planned to provide better access in parts of the city.

Operational-Modernization: Projects include improvements that increase the roadway efficiency by reducing congestion and improving safety. This includes capacity improvements, traffic signals, signs and Intelligent Transportation System (ITS) features.

Parking: Projects focus on how to improve the current parking system by either upgrading current parking areas (off- and on-street) or examining opportunities where off-street lots could be developed.

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[5] 2001 ODOT Transportation System Guidelines, page 34.

Pedestrian/Bicycle/Trail: Projects includes improvements that should be considered to better serve pedestrians and bicyclists, including the addition of striped bike lanes, shoulders, sidewalks, pedestrian crossings and ADA compliance. Projects also include the development of off-street trail projects.

Safety: Projects include improvements to reduce identified locations that have crash rates and/or fatalities. Projects in this section also include locations where there are safety concerns.

Rail: Projects include improvements to the railroad crossings or rail line in Tillamook.

Projects relating to Transportation Demand Management (TDM), transit, water, pipeline and land use strategies are not included in this analysis because of the limited nature of the transportation system needs and opportunities in Tillamook. No need for these types of projects was identified in the TSP process. However, these issues should be reviewed in the future because needs and conditions may change.

Evaluation Process

An evaluation process was conducted to facilitate the selection of a preferred alternative that meets the city's goals and objectives and consistent with TPR requirements. Key steps in the evaluation process are shown in Figure 4-1 and discussed below.

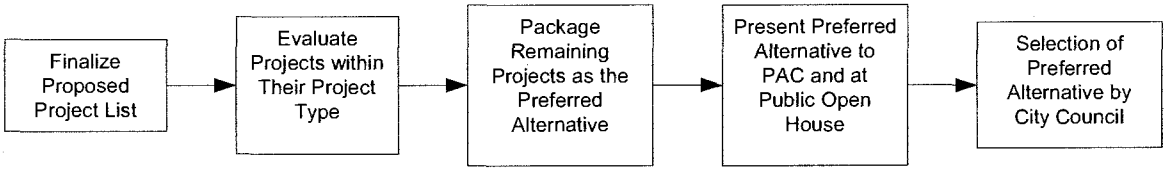


FIGURE 4-1
Evaluation Process

1. Finalize Proposed Project List – The project list was finalized after the March 25, 2003, PAC meeting and the April 7, 2003, public open house.
2. Projects were evaluated individually. In certain circumstances multiple projects were created that address the same need. In these cases, the projects were evaluated relative to each other. For instance, there were numerous mobility extension projects that address the need for improved connectivity in Tillamook, but only the projects that were most feasible and cost-effective from the group were included as part of the preferred alternative.
3. The evaluation was based on a five-level scoring system using "++, +, 0, - and --" as the scores. Any project that received a double negative (--) is considered for exclusion because it is deemed highly infeasible or creates a negative impact on the transportation system. Although a project might be highly unlikely as a result of cost or other constraints, it may be advanced to the preferred alternative because it exhibits significant benefits, PAC members want to include it or other relevant agencies may

want to keep it in. This evaluation is mostly qualitative, except for operational results from the traffic analysis.

4. The preferred alternative will be presented to the PMT and PAC. Based on the evaluation and input from the PMT and PAC, the preferred alternative will be finalized. This alternative will be presented at a public open house for comments. The preferred alternative will include short-term and long-term projects with a proposed staging and funding cycle. A financially constrained version of the preferred alternative also may be presented.

5. The TSP, which will be adopted by the city council and acknowledged by the State of Oregon, will incorporate improvements included in the preferred alternative.

Evaluation Criteria

As described above, the criteria for the project evaluation are based on a "++, +, 0, - and --" scoring system. This scoring system provides enough variance among similar projects to be able to recognize and recommend a preferred project. Projects with numerous negative impacts most likely will be excluded, but in some instances may be part of the preferred alternative if they are considered to provide significant benefit in other scoring areas and/or PAC and other agencies strong support including this project in the preferred alternative. Table 4-1 describes the project-level evaluation criteria.

TABLE 4-1
Project Evaluation

Goal	Rating	Project Criterion
Mobility/Accessibility	+ +	Provides new transportation options or connectivity to serve different types of users (that is, street connections, freight, bikes, pedestrians)
	+	Improves on the current transportation options or connectivity to serve different types of users (that is, street connections, freight, bikes, pedestrians)
	0	Does not significantly change transportation options or connectivity
	-	Limits the transportation options or connectivity of the system
	- -	Significantly reduces or limits key transportation options or connectivity
Coordination	+ +	Included as part of other local, county, regional or state policies or plans
	+	Mentioned by city staff, PAC or other relevant agencies
	0	Not specifically mentioned in other policies or plans, but not out of compliance with such plans
	-	Indirectly not in compliance with other plans and policies
	- -	Specifically identified as being not in compliance with other plans and policies
Non-Motorized Users	+ +	Creates or completes a bicycle and/or pedestrian link to serve commuters, transit users and/or recreational users
	+	Improves on the current bicycle and/or pedestrian facilities to serve commuters, transit users and/or recreational users.
	0	Does not significantly change existing non-motorized facilities
	-	Reduces some of the connectivity, safety, or aesthetics of existing non-motorized facilities

TABLE 4-1
Project Evaluation

Goal	Rating	Project Criterion
	- -	Removes key connectivity, safety, or aesthetics of existing non-motorized facilities
Feasibility	+ +	Can be done without much effort and has no obstacles (high costs, right-of-way, etc.). All stakeholders generally support the project. The project is considered to not have any environmental or terrain barriers.
	+	Has some barriers (such as cost or public acceptance), but they are not considered significant. The project could be constructed, but with some effort.
	0	Would be costly to construct, but is still within the city's right-of-way and has a few obstacles (such as right-of-way and support).
	-	Is costly and would need some right-of-way takes. Other concerns are present such as terrain. This project could be support by other agencies, but would need to be discussed.
	- -	Has high cost, has significant right-of-way impacts, the city needs joint venture from private sector. This project is likely not to be supported by other agencies and significant terrain issues are identified.
Parking	+ +	Creates additional parking facilities
	+	Improves current parking facilities in the downtown and port area (that is, paving/signing), but does not create more than a few additional parking spaces
	0	No improvement to the current parking situation
	-	Removes a minimal amount of parking
	- -	Removes a significant amount of parking (more than 20 spaces)
Environment	+ +	Greatly enhances environmentally significant areas or natural or historic features
	+	Enhances environmentally significant areas or natural or historic features
	0	No impacts to environmentally significant areas or natural or historic features
	-	Some impacts to environmentally significant areas or natural or historic features
	- -	Significantly impacts environmentally significant areas or natural or historic features
Capacity	+ +	Provides additional capacity to the system and improves the operating conditions a deficient locations
	+	Provides additional capacity to the system
	0	Does not significantly improve the capacity of the system
	-	Worsens roadway/facility capacity
	- -	Intersections/segments would worsen to levels above TSP guidelines
Safety	+ +	Improves safety for users at an identified safety location
	+	Improves the safety for users at locations not considered deficient
	0	Does not significantly change roadway/facility safety
	-	Decreases safety for users
	- -	The project may create an additional safety problem for users (such as more conflict points)
Cost	+ +	The project cost is in the lowest fifth (lowest) ($)
	+	The project cost is in the middle-bottom fifth ($$)

TABLE 4-1
Project Evaluation

Goal	Rating	Project Criterion
	0	The project cost is in the middle ($$$)
	-	The project cost is in the middle-top fifth ($$$$)
	- -	The project cost is in the top fifth (highest) ($$$$$)
Lifeline Routes	+ +	Creates a key connection or improves access to the lifeline route
	+	Improves the quality or identification of lifeline routes
	0	Does not significantly change the quality or identification of lifeline routes
	-	Adversely affects the effectiveness or connectivity of lifeline routes
	- -	Removes key connectivity of lifeline routes

Scoring System: + + = Significantly Positive + = Positive, 0 = No impact, - = Negative, - - = Significantly Negative.
PAC = Project Advisory Committee.
TSP = transportation system plan.

Evaluation Analysis and Results

For each of the seven project types included in the analysis, this section presents a description of the projects within each type, the evaluation results (based on the measures of effectiveness) for each project. The major proposed projects in Tillamook are shown in Figure 4-2.

Access Management

Along U.S. 101, north of Hoquarten Slough to Goodspeed Road, the numerous driveway conflicts and median turn lane have caused numerous accidents because there are many conflict points along this stretch of roadway. Access management treatments for this roadway segment are evaluated in Table 4-2.

TABLE 4-2
Access Management Project Evaluation Summary

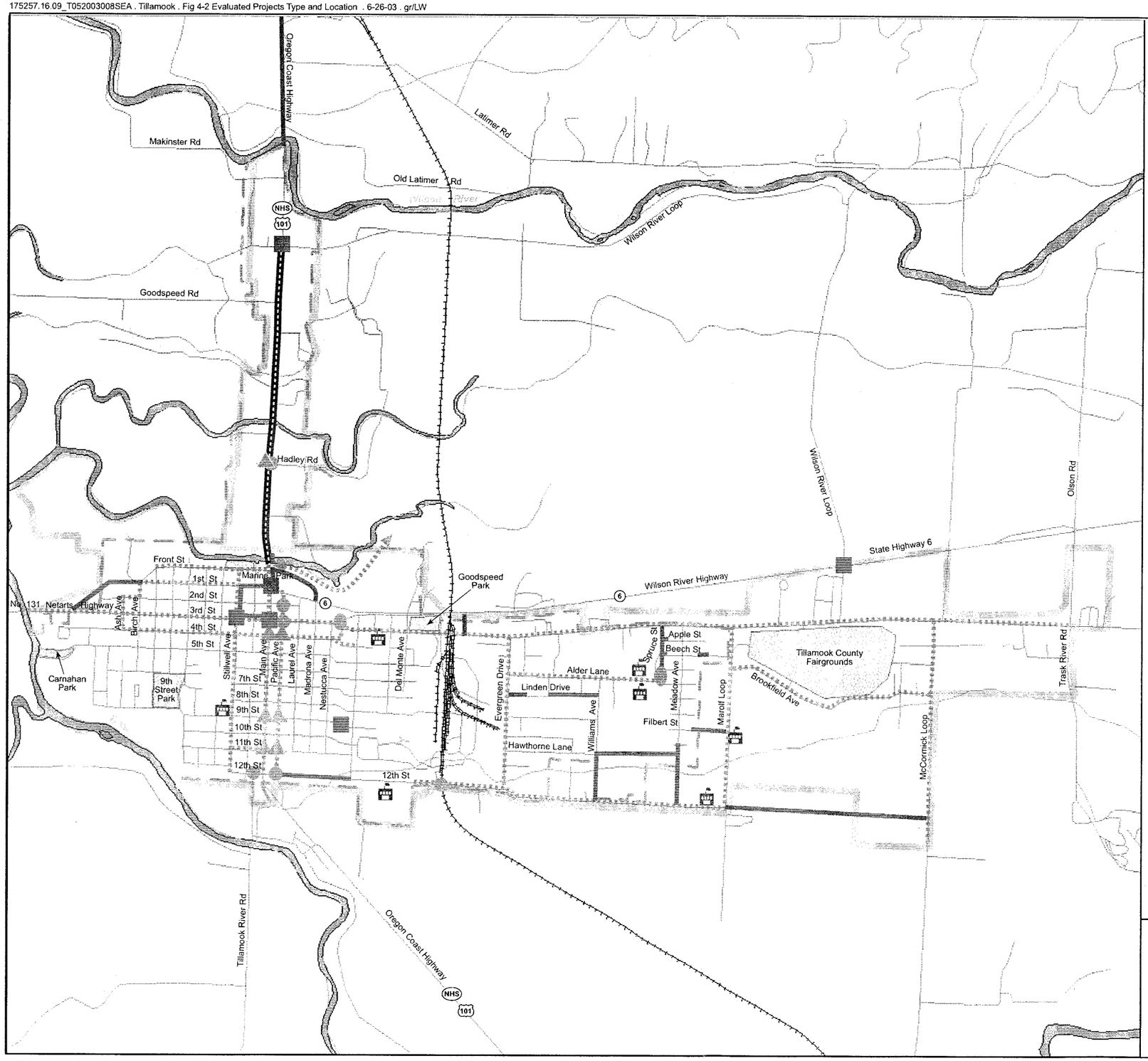
Projects	Mobility/ Accessibility	Coordination	Non-Motorized Users	Feasibility	Parking	Environment	Capacity	Safety	Cost	Lifeline Routes	Consultant Recommendation
Provide access management treatments such as medians/consolidation of driveways/right-in, right-out treatments along U.S. 101, north of Oregon 6 to Wilson River Loop intersection. Implement as redevelopment occurs.	0	++	0	-	0	0	-	++	--	0	TSP Project

Although, the cost to consolidate driveways and construct a median barrier could be significant, the benefits are numerous as the corridor would become a much safer roadway with only a few protected left-turn locations. In addition, driver expectations would improve and driver confusion could be reduced. After preliminary discussions with ODOT, the department seems to be supportive of this idea because it already has been implemented along U.S. 101, north of Goodspeed Road.

Freight

Several options were developed to address the adverse impacts of freight traffic in the city's commercial and residential areas and the possibility of an alternative route for trucks traveling between U.S. 101 and Oregon 6 that minimizes these impacts and/or avoids the downtown core area. Appendix C includes the large vehicle alternate routes study, which includes a detailed evaluation of potential routes and recommendations for next steps.

175257.16.09_T052003008SEA . Tillamook . Fig 4-2 Evaluated Projects Type and Location . 6-26-03 . gr/LW



City of TILLAMOOK

CH2MHILL

LEGEND

Project Types

Symbol = Intersection Improvement

- Mobility/Connectivity/ Roadway
- Ped/Bike/Trail
- Safety
- Access Management
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

Note: Some projects not depicted if not for a specified location or are minor improvements.

Freight projects are included in Appendix D. They were evaluated separately in a joint effort with Tillamook County to assess large vehicle alternative routes.

NORTH

500 0 500 Feet

Figure 4-2
Evaluated Projects Type and Location

Transportation System Plan
Tillamook, OR

Mobility/Connectivity

New development is occurring in the eastern part of the city. This area does not have a grid-style roadway network that gives users mobility. Many of the mobility/connectivity projects listed below provide connections that would be required if additional development occurred in this area. Refer to Table 4-3 for the list of mobility/connectivity projects.

TABLE 4-3
Mobility/Connectivity Project Evaluation Summary

Projects	Mobility/ Accessibility	Coordination	Non-Motorized Users	Feasibility	Parking	Environment	Capacity	Safety	Cost	Lifeline Routes	Consultant Recommendation
Extend Meadow Avenue to 12th Street	++	++	++	--	0	-	+	0	-	0	TSP Project
Extend Trout Avenue between 3rd and Oregon 6	++	+	0	--	0	-	+	0	-	0	Reject
Extend 12th Street from Miller Avenue to Pacific Avenue (U.S. 101 Northbound)	++	++	++	--	0	-	+	+	--	0	Reject
Extend Beech Street to Marolf Loop	++	+	0	-	0	0	+	0	-	0	TSP Project
Designate Spruce Avenue as a public road and remove the barriers at Apple and Beech Streets. Connect Spruce to Cypress to complete roadway grid system.	++	+	0	-	0	0	+	0	-	0	TSP Project
Extend 1st Street to Netarts Highway (131)	++	++	++	--	0	--	+	0	-	0	Reject
Create a scenic northbound only bypass of the U.S. 101 and Oregon 6 intersection along Hoquarten Slough with access to U.S. 101 just south of Hoquarten Slough and access from Oregon 6 just east of Madrona Avenue.	+	0	+	--	0	-	++	0	--	0	Reject
9th Street, cul-de-sac one side of the park and add parking on the other side	0	+	0	-	0	0	0	0	0	0	TSP Project
Extend Filbert Street to Marolf Loop	++	++	0	-	0	0	+	0	-	0	TSP Project
Extend Hawthorne Lane between Meadow and Williams Avenues	++	0	0	-	0	-	+	0	--	0	TSP Project
Extend Williams Avenue south to 12th Street	++	++	++	-	0	-	+	0	-	0	TSP Project
Extend 12th Street to McCormick Loop (if development occurs in area)	++	++	++	-	0	-	+	0	--	0	TSP Project

Rejected Projects

From this evaluation, cost, feasibility and environmental impact were the key criteria. Projects that significantly affect two of these three criteria are considered flawed and

Outside Downtown Area

Recommended TSP Projects. To improve the U.S. 101 at Wilson River Loop intersection to acceptable mobility standards, an exclusive eastbound right-turn lane is required. This project is expected to have minimal impacts.

A grade-separated interchange at the Oregon 6 and Wilson River Loop intersection would dramatically improve safety at this intersection and achieve acceptable mobility standards. In addition, an interchange would provide a significant travel time improvement to freight along Wilson River Loop. This project is included as part of the draft 2004–2007 STIP.

Another project included in the current STIP is to improve the Wilson River bridge along U.S. 101 and widen U.S. 101 north of the city limits.

Downtown Area

Recommended TSP Projects. Constructing a downstream, westbound, right-turn lane at Oregon 6 and U.S. 101 that provides a channelized westbound right-turn movement would improve the operations of the U.S. 101 couplet at the critical terminal location. This would require widening the Hoquarten Slough Bridge, which would be costly, but would provide needed capacity at this U.S. 101 bottleneck. Some right-of-way would need to be acquired at the northeast corner of U.S. 101 and Oregon 6.

In addition to the westbound right-turn improvement, a one-way couplet system along 1st Street and Netarts Highway (131) (3rd Street) between U.S. 101 and Stillwell Avenue would improve the intersection operations at U.S. 101 and Oregon 6 and 3rd Street. This couplet would remove the eastbound traffic at the U.S. 101 and Oregon 6 intersection, and relocate it to the U.S. 101 and 3rd Street intersection. The U.S. 101 and Oregon 6 intersection then would become a two-phase intersection with no conflicting traffic for the westbound right-turn movement from Pacific Avenue. This couplet system also would improve the intersection operations at Main Avenue and 3rd Street to acceptable mobility standards by removing the southbound right-turning volume and relocating it to 1st Street or 2nd Street. These improvements would not interfere with any recommended pedestrian improvements.

Even without the couplet described above, a signal at Netarts Highway (131) (3rd Street) and Stillwell Avenue is required to ensure the intersection operates at acceptable mobility standards. Northbound and southbound left-turn lanes are required, which may require some right-of-way acquisition or removal of parking at the intersection.

Installation of signals and signing on state highways is subject to approval from ODOT.

Parking

Even though on-street parking along U.S. 101 is often fully used and the supply does not appear to adequately support the businesses along U.S. 101, the city has a significant amount of parking surrounding the core business area. General signing improvements and a study to assess the supply and demand during various season are proposed. If the study suggests there is a need for more parking, a city-owned lot near the downtown area is identified as a possible parking lot. Refer to Table 4-5 for the list of evaluated parking projects.

TABLE 4-5
Parking Project Evaluation Summary

Projects	Mobility/ Accessibility	Coordination	Non-Motorized Users	Feasibility	Parking	Environment	Capacity	Safety	Cost	Lifeline Routes	Consultant Recommendation
Conduct parking study to understand parking use at various times during the year	0	+	0	++	0	0	0	0	+	0	TSP Project
Provide signing along U.S. 101 to off-street lots off U.S. 101	0	+	0	++	0	0	0	0	++	0	TSP Project
Construct off-street parking at city-owned lot along Ivy Avenue. Provide signing along U.S. 101 to this lot.	0	+	0	++	++	0	0	0	+	0	TSP Project

Recommended TSP Projects

Promoting the current off-street lots and adjacent on-street parking with signing along U.S. 101 is a short-term remedy to help alleviate the parking shortage along U.S. 101. In addition, to adequately assess the parking demand and supply, a parking study is recommended. If the study concludes that additional off-street parking is required, the vacant city lot near Ivy Avenue is a recommended location because it is close to the downtown area and would be able to accommodate a significant number of vehicles (more than 50 vehicles).

Pedestrian/Bicycle/Trail

Many of these projects are created from the need to provide a connected pedestrian system. Sidewalk locations are proposed where it would create logical connections between the school, residential areas and downtown areas. Many of the streets near the eastern residential areas of Tillamook lack pedestrian amenities. The city has a need to create a well-connected bicycle system and off-street trails because they are lacking in both areas. Because of the constrained right-of-way along Netarts Highway (131), three bicycle route options are assessed.

Many of the pedestrian, bicycle and trail projects are low cost improvements that can be performed without much effort. This subsection focuses on the relatively major construction or projects that could be considered less feasible. Refer to Table 4-6 for the list of pedestrian projects.

TABLE 4-6
Pedestrian/Bicycle/Trail Project Evaluation Summary

Projects	Mobility/ Accessibility	Coordination	Non-Motorized Users	Feasibility	Parking	Environment	Capacity	Safety	Cost	Lifeline Routes	Consultant Recommendation
East-West Bike Route											
Construct bike lanes and sidewalk on 3rd Street, east of Evergreen Drive to Trask River Road, repave roadway from Nestucca Avenue to city UGB. Provide marked crosswalks near Tillamook County Fairgrounds with pedestrian area warning signs. Restripe crosswalks near Wilson Elementary School/Goodspeed Park area on 3rd Street. Retrofit ramps along 3rd Street to ADA compliance near Goodspeed Park and Wilson Elementary School	++	+	++	-	-	0	0	++	--	0	TSP Project
Provide bike route on 3rd Street between Stillwell Avenue and Trask River bridge. Widen sidewalk to 10 feet both sides. Keep parking on both sides west of U.S. 101. East of U.S. 101, bike route separates between Oregon 6 couplet. Striping modifications required.	++	+	++	--	0	0	0	+	--	0	Reject
Provide bike route on 3rd Street between Stillwell Avenue to Trask River bridge. Remove parking on north side and provide bike lanes on both sides west of U.S. 101. East of U.S. 101, bike route separates between Oregon 6 couplet. Striping modifications required.	++	+	++	--	--	0	0	++	+	0	Reject
Provide bike route between Evergreen Drive to Trask River bridge. Eastbound: Route on 3rd Street, south onto Ash Avenue, east on 4th Street, north on Ocean Place, east on 3rd Street. Would require bike lanes on 3rd Street to Ash Avenue to shared roadway on Ash Avenue, 4th Street and Ocean Place. Westbound: 3rd Street from Evergreen Drive, north on Ocean Place, west on Oregon 6, cross U.S. 101 on First Street, south on Birch Avenue, west on 2nd Street, south on Ash Avenue, west on 3rd Street. Provide bike lanes on 3rd Street and Oregon 6, all other roads are shared roadway designation. Bike lanes on Oregon 6 can be provided with striping modifications. Requires advanced signing on U.S. 101 and 3rd Street.	++	+	++	0	0	0	0	++	+	0	TSP Project

TABLE 4-6
Pedestrian/Bicycle/Trail Project Evaluation Summary

Projects	Mobility/ Accessibility	Coordination	Non-Motorized Users	Feasibility	Parking	Environment	Capacity	Safety	Cost	Lifeline Routes	Consultant Recommendation
North-South Bike Route											
Create a bicycle bypass in downtown area along Stillwell Avenue. Create bike lane connections with U.S. 101 along Front Street and 11th Street. Provide advanced signing. Remove parking on one side of road to provide bike lanes. Coordinate with Hoquarten Slough Trail. Might require undercrossing with U.S. 101 at Front Street. Additional study required. Complete sidewalk system on Stillwell Avenue, Front to 1st Streets and 11th to 12th Streets. Construct ADA ramps along Stillwell Avenue near Liberty Elementary School (7th and 8th Street crossings). Restripe crosswalks along Stillwell Avenue.	++	++	++	--	-	0	0	++	--	0	TSP Project
U.S. 101 Pedestrian/Bike Projects											
Downtown sidewalk construction/replacement from Hoquarten Slough to 4th Street. Includes bulb-outs at 2nd, 3rd and 4th Streets. This is phase 1 of the TE project.	+	++	+	-	-	0	0	++	-	0	TSP Project
Downtown sidewalk construction/ replacement from 4th to 12th Streets. Includes bulb-outs at 9th and 11th Streets. This is phase 2 for the TE project.	+	++	+	-	-	0	0	++	--	0	TSP Project
Pedestrian-activated signal crossing on U.S. 101 between Wilson River Loop and Hoquarten Slough. Recommended location is at Hadley Road.	+	0	+	--	0	0	-	++	-	0	Reject
Local Road Pedestrian/Bike Projects											
Construct sidewalk and bike lanes on Evergreen Drive. Repave road with asphalt.	++	+	++	-	-	0	0	+	--	0	TSP Project
Construct sidewalk on 12th Street, east of the high school to Marolf Loop, repave from Miller Avenue to Marolf Loop. Provide adequate width along 12th Street from high school to Marolf Loop for shared roadway designation.	++	+	++	-	0	-	0	+	--	0	TSP Project
Complete sidewalk and provide bike lanes on 3rd Street, west of Ash Avenue. Removal of parking on one side.	+	+	+	--	0	0	0	+	0	0	TSP Project
Complete sidewalk system on Front Street	+	0	+	--	-	0	0	+	-	0	Reject

TABLE 4-6
Pedestrian/Bicycle/Trail Project Evaluation Summary

Projects	Mobility/ Accessibility	Coordination	Non-Motorized Users	Feasibility	Parking	Environment	Capacity	Safety	Cost	Lifeline Routes	Consultant Recommendation
Provide adequate bike lane width and sidewalk and repave Alder Lane between Evergreen Drive and Cypress/Dogwood intersection	++	+	++	-	-	0	0	++	--	0	TSP Project
Provide adequate shoulder on Brookfield Avenue. Road would need to be acquired by city.	++	0	+	--	0	-	0	+	-	0	TSP Project
Provide adequate shoulder on McCormick Loop for shared roadway designation, repave road at south end	++	0	+	-	0	-	0	+	-	0	TSP Project
Provide adequate shoulder on Marolf Loop for shared roadway designation, repave road	++	0	+	-	0	-	0	+	-	0	TSP Project
Construct sidewalk along 4th Street from Nestucca to Miller Avenues. Contingent on development.	++	0	+	-	0	0	0	+	0	0	TSP Project
Provide ADA-compliant ramps along Miller Avenue. Provide painted crosswalks along Miller Avenue.	+	0	+	++	0	0	0	+	+	0	TSP Project
Construct ADA-compliant ramps along 10th Street. (Currently ramps exist only at Stillwell Avenue and U.S. 101 intersections.)	+	0	+	++	0	0	0	+	+	0	TSP Project
Provide sidewalk on north side of 11th Street between Stillwell Avenue and U.S. 101, retrofit south side sidewalk, overlay roadway between Stillwell and Miller Avenues	+	0	+	+	0	0	0	+	-	0	TSP Project
Provide bicycle parking in downtown Tillamook. Benches, drinking fountains, trash receptacles, and informational signage or historical kiosks are recommended.	0	++	+	+	0	0	0	0	+	0	TSP Project
Provide bicycle parking at sport fields on Alder Lane	0	0	+	++	0	0	0	0	++	0	TSP Project
Provide bicycle parking at Tillamook County Fairgrounds	0	0	+	++	0	0	0	0	++	0	TSP Project
Provide bicycle parking at TCTD 2nd Street and Laurel Avenue transit center	0	0	+	++	0	0	0	0	++	0	TSP Project
Provide bicycle parking at hospital	0	0	+	++	0	0	0	0	++	0	TSP Project
Provide bicycle parking at Goodspeed Park	0	0	+	++	0	0	0	0	++	0	TSP Project
Provide bicycle parking at 9th Street Park	0	0	+	++	0	0	0	0	++	0	TSP Project
Provide bicycle parking at Carnahan Park	0	0	+	++	0	0	0	0	++	0	TSP Project

TABLE 4-6
Pedestrian/Bicycle/Trail Project Evaluation Summary

Projects	Mobility/ Accessibility	Coordination	Non-Motorized Users	Feasibility	Parking	Environment	Capacity	Safety	Cost	Lifeline Routes	Consultant Recommendation
Trail Projects											
Develop Phase 1 of the Hoquarten Slough trail along south side of Hoquarten Slough for approximately 1,000 feet. Connect parks along Hoquarten Slough and proposed Stillwell Avenue bike route. This is a current project of the Tillamook County estuary organization.	0	+	0	-	0	0	0	++	+	0	TSP Project
Create trail plan to assess roadway connectivity and off-street trails projects. This incorporates the development of Phase 2 of the Hoquarten Slough trail.	++	++	++	-	0	-	0	0	+	0	TSP Project

ADA = Americans with Disabilities Act.
TE = transportation enhancement.
TCTD = Tillamook County Transportation District.
UGB = urban growth boundary.

East-West Bicycle Route

Rejected Projects. Widening the sidewalk along 3rd Street, west of U.S. 101 to provide an adequate width for bicyclists creates numerous conflict points with private driveways and intersections, and would require significant right-of-way acquisition. In addition, many bicyclists may not use the sidewalk, as they tend to favor bicycling on the road to increase their visibility.

Removing parking along 3rd Street to provide bicycle lanes would create a shortage of parking along this entire stretch of roadway and would conflict with the city's goal of promoting business in the downtown area.

Recommended TSP Projects. Designating a bike route along the local roads parallel to 3rd Street, west of U.S. 101, is a low-cost alternative to the options rejected above. This connection is a critical connection for bicyclists as the coastal bike route turns off U.S. 101 and heads west along the Netarts Highway (131). Although the local roads would be shared facilities, the volumes along the residential 1st and 4th Streets are low enough to provide a safer road on which to travel. Signing would be required along U.S. 101 and these residential roads to direct bicyclists between U.S. 101 and 3rd Street. Between the Trask River bridge and Ash Avenue, bike lanes would be required along 3rd Street. Although this may require the loss of some parking it is at the outskirts of town and would be for only a short distance.

East of U.S. 101 to Ocean Place, the east-west bike route would be along Oregon 6 and 4th Street. 4th Street would be a shared roadway for eastbound travel and Oregon 6 would be for westbound travel. A bike lane on this section of Oregon 6 would fit within the current right-of-way and would require only restriping.

After bicyclists are on 3rd Street, east of Ocean Place, bike lanes are recommended on both sides to McCormick Loop. Although this could require right-of-way acquisition, it would provide a critical connection between the residential areas of Tillamook to the downtown. No other roadway provides a direct route between these areas and if another route was suggested it would be circuitous.

The bicycle project locations are illustrated in Section 5.

North-South Bike Route

Recommended TSP Projects. Because of the restricted right-of-way along U.S. 101 in the downtown core, it is infeasible to provide bike lanes through this section. Stillwell Avenue provides a logical bypass that has convenient connections to U.S. 101 at Front Street and 11th Street. The Front Street connection may require a grade-separated bike lane under U.S. 101 to get northbound bicyclists on the eastern side of the U.S. 101. This project would provide a great connection to the planned Hoquarten Slough Trail project.

U.S. 101 Pedestrian/Bike Projects

Rejected Projects. Providing a pedestrian-activated signal on U.S. 101 near Hadley Road would improve the mobility across U.S. 101, but there is not enough pedestrian activity to meet the signal warrant requirements.

Recommended TSP Projects

Currently, sidewalks are provided along U.S. 101 everywhere except the short segment between Oregon 6 and Hoquarten Bridge. This sidewalk is a critical connection between the residential/downtown areas and the commercial strip. This project could be included with the operational improvements at Oregon 6 and U.S. 101. Some right-of-way may be required.

Tillamook applied for a transportation enhancements grant to improve the image of downtown by replacing the sidewalk along U.S. 101, providing pedestrian enhancements with intersection bulb-outs and placing utilities underground. These improvements would improve the pedestrian friendliness of the downtown area and promote other modes of travel. This project would have a high cost, but is a priority for downtown businesses, has support from local agencies, and has several pedestrian and economic benefits.

Local Road Pedestrian/Bike Projects

Rejected Projects. Completing the sidewalk system along Front Street is not recommended because the area west of Stillwell Avenue is the industrial area of town that experiences a low amount of pedestrian traffic. In addition, this street has a narrow right-of-way that would require extensive private acquisition. This improvement was considered for the recently constructed Front Street improvements. During the negotiation process, the costs associated with the right-of-way impacts were deemed infeasible.

Recommended TSP Projects. The local roadway system does not provide any bicycle connections or facilities except in a few short sections that are not connected. Therefore, many of the projects listed in Table 4-6 are required to provide a comprehensive pedestrian/bicycle system in Tillamook.

In some instances staging a project over time may prove to be more feasible because of right-of-way acquisition costs. Because many of the projects require additional right-of-way, it is suggested to initially stage sidewalks on one side of the roadway. This would improve the feasibility of the project being constructed.

Trail Projects

Recommended TSP Projects. An on-going project to create a trail along the Hoquarten Slough has support from many local agencies. This project would become the only off-street trail in Tillamook. The location of the trail is logical because it is adjacent to the downtown and residential areas, and it connects to the parks system along the slough. The trail could be connected to the Stillwell Avenue bicycle bypass to improve the overall city bike connections.

Safety

Roadway safety concerns in Tillamook can be separated into two categories: U.S. 101 and non-U.S. 101 locations. Many of the safety projects along U.S. 101 are the result of the high number of accidents, numerous driveways or the high traffic volume (specifically trucks) in the downtown pedestrian area. Several safety locations on the local street system are identified because of skewed or offset intersections that confuse drivers. At one location (Oregon 6 and Ocean Place) two options are evaluated. The first option is a low-cost, high-feasibility option that does not affect right-of-way while the other option is to construct a roundabout. In addition to the roadway safety projects, the 12th Street railroad crossing is not equipped with safety equipment comparable to the 3rd Street crossing even though it is a public crossing.

Projects that are already evaluated under another project types (U.S. 101 and Oregon 6, Netarts Highway [131] at Stillwell Avenue, and Oregon 6 at Wilson River Loop) are not evaluated in this section. It should be noted that these projects are recommended for improvements under another project type and those improvements are expected to create a safer environment.

Refer to Table 4-7 for the list of projects.

TABLE 4-7
Safety Project Evaluation Summary

Projects	Mobility/ Accessibility	Coordination	Non-Motorized Users	Feasibility	Parking	Environment	Capacity	Safety	Cost	Lifeline Routes	Consultant Recommendation
U.S. 101 Locations											
Consolidate driveways near intersection of U.S. 101 and Hadley Road (high accident rate). Provide a median barrier to restrict the driveways near the intersection to a right-in, right-out.	0	0	0	+	0	0	0	++	+	0	TSP Project
Improve driver awareness (bulb-outs, removal of parking, consolidation of driveways) at U.S. 101 (Pacific Avenue) at 3rd Street (top 10 percent SPIS site). Improve signing and striping on the eastbound approach.	+	+	+	+	-	0	0	++	+	0	TSP Project
Improve the pedestrian visibility (possible remedies include bulb-outs with parking removal, pedestrian activated crossing blinking lights, crossing flags, etc.) at U.S. 101 (Pacific Avenue) at 2nd Street (top 10 percent SPIS site).	+	+	+	+	-	0	0	++	+	0	TSP Project
Reconstruct westbound approach and create one-way couplet to remove eastbound approach at U.S. 101 and Oregon 6 (skewed geometry, potential safety issues with confusing operations).											See Table 4-5
Realign intersection at 12th Street and U.S. 101 (Pacific Avenue) to provide adequate SSD.	+	+	+	0	-	0	0	+	-	0	TSP Project
Create gateway at southern end of U.S. 101 couplet	0	+	+	+	0	0	0	++	-	0	TSP Project
Non-U.S. 101 Locations											
Signalize intersection at Netarts Highway (131) and Stillwell Avenue (high accident rate).											See Table 4-5
Construct interchange at Oregon 6 and Wilson River Loop (high accident rate).											See Table 4-5
Provide a raised island at Ocean Place at 4th and 3rd Streets (skewed intersections) for a safe pedestrian refuge with marked crosswalks on every approach. Designate Ocean Place between the Oregon 6 couplet as northbound only (removes southbound SSD problem).	+	+	+	0	0	0	0	++	-	0	TSP Project

TABLE 4-7
Safety Project Evaluation Summary

Projects	Mobility/ Accessibility	Coordination	Non-Motorized Users	Feasibility	Parking	Environment	Capacity	Safety	Cost	Lifeline Routes	Consultant Recommendation
Construct a roundabout and realign approaches at Ocean Place at 4th and 3rd Streets (skewed intersections). Provide advanced signing and striping to provide safe operating conditions.	+	+	+	-	0	0	0	++	--	0	TSP Project
Redesign intersection of Alder Lane at Dogwood and Cypress Streets (offset intersection near school) to remove parking area (or revise to not interfere with intersection operations). Provide all-way, stop-controlled intersection. Provide shoulder along eastside of intersection for pedestrians and revise crosswalk locations.	+	+	+	0	0	0	+	++	-	0	TSP Project
Relocate stop bar at 12th Street and Tillamook River Road to provide better sight distance	0	+	0	-	0	0	0	++	++	0	TSP Project
Upgrade 12th Street railroad crossing with safety measures, such as gate and flashing lights. First step would be study by ODOT rail.	0	+	0	++	0	0	0	+	-	0	TSP Project

ODOT = Oregon Department of Transportation.

SPIS = Safety Prioritization Index System.

SSD = stopping sight distance.

U.S. 101

Recommended TSP Projects. Consolidating the driveways immediately south of the Hadley Road intersection would remove some of the conflict points at this intersection and improve the intersection's safety. In addition, median access control would remove some of the conflicting movements. Based on the accident descriptions, the adjacent driveways are the leading cause of the high number accidents. If these driveways were removed or had limited movements for entry and exit, then this intersection would not be considered a safety hazard. These improvements would need property agreements, but there are other driveways farther south that can operate as shared access.

The two Pacific Avenue projects at 2nd and 3rd Streets each could use better signing and striping near the intersection. Pedestrian bulb-outs would remove some parking at the intersection, but would improve the pedestrian visibility. There were two pedestrian accidents at 2nd Street. In addition, other pedestrian treatments, such as crossing flags, could be provided at the 2nd Street intersection.

To reduce vehicle speeds along Pacific Avenue near the south end of town, a gateway is recommended to create a driver awareness of the approaching conditions and force vehicles

to reduce speeds. In addition, realigning the 12th Street approaches with Pacific Avenue will improve the sight distance for turning cross-street traffic.

Non-U.S. 101 Locations

Recommended TSP Projects. Two options were evaluated at Oregon 6 and Ocean Place. Currently, there is limited sight distance especially from the north and pedestrians do not have a safe crossing area at this skewed intersection. Making Ocean Place a one-way northbound, north of Oregon 6 and constructing a physical island for a pedestrian refuge along with striped crosswalks is considered a short-term solution because it improves the critical needs at this location. Construction of a roundabout would improve driver expectations at this intersection. This project would require some right-of-way acquisition, therefore, it is recommended only if the other option improves the safety at this location.

The Alder Lane and Dogwood/Cypress Streets intersection is a skewed intersection that would be less confusing to drivers if it were an all-way, stop-controlled intersection. In addition, if the parking area in the intersection were redesigned to not interfere with the intersection operations, the operations and safety at the intersection would improve. The shoulder/crosswalk on the east side of the intersection is also in the travel width, therefore, right-of-way acquisition is recommended to provide a safe pedestrian area especially because this intersection is adjacent to two schools.

While trains at the 12th Street crossing proceed at low speeds, the crossing is adjacent to the high school, therefore, it is considered a high safety priority. It is recommended that ODOT conduct a safety analysis at this location before providing additional safety measures at the crossing.

Other Potential Projects

Maintenance and roadway overlay projects are grouped with other projects where applicable. Stand-alone pavement overlay projects are not addressed because pavement quality changes over time. An annual maintenance budget should address deficient pavement conditions.

Transit and rail projects are not evaluated in the Tillamook TSP because these two project types are not under the city's authority. These projects should be evaluated by the TCTD and the Port of Tillamook Bay.

SECTION 5

Transportation System Plan

Introduction

This section of the TSP document comprises the actual TSP for adoption by the City of Tillamook and acknowledgment by the State of Oregon. The rest of the document provides background documentation for the contents of this section.

This section begins with the TSP goals and objectives and identifies how the TSP meets the goals and objectives. The remainder of this section identifies the transportation projects and policies recommended for implementation during the next 20 years in Tillamook, along with estimated costs and timing.

TSP Goals and Objectives

As described in Section 2, goals and objectives were developed at the beginning of the TSP process. They are intended to provide a framework for the planning process, to represent the values of the city, and be consistent with and supportive of the policies of relevant agencies. The goals and objectives are implemented through the specific projects and policies identified in the TSP. These projects and policies are summarized for each goal and described in this section.

Goal 1: Coordination

Maintain a transportation system plan that is consistent with the goals and objectives of the City of Tillamook, Tillamook County and the state.

Objectives

1. Provide a transportation system that is consistent with other elements and objectives of the *City of Tillamook City Comprehensive Plan* and other policy documents.
2. Ensure consistency with state policies including the OTP and the OHP regarding transportation issues relating to Oregon 6 and U.S. 101.
3. Coordinate with the Port of Tillamook Bay regarding the Tillamook Airport, the Port of Tillamook Bay Industrial Park and the Port of Tillamook Bay shortline railroad.
4. Coordinate land use and transportation decisions to efficiently use public infrastructure investments to:
    a. Maintain the mobility and safety of the roadway system
    b. Foster compact development patterns
    c. Encourage the availability and use of transportation alternatives
    d. Enhance livability and economic competitiveness

5. Establish a local street master plan for the City of Tillamook.

Implementation Strategies

The TSP process has been coordinated with the plans and policies of relevant agencies through the plan and policy review conducted at the beginning of the process and provided in the Background Document, and through meetings of the PAC. The Port of Tillamook Bay staff participated on the PAC and reviewed draft documents. Consistency with relevant sections of the OHP and the TPR are documented throughout the TSP.

Goal 2: Safety

Provide a transportation system that maintains adequate levels of safety for all users.

Objectives

1. Enhance safety at the intersection of Oregon 6 and U.S. 101, and west toward the Hoquarten Slough Bridge.
2. Improve the safety of rail crossings, particularly at 12th Street and 3rd Street.
3. Identify safe connections for vehicles, bicycles and pedestrians across U.S. 101, Oregon 6 and Wilson River Loop.
4. Encourage improvements that minimize the impacts associated with frequent flooding.
5. Develop lifeline and evacuation routes in coordination with local, regional, state and private entities.
6. Undertake, as needed, special traffic studies in problem areas, especially around schools, to determine appropriate traffic controls to effectively and safely manage vehicle and pedestrian traffic.

Implementation Strategies

Numerous safety projects are included in the TSP, based on the review of existing and future conditions and input from the PAC. There are projects in the relevant sections of the TSP that correspond to all of the objectives for this goal.

Goal 3: Livability and Economic Viability

Provide a transportation system that balances transportation system needs with the community desire to maintain a pleasant, economically viable city.

Objectives

1. Minimize adverse social, economic and environmental impacts created by the transportation system, including balancing the need for street connectivity and the need to minimize neighborhood cut-through traffic.
2. Preserve, protect and ensure access to the city's significant natural features and historic sites, including the Pioneer Museum.

3. Improve transportation facilities without major disruption of existing neighborhoods or downtown.
4. Promote pedestrian-oriented design and the provision of pedestrian amenities in the downtown area, such as pedestrian-scale lighting.
5. Ensure adequate vehicle and bicycle parking and parking signage in the downtown commercial area, using techniques such as shared parking areas where appropriate.
6. Minimize traffic congestion in the downtown commercial area.
7. Develop and implement a street tree program, with emphasis on the downtown area.
8. Discourage through-traffic and high speeds in residential areas.

Implementation Strategies

Many of the needs identified in Tillamook relate directly to the issue of balancing the needs of highway traffic with local traffic and other community needs. As a result, the TSP reflects this goal throughout. Changes to the transportation system are focused on improving the existing system rather than creating new routes (with the exception of the street extension projects). The evaluation criteria for individual projects reflect this goal as do the projects included in the TSP.

Goal 4: Circulation and Mobility

Develop an interconnected, multimodal transportation system that serves the travel needs of Tillamook.

Objectives

1. Promote alternatives to ease adverse impacts (congestion, noise, safety) of commercial truck traffic in town.
2. Provide a network of arterials, collectors and local streets that are interconnected, appropriately spaced and reasonably direct.
3. Balance the simultaneous needs to accommodate local traffic and through-travel while incorporating traffic calming provisions.
4. Minimize travel distances and vehicle-miles traveled.
5. Safely, efficiently and economically move motor vehicles, pedestrians, bicyclists, transit, trucks, and trains to and through Tillamook.
6. Encourage development patterns that offer connectivity and mobility options for members of the community.
7. Recognize and balance freight needs with needs for local circulation, safety and access.

Implementation Strategies

Circulation and mobility in Tillamook are addressed in several areas of the TSP. The freight system plan identifies several improvements related to truck traffic in the city, in balance

with other modes and livability issues. Several street extensions, and pedestrian and bicycle improvements are identified to improve connectivity.

Goal 5: Capacity

Provide a transportation system that has sufficient capacity to serve the needs of all users.

Objectives

1. Enhance capacity at the intersection of Oregon 6 and U.S. 101, and west toward the Hoquarten Slough Bridge.
2. Protect capacity on existing and improved roads to provide acceptable service levels to accommodate anticipated demand.
3. Limit access points on highways and major arterials, and use techniques such as alternative access points when possible to protect existing capacity.
4. Minimize direct access points on to arterial rights-of-way.
5. Update and maintain required access management standards for new development and work toward modifications of existing development to preserve the safe and efficient operation of roadways, consistent with functional classification.

Implementation Strategies

Capacity needs in Tillamook were studied as part of the existing and future conditions analysis. Capacity improvements at the Oregon 6 and U.S. 101 intersection are included in the state roadway section of the TSP, as are access management improvements on U.S. 101 north of downtown. City code has been reviewed to identify potential changes to access management provisions.

Goal 6: System Preservation

Work to ensure that development does not preclude the construction of identified future transportation improvements, and that development mitigates the transportation impacts it generates when appropriate.

Objectives

1. Identify and preserve locations for potential future street connections.
2. Require developers to aid in the development of the transportation system by dedicating or reserving needed rights-of-way, by constructing half or full street improvements and by constructing off-street pedestrian, bicycle and transit facilities when appropriate and needed to serve new development.
3. Consider transportation impacts when making land use decisions, and consider land use impacts (in terms of land use patterns, densities, and designated uses) when making transportation-related decisions.
4. Ensure that development does not preclude the construction of identified future transportation improvements.

Implementation Strategies

Several changes to the Tillamook zoning code are recommended to coordinate future development with transportation system needs and to address the potential impacts of development on the transportation system.

Goal 7: Accessibility

Provide a transportation system that serves the needs of all members of the community for all routes and all available modes of transportation.

Objectives

1. Consider the transportation disadvantaged when developing alternatives to meet growing transportation needs.
2. Upgrade existing transportation facilities and work with public transportation providers to provide services that improve access for all users.
3. Develop and maintain travel routes for pedestrians, bicyclists and the physically handicapped.

Implementation Strategies

The TSP has been coordinated with TCTD and includes background information on the existing public transportation system and a description of TCTD's plans for improvements to the system. While no new public transportation facilities are included in the TSP because they are beyond the city's jurisdiction, the many pedestrian, bicycle and trail projects will aid pedestrians, bicyclists and those who use these modes in combination with transit.

Goal 8: Public Transportation

Work to improve cost-effective and safe public transportation through and within Tillamook.

Objectives

1. Work with the TCTD to develop transit systems and stations and related facilities in convenient and appropriate locations that adequately and efficiently serve Tillamook.
2. Work to improve the signage and amenities at transit stops and stations.
3. Work with TCTD to expand transit service as necessary during summer months of peak travel.
4. Provide for the transportation disadvantaged by complying with state and federal regulations and cooperating with the TCTD and other agencies to provide transportation services for the disadvantaged.

Implementation Strategies

The TSP has been coordinated with the TCTD and includes background information on the existing public transportation system and a description of TCTD's plans for improvements to the system. While no new public transportation facilities are included in the TSP because

they are beyond the city's jurisdiction, the many pedestrian, bicycle and trail projects will aid pedestrians, bicyclists and those who use these modes in combination with transit.

Goal 9: Pedestrian and Bicycle Facilities

Provide for an interconnected system of pedestrian and bicycle facilities in Tillamook.

Objectives

1. Ensure and strengthen the presence of safe, attractive and convenient pedestrian and bicycle access to and circulation in the downtown area.
2. Place priority on sidewalk pavement improvements for the downtown area.
3. Preserve and enhance the U.S. 101 coast bicycle route.
4. Work to develop safe, connected pedestrian and bicycle facilities near schools, residential districts and commercial districts.
5. Develop bicycle lanes or shoulder bikeways on all arterial streets, major collectors and minor collectors.
6. Ensure adequate pedestrian access on all streets in commercial zones.
7. Use unused rights-of-way for greenbelts, walking trails or bike paths where appropriate.
8. Promote multimodal connections where appropriate.
9. Develop safe and convenient pedestrian and bicycle systems that link all land uses, provide connections to transit facilities and provide access to publicly owned land intended for general public use.
10. Support and encourage increased levels of bicycling and walking.

Implementation Strategies

Many improvements to the pedestrian and bicycle system are included in the TSP, particularly near pedestrian generators, such as downtown and schools. Trail improvements are included.

Goal 10: Environment

Provide a transportation system that balances transportation facilities and services with the need to protect the environment and significant natural features.

Objectives

1. Promote a transportation system that encourages energy conservation, in terms of efficiency of the roadway network and the standards developed for street improvements.
2. Encourage use of alternative modes of transportation and encourage development that minimizes reliance on the automobile.
3. Minimize transportation impacts on coastal and inland natural resources.

Implementation Strategies

Beneficial environmental impacts will result from the connectivity/mobility projects and from pedestrian, bicycle and trail projects that support the use of non-motorized transportation in the city. Potential adverse environmental impacts were considered and identified through the project evaluation process. Where substantial environmental impacts would result from a proposed project, these are noted. Some projects with substantial impacts were eliminated from further consideration in the evaluation process.

Goal 11: Transportation Funding

Provide reasonable and effective funding mechanisms for city transportation improvements identified in the TSP.

Objectives

1. Develop a financing program that establishes transportation priorities and identifies funding mechanisms for implementation.
2. Develop proposed improvements with sufficient detail to qualify for funding of engineering and construction phases.
3. Develop and implement a transportation impact fee program to collect funds from new developments to be used for off-site and on-site transportation improvements.
4. Identify funding opportunities for a range of projects, and coordinate with county, state and federal agencies.
5. Develop improvements that meet applicable local, county, state and federal plans, standards and criteria.

Implementation Strategies

Section 6 includes the transportation financing plan that addresses this goal.

Transportation System Plan

This subsection identifies the transportation improvements and policies that should be implemented in the next 20 years in Tillamook to improve motor vehicle operations, safety, and pedestrian and bicycle travel. The plan also includes public transportation, rail and water elements. The transportation improvements and policies in this section were included on the basis of the information presented in previous sections of this document, including the analysis of existing and future, forecasted, no-build conditions; the analysis of alternatives and projects; and the selection of a preferred alternative.

The transportation system plan is divided into the following plan elements:

- State Roadway System
- Local Roadway System
- Freight System
- Pedestrian System
- Bicycle System

- Public Transportation
- Rail System

Figure 5-1 shows the locations of the roadway capacity and safety projects included in the TSP.

Because not all of the projects are likely to be funded under existing revenue sources, each project is given a priority in terms of years. The priorities are based on the measures of effectiveness and input from stakeholders, including the PAC. An order-of-magnitude cost also is included for most projects. The list of projects does not represent a financially constrained plan.

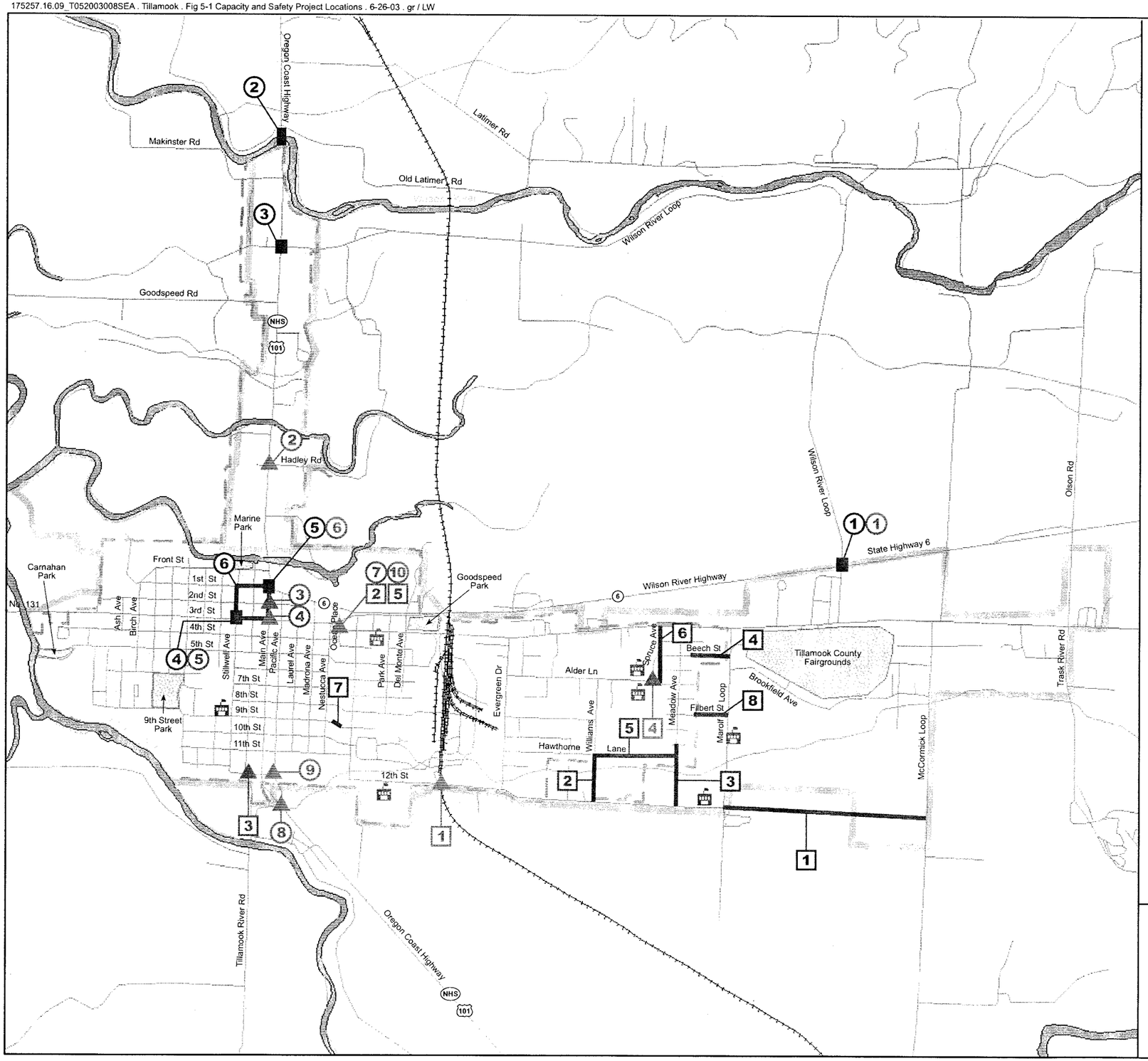
State Roadway System

The state roadway network in Tillamook, which consists of U.S. 101, Oregon 6 and Netarts Highway (131), serves both local and tourist traffic. In this subsection, capacity and safety improvements on U.S. 101 are outlined. This subsection also discusses highway segment designations, planning studies, functional classifications and lifeline routes.

Capacity Improvements

Table 5-1 presents the capacity improvements that are recommended for U.S. 101, Oregon 6 or Netarts Highway (131) in Tillamook. The projects are numbered and shown in Figure 5-1.

175257.16.09_T052003008SEA . Tillamook . Fig 5-1 Capacity and Safety Project Locations . 6-26-03 . gr / LW



City of TILLAMOOK

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LEGEND

- State Capacity Improvements
- State Safety Improvements
- Local Capacity Improvements
- Local Safety Improvements
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

NORTH

500 0 500 Feet

Figure 5-1
Capacity and Safety Project Locations

Transportation System Plan
Tillamook, OR

TABLE 5-1
Recommended Capacity Improvements on State Facilities

Project Number	Location and Description	Estimated Cost	Priority (years)
1	Provide grade-separated interchange at Oregon 6 and Wilson River Loop intersection.[1] (Part of Draft 2004–2007 STIP.)	$8,270,000	0-5
2	Widen Wilson River Bridge at U.S. 101. Includes other capacity improvements outside the city's UGB. (Part of current STIP.)	$3,895,000	0-5
3	Provide an eastbound right-turn lane at U.S. 101 and Wilson River Loop intersection (to U.S. 101 southbound) while providing for safe pedestrian and bicycle movements.	$100,000	0-5
4	Install a traffic signal at Netarts Highway (131) (3rd Street) and Stillwell Avenue and provide northbound and southbound left-turn lanes.[1]	$250,000	5-10
5	Construct a pedestrian island that provides a channelized westbound right-turn at U.S. 101 and Oregon 6 intersection, reconstruct northeast corner, provide downstream lane and widen Hoquarten Slough Bridge. Provide signing that yields vehicles to pedestrians crossing the right-turn lane.[1]	$3,000,000	5-10
6	Create a one-way couplet system along 1st Street (westbound) and Netarts Highway (131) (3rd Street) (eastbound) between Stillwell Avenue and U.S. 101 (Main Avenue). Project includes signing, channelization/restriping and intersection signal equipment and timing modifications.[1]	$100,000	5-10

[1] Improvements included in other tables. The costs associated with this project should only be counted once.

It is noted that any modifications to the signing and traffic control on the state system would have to be approved by the State Traffic Engineer.

STIP = Statewide Transportation Improvement Program.

UGB = urban growth boundary.

Safety Improvements

Table 5-2 presents the safety improvements that are recommended for state facilities in Tillamook. The projects are numbered and shown on Figure 5-1.

TABLE 5-2
Recommended Safety Improvements on State Facilities

Project Number	Location and Description	Estimated Cost	Priority (years)
1	Construct Interchange at Wilson River Loop and Oregon 6.[1] (Part of Draft 2004–2007 STIP.)	$8,270,000	0-5
2	Consolidate driveways near intersection of U.S. 101 and Hadley Road and provide a median barrier to restrict the driveways near the intersection to right-in, right-out.	$50,000	0-5
3	Improve driver awareness (bulb-outs, removal of parking, consolidate of driveways) at U.S. 101 (Pacific Avenue) and 3rd Street. Improve signing and striping on the eastbound approach.	$50,000	0-5

TABLE 5-2
Recommended Safety Improvements on State Facilities

Project Number	Location and Description	Estimated Cost	Priority (years)
4	Improve the pedestrian visibility (by treatments such as corner bulb-outs with parking removal, and crossing flags) at U.S. 101 (Pacific Avenue) and 2nd Street.	$50,000	0-5
5	Signalize Netarts Highway (131) at Stillwell Avenue.[1]	$250,000	5-10
6	Reconstruct westbound approach at U.S. 101 and Oregon 6 (skewed geometry, potential safety issues with confusing operations) and create one-way couplet to remove eastbound approach.[1]	$3,100,000	5-10
7	Provide a raised island at Ocean Place and 4th and 3rd Streets for a safe pedestrian refuge with marked crosswalks on every approach. Designate Ocean Place between the Oregon 6 couplet as northbound only.	$200,000	5-10
8	Provide a gateway along Pacific Avenue at the south end of the city.	$150,000	10+
9	Realign 12th Street and U.S. 101 (Pacific Avenue).	$250,000	10+
10	Construct a roundabout at Ocean Place and 4th and 3rd Streets, and realign approaches. Provide advanced signing and striping to provide safe operating conditions.	$750,000	10+

[1] Improvements included in other tables. The costs associated with this project should be counted only once.

It is noted that any modifications to the signing and traffic control on the state system would have to be approved by the State Traffic Engineer.

Access Management

Access management improvements to consolidate driveways and provide a median barrier similar to U.S. 101 north of the Wilson River Loop intersection are recommended along U.S. 101, north of Hoquarten Bridge to Wilson River Loop intersection (see Goal 2). Consolidation of driveways should occur with redevelopment. Driveway consolidation and median access control is recommended near U.S. 101 and Hadley Road.

To protect transportation facilities and to provide for safe multimodal transportation in the City of Tillamook, several changes have been proposed to the city's ordinances. A new subsection has been added to the city's Zoning Ordinance, Section 22.1, Subsection 17, Access Management. This section provides for the closing or consolidation of access points and provides access spacing options to create walkable and safe pedestrian crossings. Optional language for shared driveways, vertical clearance and fire access has been included in Section 7. The city's existing Zoning Code, Section 22, Site Development Standards, includes a requirement for completion of a traffic impact study. This existing code and the proposed changes help the city to be in compliance with the TPR.

Highway Segment Designation

The OHP provides for special designation of certain highway segments to guide future planning and management decisions, and to balance the needs of through traffic with local traffic and development. The designations, which include STAs, commercial centers, and urban business areas, have specific objectives for access management, automobiles, pedestrian and bicycle accommodation, transit amenities and development.

The city staff has expressed interest in pursuing an STA designation on a portion of U.S. 101 in Tillamook to better balance the needs of through traffic with local traffic and economic development. An STA designation, if appropriate, would help the city and ODOT address through traffic needs on U.S. 101 while supporting the city's desire to maintain and enhance the downtown area as an aesthetically appealing destination that functions well for pedestrians and bicyclists and is economically vibrant.

The STA designation is a tool developed and supported by the OTC designed to make a downtown district function well when the state highway is also the community's main street. For example, an STA may have special features that result in lower speeds, narrower lane widths and wider sidewalks on the state highway. As of May 2003, four STAs have been conditionally designated on district or regional highways in Oregon. The STA designation process is currently under review by ODOT. Some designations may require a detailed management plan (as described in OHP Policy 1B.11).

Potential STA Benefits

- Provides greater flexibility for state highway standards, such as highway mobility, street spacing, signal spacing and street treatments. For example, highway mobility standards may allow for more congestion than on other urban highways.
- Receives ODOT approval up front. Addresses exceptions early in the planning process and in writing.
- Provides certainty about how the highway will be managed.

Potential STA Drawbacks

- Criteria and the process are exacting—must be a good fit to the existing city conditions or the city must have future plans that would make it a good fit.
- It is a new program that has not yet been implemented on a statewide highway, such as U.S. 101
- There may be other, easier ways to make the desired changes, including the use of guidelines for downtown areas provided by the 2002 ODOT Highway Design Manual.

Review of STA Characteristics

Table 5-3 provides a preliminary review of STA characteristics as they relate to Tillamook and indicates that the downtown core area of the city on U.S. 101 already has many of the characteristics. The downtown core area is functioning as if an STA were in place: posted speeds are low, lane widths are relatively narrow, sidewalks are as wide as space allows. An STA designation could help formalize these conditions by putting them in the form of an

agreement between ODOT and the city. Based on this and the city's interest in the STA, an STA designation is recommended for this segment of U.S. 101.

TABLE 5-3
Preliminary Review of STA Characteristics as They Relate to Tillamook[1]

STA Characteristic	Is Characteristic Present Today or Likely in Future?	Notes
Location		
Must straddle a state highway; any new development to be built off of the highway or only on one side	Yes	Assuming STA was designated in downtown area.
Cannot be located on a freeway or expressway	Yes	U.S. 101 is a statewide highway and not a freeway or expressway.
Area has a majority, if not all, of STA attributes, either as existing or planned uses and infrastructure through an adopted plan	Maybe	Issues listed as "maybe" in this table would need to be resolved, such as through future development.
STA does not apply to entire city	Yes	Proposed STA area would be in downtown core area, such as 1st Street to 12th Street.
Traffic		
STA located in compact area with local street network to facilitate local auto and pedestrian circulation	Yes	Development in downtown core area is compact and there is a local street network.
Traffic speeds are slow, generally 25 mph or less	Yes	Current posted speed on U.S. 101 in the downtown core area is 20 mph.
Identify strategies for addressing freight and through traffic including speed, possible signalization, parallel or other routes, actions elsewhere in the corridor	Maybe	Would need to study options for parallel or alternative routes to assure adequate traffic capacity (see Freight Needs subsection of TSP).
Design		
In STA area, there are mixed uses; buildings are close together	Yes	The downtown commercial area has mixed uses with buildings close together.
Sidewalks have ample width and are adjacent to highway and buildings	Yes	Most sidewalks have ample width and are adjacent to the highway and buildings in the downtown commercial area.
Public road connections are preferred over private driveways	Maybe	Access management is a key component of an STA. Some driveway closures might be required in the downtown commercial area.
There is on-street parking or else there are shared parking lots located behind or to side of buildings	Yes	On-street parking is present throughout the downtown core area. The TSP includes plans for a parking study and possible additional off-street parking area.
Streets are designed for ease of crossing by pedestrians	Yes	Improvements proposed in this plan would improve pedestrian crossing conditions.

[1] This table is based on the STA description in the Oregon Highway Plan. As of May 2003, the STA designation process is under review.

STA = special transportation areas.

TSP = transportation system plan.

Planning Studies

During the TSP process, a number of issues were raised for which resolution is beyond the scope of the TSP. Therefore, additional studies that focus solely on the issues/problems identified are recommended. Funding for these projects should be joint agreements between any related agencies. Table 5-4 presents the recommended planning studies for Tillamook.

TABLE 5-4
Recommended Planning Studies

Location and Description	Priority (years)
U.S. 101 Access Management Study (if needed, depends on speed of redevelopment to comply with city code)	0-5
12th Street Railroad Crossing Safety	0-5
Detailed Large Vehicle Alternate Route Study	0-5
Downtown Parking Study	0-5
STA Management Plan (if needed, depends on ODOT requirements)	0-5
Trail Development Study. Include Phase 2 of Hoquarten Slough Trail.	5-10

STA = special transportation area.

Maintenance/Preservation/Operations

The TSP for Tillamook does not recommend specific maintenance, preservation and operations projects. If a roadway is recommended for other roadway improvements, it may be beneficial to include improvements for maintenance needs at that time. However, some of the projects included in Appendix B include maintenance, preservation or operation components that address existing deficiencies.

Functional Classifications

State Facilities

As discussed in Section 2, ODOT has identified the functional classifications of roadways of statewide significance within the Tillamook city limits. No changes to the functional classifications of the state highways U.S. 101, Oregon 6 and Netarts Highway (131) are recommended:

- U.S. 101 - principal arterial
- Oregon 6 - minor arterial
- Netarts Highway (131) - urban/rural major collector

Lifeline Routes

In the vicinity of Tillamook, several roadways—U.S. 101, Netarts Highway (131), Oregon 6, Latimer Road and Wilson River Loop—are designated as lifeline routes. U.S. 101 (south of Oregon 6), Netarts Highway (131), Latimer Road, Wilson River Loop and Oregon 6

(between U.S. 101 and Wilson River Loop) are designated as Priority 1 lifeline routes, which means they are essential for emergency responses in the first 72 hours after an incident. U.S. 101 (north of Oregon 6) and Oregon 6 (east of Wilson River Loop) are designated as a Priority 2 lifeline routes, which means they are desirable for emergency responses in the first 72 hours after an incident or are routes essential for economic recovery. No changes are recommended to these designations.

Local Roadway System

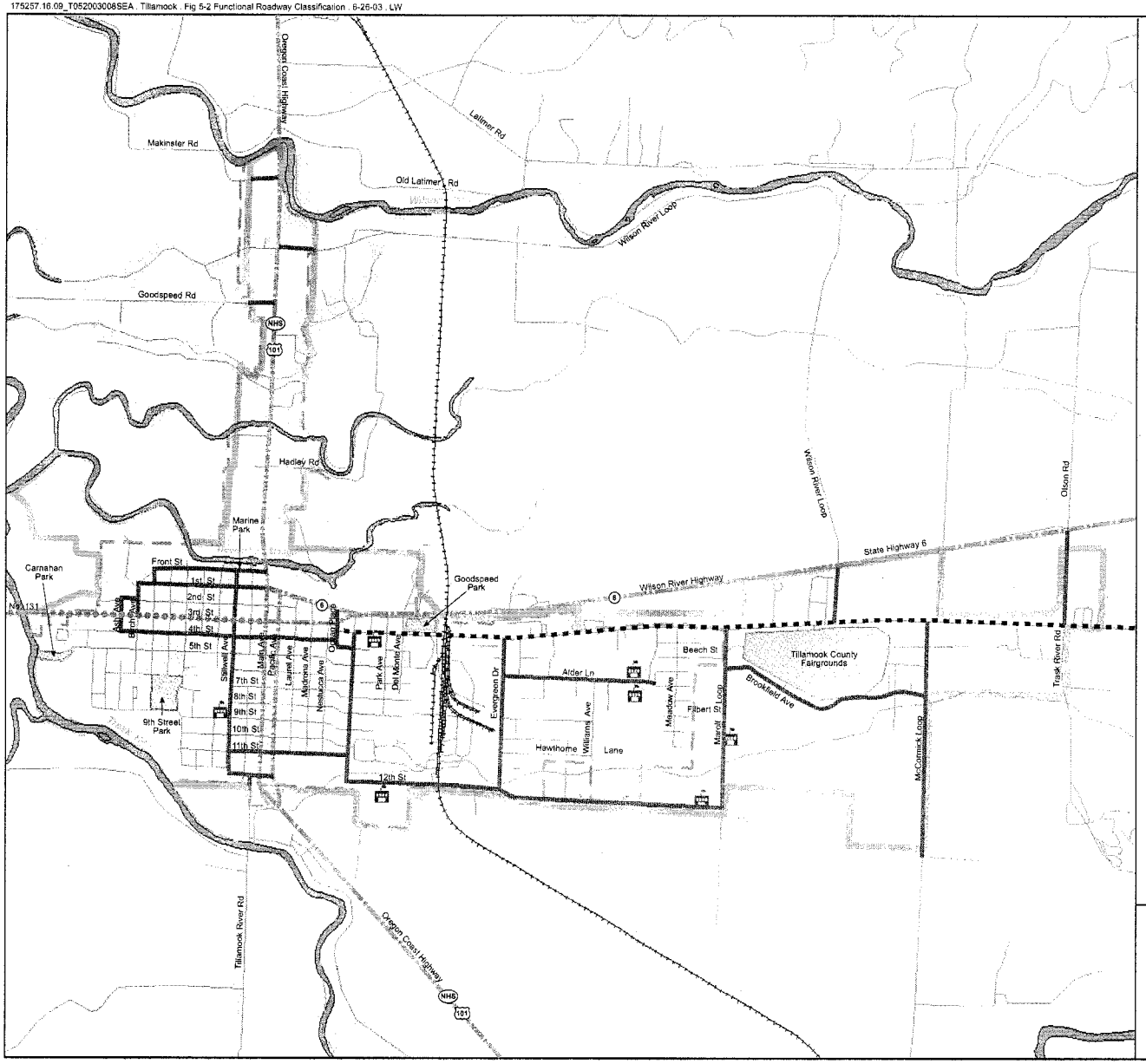
This subsection summarizes the recommended functional classifications for local roads in Tillamook to meet transportation system needs in the 20-year planning horizon. The recommendations in this section were based on input from the PAC, City of Tillamook staff, Tillamook County staff, and the inventory of existing conditions. Coordination between ODOT, the City of Tillamook and Tillamook County will be necessary to implement the functional classification modifications listed in this section. Associated design standards are discussed in the next subsection. The recommended functional classifications for the City of Tillamook are shown in Figure 5-2.

In addition to the recommendations listed in this section, the City of Tillamook, Tillamook County and ODOT should continue to review roadway functional classifications throughout the 20-year horizon and make changes as necessary based on ADT volumes, changes in use or development, pedestrian/bicycle usage, the surrounding road network, speed and access control.

The proper classification of each roadway is important to help determine the appropriate traffic control, design standards, pedestrian and bicycle facilities, and access to adjacent properties for a roadway segment. The following are the functional classification definitions for Tillamook:

- **Arterial Roadways.** The primary function of an arterial roadway is to provide mobility. Therefore, arterials typically carry higher traffic volumes and allow higher travel speeds while providing limited access to adjacent properties.
- **Collector Roadways.** The function of a collector roadway is to collect traffic from local streets and provide connections to arterial roadways. Generally, collectors operate with moderate speeds and provide more access in comparison to arterials.
- **Local Roadways.** The primary function of a local roadway is to provide access to local traffic and route users to collector roadways. Generally, local roadways operate with low speeds, provide limited mobility, and carry low traffic volumes compared with other roadway classifications.

175257.16.09_T052003008SEA : Tillamook : Fig 5-2 Functional Roadway Classification : 6-26-03 : LW



City of
TILLAMOOK

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LEGEND

- Arterial
- Collector
- State Collector
- State Arterial
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

NORTH

500 0 500 Feet

Figure 5-2
Functional Roadway Classification

Transportation System Plan
Tillamook, OR

Arterials

East of U.S. 101 to the city's UGB, the City of Tillamook and Tillamook County should consider classifying 3rd Street as an arterial. This recommendation is based on the relatively high ADT volumes, relatively high truck volumes, and multimodal use (that is, bicyclists, pedestrians and transit). An arterial functional classification is not recommended for any other roads under city or county jurisdiction. U.S. 101 (Main Street and Pacific Avenue) and Oregon 6 (1st Street and 3rd Street) will continue to function as the city's main streets. These streets are under ODOT jurisdiction and should continue to be classified as arterials as described above. The TSP aims to balance these dual functions through specific project and policies, including streetscape and pedestrian projects and potential STA designation.

Collectors

As shown in Table 5-5, the following roadway facilities should be classified as collectors:

TABLE 5-5
City of Tillamook Roadway Classification System

Road	Segment	Agency Jurisdiction
Olsen/Trask River Road	Oregon 6 to 3rd Street	Tillamook County
Tillamook River Road	City limits to 12th Street	Tillamook County
Wilson River Loop	U.S. 101 to city limits, Oregon 6 to 3rd Street	Tillamook County
12th Street	Stillwell Avenue to Marolf Loop	Tillamook County and City of Tillamook
Marolf Loop	Entire Length	Tillamook County
McCormick Loop	3rd Street to city limits	Tillamook County
Brookfield Avenue	Entire Length	Tillamook County, City of Tillamook, and Private
Evergreen Drive	North of Oregon 6	Tillamook County
Goodspeed Road	U.S. 101 to city Limits	Tillamook County
Makinster Road	U.S. 101 to city Limits	Tillamook County
Stillwell Avenue	Front Street to 12th Street	City of Tillamook
Alder Lane	Evergreen Drive to Dogwood/Cypress Street	City of Tillamook
Evergreen Drive	12th Street to 3rd Street	City of Tillamook
1st Street	Birch Avenue to U.S. 101	City of Tillamook
2nd Street	Ash Avenue and Birch Avenue	City of Tillamook
Ash Avenue	2nd Street to 4th Street	City of Tillamook
Front Street	Cedar Avenue to U.S. 101	City of Tillamook
Miller Avenue	3rd Street to 12th Street	City of Tillamook
4th Street	Ash Avenue to Miller Avenue	City of Tillamook
10th Street	U.S. 101 to Miller Avenue	City of Tillamook
11th Street	Stillwell Avenue to Miller Avenue	City of Tillamook
Ocean Place	4th Street to Oregon 6	City of Tillamook
Cedar Avenue	Front Street to 1st Street	City of Tillamook
Birch Avenue	1st Street to 3rd Street	City of Tillamook

ODOT currently classifies Williams Avenue as a collector. Based on a review of existing and future conditions, ODOT should consider re-classifying Williams Avenue as a local street. Williams Avenue is a very low volume road in a residential grid network and is misrepresented on ODOT mapping. On the ODOT mapping Williams Avenue is shown as extending from 3rd Street to 12th Street, when it actually only is between Alder Lane and Hawthorne Lane.

Any new roads or extensions that are constructed within the City of Tillamook, as listed in Table 5-6, should be classified based upon the ADT and usage by pedestrians, bicycles, and trucks. Many of the proposed extensions are expected to carry through traffic in addition to local traffic, which would likely lead to a collector functional classification.

Local

All city roadway facilities not listed above are recommended to be classified as local roads.

Roadway Design Standards

City and County Facilities

Roadway design standards were developed for each functional classification for city facilities. Each functional classification requires different design standards based on the operating conditions (volumes, access management, speeds) and users (bicyclists, pedestrians, motorists) of the roadway. The design standards are not intended to require the city to update and retrofit current roadways to new standards, but should be applied during future development. See Figure 5-3 and Figure 5-4 for proposed roadway standards on arterial, collector and local roadways.

Urban Growth Management Agreement

City standards generally apply to county roadways in the city limits and within the UGB. Tillamook County and the seven incorporated cities in the county (including Tillamook) have adopted Urban Growth Management Agreements (UGMAs) with each other. The purpose of the agreements is to provide for coordination of services in the city-county mutual interest area, defined as lands that are outside of the city limits, but within the city's UGB. By definition, these lands are determined to be necessary and suitable for future urban development. The UGMA requires that the city and county coordinate with each other regarding major transportation improvement projects, county road vacations, extensions of city services and annexations. The UGMA also recommends that the city and county consider the possibility of developing a common set of road, street and storm drainage standards to be used in the mutual interest area.

State Facilities

Roadway design standards were not developed for state facilities. Applicable standards on state roads are provided in the ODOT Design Manual.

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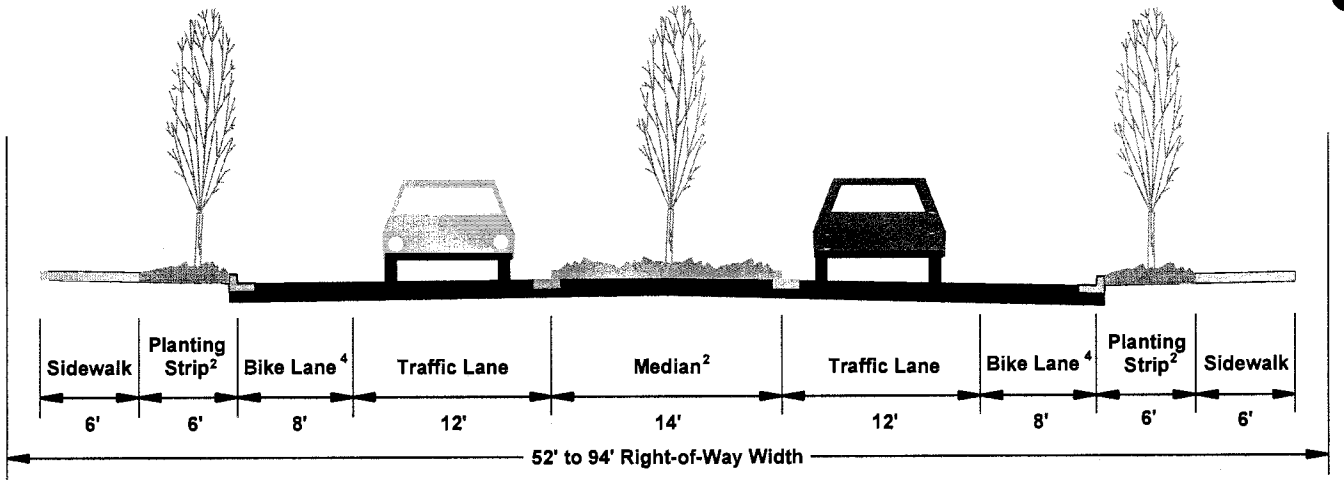
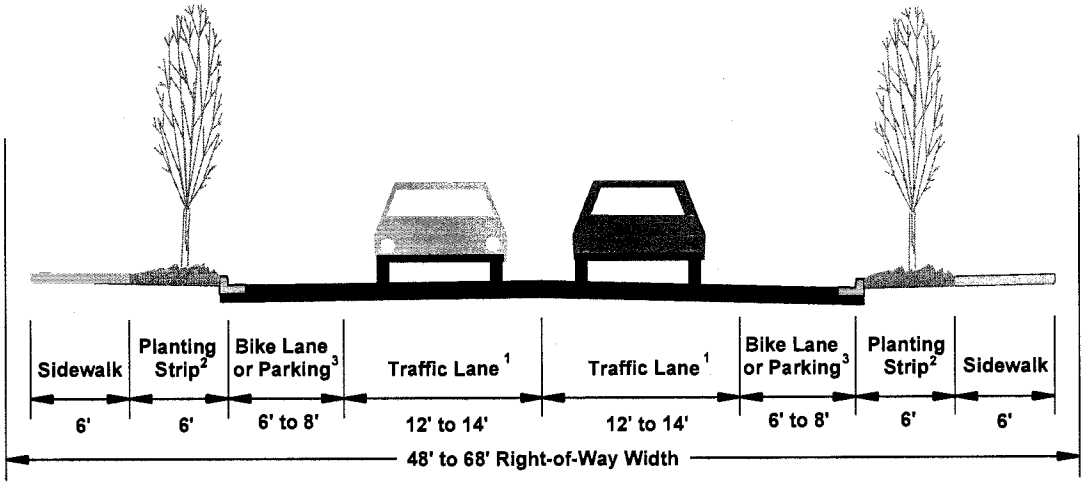


2-Lane Arterial Road



Collector Road

Notes:

[1] Where parking is constructed next to a travel lane, the travel lane width shall be increased to 14' to function as a shared roadway and accommodate bikes.

[2] Optional Feature

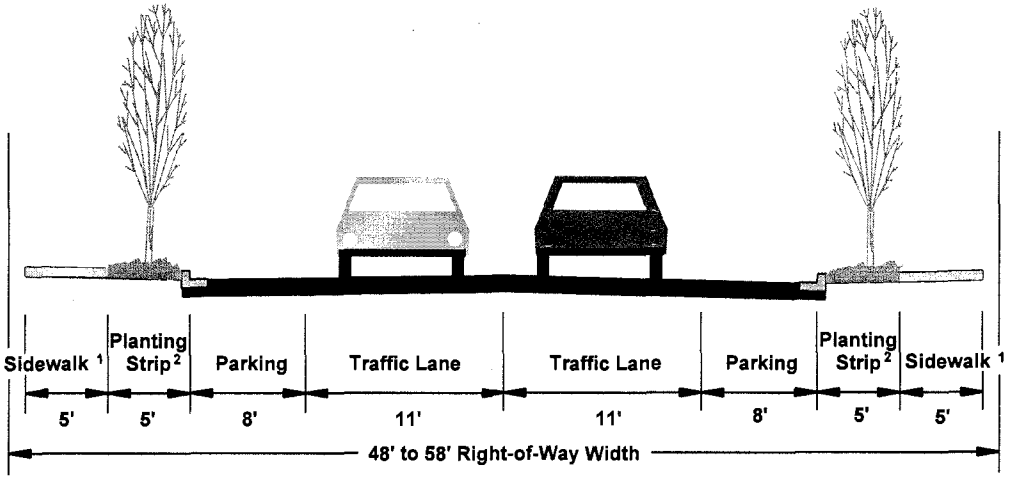
[3] Width for parking shall be 8' wide. Width for bike lane shall be 6' wide.

[4] Parking lane to be included on arterial road if required by City Engineer. The parking lane should be in addition to bike lane.

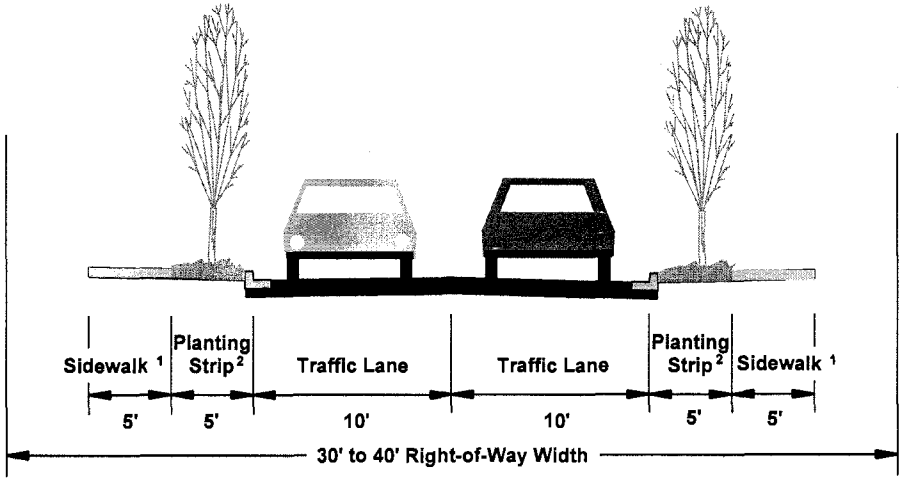
DRAFT - Figure 5-3

Roadway Cross Sections

Tillamook Transportation System Plan



Local Road



Alternative Local Road Standard [3]

Notes:

[1] If sidewalks are not provided, 5' shoulders are required.

[2] Optional Feature

[3] The alternative local road standard may be used when approved by the City of Garibaldi. The standard is intended to apply under the following circumstances:

1. The local road will serve 18 or fewer dwelling units upon buildout of adjacent property.
2. The ADT volume of the road is less than 250 vehicles/day.
3. Significant topographical or environmental constraints are present.
4. Use of the alternative local road standard will not create gaps in connectivity or roadway standards with adjacent roadway sections (i.e. sidewalk, parking, travel lane widths).
5. The City Engineer and Emergency Service Providers have reviewed and accepted usage of the alternative local roadway standard.

DRAFT - Figure 5-4

Roadway Cross Sections

Tillamook Transportation System Plan

Capacity Improvements

Table 5-6 presents the capacity and widening improvements that are recommended for local facilities in Tillamook. The projects are numbered and shown in Figure 5-1. Many of the road extensions are dependent on development. If development occurs, then agreements with the developers should be required to construct these extensions.

TABLE 5-6
Capacity and Widening Improvements on Local Facilities

Project Number	Location and Description	Estimated Cost	Priority (years)
1	Extend 12th Street to McCormick Loop	$1,500,000	0-5
2	Extend Williams Avenue south to 12th Street	$275,000	0-5
3	Extend Meadow Avenue to 12th Street	$500,000	5-10
4	Extend Beech Street to Marolf Loop	$120,000	5-10
5	Extend Hawthorne Lane between Meadow and Williams Avenues	$1,100,000	5-10
6	Designate Spruce Avenue as a public road and remove the barriers at Apple and Beech Streets. Connect Spruce to Cypress to complete roadway grid system	$150,000	5-10
7	9th Street, cul-de-sac one side of the park and add parking on the other side	$100,000	5-10
8	Extend Filbert Street to Marolf Loop	$225,000	10+

Safety Improvements

Table 5-7 presents the safety improvements that are recommended for local facilities in Tillamook. The projects are numbered and shown in Figure 5-1.

TABLE 5-7
Recommended Safety Improvements on Local Facilities

Project Number	Location and Description	Estimated Cost	Priority (years)
1	Upgrade 12th Street railroad crossing with safety measures, such as gate and flashing lights. First step would be study by ODOT rail.	$250,000	0-5
2	On Ocean Place at 4th and 3rd Streets provide a raised island for a safe pedestrian refuge with marked crosswalks on every approach. Designate Ocean Place between the Oregon 6 couplet as northbound only.[1]	$200,000	0-5
3	12th Street and Tillamook River Road—relocate stop bar to provide better sight distance	$5,000	0-5
4	Redesign the intersection at Alder Lane and Dogwood and Cypress Streets to remove the parking area (or revise to not interfere with intersection operations), provide all-way, stop-controlled intersection. Provide shoulder along eastside of intersection for pedestrians and revise crosswalk locations.	$100,000	5-10

TABLE 5-7
Recommended Safety Improvements on Local Facilities

Project Number	Location and Description	Estimated Cost	Priority (years)
5	Construct a roundabout on Ocean Place at 4th and 3rd Streets, and realign the approaches. Provide advanced signing and striping to provide safe operating conditions.[1]	$750,000	10+

[1] Improvements are included in other tables. The costs associated with this project should be counted only once.

ODOT = Oregon Department of Transportation.

Parking Improvements

Table 5-8 presents the parking improvements that are recommended for Tillamook.

TABLE 5-8
Parking Improvements

Project Number	Location and Description	Estimated Cost	Priority (years)
1	Provide signing along U.S. 101 to off-street lots off U.S. 101	$5,000	0-5
2	Conduct parking study to understand parking use at various times during the year.	$50,000	0-5
3	Construct off-street parking at city-owned lot along Ivy Avenue. Provide signing along U.S. 101 to direct drivers to this lot.	$25,000	5-10

Freight System

As part of the TSP process, City of Tillamook and Tillamook County staffs identified the need and desire to minimize the impacts of local and through freight truck traffic and large recreational vehicles in the City of Tillamook downtown commercial area and in residential neighborhoods in the city. Because of the complex nature of this problem, specific solutions are not recommended in the TSP. Several potential solutions are identified and discussed in the large vehicle alternate route study in Appendix C.

For the purposes of the TSP, the following additional study is recommended:

- Detailed Large Vehicle Alternate Route Study: Several specific recommendations for this study are identified in Appendix C. In summary, the detailed study would take the preliminary work from the large vehicle alternate route study done for the TSP and develop further detail, with a focus on cost-effective solutions that are most likely to be used (for example, minimize out-of-direction travel or trip time). It would also include an internal circulation study at the Tillamook Lumber Company mill site. This study would identify opportunities and constraints for changing circulation patterns at the mill to improve overall truck routing.

After completion of this refinement study, the priorities of projects included in the City of Tillamook TSP may shift, as many of the potential solutions include improvements on state and county facilities.

Pedestrian and Bicycle Systems

Table 5-9 displays the recommended pedestrian facility improvements along existing streets and roads in Tillamook for the next 20 years. Each of these projects is shown in Figure 5-5. If the project is only a pedestrian or bicycle project, it is denoted with a "P" or "B", respectively. If the project is a pedestrian and a bicycle project, then it is denoted with a "PB".

TABLE 5-9
Pedestrian and Bicycle System Improvements

Project Number	Project Type	Location and Description	Estimated Cost	Priority (years)
1	P	Downtown sidewalk construction/replacement from Hoquarten Slough to 4th Street. Includes bulb-outs at 2nd, 3rd and 4th Streets. This is Phase 1 of the transportation enhancement project.	$450,000	0-5
2	PB	Construct sidewalk on 12th Street, east of the high school to Marolf Loop, repave from Miller Avenue to Marolf Loop. Provide adequate width along 12th Street from high school to Marolf Loop for shared roadway designation.[1]	$1,400,000	0-5
3	B	Provide adequate bike lane width and sidewalk and repave Alder Lane between Evergreen Drive and the Cypress/Dogwood intersection[1]	$740,000	0-5
4	PB	Develop Phase 1 of the Hoquarten Slough Trail along the south side of Hoquarten Slough for approximately 1,000 feet. Connect parks along the slough and proposed Stillwell Avenue bike route. This is a current project of the Tillamook County estuary organization.	$100,000	0-5
5	PB	Create trail plan to assess roadway connectivity and off-street trails projects. Include the development of Hoquarten Slough Trail Phase 2.	$50,000	5-10
6	PB	Construct bike lanes and sidewalk on 3rd Street, east of Evergreen Drive to Trask River Road, repave roadway from Nestucca Avenue to the city UGB. Provide marked crosswalks near the Tillamook County Fairgrounds with pedestrian area warning signs. Restripe crosswalks near Wilson Elementary/ Goodspeed Park area on 3rd Street. Retrofit ramps along 3rd Street to ADA compliance near Goodspeed Park and Wilson School.[1]	$2,850,000	5-10

TABLE 5-9
Pedestrian and Bicycle System Improvements

Project Number	Project Type	Location and Description	Estimated Cost	Priority (years)
7	B	Provide bike route from Evergreen Drive to Trask River Bridge. **Eastbound:** Enter city on 3rd Street, south onto Ash Avenue, east on 4th Street, north on Ocean Place, east on 3rd Street. Would require bike lanes on 3rd Street to Ash Avenue, to shared roadway on Ash Avenue, 4th Street and Ocean Place. **Westbound**: On 3rd Street from Evergreen Drive, north on Ocean Place, west on Oregon 6 (1st Street), cross U.S. 101, south on Birch Avenue, west on 2nd Street, south on Ash Avenue, west on 3rd Street. Provide bike lanes on 3rd Street and Oregon 6. All other roads are shared roadway designation. Bike lanes on Oregon 6 can be provided with striping modifications. Bike lanes on 3rd Street west of Ash Avenue will require removal of parking on one side of road. Requires advanced signing on U.S. 101 and 3rd Street. Complete sidewalk on 3rd Street, west of Ash Avenue.[1]	$50,000	5-10
8	PB	Create a bicycle bypass in downtown area along Stillwell Avenue, create bike lane connections with U.S. 101 along Front Street and 11th Street. Provide advanced signing. Remove parking on one side of road to provide bike lanes. Coordinate with Hoquarten Slough Trail. Might require undercrossing with U.S. 101 at Front Street. Additional study required. Complete sidewalk system on Stillwell Avenue, Front to 1st Streets and 11th to 12th Streets. Construct ADA ramps along Stillwell Avenue near Liberty Elementary School (7th and 8th Street crossings). Restripe crosswalks along Stillwell Avenue.[1]	$1,800,000	5-10
9	P	Downtown sidewalk construction/replacement from 4th to 12th Street. Includes bulb-outs at 9th and 11th Streets. This is Phase 2 for the transportation enhancement project.	$900,000	5-10
10	PB	Construct sidewalk and bike lanes on Evergreen Drive. Repave road with asphalt.[1]	$790,000	5-10
11	P	Provide ADA-compliant ramps along Miller Avenue. Provide painted crosswalks along Miller Avenue	$30,000	5-10
12	P	Construct ADA-compliant ramps along 10th Street. (Currently ramps exist only at Stillwell Avenue and U.S. 101 intersections)	$25,000	5-10
13	PB	Provide bicycle parking in downtown Tillamook. Benches, drinking fountains, trash receptacles, and informational signage or historical kiosks are recommended	$50,000	5-10
14	B	Provide bicycle parking at sport fields on Alder Lane	$1,000	5-10
15	B	Provide bicycle parking at Tillamook County Fairgrounds	$1,000	5-10
16	B	Provide bicycle parking at TCTD, 2nd and Laurel Avenue, transit center	$1,000	5-10
17	B	Provide bicycle parking at hospital	$1,000	5-10
18	B	Provide bicycle parking at Goodspeed Park	$1,000	5-10

TABLE 5-9
Pedestrian and Bicycle System Improvements

Project Number	Project Type	Location and Description	Estimated Cost	Priority (years)
19	B	Provide bicycle parking at 9th Street Park	$1,000	5-10
20	B	Provide bicycle parking at Carnahan Park	$1,000	5-10
21	PB	Provide adequate shoulder on Brookfield Avenue. Road may need to be acquired by city.[1]	$220,000	10+
22	PB	Provide adequate shoulder on McCormick Loop for shared roadway designation, repave road at south end. [1]	$250,000	10+
23	PB	Provide adequate shoulder on Marolf Loop for shared roadway designation, repave road. [1]	$200,000	10+
24	P	Construct sidewalk along 4th Street from Nestucca to Miller Avenues. Contingent on development.	$60,000	10+
25	P	Provide sidewalk on north side of 11th Street between Stillwell Avenue and U.S. 101, retrofit south side sidewalk, overlay roadway between Stillwell and Miller Avenues	$130,000	10+

[1] Project is a joint pedestrian/bicycle improvement and appears on Table 5-11, as well. The cost should be accounted for in one table only.

ADA = Americans with Disabilities Act.

TCTD = Tillamook County Transportation District.

UGB = urban growth boundary.

The cost associated with the sidewalk improvements is for both sides of the road. It is expected that with limited funds, the sidewalk projects may be phased over time and begin with construction sidewalk on one side only. This would reduce costs dramatically because right-of-way impacts could be significantly or altogether avoided.

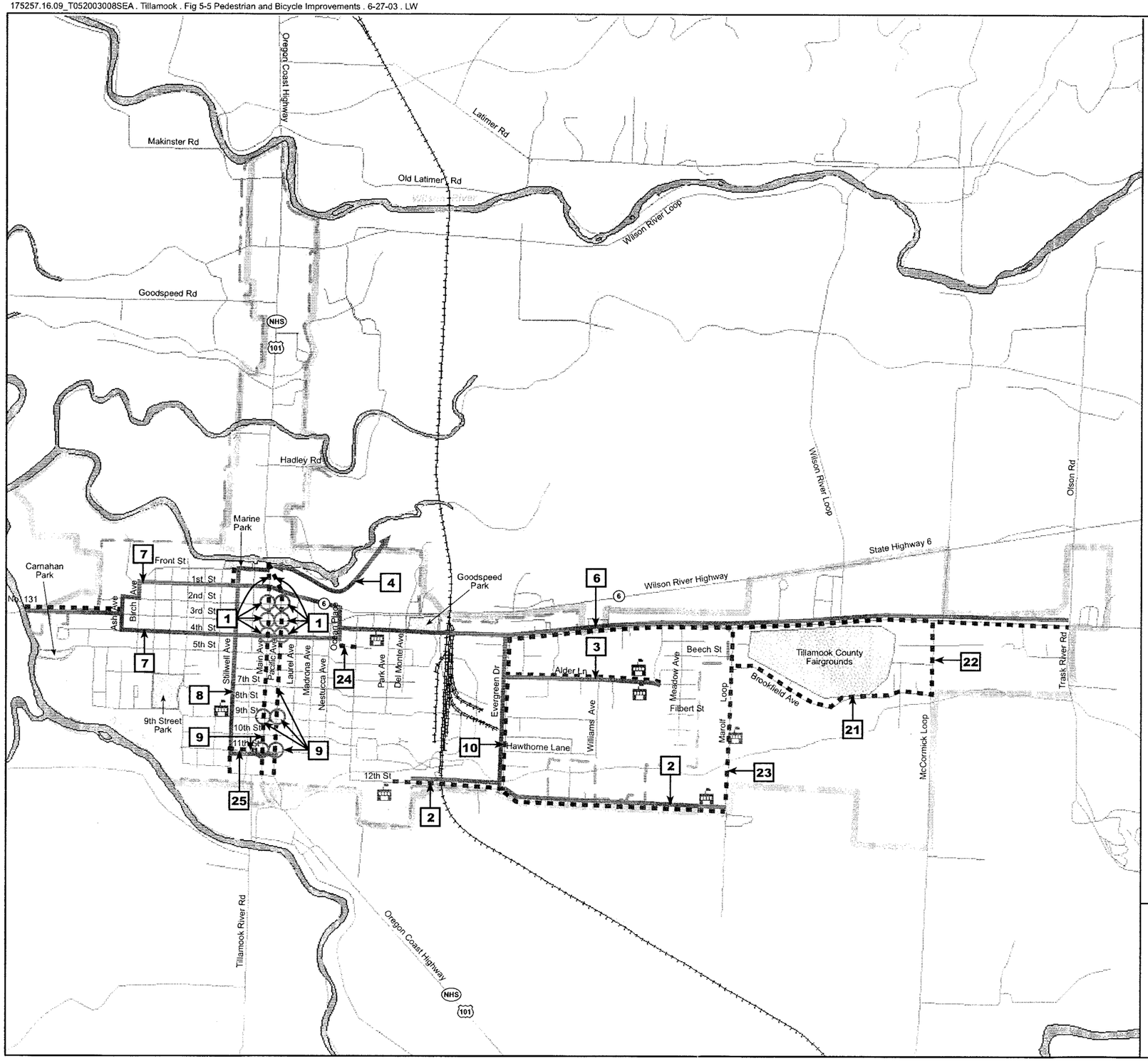
Pedestrian System Improvements

The Tillamook pedestrian system can be characterized as comprehensive in some areas of the city and lacking in some areas east of the downtown. Gaps in pedestrian connectivity exist in the residential areas. Also, the high number of private accesses and conflict opportunities are barriers to continuous, connected pedestrian facilities in certain areas of Tillamook. ADA compliance also is an important component of the Tillamook TSP.

Sidewalks

Existing sidewalk is generally located in all areas except in the east area of the city. Including Evergreen Drive, roads to the east either provide a narrow shoulder or have no pedestrian facilities. Sidewalk condition varies, with most areas exhibiting old, cracked sidewalk. In newer areas of the city, where development has occurred recently, the sidewalk is in good condition. This is noticeable in the commercial area along U.S. 101 to the north. In most areas, the sidewalk does not comply with ADA ramping and width requirements.

175257.16.09_T052003008SEA . Tillamook . Fig 5-5 Pedestrian and Bicycle Improvements . 6-27-03 . LW



City of TILLAMOOK

CH2MHILL

LEGEND

- Bicycle/Trail Improvements
- Sidewalk/Shoulder Improvements (ROW Widening in Some Cases)
- Crosswalks/Intersections Improvements
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

Note: Projects that include bicycle and sidewalk improvements include both designations.

NORTH

500 0 500 Feet

Figure 5-5
Pedestrian and Bicycle Improvements

Transportation System Plan
Tillamook, OR

To provide a network of safe and connected facilities that will promote a balanced transportation system, sidewalk improvements have been identified. Particular focus is placed on increasing pedestrian safety by installing new sidewalks in areas frequently used by pedestrians. Where sidewalks do not exist and where it is not feasible to build them, shoulder widening is recommended.

Crosswalks

To assist pedestrians in crossing busy roadways and improve pedestrian safety, marked crosswalks and pedestrian warning signage should be installed at several locations: near Tillamook schools, the hospital, Tillamook County Fairgrounds, any parks and along U.S. 101.

Pedestrian Standards and Policies

To enhance pedestrian safety, circulation and connectivity, and to comply with the TPR, several changes have been proposed to the Zoning Ordinance in Tillamook. Much of the pending language for inclusion in the Zoning Ordinance that supports pedestrian safety and circulation (such as access management and access spacing) has been recommended for adoption. The proposed code changes also address pedestrian access, requiring construction of pathways when street connections are not feasible. The new street cross sections, recommended for adoption into the city's *Design Standards and Details* document, reflect new street design standards, which require sidewalks along all new arterials and collectors as well as providing for either a sidewalk or a 5-foot-wide shoulder along new local streets. Optional planting strips can serve to buffer pedestrians from automobile traffic. These new standards and policies encourage pedestrian trips because they facilitate safe, direct and convenient access to local destinations. See Section 7 for detailed information on recommended amendments to the city's ordinances.

Pedestrian System Plan

Pedestrian activity in Tillamook is concentrated in the downtown area, the residential areas east and west of downtown, and the commercial area north of downtown. The focus of the pedestrian system element of the TSP is to improve connections in the community and enhance pedestrian access to Tillamook's recreational features.

Providing a connected network of pedestrian facilities in Tillamook is important to:

- Serve shorter pedestrian trips from neighborhoods to area recreational and activity centers, such as schools
- Provide access to public transit
- Meet residents' and visitors' recreational needs
- Provide circulation in the downtown area

To meet specific goals and objectives identified in this TSP, the city will encourage walking as a means of transportation by addressing the following:

- **Connectivity.** The city will work to develop a connected network of pedestrian facilities. Connected networks are important to provide continuity between communities and to improve safety.
- **Safety.** The city will work to provide a secure walking environment. For residents to use the pedestrian system, it must be perceived as safe.
- **Design.** The city can ensure pedestrian-oriented design by adopting policies and development standards that integrate pedestrian scale, facilities, access and circulation into the design of residential, commercial and industrial projects.

The pedestrian system plan identifies system and facility improvements that will contribute to a safe and well-connected pedestrian environment. The system will promote walking as a viable transportation mode and address needs of the transportation disadvantaged. Figure 5-6 shows the pedestrian system on the city's arterial and collector system. (A pedestrian facility inventory on local streets was beyond the scope of the TSP.)

Bicycle System Improvements

The Oregon Coast Bike Route passes through Tillamook along U.S. 101 and uses marked bike lanes or shoulders that are 3 feet wide or wider and are marked with signage.

The remainder of the Tillamook bicycle system generally consists of either shared roadways (particularly on local roads) or shoulder bikeways and are characterized by good pavement condition. Aside from the Oregon Coast Bike Route, most bikeways are not marked with bicycle signage. The bicycle system lacks facilities in Tillamook. The current designated roads, such as Alder Lane, are characterized by low visibility pavement markings, small travel width and a multitude of various vehicles types that can cause barriers or hazards for bicyclists.

Bikeways and Trails

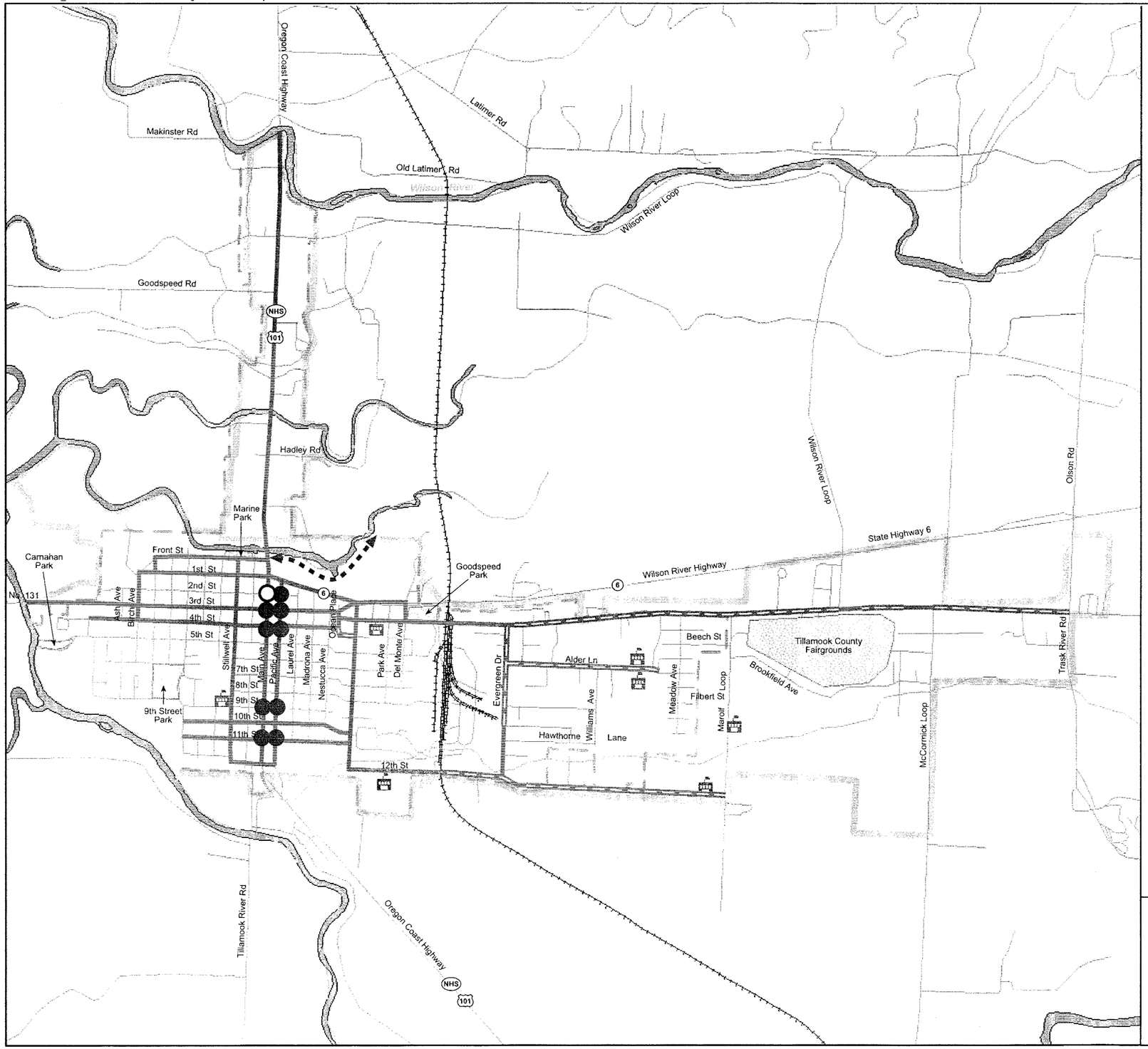
To promote safe and convenient bicycle links between commercial, recreational and other land uses, improvements to the bicycle system have been identified. Further, to better enhance the downtown area and connect bicycle traffic with parks and the designated bicycle routes, a bicycle trail along the south side of Hoquarten Slough has been identified as a high priority project. This project is being studied by the Tillamook County estuary organization. To further enhance the trail system, a study that examines opportunities to develop trails east and north of the city should be conducted.

Signage

To promote safety and awareness of bicyclists where they share facilities with pedestrian and vehicular traffic, designation signage is recommended along U.S. 101, Oregon 6 and Netarts Highway (131).

Bicycle Parking

To comply with the standards stated in the OBPP, bicycle parking will be installed at community activity centers, such as the transit center, various schools and parks in Tillamook, the Tillamook County Fairgrounds, downtown area and hospital. Refer to Table 5-10 for the list of bicycle parking locations.



City of TILLAMOOK

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LEGEND

- Existing Intersection Bulb-Outs
- Proposed Intersection Bulb-Outs
- Proposed Trail
- Existing Sidewalk
- Proposed Sidewalk
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

Note: This figure only includes pedestrian facilities on arterial and collector streets. Pedestrian facilities on local streets are not shown.

Sidewalks may only be available on one side of the road for some segments currently labeled with sidewalks. All of these locations are proposed to have sidewalks constructed along both sides. Figure 2-7 identifies these locations in detail.

NORTH

500 0 500 Feet

Figure 5-6
Pedestrian System Plan

Transportation System Plan
Tillamook, OR

Bicycle Standards and Policies

To enhance bicycle safety, circulation and connectivity, and to comply with the TPR, several changes have been proposed to the city's Zoning Ordinance. Recommendations have been made to include bicycle parking standards in the Zoning Ordinance and to adopt new street cross sections. The new street cross sections, recommended for adoption into the city's *Design Standards and Details* documents, reflect new design standards, which require bikeways on arterials and provide options for their construction on collector streets constructed in the city. The proposed changes also address bicycle access and circulation, requiring construction of multi-use pathways when street connections are not feasible. These new standards and policies encourage bicycle trips because they facilitate direct, safe and convenient access to local destinations. See Section 7 for detailed information on recommended amendments to the city's ordinances.

Bicycle System Plan

Bicycle travel offers commuters, children and others an important option for transportation and is a transportation choice for people who do not own vehicles. Cycling is also an important recreational option, especially in scenic areas of Oregon such as Tillamook.

This bicycle system element of the TSP establishes a network of bicycle lanes and routes throughout Tillamook, to connect trip generators and provide a safe, interconnected bicycle system. While all roadways and streets can be used as bikeways, designated routes along bicycle streets and roads and/or separated bicycle lanes on busy streets can improve safety as well as increase bicycle use.

Figure 5-7 illustrates the bicycle plan for Tillamook. It includes shared roadways, shoulder bikeways, bicycle lanes, and designated bike routes. Table 5-10 describes Tillamook's designated bicycle routes and labels them as city or state facilities. Projects to improve the bicycle system are listed with the pedestrian system improvements in Table 5-9.

TABLE 5-10
Tillamook Designated Bicycle Routes

Bike Facility Name	Between		Management
U.S. 101	North city limits	Oregon 6	ODOT
U.S. 101	12th Street	South city limits	ODOT
Stillwell Avenue	Front Street	12th Street	City
Front Street	Stillwell Avenue	U.S. 101	City
Oregon 6	East city limits	U.S. 101	ODOT
First Street	U.S. 101	Birch Avenue	City
Birch Avenue	1st Street	2nd Street	City
2nd Street	Birch Avenue	Ash Avenue	City
Ash Avenue	2nd Street	4th Street	City
Netarts Highway (131) (3rd Street)	Ash Avenue	West city limits	ODOT
4th Street	Ash Avenue	Ocean Place	City
Ocean Place	4th Street	Oregon 6	City
3rd Street	Ocean Place	McCormick Loop	City/County

TABLE 5-10
Tillamook Designated Bicycle Routes

Bike Facility Name	Between		Management
12th Street	Miller Avenue	Marolf Loop	City/County
Miller Avenue	3rd Street	12th Street	City
Evergreen Drive	3rd Street	12th Street	City
Alder Lane	Evergreen Drive	Dogwood Street	City
11th Street	Stillwell Avenue	Miller Avenue	City
Marolf Loop	3rd Street	12th Street	City/County
McCormick Loop	3rd Street	South city limits	City/County

ODOT = Oregon Department of Transportation.

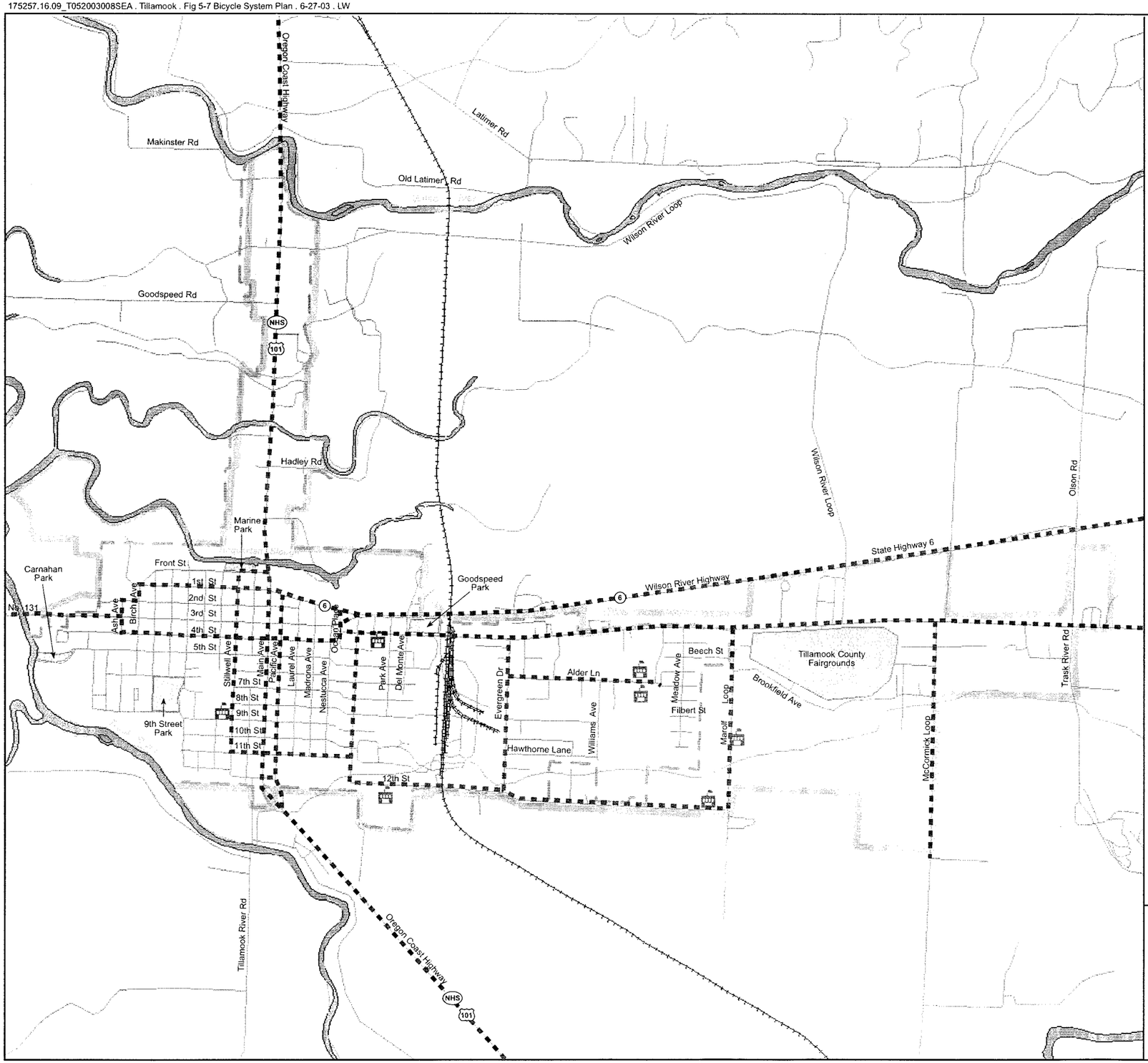
Public Transportation

The TCTD currently operates public transportation services both in Tillamook, and between Tillamook and surrounding communities. In Tillamook, the addition of transit amenities at transit stops should be considered, including covered benches, bus pullouts, signage and concrete landing pads. These amenities would make the system more visible to potential users and possibly attract new riders. Also, all transit stops should be accessible to all potential riders per ADA standards.

TCTD has outlined opportunities to improve public transportation services on a county level, including the following items:

- **Provide annual incremental route expansion**
- **Provide park-and-ride services at the TCTD's building headquarters.** This is a planned facility included in the Phase 2 construction of the TCTD's new headquarters building. It is expected that the park-and-ride will provide 25 stalls. Two STIP projects were awarded to TCTD for the new bus facilities (STIP #12484 and #12089).
- **Improve connections with other transit service providers.** Currently, connections between transit service providers, including Sunset Empire, Greyhound, Pacific Transit and Oregon Coachways are not available or not well coordinated.
- **Provide transit pull-outs on state and county facilities**
- **Enlarge transit shelters.** This is a current proposal to the Tillamook City Council. It includes expansion of the transit center on 2nd Street and Laurel Avenue, and adds additional shelters at stops where there are none.
- **Provide additional services at the 2nd Street and Laurel Avenue transit center stop.** Includes providing restrooms, customer service station and bike racks.
- **Advertise and promote TCTD services**
- **Coordinate TCTD, ODOT and Tillamook County efforts** to explore the need for implementing TDM measures, such as carpooling and vanpooling in the county.

175257.16.09_T052003008SEA . Tillamook . Fig 5-7 Bicycle System Plan . 6-27-03 . LW



City of TILLAMOOK

CH2MHILL

LEGEND

- Bicycle Route
- Road
- Railroad
- School
- Park
- City Limit
- Urban Growth Boundary

NORTH

500 0 500 Feet

Figure 5-7
Bicycle System Plan

Transportation System Plan
Tillamook, OR

- **Expand services** to these communities: Manzanita, Bayside Gardens, Nehalem, Wheeler, Oceanside, and Pacific City.
- **Form a citizen advisory committee to develop a public transportation program.**

Rail System

The existing rail line owned and operated by the Port of Tillamook Bay serves the Tillamook Lumber Company and the port. There are two existing at-grade crossings along this line, which are located at 3rd Street (flashing lights and automatic gate) and 12th Street (signage only). The existing rail line currently is being upgraded to a Class II rail facility. When the rail facility is upgraded and train speeds increase in Tillamook, safety improvements at the 12th Street crossing should become a high priority.

The existing rail line in Tillamook is part of a countywide rail system. On a county level, the following rail issues have been identified and should be addressed:

- Identify and prioritize improvements on railroad bridges throughout the county to ensure the system is able to function throughout the 20-year design horizon.
- Explore opportunities to expand tourist rail services throughout the county and in the City of Tillamook.
- Consider improvements at the Latimer Road railroad crossing as necessary to accommodate increased truck traffic.
- Upgrade the existing railroad tracks from Tillamook to Blimp Boulevard. This improvement is currently underway.
- Expand the ability of the system to transport rock from local quarries and wood chips. To transport these products along the existing rail lines, the Port of Tillamook Bay would need to acquire new cars to carry rock and chips.
- Improve marketing of the Port of Tillamook Bay, including improving the appearance (road improvements) and infrastructure (storm drainage, rail line) of the port.

SECTION 6

Transportation Funding Plan

This section summarizes funding sources available to City of Tillamook so as to establish a transportation investment baseline for maintenance and capital improvement projects in the TSP. Existing local, state and federal funding sources are described. Potential future funding sources for projects included in the Tillamook TSP also are discussed.

Existing City Funding Sources

Table 6-1 summarizes City of Tillamook's revenues and expenditures for transportation maintenance and capital improvements during the past 5 fiscal years (1997 through 2002), as well as the projected budgets for years 2002 through 2004. As shown in Table 6-1, the city's primary sources of transportation revenue are state and local gas taxes, which represent approximately 60 and 40 percent of its total transportation funds, respectively.

Table 6-1 also illustrates how local transportation funds were spent during 3 fiscal years (1999 through 2002). The City of Tillamook spent transportation funds on capital improvements, maintenance projects and special projects. As is evident from Table 6-1, transportation funding was variable during the 3-year period, averaging less than $200,000 per year.

State Funding Sources

In Oregon, the STIP provides funding for capital improvements on federal, state, county and city transportation systems. Within the STIP, which is updated every 2 years, funds are allocated for multimodal projects, including roadway, public transportation, bicycle and pedestrian, air, freight and bridge projects. Each STIP lists projects that are planned for construction during a 4-year period. Projects that are included in the STIP are regionally significant, as they have been given a high priority through planning efforts.

Transportation projects in the STIP generally are categorized in the following manner:

- **Modernization Projects:** Improvements to accommodate existing traffic and/or projected traffic growth. They include:
  - Addition of lanes: High-occupancy vehicle (HOV) lanes, new alignments and new facilities (bypasses)
  - Highway reconstruction with major alignment improvements or major widening
  - Grade separations
  - Widening of bridges to add travel lanes

TABLE 6-1
City of Tillamook Sources of Transportation Funds
Fiscal Years 1997/1998 through 2003/2004

	1997/1998	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
	Actual Budget	Actual Budget	Actual Budget	Actual Budget	Actual Budget	Projected Budget	Projected Budget
Revenue Sources							
State Gas Tax Revenue	$170,113	$190,693	$189,618	$185,582	$180,137	$162,367	$170,781
Interest (state)	$2,550	$4,558.70	$4,264	$2,426	$799	$100	$100
Miscellaneous Revenue (state)	$0	$5,206	$6,640.58	$3,340	$16,703	$100	$100
Local Gas Tax	$122,637	$128,955	$120,847	$121,672	$136,671	$137,330	$137,000
Interest (local)	$970	$2,388	$3,272	$2,172	$2,542	$350	$400
Miscellaneous Revenue (local)	$12,500	$200	$2,388	$0	$840	$0	$0
Total Revenue	**$308,770**	**$332,001**	**$327,030**	**$315,192**	**$337,692**	**$300,247**	**$308,381**
Expenditures							
Capital Outlays					$220,414.81		
Service Contracts			$720				
Maintenance			$6,002.06	$5,461.68			
Special Projects			$106,154.47	$60,917.73			
Linden Drive				$68,918.23			
Materials Expense					$123,625.93		
Total Expenditures			**$112,876.53**	**$135,297.64**	**$344,040.74**		

- Immediate Opportunity Fund (IOF) projects
- New safety rest areas

- **Safety Projects:** An investment program focused on improvements to address priority hazardous highway locations and corridors, including the interstate, to reduce the number of fatal and serious injury crashes. Projects funded through this program meet strict benefit/cost criteria. They include:
  - Capital improvements, such as passing lanes, turn lanes and wider shoulders
  - Access management
  - New guardrails
  - Illumination, delineation or signing
  - Channelization in the existing roadway at intersections
  - Continuous shoulder rumble strips
  - Enforcement of traffic laws
  - Railroad crossing improvements (separate funding source)
- **Pavement Preservation:** Improvements to rebuild or extend the service life of existing facilities, and rehabilitative work on roadways. Preservation projects add useful life to the road without increasing the capacity. They include:
  - Pavement overlays (includes minor safety and bridge improvements)
  - Interstate Maintenance (IM) Program (pavement preservation projects on the interstate system)
  - Reconstruction to re-establish an existing roadway
  - Resurfacing projects
- **Bridge Projects:** Improvements to rebuild or extend the service life of existing bridges and structures beyond the scope of routine maintenance. They include:
  - Rehabilitation, replacement, major repair and major maintenance
  - Overpass screening
  - Tunnels
  - Large (more than 6-foot-wide) culverts
- **Operations:** System management and improvements that lead to more efficient and safer traffic operations and greater system reliability. They include:
  - Signals and signs, illumination, and other operational improvements
  - Rockfalls and slides (chronic rockfall areas and slides; not emergency repair work)
  - ITS (includes ramp metering, incident management, emergency response, traffic management operations centers, and mountain pass and urban traffic cameras)
  - Slow-moving-vehicle turnouts, traffic circles or roundabouts
  - TDM (includes rideshare, vanpool, and park-and-ride programs)

Oregon Transportation Investment Act

The Oregon Transportation Investment Act (OTIA) was passed by the 2001 Oregon legislature and is funded through bond proceeds derived from increased Oregon Department of Motor Vehicles fees. OTIA currently provides $650 million (including $150 million local matching funds) for 173 construction projects that will improve pavement conditions, increase lane capacity, and improve bridges throughout Oregon. Projects were selected with extensive input from local communities and other stakeholders. In 2002, the OTC allocated these funds for modernization, preservation and bridge projects throughout the state.

State-Funded Projects in Tillamook

The 2002-2005 STIP, 2004-2007 draft STIP, and OTIA-funded projects combine to generate more than $17 million in project work for 6 years in the vicinity of the City of Tillamook that will result in an average $2.8 million in funding per year. Projects in this total include the following:

- U.S. 101: Wilson River Bridge Project ($312,000)
- U.S. 101: Suppress Road to Wilson River Bridge Project ($3,895,000)
- Oregon 6 at Wilson River Loop Project ($8,270,000)
- U.S. 101 at Long Prairie Road Project ($902,000)
- Netarts Highway (131) (Ocean Street to U.S. 101) Overlay Project ($1,198,000)
- Earl Bridge Project ($145,772)
- Tillamook County Bus Facilities Project ($434,000)
- Tillamook County District Transit Facilities Project ($199,000)
- Oregon 6: Tillamook Railroad Overpass to Jordan Creek Bridge Project ($2,533,000)

Several of these projects include major improvements outside of Tillamook's UGB. Within Tillamook's UGB, the 2002-2005 STIP, 2004-2007 draft STIP, and OTIA-funded projects combine to generate more than $13 million in project work during 6 years (approximately $2.2 million in funding per year).

Table 6-2 summarizes the proposed STIP and OTIA funding for projects in Tillamook from 2002 to 2007.

TABLE 6-2
STIP and OTIA Funding in Tillamook

Year	Bridge	Preservation	Transit	OTIA Bridge	OTIA Modernization	Modernization	OTIA Preservation
2002		$2,533,000	$434,000				
2003			$199,000	$145,772			
2004							$1,198,000
2005	$312,000					$3,895,000	
2006					$902,000		
2007						$8,270,000	

Source: 2002-2005 STIP, Draft 2004-2007 STIP.

OTIA = Oregon Transportation Investment Act.

STIP = Statewide Transportation Improvement Program.

Transportation System Plan Financing

Overall, the TSP contains more than $35 million in multimodal transportation improvements during the next 20 years, with the majority of improvements occurring on the state facilities serving the City of Tillamook. The TSP assumes that existing revenues and expenditures for transportation maintenance and capital improvements during the next 20 years will remain stable. As a result, the city will need a combination of state and/or federal assistance in addition to additional local revenue to address funding needs. Table 6-3 summarizes timing and costs for projects listed in Section 5 under the categories of modernization, safety and pedestrian/bicycle.

TABLE 6-3
Transportation System Plan Improvements Costs

Type of Improvement	Priority			Total Cost
	1-5	6-10	10+	
State Capacity	$12,265,000	$3,350,000	$0	**$15,615,000**
State Safety	$150,000	$3,300,000	$1,150,000	**$4,600,000**
Local Widening and Safety	$2,230,000	$2,070,000	$975,000	**$5,275,000**
Local Bike and Pedestrian[1]	$2,690,000	$6,552,000	$860,000	**$10,102,000**

[1] Some of the local bike and pedestrian projects overlap onto state facilities. Funding between the agencies will need to be resolved before the project start-up.

Potential Future Funding Sources

U.S. Department of Transportation TEA-21 Reauthorization

The 2004 budget lays the groundwork for a $247 billion, 6-year reauthorization proposal, as compared to TEA-21's current level of $218 billion. Of the proposed total, $195 billion would fund the highway program (up from $168 billion) for 6 years, and $45 billion would fund the transit program (up from $41 billion). Federal funding typically is distributed through the state.

U.S. Department of Homeland Security

Several agencies formerly under the U.S. Department of Transportation now reside in the U.S. Department of Homeland Security (DHS). Based on spending by various agencies and offices that have moved to DHS proposed funding for the $36 billion agency represents a 64 percent increase. The DHS's focus is to reduce the nation's vulnerability to terrorism, and minimize the damage and recover from attacks that may occur. Funding for projects that involve military operations and lifeline routes should be pursued through the DHS.

ODOT Bicycle and Pedestrian Program

The state-funded Bicycle and Pedestrian Program distributes approximately $3 million per year. Many of the pedestrian and bicycle projects included in the TSP would be eligible for funding through this program. Therefore, the City of Tillamook should consider applying for these funds for pedestrian and bicycle projects included in the TSP.

System Development Charges

System development charges (SDC) create a mechanism for development to pay for transportation improvements necessary to support trips generated by development. SDCs are used in many cities and counties in Oregon and generally are based on the number of vehicle trips generated by the development.

Local Gas Tax

Tillamook receives revenue from state and local gas taxes. To increase revenue and fund additional transportation related improvements, the city could increase the local gas tax.

Road Pricing

As described in this TSP, tourism accounts for major increases in traffic volumes on state facilities in Tillamook and Tillamook County. In coordination with the state, Tillamook County could employ some form of tolling to support transportation-related improvements.

Revenue and General Obligation Bonds

Revenue bonds sold by government agencies and repaid by user charges. Typically, the bonds are secured by stable revenue stream, such as a local gas tax, street utility fee or toll.

Similarly, general obligation bonds serve the same purpose, however, they are secured by the full faith and credit of the issuing municipality. Such bonds are authorized by vote. Revenue bonds also can be issued with this backing.

Property Tax

The city could fund additional improvements through an increase in local property taxes.

Street Utility Fees

A street utility fee could be implemented by the city, which would assess a fee to businesses and households for use of streets based on the traffic generated by a particular use. Street utility fees generally are collected for maintenance purposes.

Special Assessment/Local Improvement Districts (LIDs)

Special assessments are fees levied on property owners to fund local neighborhood facilities or services. These types of fees generally are collected for maintenance or street paving purposes. Special assessments are justified by demonstrating that maintenance or public works services enhance the value of a property and provide benefits to the owner.

Local improvement districts (LIDs) are established by local governments to administer or levy special assessments.

Parking Fees

Parking fees could be implemented in the downtown or Port of Tillamook Bay areas to generate revenue for transportation-related improvements.

SECTION 7

Recommended Ordinance Modifications and TPR Compliance

Recommended Ordinance Modifications

This section recommends changes to several of the City of Tillamook's planning documents in order to comply with implementation provisions of the TPR as codified in OAR 660-012-045. The previously prepared plan and policy review (see Background Document) includes an outline that compares TPR code elements with the current city code. This comparison served as the guide for identifying sections of the comprehensive plan or land use codes that needed revisions.

This section is organized by applicable section of the TPR. Each section of the TPR is included in a text box with a discussion of recommended changes to the city's ordinances following this text box. The following city documents have been proposed for modification based on TPR requirements:

- City of Tillamook Comprehensive Plan (October 1982)
- City of Tillamook Zoning Ordinance (DRAFT December 2002)
- City of Tillamook Design Standards and Standard Details (December 1999)

Modifications to these documents are indicated as follows: deletions are shown with ~~strikethrough~~ and additions are shown underlined. In addition, Angelo Eaton & Associates (AEA) developed new code language to meet TPR requirements given the existing conditions and regulatory framework in the City of Tillamook. AEA used the Model Transportation Planning Rule Ordinances and Policies for Small Jurisdictions and the Model Development Code & Users Guide for Small Jurisdictions as reference documents for recommended code revisions. Areas of the city's documents that are proposed for modification for compliance with OAR 660-12-0045 will be addressed in this memorandum; language which is additional to the city's strict compliance with the TPR is included in *italics*. Notes and comments for the Oregon Department of Transportation, city staff, or the PAC are contained in text boxes with Comic sans font.

A. Proposed Comprehensive Plan changes

New policies are needed to support the adoption of the Transportation System Plan as part of the city's Comprehensive Plan. The city's existing transportation-related policies are listed below and proposed new policies, which the city can discuss are recommended in underlined text. In addition to these policy changes, the city will adopt Section 5 of the Transportation System Plan, called "Transportation System Plan" as the Transportation System chapter of the Comprehensive Plan and will delete most of the supporting text in the current Comprehensive Plan as noted by the text in ~~strikethrough.~~

Transportation System

Goal: To provide and encourage a safe, convenient and economical transportation system."

Objectives: To increase the safety of the Tillamook transportation system.

To provide a convenient and economical road system.

This section of the comprehensive plan is an analysis and guide for improvement in the City's transportation system and makes recommendations regarding transportation corridors and more localized transportation routes. The City of Tillamook adopted a Transportation System Plan in 2003. Section 5 of this Plan is adopted into this Comprehensive Plan in this section of the Plan. The remainder of the TSP is included in the Comprehensive Plan as a Technical Appendix. Transportation-related policies are included at the end of this chapter.

Note to City: Add Section 5 of Tillamook Transportation System Plan here.

~~*Vehicular Circulation*~~

~~The most important transportation facility is the road and street system and is illustrated in the Technical Report. The state's classification system includes: principal arterials (Highway 101), minor arterials (Wilson River Highway from the east to Main), major collectors (Third Street from Main going west), minor collectors (most other streets) and unpaved streets and unimproved rights of way.~~

Note to City: The proposed classification system in the TSP Section 5 as follows:
Arterials:
Main Avenue - north City Limits to south City Limits
Pacific Avenue - south City Limits to First Street
First Street - Shild Road to Main Avenue

Collectors:
County Roads (per the Tillamook County Transportation Plan)
Olsen/Trask River Road – Oregon 6 to 3rd Street
Tillamook River Road – City Limits to 12th Street
Wilson River Loop – U.S. 101 to City limits, Oregon 6 to 3rd Street
12th Street

Marolf Loop
McCormick Loop
Brookfield Avenue
Evergreen Drive
Goodspeed Road – U.S. 101 to City Limits
Makinster Road – U.S. 101 to City Limits

City Roads
Stillwell Avenue – Front Street to 12th Street
Alder Lane – Evergreen Drive to Dogwood/Cypress Avenue
Evergreen Drive–or 12th Street to 3rd Street
First Street – Birch Avenue to U.S. 101
Front Street – Cedar Avenue to U.S. 101
Miller Avenue – Oregon 6 to 12th Street
4th Street – U.S. 101 to Miller Avenue
11th Street – Stillwell Avenue to Miller Avenue
12th Street – Tillamook River Road to U.S. 101 Couplet and Miller Avenue to Marolf Loop
Brookfield Avenue – Marolf Loop to McCormick Loop
Ocean Place – 4th Street to Oregon 6
Cedar Avenue – Front Street to 1st Street
Birch Avenue – 1st Street to 3rd Street

Currently, the State has designated roads within Tillamook as either Urban Collector/Rural Major Collector or Minor Collector. They include:

3rd Street – Oregon 6 to City UGB – Rural Major Collector
Trask/Olson Road – Rural Major Collector
12th Street – between U.S. 101 Couplet - Urban Collector
McCormick Loop – Minor Collector
Tillamook River Road – Rural Major Collector
Marolf Loop– Minor Collector
11th Street – U.S. 101 Couplet to Miller Avenue – Minor Collector
12th Street – Miller Avenue to Marolf Loop – Minor Collector
Williams Avenue – Alder Lane to Hawthorne Lane – Minor Collector

It is proposed that Williams Avenue be reclassified by ODOT as a local street. Williams Avenue is misrepresented on state mapping and is currently a very low volume road within a residential grid network.

Based on the roadway classification criteria, the remaining classifications are consistent with the facility's purpose and no changes are recommended.

Local
All City roadway facilities not listed above are recommended to be classified as local roads.

Policy 51: Tillamook shall take full advantage of its present investment in street improvements and also take actions to insure future developments are in the best interest of the local residents, which includes facilitating the flow of good and services for the local economy.

Policy 52: The City should pursue funds from the State for implementing transportation programs. Emphasis shall be placed on programs which minimize adverse social, economic and environmental impacts and costs.

Policy 53: Carpooling for work trips is encouraged.

~~Policy 54: The Traffic Safety Plan listed in Policy #36 addresses road maintenance and improvement programs for the City's Street system. Those shall be reviewed annually and updated as necessary. (A copy of this document is provided as Appendix N).~~

Deletion of Policy 54 and 55: The Transportation System Plan includes a plan for road maintenance issues incorporated in Section 3 and 5 of the TSP. The TSP includes a review of the transportation issues associated with U.S. 101.

~~The General Plan adopted in 1972 has a bypass to Highway 101 located to the east of Trask River Road. This is no longer considered a viable alternative by the State highway Division. Traffic on state highways remains a major problem for downtown Tillamook.~~

~~Policy #55 Tillamook City shall analyze traffic patterns and congestion involving Highway 101 and shall develop specific options for rerouting 101 traffic. Study must be given to both east-west travel and the north-south corridor.~~

~~**Street Connections and New Streets**~~

~~Connecting street links are currently needed in various locations through the urbanized area. In other areas, connecting sections will be necessary in the future as the land is developed and the need is generated. These are mainly minor collectors. Some of these connections can be made through requiring dedication and construction of streets as part of the subdivision process. Others will require funding from the city, county and state sources.~~

Street connectivity is addressed in Section 3 and Section 5 of the TSP.

~~Policy 56:~~

~~The City shall implement the following street links to facilitate the connection of various locations throughout the urbanized area.~~

~~1. Fifth Street extended to the Sewage Treatment Plant.~~

~~2. A road connecting Fifth and Ninth Streets just east of the Sewage Treatment Plant~~

~~3. Twelfth Street between Miller and Pacific~~

~~4. Williams and Meadow Avenues extended to Marlof Loop Road to facilitate a north-south movement.~~

~~5. A new street to provide access to the interior of the block bounded by Evergreen, Alder, Maple and Willams.~~

~~6. Beech and Filbert Streets extended to Marolf Loop Road.~~

~~7. A new road connecting the southeast turn of Marlof Loop Road and McCormick Loop Road.~~

8. Third Street should be improved to include curbs, storm drainage and pedestrian walkways.

~~The location of these proposed connecting streets in illustrated on the Plan Map. The locations are intended to be general and not exact.~~

We recommend bringing forward Policies 57 and 58 (and renumbering them for consistency). Policy 59 is addressed in Section 5 of the TSP.

Policy 5~~4~~7: All new commercial developments and all new residential developments larger than a duplex shall be located on fully improved streets.

Policy 5~~5~~8: The streets in new subdivisions will be designed to improve traffic circulation in nearby existing subdivisions.

~~Policy 59: A program shall be established and coordinated by the responsible state, county and city agencies to schedule and fund road maintenance and improvements. The City will establish the scheduling and budging of its street improvements through a capital improvement program. The City may budget funds through a local improvement district, pursue funding through state sources, and various tax measures for road maintenance and improvements.~~

~~Pedestrian and Bicycle Circulation~~

~~Most of the developed areas on the west side of the Southern Pacific right-of-way are served with sidewalks. Many roads on the east side of that right-of-way do not have sidewalks or pedestrian and bike paths. This is a safety problem near schools and along more heavily traveled roads.~~

Policy ~~6~~0-56: New subdivisions shall provide curbs and sidewalks brought up to City standards, and are encouraged to provide bike paths in the right-of-way and bring existing non-conforming curbs, sidewalks and bike paths up to current City standards.

Pedestrian and bike access from the east side to the west side of the Tillamook urbanized areas is restricted. A path that follows a drainage way on the east and the Trask River on the west is proposed and is shown on the Plan Map. The Oregon Coast Bike Trail travels through Tillamook. The City shall coordinate with the Highway Department on the particular needs of bikers using that trail.

Policy ~~6~~1-57: A pedestrian/bikeway shall be encouraged in the following locations.

1. Along the drainage way on the east

2. Along the Trask River on the west
3. Adjacent to Third Street from the Southern Pacific Railroad tracks from the Trask River Road.

The sewer line that is to be extended in the east area will probably follow the natural drainage way. When easements for the sewer line area acquired, access easements for a pedestrian and bike path could be acquired.

Pedestrian and bicycle connectivity are addressed in Section 5 of the TSP

Policy ~~62~~ 58: Various state programs available for development of pedestrian and bike path systems will be pursued.

Other Transportation Systems:

In addition to the street and pedestrian/bike path system, Tillamook is served by other means of transportation. These transportation services are an important part of the total transportation system.

Policy ~~63~~ 59: The City recognizes the important of transportation systems in the City and encourages the continuation and, where appropriate, the expansion of the following networks in addition to streets and pedestrian/bikeway systems.

Railroads:	Southern Pacific
Barge:	**At Garibaldi, 9** miles north
Motor Carriers:	One common carrier
Air:	Tillamook Airport
Intercity bus:	Greyhound
Local bus:	Senior Citizen's Group
Taxi:	Tillamook Taxi (private company)

Policy ~~64~~ 60: Development of public transportation is encouraged. A bus systems such as that of the senior citizen's should be developed for all age groups. The City shall pay particular attention to the transportation disadvantaged when developing alternatives to meet growing transportation needs.

We recommend that the City adopt the following additional policies:

Policy __: Section 5 of the Transportation System Plan is included in the City of Tillamook Comprehensive Plan as the Transportation chapter. The entire TSP is included in the City's Comprehensive Plan as a Technical Appendix.

Policy ____: The City of Tillamook shall protect the function of existing and planned roadways as identified in the Transportation System Plan.

Policy: The City of Tillamook shall include a consideration of land use impacts on existing or planned transportation facilities in all land use decisions.

B. Proposed Zoning Ordinance changes—New Definitions

Definitions
New definitions are needed to support the amendments and updates to the Zoning Ordinance that bring it into compliance with the TPR. The definitions listed below are recommended for inclusion in Section 4, Definitions.

BICYCLE FACILITIES - A GENERAL TERM DENOTING IMPROVEMENTS AND PROVISIONS MADE TO ACCOMMODATE OR ENCOURAGE BICYCLING, INCLUDING PARKING FACILITIES AND ALL BIKEWAYS.

Bikeway - Any road, path or way that is in some manner specifically open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are shared with other transportation modes. The five types of bikeways are:

a. Multi-use Path. A paved way (typically 10 to 12-feet wide) that is physically separated from motorized vehicular traffic; typically shared with pedestrians, skaters, and other non-motorized users.
b. Bike Lane. A portion of the roadway (typically 4 to 6-feet wide) that has been designated by permanent striping and pavement markings for the exclusive use of bicycles.
c. Shoulder Bikeway. The paved shoulder of a roadway that is 4 feet or wider; typically shared with pedestrians in rural areas.
d. Shared Roadway. A travel lane that is shared by bicyclists and motor vehicles.
e. Multi-use Trail. An unpaved path that accommodates all-terrain bicycles; typically shared with pedestrians.

Pedestrian Facilities - Improvements and provisions made to accommodate or encourage walking, including sidewalks, accessways, crosswalks, ramps, paths, and trails.

Street shall mean a public or private way of being the entire width from lot line to lot line that is created to provide ingress or egress for persons to one or more lots, parcels, areas or tracts of land and including the term "road" "highway", "land" "avenue", alley, or similar designations.

a. Arterial. A street of considerable continuity which is primarily a traffic artery for intercommunication among large areas. A cross section of an arterial is provided in the Standards and Specifications document, Figure A.

b. Cul-de-sac. ~~(Dead end street).~~ A short street having one end open to traffic and being terminated by a vehicle turn-around. Cul-de-sac standards are located in Table A and Table B of the Standards and Specifications document.

Transportation facilities and improvements - The physical improvements used to move people and goods from one place to another; i.e., streets, sidewalks, pathways, bike lanes, airports, transit stations and bus stops, etc.). Transportation improvements include the following:

Transportation Facilities and Improvements:

1. Normal operation, maintenance;
2. Installation of improvements within the existing right-of-way;
3. Projects identified in the adopted Transportation System Plan not requiring future land use review and approval;
4. Landscaping as part of a transportation facility;
5. Emergency Measures;
6. Street or road construction as part of an approved subdivision or partition;
7. Transportation projects that are not designated improvements in the Transportation System Plan; (Conditional Use Permit for Transportation System Facilities and Improvements) and
8. Transportation projects that are not designed and constructed as part of an approved subdivision or partition (Conditional Use Permit for Transportation System Facilities and Improvements).

OAR 660-12-0045 Implementation of the Transportation System Plan (TSP)

(1) Each local government shall amend its land use regulations to implement the TSP.

(a) The following transportation facilities, services and improvements need not be subject to land use regulations except as necessary to implement the TSP and, under ordinary circumstances do not have a significant impact on land use:

(A) Operation, maintenance, and repair of existing transportation facilities identified in the TSP, such as road, bicycle, pedestrian, port, airport and rail facilities, and major regional pipelines and terminals;
(B) Dedication of right-of-way, authorization of construction and the construction of facilities and improvements, where the improvements are consistent with clear and objective dimensional standards;
(C) Uses permitted outright under ORS 215.213(1)(m) through (p) and ORS 215.283(1)(k) through (n), consistent with the provisions of 660-012-0065; and
(D) Changes in the frequency of transit, rail and airport services.

B. Proposed Zoning Ordinance changes—Permitted and Conditional Uses

Several sections of the Zoning Ordinance should be modified related to this rule requirement. Transportation facilities are not addressed in most of the city's land use zones. We recommend that the city modify each of the city's land use zones as described in the following table to permit outright or conditionally allow Transportation Facilities and Improvements as listed on the next page.

	Permit Outright	Conditional Use
Open Space	None	1-8
Residential - Single Family	1-6	7-8
Residential - Single Family & Duplex	1-6	7-8
Residential - Multiple Use	1-6	7-8
Commercial - Neighborhood	1-6	7-8
Commercial - Highway	1-6	7-8
Commercial - Central	1-6	7-8
Commercial - Town Center	1-6	7-8
Industrial - Light	1-6	7-8
Industrial - General	1-6	7-8
Public & Semi-Public	1-6	7-8
Limited Use Overlay	None	1-8
Flood Hazard Overlay	None	1-8
Airport Overlay	1-6	7-8
Hazard Overlay	None	1-8
Water Resource Protection Overlay	None	1-8

NOTE: Conditional Use approval would utilize the standards in the next section, Transportation System Facilities and Improvements

Proposed Zoning Ordinance text:

Transportation Facilities and Improvements:

1. Normal operation, maintenance;
2. Installation of improvements within the existing right-of-way;
3. Projects identified in the adopted Transportation System Plan not requiring future land use review and approval;
4. Landscaping as part of a transportation facility;
5. Emergency Measures;
6. Street or road construction as part of an approved subdivision or partition;
7. Transportation projects that are not designated improvements in the Transportation System Plan;
8. Transportation projects that are not designed and constructed as part of an approved subdivision or partition.

OAR 660-12-045
(1)(b) To the extent, if any, that a transportation facility, service or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment;

To address this portion of the TPR, transportation facilities and improvements that are not part of the City's TSP and are **not** part of a subdivision or partition subject to development review should be allowed in all districts as conditional uses. It is recommended that a new Section 27A, Conditional Uses and Criteria for Certain Transportation Facilities and Improvements be added to the Code following Section 27, Conditional Uses.

C. Proposed Zoning Ordinance changes—Conditional Uses and Criteria for Transportation Facilities and Improvements.

Section 27A Conditional Uses and Criteria for Certain Transportation Facilities and Improvements

(1) Construction, reconstruction, or widening of highways, roads, bridges or other transportation facilities that are (1) not designated in the adopted City of Tillamook Transportation System Plan ("TSP"), or (2) not designed and constructed as part of an approved subdivision or partition, are allowed in all Zones subject to a Conditional Use Permit—Transportation Facilities and satisfaction of all of the following criteria:

a. The project and its design are consistent with City of Tillamook adopted TSP and TPR.

b. The project design is compatible with abutting land uses in regard to noise generation and public safety and is consistent with the applicable zoning and development standards and criteria for the abutting properties.

c. The project design minimizes environmental impacts to identified wetlands, wildlife habitat, air and water quality, cultural resources, and scenic qualities, and a site with fewer environmental impacts is not reasonably available. The applicant shall document all efforts to obtain a site with fewer environmental impacts, and the reasons alternative sites were not chosen.

d. The project preserves or improves the safety and function of the facility through access management, traffic calming, or other design features.

e. The project includes provisions for bicycle and pedestrian access and circulation consistent with the comprehensive plan, the requirements of this ordinance, and the TSP.

(2) State transportation system facility or improvement projects. The State Department of Transportation ("ODOT") shall provide a narrative statement with the application demonstrating compliance with all of the criteria and standards in Section 27A 1.b-e.

Where applicable, an Environmental Impact Statement or Environmental Assessment may be used to address one or more of these criteria.

(3) Proposal inconsistent with TSP. If the City determines that the proposed use or activity or its design is inconsistent with the TSP, then the applicant shall apply for and obtain a plan and/or zoning amendment prior to or in conjunction with conditional use permit approval. The applicant shall choose one of the following options:

a. If the City's determination of inconsistency is made prior to a final decision on the conditional use permit application, the applicant shall withdraw the conditional use permit application; or

b. If the City's determination of inconsistency is made prior to a final decision on the conditional use permit application, the applicant shall withdraw the conditional permit application, apply for a plan/zone amendment, and re-apply for a conditional use permit if and when the amendment is approved; or

c. If the City's determination of inconsistency is made prior to a final decision on the conditional use permit application, the applicant shall submit a plan/zoning amendment application for joint review and decision with the conditional use permit application, along with a written waiver of the ORS 227.178 120-day period within which to complete all local reviews and appeals once the application is deemed complete; or

d. If the City's determination of inconsistency is part of a final decision on the conditional use permit application, the applicant shall submit a new conditional use permit application, along with a plan/zoning amendment application for joint review and decision.

(4) Expiration. A Conditional Use Permit for Transportation System Facilities and Improvements shall be void after five (5) years.

NOTE: We recommend that an approved Conditional Use Permit for Transportation Facilities and Improvements last longer than 1 year for a normal CU as assembling funding for transportation projects often takes longer than is customary for development projects. For reference, current standards in Section 27.C state that permits last for a year. We recommend that the city use 5 years as the standard.

OAR 660-12-045

(1) (c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with 660-012-0050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.

To comply with the above TPR requirement, the following provisions for noticing ODOT should be added to the existing notice procedures in the City's Zoning Ordinance, Section 10, Application Procedures and Fees.

NOTE to ODOT: We have used a 500 feet radius for ODOT notification.

D. Proposed Zoning Ordinance changes — Notification Requirements

NOTIFICATION REQUIREMENTS

11. Notice of hearings. Upon fixing the time of public hearing before the Commission, the Director shall cause notice of such hearing to be given by mail, posting, publication or broadcast as required by the provision of subsections 11 and 12 herein. In case of public hearing before the Council, the City Recorder shall cause such notice to be given in accordance with the provisions of subsections 11 and 12 herein.

D. Mailed notice to the Oregon Department of Transportation (ODOT) for all land use reviews requiring a public hearing with the Planning Commission or City Council of land use applications related to property within *500 feet* of a state highway or that will impact State facilities.

E. Mailed notice to the Oregon Department of Transportation (ODOT) for the following all public hearings; subdivisions and partitions and any land use application affecting private access or access to a state highway.

OAR 660-12-0045
(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:
(a) Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;

The City's Zoning Ordinance currently does not contain guidelines for access management; we recommend the creation of a new section within the city's Zoning Ordinance, Section 22.1, Section #17, Access Management to include access spacing standards for arterials and different options for access management and standards for different functional classifications.

E. Proposed Zoning Ordinance Changes---Access Management

17. Access Management. Access shall be managed to maintain an adequate "level of service" and to maintain the "functional classification" of roadways as required by the City of Tillamook Transportation System Plan. Major roadways, including arterials, and collectors, serve as the primary system for moving people and goods within and through the city. "Access management" is a primary concern on these roads. Local streets and alleys provide access to individual properties. If vehicular access and circulation are not properly designed, these roadways will be unable to accommodate the needs of development and serve their transportation function.

The regulations in this section further the orderly layout and use of land, protect community character, and conserve natural resources by promoting well-designed road and access systems and discouraging the unplanned subdivision of land.

1. The City or other agency with access permit jurisdiction may require the closing or consolidation of existing curb cuts or other vehicle access points, recording of reciprocal access easements (i.e., for shared driveways), development of a frontage street, installation of traffic control devices, and/or other mitigation as a condition of granting an access permit, to ensure the safe and efficient operation of the street and highway system. Access to and from off-street parking areas shall not permit backing onto a public street.

2. Access Options. When vehicle access is required for development (i.e., for off-street parking, delivery, service, drive-through facilities, etc.), access shall be provided by one of the following methods (a minimum of 10 feet per lane is required). These methods are "options" to the developer/subdivider.
    (a) Option 1. Access is from an existing or proposed alley or mid-block lane. If a property has access to an alley or lane, alley access is preferred.
    (b) Option 2. Access is from a private street or driveway connected to an adjoining property that has direct access to a public street (i.e., "shared driveway"). A public access easement covering the driveway shall be

recorded in this case to assure access to the closest public street for all users of the private street/drive.

(c) Option 3. Access is from a public street adjacent to the development parcel. If practicable, the owner/developer may be required to close or consolidate an existing access point as a condition of approving a new access. Street accesses shall comply with the access spacing standards in Subsection 6, below.

4. Subdivisions Fronting Onto an Arterial Street. New residential land divisions fronting onto an arterial street shall be required to provide alleys or secondary (local or collector) streets for access to individual lots. When alleys or secondary streets cannot be constructed due to topographic or other physical constraints, access may be provided by consolidating driveways for clusters of two or more lots (e.g., includes flag lots and mid-block lanes).

5. Through Lots and Parcels. When a lot has frontage onto two or more streets, access shall be provided first from the street with the lowest classification. For example, access shall be provided from a local street before a collector or arterial street. Except for corner lots, the creation of new double-frontage lots shall be prohibited in the Open Space Land Use District (O District); Single Family Residential (R 7.5) and R-5.0); Multiple Use Residential (R-O); Neighborhood Commercial District (C-N); Highway Commercial District (C-H); Central Commercial District (C-C District); Town Center District (TC); Light Industrial (I-L); General Industrial (I-G) unless topographic or physical constraints require the formation of such lots. When double-frontage lots are permitted in these zones, a landscape buffer with trees and/or shrubs and ground cover not less than *20* feet wide shall be provided between the back yard fence/wall and the sidewalk or street; maintenance shall be assured by the owner (i.e., through homeowner's association, etc.).

We recommend the following access spacing standards for the City of Tillamook:

6. Access Spacing: Driveway accesses shall be separated from other driveways and street intersections in accordance with the following standards and procedures:

(a) Local Streets. A minimum of 10 feet separation (as measured from the sides of the driveway/street) shall be required on local streets (i.e. streets not designated as collectors or arterials).

(b) Collector Streets. Access spacing on collector streets, and at controlled intersections (i.e. with four-way stop sign or traffic signal) shall be 50 feet for a collector.

(c) Arterials. Access spacing on arterial streets, and at controlled intersections (i.e. with four-way stop sign or traffic signal) shall be 100 feet. Access to State Highway 101 and State Highway 6 shall be subject to the applicable standards and policies contained in the Oregon Highway Plan.

(d) Number of Access Points. For single-family (detached and attached), two-family, and three-family housing types, one street access point is permitted per lot, when alley access cannot otherwise be provided; except that two access points may be permitted for two-family and three-family housing on corner lots (i.e., no more than one access per street), subject to the access spacing standards in Subsection '6', above. The number of street access points for multiple family, commercial, industrial, and public/institutional developments shall be minimized to protect the function, safety and operation of the street(s) and sidewalk(s) for all users. Shared access may be required, in conformance with Section I, below, in order to maintain the required access spacing, and minimize the number of access points.

OAR 660-12-045
(2)(b) Local governments shall adopt ...Standards to protect future operation of roads, transit ways and major transit corridors;
(2) (c) Measures to protect public use airports by controlling land uses within airport noise corridors and imaginary surfaces, and by limiting physical hazards to air navigation;
(2) (d) A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;
(2)(e) Local governments shall adopt ...A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors and sites.

OAR 660-12-045 (2) (c) addresses the City's need for an Airport Overlay—The city addresses this in Section 20.1, Airport Overlay Zone, or AO District. This TPR requirement is met.

Subsections (2) (d) and (e) addresses the need to account for potential development impacts to roadways and transit corridors and to ensure that they continue to meet community needs. In addition to coordination with affected agencies, access management, and adherence to road design standards, requiring a traffic impact study ("TIS") in certain cases where the potential impact to roads is over a certain threshold, is one way to meet this requirement. The city's Zoning Ordinance, Section 22, Site Development Standards contains language for a Traffic Capacity Analysis. This TPR requirement is met.

OAR 660-12-045
(2) (f) Regulations to provide notice to public agencies providing transportation facilities and services, MPO's and ODOT of:
A. Land use applications that require public hearings;
(B) Subdivision and partition applications;
(C) Other applications which affect private access to roads; and
(D) Other applications within airport poise corridors and imaginary surfaces which affect airport operations.

Revised Zoning Ordinance text regarding notification to ODOT are included in this memorandum in Section D, Notification Requirements which meets this requirement.

OAR 660-12-045
(2)(g) Local governments must adopt...Regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and levels of service of facilities identified in the TSP.

This TPR requirement ensures that amendments to the Comprehensive Plan and land use regulations are reviewed for their impact on transportation facilities identified in the TSP. The Zoning Ordinance classifies Zoning Code amendments as a quasi-judicial land use procedure, which requires referral of applications to affected agencies and if our recommendations of this memo are implemented, will specifically require notice to ODOT. However, it does not include specific provisions for amendments that impact transportation facilities and it is not clear where amendments to land use regulations are addressed.

To comply with the Rule, we have added a subsection to the required land use criteria (P) which specifies how land use amendments are to comply with the TSP. New language in is also included to provide guidance in determining *when* a code amendment is considered to have an impact on transportation facilities. The section also discusses how to ensure that amendments to the comprehensive plan or to the development code are consistent with the TSP when it significantly affects a transportation facility. This new criteria, (P) is applicable to the following land use applications as noted in the table below: Change of Zone, Conditional Use; and Urban Growth Boundary Amendment.

F. Proposed Zoning Ordinance changes---Transportation Planning Rule Compliance

Section 10 APPLICATION PROCEDURES AND FEES

No changes have been recommended for subsections 1 through 7

8. Application Fees and Required Land Use Criteria

Required Land Use Criteria: the following information is required, as listed above, for all land use actions within the Urban Growth Boundary of the City of Tillamook:

Request	Required Land Use Criteria
Annexation	A, B, C, D
Appeals*	Not Applicable
Change of Zone	A, B, C, D. P
Conditional Use	All
Site Plan Review	All (except P)
Flood Hazard Permit	A, B, C
Urban Growth Boundary Amend.	A, B, C, D, P
Right-of-Way Vacation	A, B, C, D, E
Variance	A-L
Minor Partition	A, B, C, D, O
Major Partition	A, B, C, D, E, F, O

Planned Unit Development	All (except P)
Subdivision	All (except P)

No changes have been recommended for subsections A through O

P. Transportation System Plan Compliance.

(1) Review of Applications for Effect on Transportation Facilities. When a development application includes a proposed comprehensive plan amendment or land use regulation change, the proposal shall be reviewed to determine whether it significantly affects a transportation facility, in accordance with Oregon Administrative Rule (OAR) 660-012-0060 (the Transportation Planning Rule – "TPR"). "Significant" means the proposal would:

a. Change the functional classification of an existing or planned transportation facility. This would occur, for example, when a proposal causes future traffic to exceed the capacity of "collector" street classification, requiring a change in the classification to an "arterial" street, as identified by the City of Tillamook Transportation System Plan ("TSP"); or

b. Change the functional classification of an existing or planned transportation facility. This would occur, for example, when a proposal causes future traffic to exceed the capacity of "collector" street classification, requiring a change in the classification to an "arterial" street, as identified by the City of Tillamook Transportation System Plan ("TSP"); or

c. Change the standards implementing a functional classification system; or

d. Allow types or levels of land use that would result in levels of travel or access that are inconsistent with the functional classification of a transportation facility; or

e. Reduce the performance standards of the facility below the minimum acceptable level identified in the TSP.

(2) Amendments That Affect Transportation Facilities. Amendments to the comprehensive plan and land use regulations which significantly affect a transportation facility shall assure that allowed land uses are consistent with the function, capacity, and level of service of the facility identified in the TSP. This shall be accomplished by one of the following:

(a) Amending the TSP to ensure that existing, improved, or new transportation facilities are adequate to support the proposed land uses consistent with the requirements of the TPR; or,

(b) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes of transportation.

(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes of transportation.

(d) Traffic Impact Study. A Traffic Impact Study shall be submitted with a plan amendment or land use district change application. See Section XXX - Traffic Impact Study.

We also recommend adding a notation to Section 10 Application Procedures and Fees to include a requirement to illustrate bicycle parking and pedestrian circulation areas (Section Q) on plans at the time of submittal. This requirement also references the TPR's pedestrian and bicycle circulation area requirement.

Q. The location of all pedestrian and bicycle circulation areas and bicycle racks/storage, including sidewalks, internal pathways, pathway connections to adjacent properties and any bicycle lanes or trails.

To make the addition of Section 10 Criterion Q consistent with the submittal requirements, we recommend the addition of the same information to the list of application submittal requirements in Section 22.

5. Site Plan Procedures. The site plan shall be drawn to scale and indicate the following:

   A. Site Plan to locate where appropriate:

      1) Structures, both existing and proposed
      2) Driveways
      3) Landscaped areas
      4) Off-Street vehicle and bicycle parking spaces
      5) Points of egress and ingress, including on-site traffic movement
      6) Loading areas
      7) Utility service and drainage areas
      8) Pedestrian ~~walks~~ pathways and internal circulation systems
      9) Fences and walls
      10) Relationship of site to abutting properties

OAR 660-12-045
(3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.
(a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park-and-ride lots.
(b) On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single-family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways.
(A) Neighborhood activity centers includes but is not limited to, existing or planned schools, parks, shopping areas, transit stops or employment centers.
(B) Bikeways shall be required along arterials and major collectors. Sidewalks shall be required along arterials, collectors and most local streets in urban areas, except that sidewalks are not required along controlled access roadways, such as freeways;
(C) Cul-de-sacs and other dead-end streets may be used as part of a development plan, consistent with the purposes set forth in this section;
(D) Local governments shall establish their own standards or criteria for providing streets and accessways consistent with the purposes of this section. Such measures may include but are not limited to: standards for spacing of streets or accessways; and standards for excessive out-of-direction travel;
(E) Streets and accessways need not be required where one or more of the following conditions exist:
(i) Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes, wetlands or other bodies of water where a connection could not reasonably be provided;
(ii) Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or
(iii) Where streets or accessways would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995, which preclude a required street or accessway connection.
(c) Where off-site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors;
(d) For purposes of subsection (b) "safe and convenient" means bicycle and pedestrian routes, facilities and improvements which:
(A) Are reasonably free from hazards, particularly types or levels of automobile traffic which would interfere with or discourage pedestrian or cycle travel for short trips;
(B) Provide a reasonably direct route of travel between destinations such as between a transit stop and a store; and
(C) Meet travel needs of cyclists and pedestrians considering destination and length of trip; and considering that optimum trip length of pedestrians is generally ¼ to ½ mile.
(e) Internal pedestrian circulation within new office parks and commercial developments shall be provided through clustering of buildings, construction of accessways, walkways and similar techniques.

The purpose of this portion of the TPR is to ensure that safe and convenient facilities are provided for pedestrians and bicyclists, within new residential and commercial development and on public streets. The Zoning Ordinance does not include provisions for bicycle parking. Therefore, it is recommended that a new subsection of Section 25, Off-Street Parking and Loading, #13 Bicycle Parking be added to the Zoning Code.

H. Proposed Zoning Ordinance changes --- Bicycle Parking Requirements

Section 25, Off-Street Parking and Loading

13. Bicycle Parking Requirements

The following new developments shall be required to provide bicycle parking in compliance with this subsection:

a. New multifamily residential with four or more units shall provide at least one sheltered bicycle parking space for each dwelling unit. Sheltered bicycle parking spaces may be located within a garage, storage shed, basement, utility room or similar area. In those instances in which the residential complex has no garage or other easily accessible storage unit, the bicycle parking spaces may be sheltered from sun and precipitation under an eave, overhang, an independent structure, or similar cover.

b. New retail, office, and institutional development shall provide at least one bicycle parking space for each retail, office and institutional development. Individual uses shall provide their own parking, or spaces may be clustered to serve up to six (6) bicycles. Bicycle parking spaces should be located in front of the stores along the street, either on the sidewalks or in specially constructed areas such as pedestrian curb extensions. Inverted "U" style racks or ribbon racks are recommended. Bicycle parking shall not interfere with pedestrian passage, leaving a clear area of at least 36 inches between bicycles and other existing and potential obstructions. These spaces may or may not be sheltered.

c. Transit transfer and park and ride lots shall provide a minimum of one bicycle parking space for every 10 motor vehicle parking spaces.

Discussion point: The following bicycle parking requirements noted in italics (d-g) are not required by the Transportation Planning Rule, however, the city may want to consider adding these options to the Zoning code to encourage bicycle use around town and provide options for a variety of transportation modes. Requirements h-m are added for clarity of implementation for the required parking standards.

d. Parking Lots. All public and commercial parking lots and parking structures provide a minimum of one bicycle parking space for every 10 motor vehicle parking spaces.

e. Schools. Elementary and middle schools, both private and public, provide one bicycle parking space for every 10 students and employees. High schools provide one bicycle parking space for every 5

students and employees. All spaces shall be sheltered under an eave, overhang, independent structure, or similar cover.

f. Colleges and trade schools provide one bicycle parking space for every 10 motor vehicle spaces plus one space for every dormitory unit. Fifty percent of the bicycle parking spaces shall be sheltered under an eave, overhang, independent structure, or similar cover.

g. Multiple Uses. For buildings with multiple uses (such as a commercial or mixed use center), bicycle parking standards shall be calculated by using the total number of motor vehicle parking spaces required for the entire development. A minimum of one bicycle parking space for every 10 motor vehicle parking spaces is required.

h. Exemptions. This Section does not apply to single family, two-family, and three-family housing (attached, detached or manufactured housing), home occupations, agriculture and livestock uses, or other developments with fewer than 10 vehicle parking spaces.

i. Location and Design. Bicycle parking shall be conveniently located with respect to both the street right-of-way and at least one building entrance (e.g., no farther away than the closest parking space). It should be incorporated whenever possible into building design and coordinated with the design of street furniture when it is provided. Street furniture includes benches, street lights, planters and other pedestrian amenities.

j. Visibility and Security. Bicycle parking shall be visible to cyclists from street sidewalks or building entrances, so that it provides sufficient security from theft and damage.

k. Options for Storage. Bicycle parking requirements for long-term and employee parking can be met by providing a bicycle storage room, bicycle lockers, racks, or other secure storage space inside or outside of the building.

l. Lighting. Bicycle parking shall be least as well lit as vehicle parking for security.

m. Reserved Areas. Areas set aside for bicycle parking shall be clearly marked and reserved for bicycle parking only and shall not impede or create a hazard to pedestrians.

The city's Zoning Ordinance currently does not contain guidelines for pedestrian connectivity; we recommend the creation of a new section within the city's Zoning Ordinance, Section 22.1, Section #18, Pedestrian and Bicycle Access and Circulation to include standards that facilitate pedestrian and bicycle access and circulation, and implements related policies of the TSP and TPR.

18. Pedestrian and Bicycle Access and Circulation

A. Purpose. The primary pedestrian and bicycle circulation plan is addressed in the City's adopted Transportation System Plan (TSP). The TSP provides for a Pedestrian System Plan and a Bicycle System Plan to ensure safe, direct and convenient pedestrian and bicycle circulation. New streets should be constructed to the standards specified in the TSP to allow for pedestrian and bicycle access. In cases where a new street is not practicable per Section 22.1, new development, except single family detached housing (i.e., on individual lots), shall provide a continuous pedestrian and/or multi-use pathway system. (Pathways only provide for pedestrian circulation. Multi-use pathways accommodate pedestrians and bicycles.) The system of pathways shall be designed based on the standards in Subsections (a) and (b) below:

1. Continuous Pathways. The pathway system shall extend throughout the development site, and connect to all future phases of development, adjacent trails, public parks and open space areas whenever possible. The developer may also be required to connect or stub pathway(s) to adjacent streets and private property, in accordance with the provisions of Section 39, Streets, and the Standards and Specifications document for the City.

2. Safe, Direct, and Convenient Pathways. Pathways within developments shall provide safe, reasonably direct and convenient connections between primary building entrances, and all adjacent streets based on the following definitions:

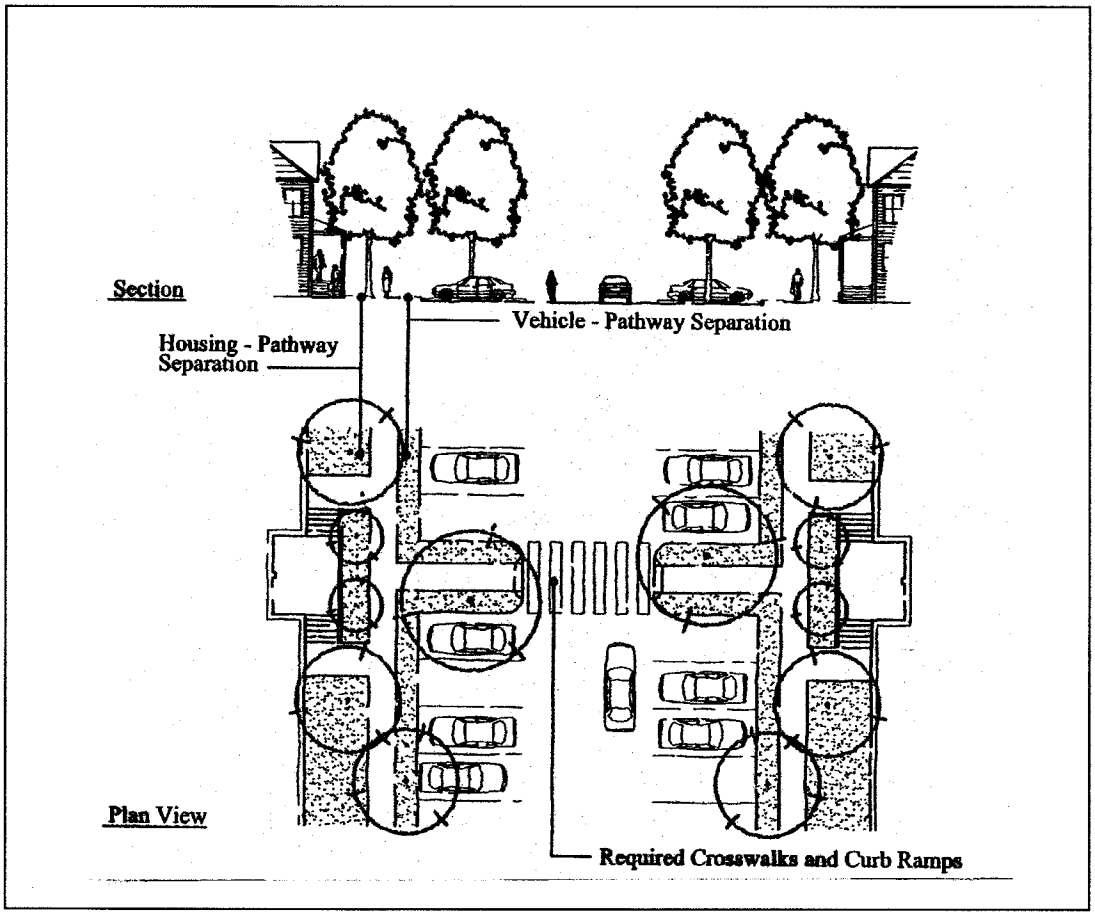
   a. Reasonably direct. A route that does not deviate unnecessarily from a straight line or a route that does not involve a significant amount of out-of-direction travel for likely users.
   b. Safe and convenient. Bicycle and pedestrian routes that are reasonably free from hazards and provide a reasonably direct route of travel between destinations.

3. *Pathway connectivity. Pathways (for pedestrians and bicycles) shall be provided at or near mid-block where the block length exceeds the length required by Section 22.1, Street Standards. Pathways shall also be provided where cul-de-sacs or dead-end streets are planned, to connect the ends of the streets together, to other streets, and/or to other developments as per Section 22.1(8), Cul-de-Sacs. Pathways used to comply with these standards shall conform to all of the following criteria:*

a. *Multi-use pathways (i.e., for pedestrians and bicyclists) are no less than 6 feet wide and located within a 10 foot right-of-way or easement that allows access for emergency vehicles;*
b. *If streets within a subdivision or neighborhood are lighted, pathways shall also be adequately lit;*
c. *Stairs or switchback paths using a narrower right-of-way/easement may be required in lieu of a multi-use pathway where grades are steep (greater than 20%);*
d. *The decision-maker may determine, based upon facts in the record, that a pathway is impracticable due to: physical or topographic conditions (e.g., freeways, railroads, extremely steep slopes, sensitive lands, and similar physical constraints); buildings or other existing development on adjacent properties that physically prevent a connection now or in the future, considering the potential for redevelopment; and sites where the provisions of recorded leases, easements, covenants, restrictions, or other agreements recorded as of the effective date of this Code prohibit the pathway connection*

The following graphic is included for illustrative purposes, the city may wish to include it in this section for reference.

Figure 22.1-17 - Pathway Standards



a) Design and Construction. Pathways shall conform to all of the standards in a-e:

(a) Vehicle/Pathway Separation. Where pathways are parallel and adjacent to a driveway or street (public or private), they shall be raised 6 inches and curbed, or separated from the driveway/street by a 5-foot minimum strip with bollards, a landscape berm, or other physical barrier. If a raised path is used, the ends of the raised portions must be equipped with curb ramps.

(b) Pathway Surface. Pathway surfaces shall be concrete, asphalt, brick/masonry pavers, or other durable surface, at least 6 feet wide, and shall conform to ADA requirements. Multi-use paths (i.e., for bicycles and pedestrians) shall be the same materials, at least 6 feet wide. (See also, City of Tillamook Street and Storm Drainage Design Standards Section 3.02, Walks, Ramps, Driveways and Curb Cuts.

In order to further implement OAR 660-12-045 (3), we have included minor amendments throughout Section 22.1, Street Standards. These amendments address future street development, cul-de-sac development, and (new) right-of-way widths for the City. The City's street cross sections are also included in the City's *Design Standards and Standards Details* which is addressed in the next section of this memorandum.

I. Proposed Zoning Ordinance changes -- Vehicular Circulation

Section 22.1 Street Standards

6. Street Standards.

A. General Provisions. The following provisions shall apply to the dedication, construction, improvement or other development of all public streets in the City of Tillamook.

1. The location, width, and grade of streets shall be considered in their relation to existing and planned streets, to topographical conditions, to public convenience and safety, and to the proposed use of the land to be served by the streets.

2. Development proposals shall provide for the continuation of existing principal streets where necessary to promote appropriate traffic circulation in the vicinity of the development.

3. Alignment: All streets other than minor streets or cul-de-sacs, as far as practical, shall be in alignment with existing streets by continuation of the centerlines-thereof. The staggering of street alignments resulting in "T" intersections shall, wherever practical, leave a minimum distance of 200 feet between the center lines of streets having approximately the same direction and otherwise shall not be less than 100 feet.

4. Future extension of streets: Where necessary to give access to or permit a satisfactory future development of adjoining land, streets shall be extended to the boundary of a tract being developed and the resulting dead-end streets may be approved without turnarounds. Reserve strips and street plugs may be required to preserve the objectives of street extensions. Section ____ of the

Transportation System Plan identifies locations for future streets or roadways and should be used as a reference when extending streets.

5. Intersection angles: Streets shall be laid out to intersect at angles as near to right angles as practical, except where topography requires lesser angles. Intersections of less than 60 degrees shall require special intersection designs. Streets shall have at least 50 feet of tangent adjacent to intersections unless topography requires lesser distances. Intersections, which are not at right angles, shall have minimum corner radii of 15 feet. Major arterial intersections shall have curb radii of not less than 35 feet. Other street intersections shall have curb radii of not less than 20 feet.

6. Existing Streets: Whenever existing public streets adjacent to or within a tract are of inadequate width, additional right-of-way shall be provided at the time of subdivision, partitioning, or development.

7. Half-Streets: Half-streets, while generally not acceptable, may be approved where essential to the reasonable development of an area and when the Planning Commission finds it to be practical to require the dedication of the other half when the adjoining property is developed. Whenever a half-street is adjacent to a tract to be developed, the other half of the street shall be dedicated. Reserve strips and street plugs may be required to preserve the objectives of half-streets.

~~8. Cul-de-sacs: Cul-de-sacs shall have maximum lengths of 600 feet. All cul-de-sacs shall terminate with circular turnarounds.~~

8. Cul-de-sac.

a. Cul-de-sacs shall only be allowed when one or more of the following conditions exist:

- Physical or topographic conditions make a street connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes (greater than 20% grade) wetlands or other bodies or water where a connection could not reasonably be provided.
- Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or
- Where streets would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of the date of adoption of the City's Transportation System Plan, which precluded a required street connection.

b. Cul-de-sacs shall have maximum lengths of 600 feet. All cul-de-sacs shall terminate with circular turnarounds.

c. Cul-de-sacs or dead end hammerhead streets shall be connected with walking or bicycle paths in accordance with the Pedestrian and Bicycle Access and Circulation section.

9. Street Names/Addressing: Street names and address numbers shall conform to the established pattern in the City and shall be subject to the approval of the Planning Commission.

10. Grades and Curves: Grades shall not exceed 7 percent on arterials, 10 percent on collector streets or 15 percent on any other street. Street grades of 15 percent shall not exceed 200 feet in length. To provide for adequate drainage, all streets shall have a minimum slope of 0.5 percent. On arterials there shall be a tangent of not less than 100 feet between reversed curves.

11. Marginal Access Streets: If a development abuts or contains an existing or proposed arterial street, the Planning Commission may require marginal access streets, reverse frontage lots with suitable depth, screen planting contained in a non-access reservation along the rear or side property line, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic.

12. Alleys: Alleys shall be provided in commercial and industrial districts unless other permanent provisions for access to off-street parking and loading facilities are made as approved by the Planning Commission. While alley intersections and sharp changes in alignment shall be avoided, the corners of necessary alley intersections shall have radii of not less than 10 feet.

13. Clear Vision Areas: Clear vision areas shall be maintained on corner lots at the intersection of all public streets and at the intersections of a public street with a private street, alley or drive which serves more than three parcels. No structure planting shall be permitted within a clear vision area, which would impede visibility between a height of 3 feet and 10 feet above the curb grade of the intersecting streets.

NOTE: The following table has been modified to reflect the proposed cross-sections included in the City's *Design Standards and Standards Details.*

B. General Right-of-Way and Improvement Widths. The following standards are general criteria for public streets in the City of Tillamook. These standards shall be the minimum requirements for all streets, except where modifications are permitted in this section.

Table __
Right of Way widths

Street Classification	~~Minimum~~ Roadway Width	~~Minimum~~ R.O.W.
Alleys	12 feet	15 feet
2 Lane Arterial Road/Truck Routes	~~44 feet~~ 36 to 54 feet	~~60~~ 48 to 78 feet

Collector ~~s/ Commercial and Industrial~~.	~~40 feet~~ 36 to 44 feet	~~60~~ 48 to 68 feet
~~Cul-de-sacs (up to 200' in length)~~	~~R =36 feet~~	~~R =45 feet~~
~~Cul-de-sacs (200'- 400' in length)~~	~~R =45 feet~~	~~R =50feet~~
~~Hammerhead Turnaround~~	~~20 feet~~	~~20 feet~~
Private Streets (up to 900' in length)	18 feet	25 feet
~~Residential~~ Local Streets	~~36~~ 38 feet	~~50~~ 48 to 58 feet
~~Reduced Residential~~ Alternative Local Road ~~Streets~~	~~34~~ 20 feet	~~40~~ 30 to 40 feet

Width to be determined by the Public Works Director based upon anticipated traffic volumes. Further details can be found in the City of Tillamook Public Works Construction Standards.

For clarity, we recommend creating a new table for cul de sac and hammerhead standards.

Table ___

	Minimum Roadway Width	Minimum R.O.W. -
Cul-de-sacs (up to 200' in length)	R =36 feet	R =45 feet
Cul-de-sacs (200'- 400' in length)	R =45 feet	R =50feet
Hammerhead Turnaround	20 feet	20 feet

C. Modification of Right-of-Way and Improvement Width. The Planning Commission, pursuant to the review procedures of this section, may allow modification to the public street standards listed above, when both of the following criteria are satisfied:

1) The modification is necessary to provide design flexibility in instances where:

   a. Unusual topographic conditions require a reduced width or grade separation of improved surfaces; or
   b. Parcel shape or configuration precludes accessing a proposed development with a street which meets the full standards of this section; or

   c. A modification is necessary to preserve trees or other natural features determined the Planning Commission, or City Manager Designate, to be significant to the aesthetic character of the area; or
   d. A Planned Unit Development is proposed and the modification of street standards is necessary to provide greater privacy or aesthetic quality to the development.

2) Modification of the street standards of this subsection shall only be approved if the Planning Commission, or City Manager Designate, finds that the specific design proposed provides adequate vehicular access based on anticipated traffic volumes.

D. Construction Specifications. Public streets shall comply with the criteria of the most recently adopted public works construction specifications of the City of Tillamook.

E. Private Streets. Streets and other right-of-ways serving a subdivision or planned unit development that are not dedicated for public use shall comply with the following:

1) Private streets shall be allowed where the applicable criteria of this section are satisfied. Private streets shall have a minimum easement width of 25 feet and a minimum paved width of 18 feet.

2) All private streets shall be constructed to the same cross-sectional specifications required for public streets. Provision for the maintenance of the street shall be provided in the form of a maintenance agreement, homeowners association, or other instrument acceptable to the City Attorney.

3) A turnaround shall be required for any private residential street which has only one outlet and which is in excess of 150 feet long. Non-residential private streets shall provide a turnaround if in excess of 200 feet long and having only one outlet. Turnarounds for private streets shall be either a circular turnaround with a minimum paved radius of 36 feet, or a "tee" or "hammerhead" turnaround with a minimum paved dimension across the "tee" of 20 feet.

4) The City may require provision for the dedication and future extension of a public street.

F. Partition Access Easements. A private access easement created as the result of an approved partitioning shall conform to the following.

1) Partition access easements shall only be allowed where the applicable criteria of this section are satisfied. The easement shall comply with the following standards:

a. Minimum width: 25 feet
b. Minimum paved width: 20 feet
c. Maximum length: 250 feet
d. No more than 4 dwelling units shall have direct access to the easement

2) All access easements serving more than two dwelling units shall be constructed to the same cross-sectional specifications required for public streets. Provision for the maintenance of the street shall be provided in the form of a maintenance agreement, homeowners association, or other instrument acceptable to the City Attorney.

3) A turnaround shall be required for any access easement which has only one outlet and which is in excess of 150 feet long. Turnarounds shall be either a circular turnaround with a minimum paved radius of 36 feet, or a tee" or

"hammerhead" turnaround with a minimum paved dimension across the "tee" of 20 feet.

4) All private access easements shall be designated as fire lanes and signed for no parking.

In order to increase safety and connectivity for pedestrians and vehicles, we recommend reducing *maximum* block length overall and to *include* a maximum block length for arterials. We reduced the *minimum* block length along arterials from 1,800 feet to 1,000 feet because we recommended a maximum length. We added the provision for a 500-foot maximum block length in the Town center (Commercial—Neighborhood, Commercial—Central and Commercial—Town Center zones) to create a more walkable downtown, and to be consistent with the existing block sizes in that part of Tillamook.

11. Blocks

A. Maximum Block Size. In Commercial - Neighborhood, Commercial -- Town Center, and Commercial -- Central zones, ~~No block shall be more than 1,000~~ maximum block length shall be 500 feet ~~in length~~. In all other zones, block length shall not exceed 800 feet between street corner lines of rectilinear developments unless it is adjacent to an arterial street or unless the topography of the location of adjoining streets justified as exception. Along arterial streets, the maximum block length shall be 1,800 feet.

B. Minimum Block Size along Arterial streets. The recommended minimum length of blocks along an arterial street is ~~1,800~~1,000 feet. A block shall have sufficient width to provide for two tiers of building sites unless topography or the location of adjoining streets justifies an exception.

The city's street cross sections are in the city's *Design Standards and Standards Details;* to further meet OAR 660-12-045(3), it is recommended that the city amend this document. This section contains road design standards, including right-of-way width, pavement width and design speed. However, it lacks other standards, which are critical for complying with the TPR. To be compliant with the TPR, the road design standards must provide for bicycle lanes on arterials and collectors and sidewalks. New cross sections in the Standards Document will reflect these additional road design standards. There should also be a range of right-of-way widths, rather than just a minimum right-of-way.

NOTE to City: The city may want to consider condensing the street cul de sac and hammerhead turnaround standards into the city's Subdivision Ordinance—instead of listing them as a street classification. The city of Tillamook Street Cross-Sections, Drawing #1 will be supplemented by new cross-sections.

Discussion for the City: Table A includes standards for the minimum centerline grade, minimum horizontal radius and minimum stop sight distance. We have modified Table A to reflect this existing format. Another option for the city to consider is to eliminate these three columns and refer to AASHTO standards instead.

Table A

Street Classification	~~Minimum~~ ROW	~~Minimum~~ Roadway Width	Minimum Sidewalk Width (including curb)	Minimum Horizontal Radius at C.L.	Minimum Stopping Sight Distance
Cul-de-sac (up to 200' length)	R=45'	R=36'	4.5'	~~100'~~**	~~100'~~**
Cul-de-sac (>200' to 400' length)	R=50'	R=45'	4.5'	~~100'~~**	~~160'~~**
Private Street (up to 900' length)	25'	18'	4.5' (1 side)	~~75'~~**	~~100'~~**
~~Residential Street~~ Local Street	~~50'~~ 48' to 58'	~~36'~~ 38'	5'	~~100'~~**	~~160'~~**
~~Reduced Residential~~ Alternative Local Street	~~40''~~ 30' to 40'	~~34'~~ 20'	~~4.5' (1 side)~~ 5'	~~100'~~**	~~160'~~**
~~Hammerhead Turnaround~~	~~20'~~	~~20'~~	~~None~~	~~75'~~**	~~100'~~**
Collector/~~Commercial/Industrial~~	48' to 68'	36' to 44'	6'	~~250'~~**	~~240'~~**
2 Lane Arterial Road/Truck Route	48' to 78'	36' to 54'	6'	~~250'~~**	~~240'~~**

**Design criteria to be based on design speed and guidelines in AASHTO: Policy on Geometric Design of Highways and Streets.

We recommend that the city have consistent standards and terminology between the adopted cross sections and Table A and B. Therefore, we have modified Table B to be similar to Table A. We recommend that the city delete the columns regarding percentage of Trucks, Truck Weight and Design Traffic Number because the TSP proposes a Street Classification map which is a clearer indicator of the type of street to provide in a specific location.

Table B

Street Classification	Design ADT	~~% Trucks~~	~~Truck Weight~~	~~Design Traffic Number*~~
Cul-de-sac and private Street	~~500~~ 0 to 500	~~2~~	~~15,000~~	~~1~~
~~Residential~~ Local Road	~~1,000~~ 0- 1,200	4	~~20,000~~	~~6~~
Alternative Local Road	0-250			
Collector	3,000	~~5~~	~~20,000~~	~~25~~
Two Lane Arterial Road	3,000			
Commercial-Industrial	1,000 to 3,000	~~10~~	~~48,000~~	~~180~~

Standards and Specifications, Figure A, Arterial Road Cross Section

Standards and Specifications, Figure B, Collector Road Cross Section

Standards and Specifications, Figure C, Local Road Cross Section

Standards and Specifications, Figure D, Alternative Local Road Cross Section

[insert local road cross section here]

[insert alternative local road cross section here]

[insert two lane arterial road cross section here]

Summary of TPR Compliance

In April 1991, the LCDC, with the concurrence of ODOT, adopted the TPR, OAR 660 Division 12. Outlined below in Table 7-1 is a list of recommendations (designated by italics) and requirements for a TSP and how each of those were addressed in the City of Tillamook TSP. The comparison demonstrates that the City of Tillamook TSP is in compliance with the provision of the TPR.

TABLE 7-1
TPR Requirements for a Transportation System Plan

TPR Requirements	City of Tillamook TSP Compliance
OAR 660-012-0015: Preparation and Coordination of the TSPs	
(3) Preparation, adoption, and amendment of Local TSPs	
(a) Local TSPs shall establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with adopted elements of regional and state TSPs.	Section 2 and 3 document the City's existing and future local transportation needs. Section 5 contains the City's TSP, the chapter that provided a system of transportation facilities and services to meet these needs. These chapters have been prepared in accordance with the Oregon Transportation Planning Rule and the Oregon Highway Plan.
(b) Coordinate the preparation of the local TSP to assure regional and state transportation needs are met.	All state transportation needs were considered in the development of the City of Tillamook TSP throughout the use of the Project Management Team and various coordination meeting with affected organizations and agencies.
(4) Cities shall adopt regional and local TSPs as part of their comprehensive plan.	The City will adopt Section 5 of the TSP as part of its Comprehensive Plan.
(5) TSPs preparation shall be coordinated with affected state, federal, and regional agencies; local governments; special districts; and private providers of transportation services.	To ensure that the City of Tillamook TSP would be consistent with the policies, goals, and needs of affected agencies, a Project Management Team (PMT) was established at the outset of the planning process. The PMT was made up of public representatives from the City, plus the Oregon Department of Transportation, and the Department of Land Conservation and Development.
OAR 660-012-0020: Elements of Transportation System Plans	
(1) Establish a coordinated network of facilities to serve state, regional, and local transportation needs.	All planned transportation facilities were coordinated with the identified needs of state and local agencies.
(2) The TSP shall include the following elements:	
(a) Determination of transportation needs per OAR 660-012-0030.	The City of Tillamook's 20-year transportation needs are documented in Section 3 of this report.
(b) A road plan for a system of arterials and collectors and standards for the layout of local streets and connections.	The City of Tillamook roadway plan is documented in Section 5 of this report.

TABLE 7-1
TPR Requirements for a Transportation System Plan

TPR Requirements	City of Tillamook TSP Compliance
(c) A public transportation plan	The City of Tillamook transportation plan is documented in Section 5
(d) A bicycle and pedestrian plan consistent with ORS 365.514.	The City of Tillamook pedestrian and bicycle plan is documented in Section 5.
(e) An air, rail, water, and pipeline plan that identifies public use airports, mainline and branchline railroads, port facilities, and major regional pipelines and terminals.	The air, rail water and pipeline system plans are documented in Sections 3 and 5.
(h) Policies and land use regulation for TSP implementation per OAR 660-012-0045.	These will be a part of the Ordinance Modification memorandum included in Section 7 of this report.
(i) For areas within an urban growth boundary containing a population of 2500 or more , a transportation financing program as provided in OAR660-12-0040	The transportation financing program is described in Section 6.
(3) Each element identified in (2)(b)-(d) shall contain:	
(a) An inventory and assessment of existing and committed facilities and services by function, type, capacity, and condition.	An inventory of Tillamook's existing transportation facilities is documented in Section 2 of this Plan.
(b) A system of planned facilities, services, and major improvements.	A system of planned facilities, services and major improvements is documented in Section 5 of this plan.
(c) A description of planned facilities, services, and major improvements including a map showing general location of proposed improvements, minimum and maximum right-or-way widths, and a description of facility or service.	Section 5 of this Plan contains a description of Tillamook's planned facilities, services, and major improvements. A map showing the general location of the proposed improvements is included in Section 5-1. A description of each facility type is provided in Section 5
(d) Identification of the provider of each facility or service.	The responsible agency/provider of each facility is documented in Section 5.
OAR 660-012-0025: Complying with the Goals in TSP Preparation	
(1) Adoption of a TSP shall constitute the land use decision regarding the need for transportation facilities services, and major improvements and their function, mode, and general location.	Pending
(2) Findings of compliance with applicable statewide planning goals and comprehensive plan policies shall be developed in conjunction with adoption of the TSP.	Pending
OAR 660-012-0030: Determination of Transportation Needs	
(1) The TSP shall identify transportation needs including:	
(a) State and local transportation needs;	State and local transportation needs are documented in Section 5 of this plan.

TABLE 7-1
TPR Requirements for a Transportation System Plan

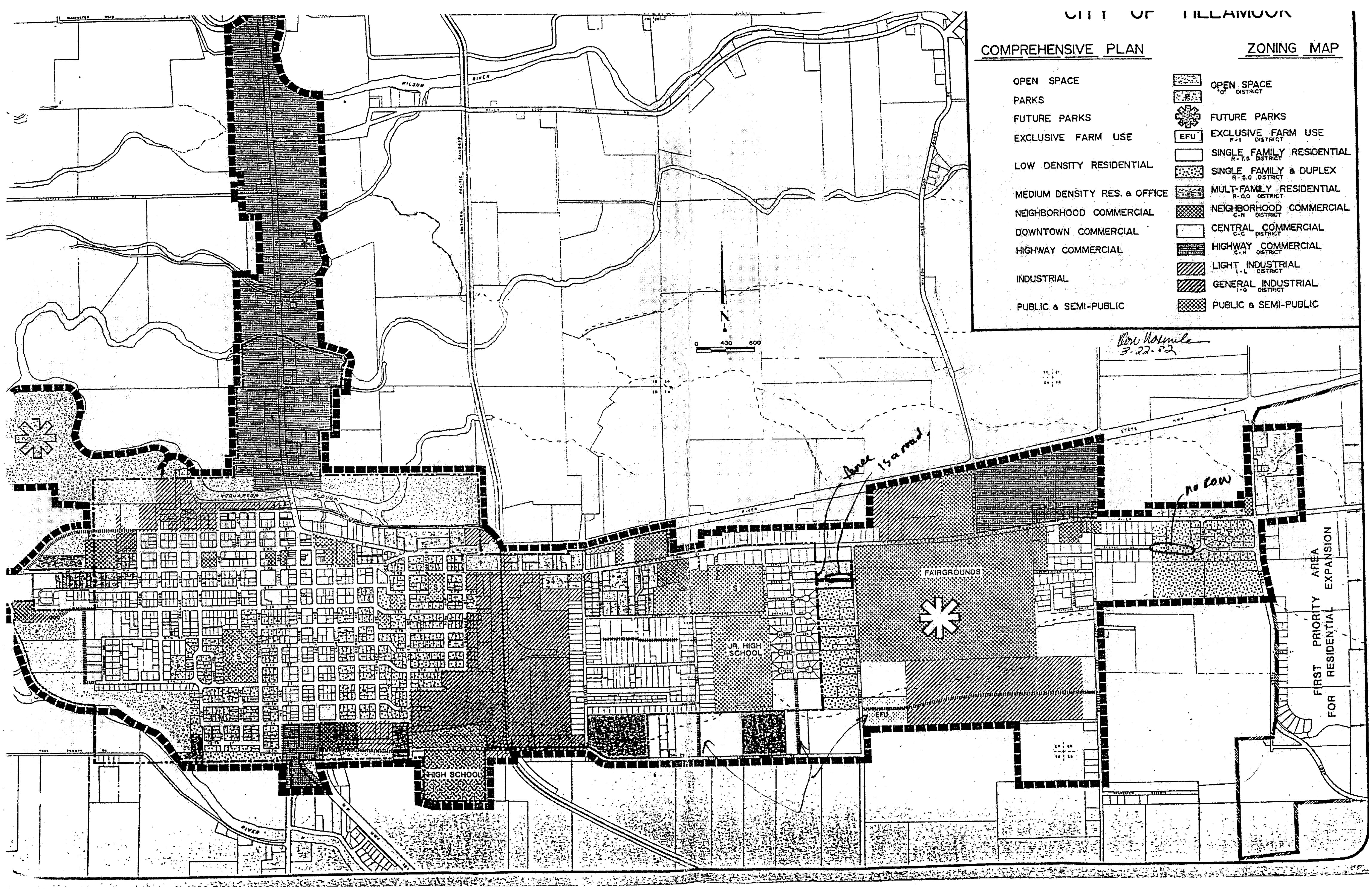
TPR Requirements	City of Tillamook TSP Compliance
(b) Needs of the transportation disadvantaged;	The needs of the transportation disadvantages are documented in Section 2 and 3 of this plan.
(c) Needs for the movement of goods and services.	The needs for movement of goods and services are documented in Section 5 of this plan.
OAR 660-012-0035: Evaluation and Selection of Transportation System Alternatives	
(1) The TSP shall be based upon evaluation of potential impacts of system alternatives that can reasonably be expected to meet the identified needs at reasonable cost. The following shall be evaluated as components of the system alternatives:	
(a) Improvements to existing facilities or services;	Reasonable and cost effective solutions to existing facilities were evaluated before new facilities were considered.
(b) New facilities and services including different modes of travel;	All new facilities were evaluated based on their reasonableness and cost-effectiveness.
(c) Transportation system management measures;	Transportation system management strategies were anticipated in the development of the TSP.
(d) Demand management measures;	Demand management measures were addressed in the development of the preferred alternative in Section 5.
(e) A no-build system alternative required by the national EPA.	Section 3 reviews the "no-build" scenario.
(3) The following standards shall be used to evaluate and select alternatives:	
(a) The transportation system shall support urban and rural development by providing types and levels of facilities and services appropriate to serve the land uses identified in the acknowledged comprehensive plan;	The TSP is based on the current, acknowledged comprehensive plan for the City and provides enhancement of the integration of transportation and land use systems.
(b) The transportation system shall be consistent with state and federal standards for the protection of air, land and water quality;	The standards used to evaluate and select transportation alternates are documented in Sections 4 of this plan.
(c) The transportation system plan shall minimize adverse economic, social, environmental, and energy consequences;	The standards used to evaluate and select transportation alternates are documented in Section 4 of this plan.
(d) The transportation system shall minimize conflicts and facilitate connections between modes of transportation.	The standards used to evaluate and select transportation alternates are documented in Section 4 of this plan.
(e) The transportation system plan shall avoid principal reliance of any one mode of transportation and reduce principal reliance on the automobile.	The standards used to evaluate and select transportation alternates are documented in Section 4 of this plan.

TABLE 7-1
TPR Requirements for a Transportation System Plan

TPR Requirements	City of Tillamook TSP Compliance
(7) Local TSPs shall include interim benchmarks to assure satisfactory progress towards meeting the requirements of this chapter at five-year intervals. Local governments shall evaluate progress in meeting interim benchmarks at five year intervals from adoption of the TSP.	The City will evaluate progress toward meeting the requirements of the TPR though regular review of the TSP at five-year intervals.
OAR 660-012-0040: Transportation Financing Program	
(1) For areas within an urban growth boundary containing a population greater than 2,500 persons, the TSP shall include a transportation-financing program.	The City's funding plan is included in Section 6.
(2) A Transportation financing program shall include the items listed in (a) – (d):	
(a) A list of planned transportation facilities and major improvements;	A list of planned transportation facilities and major improvements is provided in Section 5 and in Appendix B.
(b) A general estimate of the timing for planned facilities and major improvements;	Section 5 and Appendix B lists the planned transpiration facilities and major improvements within the 0-5, 6-10 and 11-20 year timeline.
(c) A determination of rough cost estimates for the facilities and major improvements identified in the TSP;	Section 5 and Appendix B lists the rough cost estimates and major improvements within the 0-5, 6-10 and 11-20 year timeline.
(3) The financing plan shall include a discussion of the facility provider's existing funding mechanisms to fund the development of each facility and major improvement.	Documentation of Oregon and the City of Tillamook's existing funding mechanisms is included in Section 6 of the Plan.
(5) The financing program shall provide for phasing of major improvements to encourage infill and redevelopment of urban lands prior to premature development of urbanizing or rural lands.	Investment in transportation improvements has been prioritized to encourage development of downtown Tillamook, including residential and commercial areas.

APPENDIX A

Comprehensive Land Use and Zoning


CITY OF TILLAMOOK
COMPREHENSIVE PLAN
ZONING MAP
OPEN SPACE
PARKS
FUTURE PARKS
EXCLUSIVE FARM USE
LOW DENSITY RESIDENTIAL
MEDIUM DENSITY RES. & OFFICE
NEIGHBORHOOD COMMERCIAL
DOWNTOWN COMMERCIAL
HIGHWAY COMMERCIAL
INDUSTRIAL
PUBLIC & SEMI-PUBLIC
OPEN SPACE "O" DISTRICT
FUTURE PARKS
EFU
EXCLUSIVE FARM USE F-1 DISTRICT
SINGLE FAMILY RESIDENTIAL R-7.5 DISTRICT
SINGLE FAMILY & DUPLEX R-5.0 DISTRICT
MULT-FAMILY RESIDENTIAL R-O.O DISTRICT
NEIGHBORHOOD COMMERCIAL C-N DISTRICT
CENTRAL COMMERCIAL C-C DISTRICT
HIGHWAY COMMERCIAL C-H DISTRICT
LIGHT INDUSTRIAL I-L DISTRICT
GENERAL INDUSTRIAL I-G DISTRICT
PUBLIC & SEMI-PUBLIC
N
0 400 800
3-22-82
WILSON RIVER
HOQUARTON SLOUGH
STATE HWY
FAIRGROUNDS
JR. HIGH SCHOOL
HIGH SCHOOL
EFU
FIRST PRIORITY AREA FOR RESIDENTIAL EXPANSION
Fence is a road
no cow

APPENDIX B

Project List

Appendix

City of Tillamook TSP -Unevaluated Project List

Project Type	Description	Source	Facility	BEG MP	END MP
Access Management	Provide Access Management treatments such as medians/consolidation of driveways/right-in, right-out treatments along US 101, north of OR 6 to Wilson River Loop intersection. Implement as redevelopment occurs.	DRAFT Oregon Coast Highway Master Plan and Field Work	US 101	64.57	65.64
ITS	Variable Message Signing for Parking/Truck Route/Flooding	Field Work	US 101and OR 6	N/A	N/A
Mobility/ Connectivity	Extend Meadow to 12th Street	City Comp. Plan	Meadow	N/A	N/A
Mobility/ Connectivity	Trout Street, between 3rd and Highway 6	City Staff	Trout Street	N/A	N/A
Mobility/ Connectivity	Extend 12th Street from Miller Avenue to Pacific Avenue (US 101 Northbound)	City Comp. Plan	12th Street	N/A	N/A
Mobility/ Connectivity	Extend Beech Street to Marolf Loop	City Comp. Plan	Beech Street	N/A	N/A
Mobility/ Connectivity	Designate Spruce Avenue as a public road and remove the barriers at Apple and Beech Streets. Connect Spruce to Cypress to complete roadway grid system	City Staff	Spruce Avenue	N/A	N/A
Mobility/ Connectivity	Extend 1st Street to Netarts Highway	City Comp. Plan	1st Street	N/A	N/A
Mobility/ Connectivity	9th Street, cul-de-sac both dead ends	City Staff	9th Street	N/A	N/A
Mobility/ Connectivity	Filbert Street extension to Marolf Loop	City Staff	Filbert Street	N/A	N/A
Mobility/ Connectivity	Extension between Meadow and Williams Avenue	Field Work	Maple or Hawthorne Lane	N/A	N/A
Mobility/ Connectivity	Extend Evergreen Drive to Highway 6. (Included in Freight projects.)	City Comp. Plan	Evergreen Drive	N/A	N/A
Mobility/ Connectivity	Extend Marolf Loop to Highway 6. Included in Freight projects.	PAC	Marolf Loop	N/A	N/A
Mobility/ Connectivity	Extend Williams Avenue south to 12th Street	City Comp. Plan	Williams Avenue	N/A	N/A
Mobility/ Connectivity	Create a scenic northbound only bypass of the US 101 and OR 6 intersection along Hoquarten Slough with access to US 101 just south of Hoquarten Slough and access from OR 6 just east of Madrona Avenue.	City Staff	Hoquarten Slough Road	N/A	N/A
Mobility/ Connectivity	Extend 12th Street to McCormick Loop (if development occurs in area)	City Comp. Plan	12th Street	N/A	N/A
Modernization - Operational	Construct a pedestrian island that channelizes the westbound right-turn at US 101 and OR 6 intersection, reconstruct corner, provide downstream lane and widen Hoquarten Bridge. Provide signing that yields vehicles to pedestrians crossing this lane.	Existing and Future No-Build Operational Analysis and DRAFT Oregon Coast Highway Master Plan	Highway 6 and US 101 intersection	65.64	65.64
Modernization - Operational	Provide an eastbound right-turn lane (to US 101 southbound) while providing for safe pedestrian and bicycle movements.	Future No-Build Operational Analysis	US 101 and Wilson River Loop Intersection	64.57	64.57
Modernization - Roadway	Install traffic signal at 3rd and Stillwell and provide a northbound and southbound left-turn lane.	Existing and Future No-Build Operational Analysis	Netarts Highway (3rd Street) and Stillwell Avenue Intersection	8.98	8.98
Modernization - Roadway	Reconstruct intersection, provide grade separated interchange.[1]	ODOT Study and Existing and Future No-Build Operational Analysis	Highway 6 and Wilson River Loop	1.80	1.80
Bridge	Widen US 101 Wilson River Bridge. Part of current STIP.	ODOT 04-07 STIP #11667, ODOT Bridge Sufficiency Rating below 50	US 101	64.23	64.23
Modernization - Roadway	Create a couplet system along First Street and Netarts Highway (3rd Street) between Stillwell Avenue and US 101 (Main Street) to improve operations at US 101 and OR 6. First Street would be westbound only and 3rd Street would be eastbound only between Stillwell and US 101. Project includes signing, channelization/restriping and intersection signal equipment and timing.	Future No-Build Operational Analysis, PAC	1st Street and 3rd Street between Stillwell Avenue and US 101 (Main Street)	65.74	65.74
Parking	Conduct parking study to understand parking utilization at various times during the year.	Field Work		N/A	N/A
Parking	Provide signing along US 101 to off-street lots off of US 101	Field Work	US 101	N/A	N/A
Parking	Construct off-street parking at City owned lot along Ivy Avenue. Provide signing along US 101 to this lot.	Field Work and City Staff	Off-Street property	N/A	N/A
Ped/Bike	Construct bike lanes and sidewalk on 3rd Street, east of Evergreen Drive to McCormick Loop, repave roadway from Nestucca Avenue to City UGB. Provide marked crosswalks near Tillamook Fairgrounds with pedestrian area warning signs. Restripe crosswalks near Wilson Elementary/Goodspeed Park area on 3rd Street. Retrofit ramps along 3rd Street to ADA compliance near Goodspeed Park and Wilson School	Field Work	3rd Street	N/A	N/A
Ped/Bike	Construct sidewalk and bike lanes on Evergreen Drive. Repave road with asphalt	Field Work	Evergreen Drive	N/A	N/A
Ped/Bike	Construct sidewalk on 12th Street, east of high school to Evergreen Drive, repave from Miller Avenue to Marolf Loop. Provide adequate width along 12th Street from Evergreen Drive to Marolf Loop for shared roadway designation.	Field Work	12th Street	N/A	N/A
Ped/Bike	Provide bike route on 3rd Street between Stillwell Avenue to Trask River bridge. Widen sidewalk to 10 feet both sides. keep parking on both sides west of US 101. East of US 101, bike route separates between OR 6 couplet. Striping modifications required.	Field Work	Various locations	N/A	N/A
Ped/Bike	Provide bike route on 3rd Street between Stillwell Avenue to Trask River bridge. Provide southside with parking and bike lane on both sides west of US 101. East of US 101, bike route separates between OR 6 couplet. Striping modifications required.	Field Work	Various locations	N/A	N/A
Ped/Bike	Provide bike route between Evergreen Drive to Trask River bridge. Eastbound: Route on 3rd Street, south onto Ash Avenue, east on 4th Street, north on Ocean Place east on 3rd Street. Would require bike lanes on 3rd to Ash Avenue to shared roadway on Ash Avenue, 4th Street and Ocean Place. Westbound: 3rd Street from Evergreen, north on Ocean Place, west on OR 6, cross US 101 on First Street, south on Birch Street, west on 2nd Street, south on Ash Avenue, west on 3rd Street. Provide bike lanes on 3rd Street and OR 6, all other roads are shared roadway designation. Bike lanes on OR 6 can be provided with striping modifications. Requires advanced signing on US 101 and 3rd Street.	Field Work	Various locations	N/A	N/A
Ped/Bike	Create a bicycle bypass in downtown area along Stillwell Avenue, create bike lane connections with US 101 along Front Street and 12th Street. Provide advanced signing. Remove parking on one side of road to provide bike lanes. Coordinate with Hoquarten Slough Trail. Might require undercrossing with US 101 at Front Street. Additional study required. Complete sidewalk system on Stillwell Avenue, Front to 1st Streets and 11th to 12th Streets. Construct ADA ramps along Stillwell Avenue near Liberty Elementary School (7th and 8th Street crossings). Restripe crosswalks along Stillwell Avenue.	Field Work	Stillwell Avenue (with Front and 12th Street connections)	N/A	N/A
Ped/Bike	Complete sidewalk and provide bike lanes on 3rd Street, west of Ash Avenue. Removal of parking on one side.	ODOT and Field Work	Netarts Highway (3rd Street)	N/A	N/A
Ped/Bike	Complete sidewalk system on Front Street	Field Work	Front Street	N/A	N/A

APPENDIX C

Large Vehicle Alternate Route Memorandum

Tillamook TSP
All Unit Costs are in 2002 Dollars

Item	Notes	Unit Cost (K) or Percentage
Mobilization, Traffic Control, Removal of Structures and Obstructions, and Erosion Control	Includes 20% for mobilization, traffic control, removal of structures and obstructions, and erosion control	20%
Curb, gutter, sidewalk, w/ storm system	Includes .5' curb, 1.5' gutter pan and 6' wide sidewalk on both sides of the roadway. A 18-inch concrete pipe storm system w/ 2' of cover over the top of pipe. Trenching and backfill are included. Assume a storm manhole every 500 lf and one standard catch basin every 250 lf (one on each side of the roadway). The Unit Cost is per mile.	650
Bike Boulevard	A separated bike facility. Assume 10' wide, 2-inches of asphalt over 12-inches of aggregate base. Clearing and grubbing is included. 20-foot long culverts every 400 lf. The unit of cost is per mile.	110
New Roadway	Includes clearing and grubbing, excavation or embankment, 18" culverts every 500 lf. subgrade preparation, 14-inches aggregate base, and 6-inches asphalt concrete. The unit cost is per lane-mile.	230
Overlay Existing Roadway	Includes 2-inches of asphalt concrete. Grinding 25% of existing surface. The unit of cost is per lane-mile.	40
Reconstruct Existing Roadway	Includes removing the existing roadway and rebuilding a new facility. This cost is a removal cost plus the "New Roadway" cost listed above. Assume the existing facility to be removed is 4-inches AC over 14-inches aggregate base. The unit of cost is per lane-mile.	330
Intersection Improvements	Costs of STIP projects were used to determine intersection improvement costs: $10K to $25K used for minor striping/signing modifications (right-in, right-out only) $200K to $1,000K used for realignments (depends upon difficulty)	Varies
Restriping Existing Roadway	Includes removing existing striping and restriping the facility. The unit of cost is per lane-mile.	6
Interconnect Signal	Includes the cost to interconnect signal system. The unit of cost is lump sum.	35
New Signal	Includes the signal and all appurtenances. (pole, wiring, detection devices...) The unit of cost is each.	145
Signal Modifications	Includes all evaluations and modifications. The unit of cost is each.	75
Street Lights	Includes the luminaire, pole, wiring, and all other appurtenances. Assume a light pole on each side of the roadway, every 200 lf. The unit of cost is per mile.	110
Landscaping	Includes all plantings, topsoil, irrigation requirements, and trees. The unit of cost is per mile.	200
Bridges	Based on estimated square footage of bridge. The unit of cost is square feet.	0.100
Building Impacts	Assumes $250K for each building that will be significantly impacted by the project. The unit of cost is each.	250
Contingency Factor	Includes 40% Contingency	40%

Note: the cost estimates do not include right-of-way, engineering, wetland, or utility relocation costs.

06/26/03

Tillamook TSP

Cost Estimates

Project Description

L-Mi = Lane-Mile SF= Square Foot All costs are in (K)		1 Curb, SW, Storm Unit: Mile Cost: 650		2 Bike Path Unit: Mile Cost: 110		3 New Rdwy Unit: L-Mi Cost: 230		4 Overlay Rdwy Unit: L-Mi Cost: 40		5 Recon Rdwy Unit: L-Mi Cost: 330		6 Restripe Unit: L-Mi Cost: 6.0		7 Intrcon Signl Unit: Each Cost: 35		8 New Signl Unit: Each Cost: 145		9 Signl Mod Unit: Each Cost: 75		10 Street Lights Unit: Mile Cost: 110		11 Landscaping Unit: Mile Cost: 200		12 MOB, TC, and EC Unit: LS Cost: 0.2		13 Building Unit: Each Cost: 250		14 Bridges Unit: SF Cost: 0.100		COMMENTS
Project	40% Contg.	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	
Construct a road along the Port of Tillamook Bay railroad tracks from the Mill to Latimer Road within the railroad right-of-	3232	0.00	0	0.00	0	4.00	920	0.00	0	0.00	0	4.00	24	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	385	0	0	9800	980	Assume new roadway from Latimer to 3 Rail-road tracks = 2 miles long. Assume 2-12' lanes = 4 lane-miles (shoulder only, no bike lanes, sidewalk, or piped drainage system). Assumes 3 bridges: 350' in length total = 350*28 (includes 2' shy on both sides) = 9800 SF
Extend Evergreen Drive to Highway 6.	508	0.10	65	0.00	0	0.30	69	0.00	0	0.00	0	0.30	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	60	0	0	0	0	Assume new roadway from OR 6 to 3rd (425 feet = 0.1 miles). Assume 2-12' lanes plus 2-6' bike lanes = 0.3 lane-miles. Assume sidewalks and drainage on both sides (0.1 miles). Additional $200 K added for intersection improvements at Evergreen and OR 6.
Construct a new southern roadway from the Mill property to connect with US 101. One proposed location would be along the railroad tracks to the US 101/Long Prairie Road intersection.	4102	0.00	0	0.00	0	5.60	1288	0.00	0	0.00	0	5.60	34	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	488	0	0	11200	1120	Assume new roadway from 3 Rail-road tracks to Long Prairie= 2.8 miles long. Assume 2-12' lanes = 5.6 lane-miles (shoulder only, no bike lanes, sidewalk, or piped drainage system). Assumes 4 bridges: 400' in length total = 400*28 (includes 2' shy on both sides) = 11200 SF
Construct a new southern roadway from the Mill property to connect with US 101. Another possible US 101 connection would be to have the road not follow the railroad tracks and connect immediately south of the City limits.	1385	0.00	0	0.00	0	1.60	368	0.00	0	0.00	0	1.60	10	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	192	0	0	2800	280	Assume new roadway from 3 Rail-road tracks straight to US 101 = 0.8 miles long. Assume 2-12' lanes = 1.6 lane-miles (shoulder only, no bike lanes, sidewalk, or piped drainage system). Assumes 2 bridges: 100' in length total = 100*28 (includes 2' shy on both sides) = 2800 SF. Included 200K for improvements at the US 101 intersection (turn lanes, decel lanes, etc.)
Extend Maroff Loop to Highway 6.	622	0.15	98	0.00	0	0.45	104	0.00	0	0.00	0	0.45	3	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	41	0	0	0	0	Assume new roadway from OR 6 to 3rd (745 feet = 0.15 miles). Assume 2-12' lanes plus 2-6' bike lanes = 0.45 lane-miles. Assume sidewalks and drainage on both sides (0.15 miles). Additional $200 K added for intersection improvements at Maroff and OR 6.
Extend Meadow to 12th Street	1156	0.20	130	0.00	0	0.60	138	0.00	0	0.00	0	0.60	4	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	54	2	500	0	0	Assume new roadway from dead-end to 12th (1060 feet = 0.2 miles). Assume 2-12' lanes plus 2-6' bike lanes = 0.6 lane-miles. Assume sidewalks and drainage on both sides (0.2 miles). Assumes 2 Buildings
Trout Street, between 3rd and Highway 6	578	0.10	65	0.00	0	0.30	69	0.00	0	0.00	0	0.30	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	27	1	250	0	0	Assume new roadway from OR 6 to 3rd (425 feet = 0.1 miles). Assume 2-12' lanes plus 2-6' bike lanes = 0.3 lane-miles. Assume sidewalks and drainage on both sides (0.1 miles).
Extend 12th Street from Miller Avenue to Pacific Avenue (US 101 Northbound)	548	0.24	156	0.00	0	0.72	166	0.00	0	0.00	0	0.72	4	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	65	0	0	0	0	Assume new roadway from US 101 to Miller (1270 feet = 0.24 miles). Assume 2-12' lanes plus 2-6' bike lanes = 0.72 lane-miles. Assume sidewalks and drainage on both sides (0.24 miles).

06/26/03

Tillamook TSP
Cost Estimates

Project Description

L-MI = Lane-Mile
SF= Square Foot
All costs are in (K).

Project	40% Contg.	1 Curb, SW, Storm Unit: Mile Cost: 650 QTY	COST	2 Bike Path Unit: Mile Cost: 110 QTY	COST	3 New Rdwy Unit: L-Mi Cost: 230 QTY	COST	4 Overlay Rdwy Unit: L-Mi Cost: 40 QTY	COST	5 Recon Rdwy Unit: L-Mi Cost: 330 QTY	COST	6 Restripe Unit: L-Mi Cost: 6.0 QTY	COST	7 Introon Signl Unit: Each Cost: 35 QTY	COST	8 New Signl Unit: Each Cost: 145 QTY	COST	9 Signl Mod Unit: Each Cost: 75 QTY	COST	10 Street Lights Unit: Mile Cost: 110 QTY	COST	11 Landscaping Unit: Mile Cost: 200 QTY	COST	12 MOB, TC, and EC Unit: LS Cost: 0.2 QTY	COST	13 Building Unit: Each Cost: 250 QTY	COST	14 Bridges Unit: SF Cost: 0.100 QTY	COST	COMMENTS
Filbert Street extension to Marolf Loop	207	0.11	72	0.00	0	0.22	51	0.00	0	0.00	0	0.22	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0	Assume new roadway from Dead End to Marolf (575 feet = 0.11 miles). Assume 2 12' lanes plus 2-6' bike lanes = 0.22 lane-miles. Assume sidewalks and drainage on both sides (0.11 miles).
Extension between Meadow and Williams Avenue (Maple or Hawthorne Lane)	1104	0.40	260	0.00	0	0.80	184	0.00	0	0.00	0	0.80	5	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1	250	0	0	Assume new roadway for entire length (2120 feet = 0.40 miles). Assume 2-12' lanes plus 2-6' bike lanes = 0.8 lane-miles. Assume sidewalks and drainage on both sides (0.40 miles). Assume 1 building take.
Extend Linden Drive to the west and east to connect with Evergreen Drive and Williams Avenue	467	0.21	137	0.00	0	0.60	138	0.00	0	0.00	0	0.60	4	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0	0	0	Assume new roadway from Dead End to Evergreen (210 feet = 0.05 miles) and from Dead End to Williams (850 feet = 0.16 miles). Assume 2-12' lanes plus 2-6' bike lanes = 0.60 lane-miles. Assume sidewalks and drainage on both sides (0.21 miles).
Extend 12th Street to McCormick Loop (if development occurs in area)	1472	0.64	416	0.00	0	1.95	448	0.00	0	0.00	0	1.95	12	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0	0	0	Assume new roadway entire length (3390 feet = 0.64 miles). Assume 2-12' lanes plus 2-6' bike lanes = 1.95 lane-miles. Assume sidewalks and drainage on both sides (0.64 miles)
Install traffic signal at 3rd and Stillwell	244	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00	145	0.00	0	0.00	0	0.00	0	0.00	0	0	0	0	0	0	0	0
Construct sidewalk and bike lanes on Evergreen Drive. Repave road with asphalt	789	0.48	312	0.00	0	0.48	110	0.96	38	0.00	0	1.44	9	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0	0	0	Assume bike lanes along entire length from 3rd to 12th (2540 feet = 0.48 miles). Assume overlay of 2-12' lanes (0.96 lane-miles) plus new roadway 2-6' bike lanes (0.48 lane-miles) plus sidewalk/drainage (0.48 miles)
Construct sidewalk on 12th Street, east of high school to Marolf Loop, repave from Miller Avenue to Marolf Loop. Provide adequate width along 12th Street from high school to Marolf Loop for shared roadway designation.	1400	1.00	650	0.00	0	0.33	76	2.33	93	0.00	0	2.33	14	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0	0	0	Assumes sidewalk/drainage on both sides of road from high school to Marolf (*5400 feet = 1.0 miles*). Overlay entire length from Miller to Marolf (6150 feet = 1.16 miles). Assume 2-12' lanes = 2.33 lane-miles of overlay. Assume roadway width widened from 12' to 14' from high school to Marolf (5400 feet = 1.0 miles) = *0.33 lane-miles of new roadway*
Provide sidewalk on north side of 11th Street between Stillwell and US 101, retrofit south side sidewalk, overlay roadway between Stillwell and Miller	113	0.05	33	0.00	0	0.00	0	0.76	30	0.00	0	0.76	5	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0	0	0	Assume sidewalk on one side of roadway only (530 feet = 0.1 miles) = 0.05 miles. Assume additional 10K to retrofit south sidewalk. Overlay (2015 feet = 0.38 miles) assumes 2-12' lanes = 0.76 lane-miles
Construct sidewalk along US 101 between Hoquarten Slough and First Street	44	0.04	26	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0	0	0	Assume sidewalk on one side of roadway only (425 feet = 0.08 miles) = 0.04 miles.
Construct sidewalk along 4th Street from Nestucca to Miller Avenues.	55	0.05	33	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0	0	0	*Assume sidewalk on one side of roadway* only (530 feet = 0.10 miles) = 0.05 miles.
Provide adequate shoulder on Marolf Loop for shared roadway designation, repave	195	0.00	0	0.00	0	0.28	64	1.12	45	0.00	0	1.12	7	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0	0	0	Assume widening on both sides (3' total per side) (3000 feet = 0.56 miles) = 0.28 lane-miles
Provide adequate shoulder on McCormick Loop for shared roadway designation, repave	250	0.00	0	0.00	0	0.36	83	1.44	58	0.00	0	1.44	9	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0	0	0	Assume widening on both sides (3' total per side) (3800 feet = 0.72 miles) = 0.36 lane-miles

06/26/03

Tillamook TSP
Cost Estimates

Project Description

L-Mi = Lane-Mile
SF= Square Foot
All costs are in (K)

		1		2		3		4		5		6		7		8		9		10		11		12		13		14		
		Curb, SW, Storm		Bike Path		New Rdwy		Overlay Rdwy		Recon Rdwy		Restripe		Intrcon Signl		New Signl		Signl Mod		Street Lights		Landscaping		MOB, TC, and EC		Building		Bridges		COMMENTS
		Unit:	Mile	Unit:	Mile	Unit:	L-Mi	Unit:	L-Mi	Unit:	L-Mi	Unit:	L-Mi	Unit:	Each	Unit:	Each	Unit:	Each	Unit:	Mile	Unit:	Mile	Unit:	LS	Unit:	Each	Unit:	SF	
		Cost:	650	Cost:	110	Cost:	230	Cost:	40	Cost:	330	Cost:	6.0	Cost:	35	Cost:	145	Cost:	75	Cost:	110	Cost:	200	Cost:	0.2	Cost:	250	Cost:	0.100	
Project	40% Contg.	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	QTY	COST	
Provide adequate shoulder on Brookfield Avenue	221	0.00	0	0.00	0	0.32	74	1.26	50	0.00	0	1.26	8	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	20	0	0	0	0	Assume widening on both sides (3' total per side) (3350 feet = 0.63 miles) = 0.32 lane-miles. Overlay = 1.26 lane-miles
Provide adequate bike lane width and sidewalk on Alder and repave Alder Lane between Evergreen Drive and Cypress/Dogwood Intersection	738	0.49	319	0.00	0	0.33	75	0.98	39	0.00	0	0.98	6	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	38	0	0	0	0	Assume 4' widening on both sides (2590 feet = 0.49 miles) = 0.33 lane-miles. Sidewalk for 0.49 miles. Overlay = 0.98 lane-miles
Complete sidewalk system on 3rd Street, west of Ash Avenue	66	0.06	39	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	6	0	0	0	0	Assume sidewalk on one side of the road only for 2 blocks (650 feet = 0.12 miles) = 0.06 miles
Extend 1st Street to Netarts Highway	315	0.14	91	0.00	0	0.41	94	0.00	0	0.00	0	0.41	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	36	0	0	0	0	Assume new roadway (715 feet = 0.14 miles). Assume 2-12' lanes plus 2-5' bike lanes = 0.41 lane-miles. Assume sidewalks and drainage on both sides (0.14 miles).
Construct bike lanes and sidewalk on 3rd Street, east of Evergreen Drive to Trask River Road, repave roadway from Nestucca Avenue to City UGB. Provide marked crosswalks near Tillamook Fairgrounds with pedestrian area warning signs. Restripe crosswalks near Wilson **Elementary/Goodspeed Park area on 3rd Street. Retrofit ramps along 3rd Street to** ADA compliance near Goodspeed Park and Wilson School	2857	1.70	1105	0.00	0	1.70	391	4.00	160	0.00	0	4.00	24	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	350	0	0	0	0	Assume widening (6' total) entire length between Trask River and Evergreen (9000 feet = 1.70 miles) = 1.70 lane-miles. Sidewalk = 1.70 miles. Overlay (10560 feet = 2 miles) = 4 lane-miles. Added 25K for ped improvements/striping, etc.
Complete sidewalk system on Stillwell Avenue, Front to 1st Streets and 11th to 12th Streets. Construct ADA ramps along Stillwell Avenue near Liberty Elementary School (7th and 8th Street crossings). Restripe crosswalks along Stillwell Avenue. Provide bike lane on Stillwell Avenue from Front Street to 12th Street	167	0.14	91	0.00	0	0.00	0	0.00	0	0.00	0	1.31	8	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	20	0	0	0	0	Assume sidewalk on both sides of roadway from Front to 1st and from 11th to 12th (750 feet = 0.14 miles). Assume parking removed from one side of road, so no widening. Stripe bike lanes both sides (0.65 miles total) = 1.31 lane-miles. Added 15K for ped improvements
Extend Beech Street to Marolf Loof	113	0.06	39	0.00	0	0.12	28	0.00	0	0.00	0	0.12	1	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	0	0	0	0	Assume new roadway from Dead End to Marolf (320 feet = 0.06 miles). Assume 2-12' lanes = 0.12 lane-miles. Assume sidewalks and drainage on both sides (0.06 miles).
Extend Williams Avenue south to 12th Street	264	0.14	91	0.00	0	0.28	64	0.00	0	0.00	0	0.28	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	31	0	0	0	0	Assume new roadway from Hawthorne to 12th (745 feet = 0.14 miles). Assume 2-12' lanes = 0.28 lane-miles. Assume sidewalks and drainage on both sides (0.14 miles).
Complete sidewalk and provide bike lanes on 3rd Street, west of Ash Avenue. Removal of parking on one side.	55	0.05	33	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	7	0	0	0	0	Assume sidewalk for 250' both sides
Trail, Phase 1 Hoquarten Slough	37	0.00	0	0.20	22	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	4	0	0	0	0	Assume bike boulevard for 1000'
Trail, Phase 2 Hoquarten Slough	554	0.00	0	3.00	330	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	60	0	0	0	0	Assume bike boulevard for 3 miles
Reconstruct Spruce Avenue between Cypress and Beech	143	0.06	39	0.00	0	0.00	0	0.00	0	0.14	46	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	12	0	0	0	0	Assume 300' of reconstruct = 0.06 miles long (SW and curb). Assume reconstruct 28' width = 0.14 lane-miles

Note: the cost estimates do not include right-of-way, engineering, wetland, or utility relocation costs.

APPENDIX D

Cost Estimates

Large Vehicle Alternate Routes Evaluation: City of Tillamook and Tillamook County TSPs

PREPARED FOR: Tillamook County TSP Technical Advisory Committee (TAC)
City of Tillamook TSP Project Advisory Committee (PAC)
ODOT Region 2

PREPARED BY: Kristin Austin, CH2M HILL
Tim Burkhardt, CH2M HILL

DATE: REVISED: June 10, 2003

Study Purpose

The purposes of this study are as follows:

- To clearly document the nature of the problem facing the City and the County relating to conflicts between trucks and other uses,
- To identify and evaluate proposed solutions, and
- To initiate discussion among the City of Tillamook, Tillamook County, ODOT, and other stakeholders regarding a preferred solution or solutions.

This evaluation of large vehicle alternate routes in the City of Tillamook and Tillamook County is intended to supplement previous studies and plans, including the Alternate Truck Route Section Conceptual Design report (OTAK, October 5, 2001), the City of Tillamook Town Center Plan (Pacific Rim Resources, 2001), and the Oregon Downtown Development Association Resource Team Report (ODDA, March 19-21, 2002). The results of this study will be incorporated into the City of Tillamook and Tillamook County Transportation System Plans (TSPs), which are currently being prepared.

Problem Statement

The City of Tillamook and Tillamook County have identified the need and desire to minimize the impacts of local and through freight truck traffic and large recreational vehicles in the downtown commercial area and in residential neighborhoods in the city.

The forestry and dairy industries are a significant part of the local economy and life in the city and the county. Large trucks are used to deliver raw materials to and distribute intermediate or finished products from the dairy and forestry industries in particular. Large trucks and recreational vehicles also pass through Tillamook on highways US 101 and OR 6 moving between origins and destinations outside of the immediate area.

Despite the economic benefits they bring, trucks and their presence on the constrained roadways of downtown Tillamook result in noise and dust, safety hazards, and wear and tear on the roadways. The log truck traffic in particular through the downtown area has

negative impacts on the safety and economic vitality of the City's downtown business core, while reducing traffic capacity for other vehicles. Log trucks on the adjacent residential streets present safety concerns for other users and a nuisance to residents and visitors due to noise and dust.

Numerous trucks pass through the downtown commercial area on US 101 and through the residential area bordered by US 101, OR 6, 12th Street and Marolf Loop. The locations of at least two large truck-traffic generators—the Tillamook Lumber Company (TLC) mill in downtown Tillamook and the Tillamook Cheese Factory just north of the City limits—in relation to highways US 101 and OR 6 and the competing needs of the residential, commercial, and industrial areas of the city exacerbate the problems.

The vast majority of log trucks today travel through the downtown area and to the TLC mill (OTAK, 2001). Of these, an estimated 70% are traveling to the TLC mill from U.S. 101 north of Tillamook, 20% come from OR 6 to the east, and 10% come from U.S. 101 to the south of the city. Trucks accessing the mill pass first through the city's downtown commercial area on U.S. 101 and then through a residential area on 10th Street. Finished lumber is generally transported from the TLC mill to the east on OR 6 to Portland by truck or on rail. Chips are generally transported by trucks to the north of Tillamook or south toward Salem.

A major part of the truck problem is that any proposed solution must be attractive to users and must be cost-effective. Alternate routes that require trucks to travel out-of-direction and/or increase travel time are unlikely to be used, given the economies of the freight industry (which depend largely on travel time) and the lack of ability to enforce an alternate route.

Evaluation Process

The potential Roadway Alternatives developed for this study were evaluated using a number of criteria including impacts, feasibility, and cost. Key steps in the evaluation process are as follows.

1. Finalize Potential Route List – The list of potential routes will be finalized after discussion at the Large Vehicle Alternate Route meeting on May 29, 2003. The list of routes that have been identified to date will be presented at this meeting.

2. Finalize Evaluation Criteria - At the Large Vehicle Alternate Route meeting on May 29, 2003, evaluation criteria will be presented. The evaluation criteria proposed for this study are intended to identify impacts and feasibility of each potential route.

3. Evaluate Solutions - Potential solutions will be evaluated using a qualitative rating system (+, 0, -) to document how well each potential route meets each criteria . In addition to the rating system, the constraints of each potential route will be presented. A preliminary, planning-level cost estimate also will be prepared for each potential solution or route.

   To simplify the development and evaluation of solutions, potential roadway improvements were evaluated in three segments: north of OR 6, south of OR 6, and TLC mill access. In addition, the different connection options between the north and south routes and the advantages and disadvantages of each were identified.

Based upon discussion at the May 29th meeting, routes that are not feasible or have significant impacts will be removed from the potential route list. For the routes that are determined to be feasible, potential connections between north and south routes will be explored. In addition, potential connections between the north-south routes and the mill will be further explored.

4. Document Results - The Large Vehicle Alternate Route Study will document constraints of each potential route. The Tillamook County and City of Tillamook Transportation System Plans, which will be adopted by the respective jurisdictions, will incorporate the results of this study.

Evaluation Criteria

Table 1 describes the evaluation criteria that were used in the analysis of each potential route.

TABLE 1
Evaluation Criteria

Goal	Rating	Project Criterion
Distance (Out of Direction Travel)	+	The potential route requires little out-of-direction travel for vehicles bypassing downtown Tillamook compared with other alternatives (i.e. shortest distance)
	0	The potential route requires minor out-of-direction travel for vehicles bypassing downtown Tillamook compared with other alternatives (i.e. medium distance)
	-	The potential route requires significant out-of-direction travel for vehicles bypassing downtown Tillamook compared with other alternatives (i.e. longest distance)
Commercial Use	+	The potential route does not impact commercial properties or uses, or impact economic viability of the downtown area. The potential route may increase economic viability and safety within the downtown area by re-routing trucks out of the commercial area.
	0	The potential route has minor impacts on commercial properties or uses (i.e., spot locations)
	-	The potential route significantly impacts commercial properties or uses, including economic viability and safety of the downtown area.
Residential Use	+	The potential route does not impact residential properties or uses.
	0	The potential route has negligible or minor impacts on residential properties or uses (i.e. spot locations)
	-	The potential route significantly impacts residential properties or uses (i.e. multiple locations, neighborhoods or clusters of homes). The potential route may lead to economic loss, decreases in property value, and/or safety concems for neighborhoods or clusters of homes.
Public Use (i.e. schools, parks, fairgrounds)	++	The potential route does not impact public use facilities (e.g., schools, parks, downtown), leading to increased safety for the public.
	+	The potential route impacts 1 public use facility.
	0	The potential route impacts 2 public use facilities.

TABLE 1
Evaluation Criteria

Goal	Rating	Project Criterion
	-	The potential route impacts 3 public use facilities.
	- -	The potential route impacts 4 or more public use facilities.
Farmland Impacts (to include impacts on EFU lands)	+	The potential route does not impact farmland
	0	The potential route has negligible impacts on farmland
	-	The potential route has moderate impacts on farmland. The project might require a goal exception.
	- -	The potential route significantly impacts farmland, and would require major right-of-way takes or over significant lengths of the route or removal of at least one farm structure. The project might require a goal exception.
Wetland/Floodplain	+	The potential route does not impact wetlands or floodplain areas
	0	The potential route has minor impacts on wetlands or floodplain areas
	-	The potential route has moderate impacts on wetlands or floodplain areas. The project might require a goal exception.
	- -	The potential route significantly impacts existing wetlands or floodplain areas over significant lengths of the route and may require construction of new sections of roadway within wetland/floodplain areas. The project might require a goal exception.
Coordination/Policy	+	The potential route is consistent with all committed ODOT projects or policies.
	0	The potential route is consistent with some committed ODOT projects or policies
	-	The potential route is not consistent with committed ODOT projects or policies.
Existing Roadway Conditions	+	The potential route can be implemented without improvements to existing roadways along the route
	0	The potential route can be implemented with negligible improvements to existing roadways along the route (i.e. minor shoulder widening)
	-	The potential route would require moderate improvements to existing roadways (i.e. shoulder widening, bridge repair, short sections of new roadway, upgraded rail crossings)
	- -	The potential route would require significant construction (i.e. new bridges, major new sections of roadway, major widening, major intersection improvements)
Truck Traffic Origin/Destination	+	The potential route accommodates a major truck traffic origin/destinations identified for the particular segment (i.e. Tillamook Cheese Factory, Tillamook Lumber Company Mill, Port of Tillamook Bay Industrial Area).
	-	The potential route does not accommodate any truck traffic origin/destination locations identified for this segment.

Relative Cost	+	The cost of projects necessary for the route is in the bottom third of all potential routes included in the analysis
	0	The cost of projects necessary for a route is in the middle third of all potential routes included in the analysis
	-	The cost of projects necessary for a route is in the top third of all potential routes included in the analysis

Potential Solutions

Based on the problem statement above, the ideal solution or solutions to this problem would:

- Improve truck and other large vehicle movements through the City of Tillamook
- Improve access to the Tillamook Lumber Company Mill
- Be cost-effective
- Be attractive to users (e.g., minimize out-of-direction travel and/or trip time)
- Minimize adverse impacts of truck traffic on the commercial and residential areas of Tillamook to ensure the future economic vitality and livability of the city.

Potential solutions are divided into Roadway Alternatives (Existing Infrastructure, North Segment Alternatives, South Segment Alternatives, Mill Access Alternatives, and North-South Connections) and Other (Non-Roadway) Alternatives. The Roadway Alternatives are listed below and illustrated on Figure 1 (North Segment Alternatives), Figure 2 (South Segment Alternatives), and Figure 3 (Mill Access Alternatives), which are attached at the end of this memo. The projects that would likely be required for each alternative, the constraints, and the results of the Roadway Alternatives evaluation are described in Appendix A, also attached to this memo.

The Roadway Alternatives differ in their impacts to residential areas, public facilities, wetland/floodplain areas, or farmland areas. In addition, each alternative serves different truck origin/destinations and some result in greater out-of-direction travel. Because of the variation in impacts and existing roadway conditions, the estimated costs of the potential routes vary greatly.

Roadway Alternatives

Existing Infrastructure

The existing infrastructure alternatives assume that trucks will continue to use state highways in and around Tillamook to access truck origin/destinations. These alternatives would not require out of direction travel for trucks and would accommodate most of the truck origin/destinations. The alternatives would have no farmland or wetland impacts and would be consistent with ODOT committed projects and policies. The disadvantages of these alternatives is that they would have significant commercial and residential impacts, and would not address (or only minimally address) safety and other concerns caused by

large trucks travelling through the downtown area. Use of existing infrastructure by large vehicles within Tillamook would compound the operational deficiencies at the intersection of US 101 at OR 6.

Under the No-Build Alternative, which assumes existing conditions, trucks would continue to pass through the constrained downtown area. Under the Modified No-Build Alternative, a number of improvements would be made to address deficiencies associated with the constrained geometry in the downtown area.

- NB-1 (No-Build): Maintain existing roadway system and truck routing.
- NB-2 (Modified No-Build): Construct improvements along existing segments of US 101 and OR 6 to accommodate large vehicles on state highways in Tillamook. The following improvements or segment modifications could be considered, as suggested at the Large Vehicle Alternate Route meeting on May 29, 2003:

    1. Improvements at the intersection of OR 6 with US 101. This intersection does not meet Oregon Highway Plan (OHP) mobility standards. As specified in the City of Tillamook TSP, major improvements will be necessary at this intersection. Possible solutions include additional capacity (i.e., channelized westbound right turn lane and downstream receiving lane) or an interchange. The historic bridge along US 101 over the Hoquarten Slough would likely need to be widened to accommodate additional northbound traffic on U.S. 101. Improvements at this intersection would likely have impacts on surrounding properties, require right-of-way acquisition, and possibly require removal of existing structures.

    2. To better accommodate trucks, parking could be eliminated in selected locations where necessary along the US 101 couplet (Main/Pacific). By removing parking on at least one side of the road, wider travel lanes, sidewalks and/or bike lanes could possibly be provided. The wider travel lanes would facilitate truck turning. Safety would likely be improved in the downtown area, as parking removal would reduce distractions and conflicts between modes. Parking removal could be considered at intersections to accommodate truck turn movements.

    3. Two-way traffic could be reestablished along both segments of the US 101 Couplet in downtown Tillamook (Main Avenue and Pacific Avenue). Large vehicles could then be restricted to one side of the couplet, reducing conflicts between trucks and automobiles. This modification would require improvements at the southern merge point of the couplet. Improvements would also be required at the north end of the couplet (including the intersections of Main and Pacific with 1st Street) to allow two-way traffic on 1st Street. A major constraint to this option is that vehicle capacity on the state highway would be significantly reduced. This option could work only if capacity meets OHP requirements.

    4. Turn movements could be restricted along 3rd Street at US 101. To implement this modification, two-way traffic would need to be reestablished on 1st Street (OR 6). This would mean vehicles traveling on U.S. 101 heading east on OR 6 would make this turn at 1st Street instead of 3rd. This would reduce the turning conflicts at 3rd Street and the need for geometric changes at that location and remove some truck

traffic from this two-block stretch of the highway. It would also mean that parking on 1st Street would need to be reduced or eliminated.

5. The Modified No-Build could also include changes to the TLC Mill access, such as improved access to the north and improved geometric conditions at the west side access.

Other improvements also may be possible or recommended for a Modified No Build option. A comprehensive review of this option should be conducted as part of subsequent study.

North of OR 6 (see Figure 1)

The north segment alternatives assume that trucks will use an alternate route to US 101 (north of OR 6) and OR 6 in and around Tillamook. These alternatives would require significant out of direction travel for trucks, but most would provide access to the Tillamook Cheese Factory on Latimer Road. Most of the north segment alternatives would have farmland and wetland impacts, and would require right-of-way acquisition. The advantages of these alternatives is that they would have very little commercial and residential impacts, and would address safety concerns caused by large trucks travelling through the downtown area. Construction of an alternate route would minimize truck movements at the intersection of US 101 at OR 6, which experiences operational deficiencies under existing conditions.

- N-1: Latimer Road/Wilson River Loop
- N-2: Latimer Road/New Section of Roadway Connecting Latimer Road and OR 6 (e.g., located somewhere between POTB railroad and existing Wilson River Loop)
- N-3: Latimer Road/Sollie Smith Road/Schild Road
- N-4: Latimer Road/Sollie Smith Road/Olsen Road

The following alternative was considered in the evaluation, but is not recommended for further study due to a fatal flaw:

- N-5: Wilson River Loop from US 101 to OR 6. The East-West section of Wilson River Loop floods and is therefore not considered a feasible alternative.

South of OR 6 (see Figure 2)

The south segment alternatives assume that trucks will use an alternate route to US 101 (south of OR 6) and OR 6 within the vicinity of Tillamook. These alternatives would require significant out of direction travel for trucks and generally would not provide direct access to all the identified truck origin/destination points south of OR 6. Most of the south segment alternatives would have farmland and wetland impacts, and would require right-of-way acquisition. Also, several of the alternatives have potentially large impacts on public use sites such as schools. The advantages of these alternatives is that they would have only minor commercial and residential impacts, and some alternatives would address safety concerns caused by large trucks travelling through the downtown area. Construction of an alternate route would minimize truck movements at the intersection of US 101 at OR 6, which experiences operational deficiencies under existing conditions.

- S-1: McCormick Loop/Schild Road
- S-2: Long Prairie Road/Trask River Road/Olsen Road
- S-3: Long Prairie Road/Connection between Long Prairie Road and McCormick Loop /McCormick Loop/Schild Road
- S-4: Connection between 12th Street and US 101/12th Street/Marolf Loop/3rd Street/Wilson River Loop*
- S-5: Connection between 12th Street and US 101/12th Street/Connection between 12th Street and McCormick Loop/McCormick Loop/Schild Road*
- S-6: Connection between 12th Street and US 101/12th Street/Connection between 12th Street and Trask River Road/ Trask River Road/Olsen Road*
- S-7: Connection between 12th Street and US 101/12th Street/Marolf Loop/Marolf Loop Extension*
- S-8: McCormick Loop/Connection between McCormick Loop and Trask River Road/Trask River Road/Olsen Road
- S-9: Long Prairie Road/Connection between McCormick Loop and Long Prairie Road/McCormick Loop/Connection between McCormick Loop and Trask River Road/Trask River Road/Olsen Road
- S-10: McCormick Loop/Connection between McCormick Loop and Marolf Loop/Marolf Loop/Connection between 3rd Street and OR 6. This alternative could also connect with Long Prairie Road to the south.

*For the connection between US 101 and 12th Street, two options are possible. The first option is a new east-west section of roadway from Miller Avenue to US 101. The second option is a new north-south section of roadway from 12th Street to US 101. For the purposes of this study, no attempt is made to distinguish between these two options.

Tillamook Lumber Company Mill Access (see Figure 3)

The primary truck access to the TLC mill is on 10th Street east of US 101. The possibility of moving the mill access point to Evergreen Drive or 3rd Street has been discussed in previous studies. The basic alternatives for truck access to the TLC mill are as follows:

- No-Build (existing condition). Trucks access the mill from U.S. 101 via 10th Street and exit the mill using 3rd Street and Delmonte. Although it is discouraged, other local streets also are sometimes used to reach the 10th Street entrance to the mill.
- M1-A (North/East Access via Existing Local Streets). Relocate the mill access to 3rd Street and construct improvements from new entrance to the large vehicle alternate route to the east. This alternative would likely require internal reconfiguration of the mill. (Evergreen Drive, a residential street, was not considered a feasible route and is therefore not considered here.)

- M1-B (South Access via Existing Local Streets). Relocate the mill access to 12th Street and construct improvements from new entrance to the large vehicle alternate route to the east. This alternative would likely require internal reconfiguration of the mill.
- M1-C (North Access to OR 6 via 3rd Street). As described in the Truck Route Section Conceptual Design Report (OTAK, 2001), the access point could be relocated to 3rd Street. Access from OR 6 could be provided by extending Evergreen Drive from OR 6 to 3rd Street. This access could be provided via a ramp from OR 6 or as an at-grade connection.
- M2 (North Access via Dedicated Route). Construct a new section of road from the mill to North US 101 along the Port of Tillamook Bay Railroad tracks.
- M3 (South Access via Local Streets or Dedicated Route). Construct a new section of road from the mill to South US 101. This alternative could be constructed as an extension of 12th Street west to US 101, as a new section of roadway directly south of mill to US 101, or as a new section of roadway along the Port of Tillamook Bay Railroad tracks.

North-South Connections

As described above, the alternative routes north and south of OR 6 were evaluated independently. However, in order for the large vehicle alternate route to function smoothly, the north and south segments must connect to each other. This section of the study addresses connectivity issues between the potential north and south segments, including the potential interchange at OR 6 and Wilson River Loop. This analysis makes the following two assumptions:

- A route with no 90-degree turns will function more smoothly than a route that requires large trucks to make turn movements at intersections.
- A continuous route without an at-grade crossing on OR 6 will function more smoothly than a route that requires large trucks to stop at an at-grade intersection (signalized or unsignalized) along OR 6.

Given the roadway segment improvements identified above, the connection options can be divided into two basic types:

- **Direct Connection.** The north and south routes can be connected through a single intersection (signalized, unsignalized) or a single interchange. If the preferred north and south routes do not connect under existing conditions, the possibility of connecting them at a single point could be considered (i.e. realigning the roadway segments near OR 6 to a single point).
- **Indirect Connection.** The north and south routes can be connected through a combination of intersections, interchanges, overpasses, or frontage roads.

Tables 2 and 3 summarize the advantages and disadvantages of the various connection options.

TABLE 2
Direct Connection Options

Option	Advantages	Disadvantages	Feasibility/Notes
Unsignalized Intersection	Low cost Low wetland, environmental, and farmland impacts Improved mobility over indirect connection	Safety issues associated with at-grade intersection Capacity issues (i.e. the intersection may not meet OHP mobility standards)	An unsignalized intersection may result in high crash rates (e.g., at Wilson River Loop at OR 6) The intersection improvements may require right-of-way acquisition and improvements on OR 6 and the minor approaches (i.e. addition of turn lanes)
Signalized Intersection	Low cost in comparison to interchange Low wetland, environmental, and farmland impacts Improved mobility over indirect connection	Safety issues associated with signal in rural area Safety issues associated with at-grade intersection	The intersection would need to meet signal warrants The intersection improvements may require right-of-way acquisition and improvements on OR 6 and the minor approaches (i.e. addition of turn lanes)
Interchange	Improved safety Improved capacity Improved mobility over indirect connection	High cost High wetland, environmental, and farmland impacts	Construction of an interchange would require right-of-way acquisition An interchange is already funded through the STIP at the intersection of OR 6 and Wilson River Loop
Realign sections of the north and south routes to create a single connection point	Improved safety over an indirect connection. Improved mobility over an indirect connection	High cost through road realignments High wetland, environmental, and farmland impacts	The intersection type for this option could include an unsignalized or signalized intersection, or an interchange. The realignments would require right-of-way acquisition. Access management and opportunities to reduce access points on OR 6 should be considered with this option.

TABLE 3
Indirect Connection Options

Option	Advantages	Disadvantages	Feasibility/Notes
Two Interchanges	Improved safety Improved capacity and mobility Interchanges could be connected using 3rd Street or OR 6, which would decrease wetland, environmental, and farmland impacts associated with frontage road construction	High cost High wetland, environmental, and farmland impacts due to interchange construction and frontage road construction Decreased mobility over direct connection Safety would be impacted if interchanges are connected with 3rd Street due to public use and residential impacts	Construction of an interchange would require right-of-way acquisition An interchange is already funded through the STIP at the intersection of OR 6 and Wilson River Loop Connection of the two interchanges could be provided using OR 6, frontage roads along OR 6, or 3rd Street. Interchange spacing standards on Regional Highways as specified in OHP (Rural = 3 miles, Urban = 1.9 miles)
Two Signalized Intersections	Low cost in comparison to interchange options Low wetland, environmental, and farmland impacts	Safety issues associated with signals in rural area Safety issues associated with at-grade intersections Decreased mobility over direct connection	The intersections would need to meet signal warrants The intersection improvements may require right-of-way acquisition and improvements on OR 6 and the minor approaches (i.e. addition of turn lanes) Signal spacing standards (0.5 mile minimum)
Two Unsignalized Intersections	Low cost Low wetland, environmental, and farmland impacts	Safety issues associated with at-grade intersections Capacity Issues (i.e., the intersections may not meet OHP mobility standards) Decreased mobility over direct connection	Unsignalized intersections may result in high crash rates (e.g., Wilson River Loop at OR 6) The intersection improvements may require right-of-way acquisition and improvements on OR 6 and the minor approaches (i.e. addition of turn lanes)
Combine Interchange with Overpass or At-grade Intersection. The intersections could be connected using OR 6, 3rd Street, or frontage roads along OR 6.	Improved safety over at-grade intersections Interchanges could be connected using 3rd Street or OR 6, which would decrease wetland, environmental, and farmland impacts associated with frontage road construction	Decreased safety over interchanges Decreased mobility over direct connection High cost High wetland, environmental, and farmland impacts Safety would be impacted if interchanges are connected with 3rd Street due to public use and residential impacts	Construction of an interchange, overpass, or new frontage roads would require right-of-way acquisition An interchange is already funded through the STIP at the intersection of OR 6 and Wilson River Loop Connection of the two intersections could be provided along OR 6, with frontage roads along OR 6, or 3rd Street

As summarized in Tables 2 and 3, there are advantages and disadvantages of each connection type. The feasibility of the connection types identified above differs depending on which north and south routes that are considered.

However, in terms of safety, mobility and cost, a direct connection is recommended over an indirect connection. Of the direct connection types identified above, an interchange would provide improved mobility and function more smoothly than a signalized or unsignalized intersection. A signalized intersection along the rural section of OR 6 east of Tillamook would not meet driver expectations and therefore is not recommended. An unsignalized intersection also is not recommended due to safety and operational concerns.

If an indirect connection is required to link a north and south route, a single interchange with frontage roads and a potential overpass or at-grade intersection would be recommended. Two interchanges are unlikely to be feasible due to ODOT spacing standards. Two signals would not meet driver expectations due to the rural nature of OR 6 east of Tillamook. Two unsignalized intersections would not be recommended due to safety and operational concerns.

Other (Non-Roadway) Alternatives

The following non-roadway alternatives can be considered in conjunction with the roadway options.

Land Use

- Relocate TLC mill to the POTB industrial area. Assuming the roadway alternative improves access to the POTB area, this alternative would substantially reduce adverse impacts from mill truck in downtown and the residential neighborhoods. However, truck traffic would still need to travel to and from the POTB area; without an alternate route, trucks would still pass through downtown on U.S. 101. The existing TLC mill site could be redeveloped with a mix of residential and commercial uses, expanding the city's supply of new area for development that is within the urban growth boundary and outside the floodplain. Constraints include high cost and potential environmental clean-up at mill site. FEMA and/or federal economic development grant funding possibilities should explored.

Inter-Modal

- Work to shift a portion of local and regional truck traffic to other modes (e.g., rail and barge). This option would make use of existing infrastructure that is currently underused. Because the railroad tracks are generally located away from residential and commercial sites, this option would have fewer adverse impacts to adjacent land uses.

Education and Enforcement (can be combined with any other alternative)

- Enforce existing traffic speeds on US 101. Target truck traffic if possible.
- Work with truck origin and destination businesses to educate truck drivers about alternate routes and encourage them to use the routes.
- In the long-term, identify strategies to make the alternate routes mandatory for trucks over a certain size or weight.

Next Steps

As described above, the purpose of this study is to identify and evaluate potential alternate routes and solutions to truck conflicts in the vicinity of Tillamook. This study was reviewed by the City of Tillamook, Tillamook County, ODOT, and other interested stakeholders to initiate discussion regarding a preferred solution. However, to develop the potential solutions to the level of detail needed to arrive at a preferred alternative, a refinement study is recommended. At a minimum, the study (or studies) would include the following components:

- Stakeholder Involvement and Agency Coordination - Develop a public involvement process that includes all interested stakeholders throughout the community, including the trucking industry, the Tillamook Lumber Company, the Port of Tillamook Bay, the Tillamook County Creamery Association, residents, business owners, and affected public agencies (e.g., City of Tillamook, Tillamook County, ODOT, TCTD). The process would include regular meetings of an advisory committee that includes these stakeholders.

- Weighted Evaluation Process - As documented in this study, each potential route or solution has different impacts (i.e. wetland/floodplain, farmland, residential, commercial, public use). Therefore, selection of one alternative over another results in tradeoffs in community values. The refinement plan should also include a weighting exercise to determine the most important community values (for example, are residential impacts more or less important than business impacts or environmental impacts or cost?). The results of this process should be used to determine the preferred alternative.

- Additional Alternatives - A number of alternatives were developed and evaluated as part of this study. However, additional routes also might be feasible. The refinement study should review the proposed alternatives with stakeholders to determine whether any additional alternatives should be proposed

- Detailed Alternatives/Impacts Analysis - For each potential route identified in this study, general constraints and impacts were documented. The refinement plan should include a more detailed analysis, including determining the number of structures that will be impacted, the amount and cost right-of-way acquisition, and wetland/floodplain impacts. The refinement plan should also include a more detailed cost estimate for the preferred alternative. Based on the discussion at the May 29, 2003, Large Vehicle Alternate Route Evaluation meeting, priorities for future study include alternatives that minimize out-of-direction travel and that are cost-effective.

- Internal Truck Traffic Study at the Tillamook Lumber Company Mill – This study should be conducted to determine the feasibility of internal reconfiguration at the existing mill site, including entry and exit point modifications. This study should include projected truck volumes travelling to and from the mill, circulation needs, and truck origin/destinations. The City of Tillamook should coordinate with the Tillamook Lumber Company Mill to secure funding for this study.

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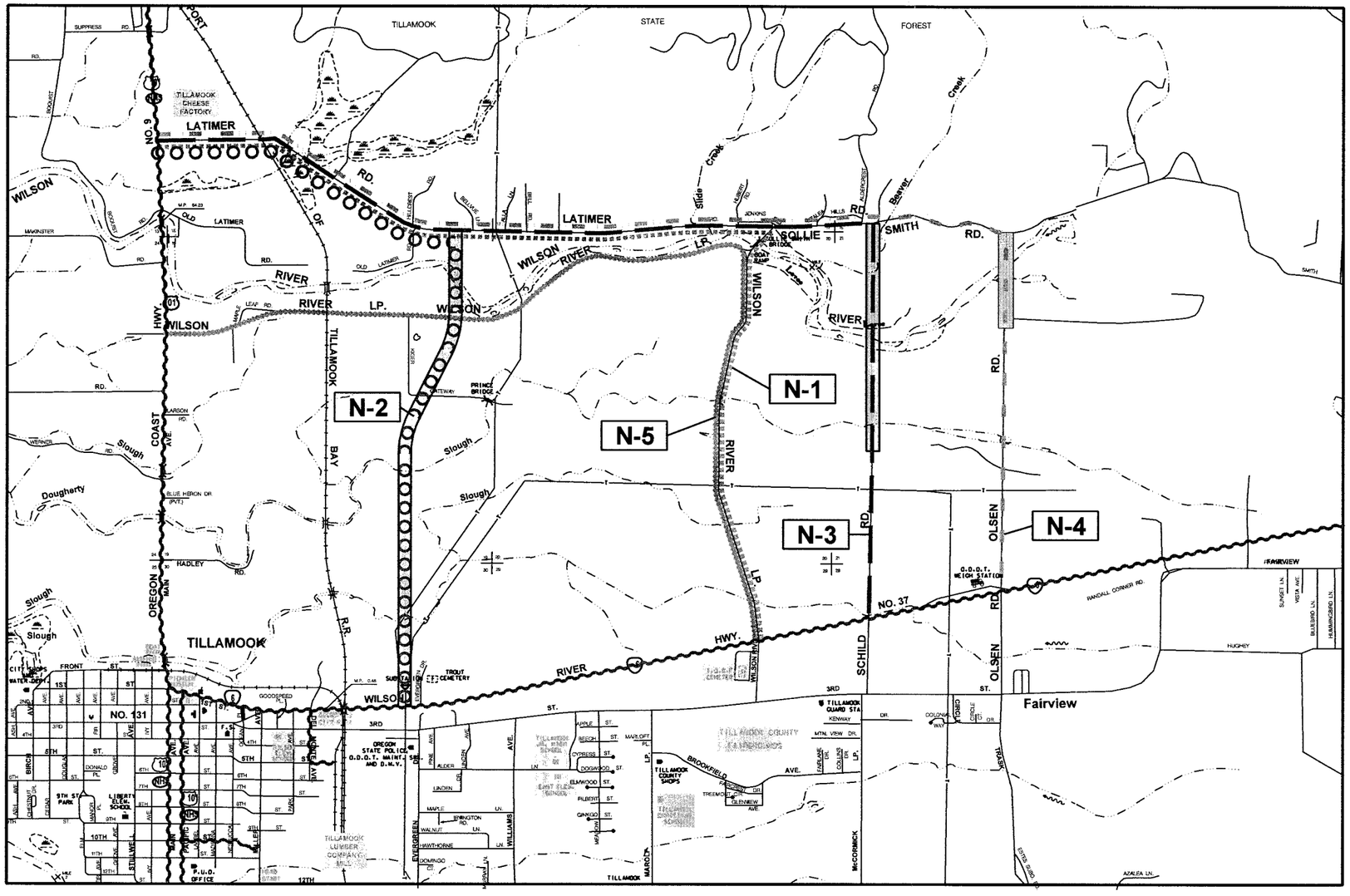


LARGE VEHICLE ALTERNATE ROUTE STUDY

NORTH SEGMENTS
Figure 1

N

1000 0 1000 2000

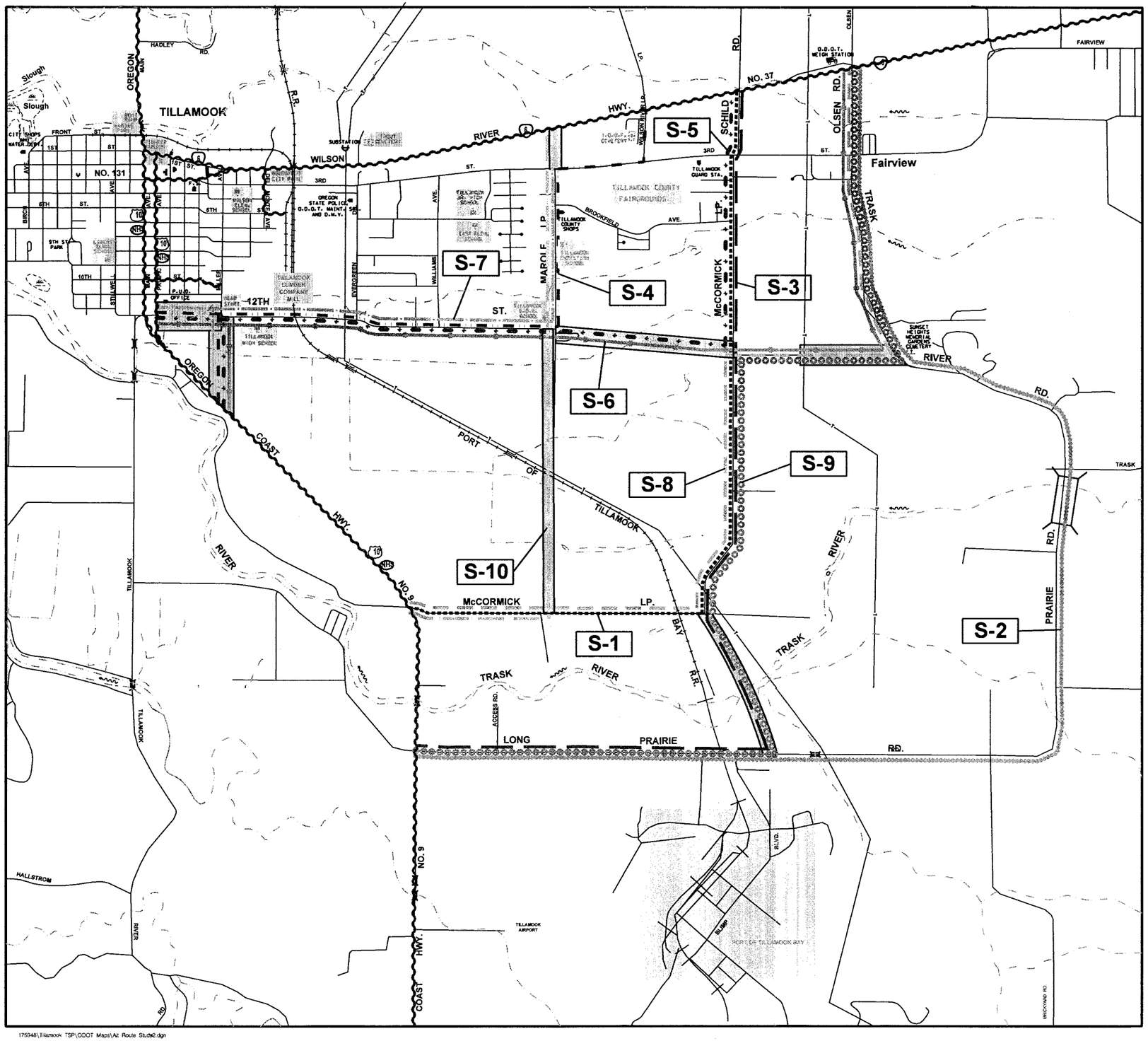
Scale In Feet

LEGEND

- N-1
- N-2
- N-3
- N-4
- N-5
- NO BUILD
- NEW SECTION OF ROADWAY
- TILLAMOOK LUMBER COMPANY MILL — SIGNIFICANT TRUCK ORIGIN / DESTINATION
- TILLAMOOK COUNTY FAIRGROUNDS — PUBLIC USE FEATURE

LARGE VEHICLE ALTERNATE ROUTE STUDY

SOUTH SEGMENTS
Figure 2



1000 0 1000 2000

Scale in Feet

N

LEGEND

- S-1
- S-2
- S-3
- S-4
- S-5
- S-6
- S-7
- S-8
- S-9
- S-10
- NO BUILD
- NEW SECTION OF ROADWAY
- SIGNIFICANT TRUCK ORIGIN / DESTINATION
- PUBLIC USE FEATURE

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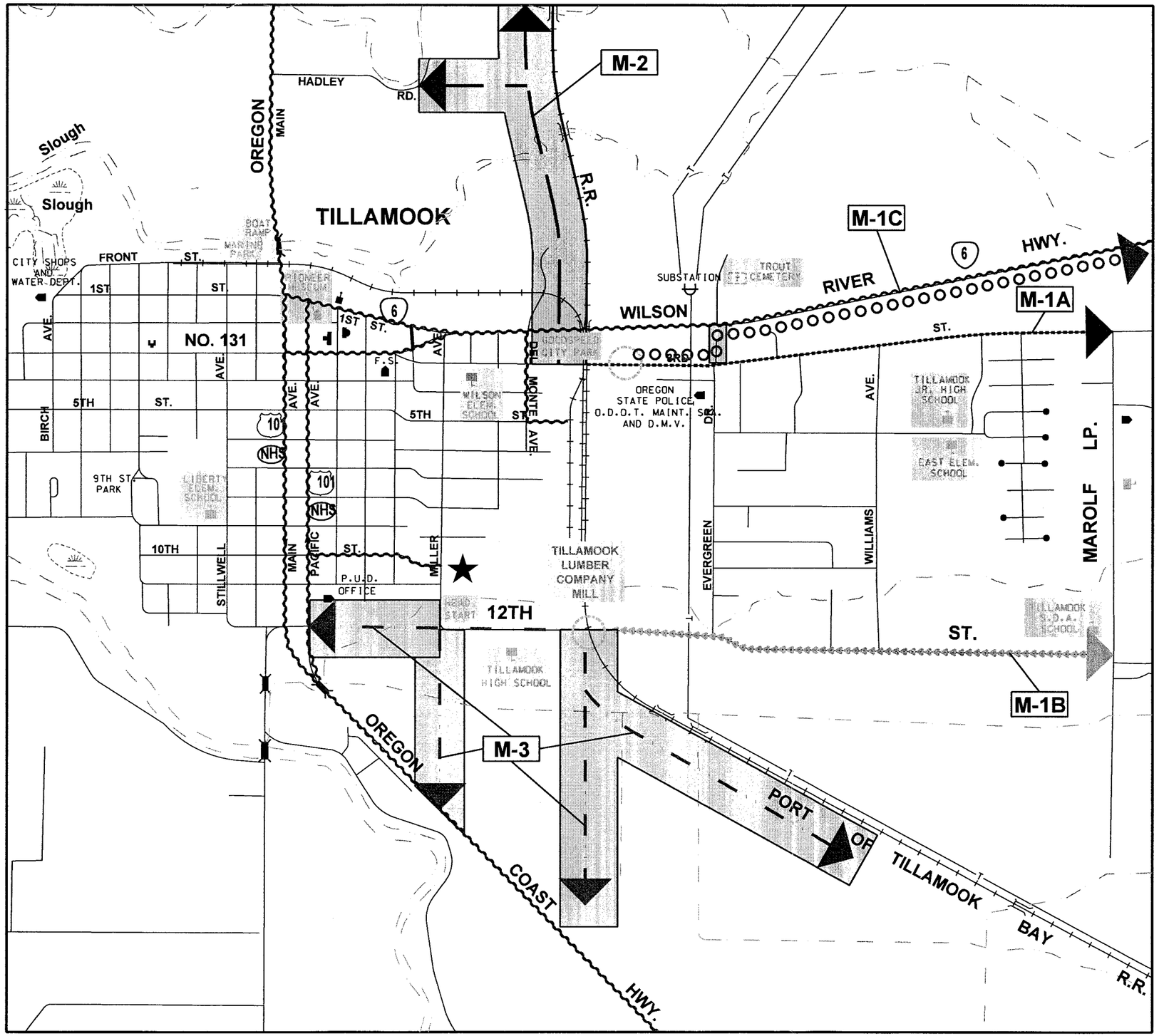
LARGE VEHICLE ALTERNATE ROUTE STUDY

MILL ACCESS
Figure 3



N

1000 0 1000 2000
Scale In Feet

LEGEND

- M-1A
- M-1B
- M-1C
- M-2
- M-3
- NO BUILD
- NEW SECTION OF ROADWAY
- SIGNIFICANT TRUCK ORIGIN / DESTINATION
- PUBLIC USE FEATURE
- EXISTING ACCESS POINT
- POTENTIAL NEW ACCESS POINT

Tillamook County Transportation System Plan:
DRAFT Large Vehicle Alternate Route Study

				Evaluation Criteria															Rating										
#	Roadway Segment Alternatives	Improvements	Constraints	Distance (Out of Direction Travel)	Commercial Impacts	Residential Impacts	Public Use Impacts	Farmland Impacts	Wetland/Floodplain Impacts	Coordination/Policy	Existing Roadway Conditions	Truck Traffic Origin/Destination	Cost	Total Cost ($)	Cost($) Without Committed Projects	Total Length	Total Public Use Impacts	Truck Traffic Origin/Destination	Distance (Out of Direction Travel)	Commercial Impacts	Residential Impacts	Public Use Impacts	Farmland Impacts	Wetland/Floodplain Impacts	Coordination/Policy	Existing Roadway Conditions	Truck Traffic Origin/Destination	Cost	Total
N-4	Latimer Road/Sollie Smith Road/Olsen Road	Shoulder widening on Latimer Road, Shoulder widening on Sollie Smith Road, Major widening on Olsen Road, new section of roadway connecting Olsen Road with Sollie Smith Road (including at least 1 new bridge), Improvements at rail crossing on Latimer Road, Improvements at Latimer Road/Wilson River Loop intersection, improvements at Tillamook Cheese Factory Entrance on Latimer Road, improvements at Olsen Road/OR 6 intersection, improvements at US 101/Latimer Road intersection	Minor residential impacts (Latimer Road, Sollie Smith Road, and Olsen Road), Existing Roadway Conditions, Major Wetland and Farmland Impacts, railroad crossing	-	Does not differentiate potential routes (+)	Does not differentiate potential routes (0)	Does not differentiate potential routes (++)	- -	--	0	--	+	0	$3,500,000	$3,200,000	3.7 miles	0	1	0	4	0	4	0	0	2	0	4	2	16
South Segment																														
S-1	McCormick Loop/Schild Road	Shoulder widening on McCormick Loop, Shoulder widening on Schild Road, improvements at US 101/McCormick Loop intersection, improvements at 3rd Street/McCormick Loop/Schild Road intersection, improvements at OR 6/Schild Road intersection, improvements at rail crossing on McCormick Loop	Minor Residential Impacts (McCormick Loop and Schild Road), Minor wetland and farmland impacts, Might require removal of farm structures, Existing Roadway Conditions, railroad crossing	0	Does not differentiate alternatives (+)	0	++	-	-	-	-	-	+	$2,000,000	$2,000,000	2.8 miles	0	0	2	4	2	0	1.33	1.33	0	1.33	0	4	15.99
S-2	Long Prairie Road/Trask River Road/Olsen Road	Shoulder widening on Long Prairie Road, Shoulder widening on Trask River Road, Shoulder widening on Olsen Road, Bridge improvements on Long Prairie Road, improvements at US 101/Long Prairie Road intersection, improvements at 3rd Street/Olsen Road/Trask River Road intersection, improvements at OR 6/Olsen Road intersection	Minor Residential Impacts (Long Prairie Road, Trask River Road, and Olsen Road), Minor farmland and wetland impacts, Existing Roadway Conditions	-	Does not differentiate alternatives (+)	0	++	-	-	0	-	+	-	$4,600,000	$3,600,000	4.8 miles	0	1	0	4	2	0	1.33	1.33	2	1.33	4	0	15.99
S-3	Long Prairie Road/Connection between Long Prairie Road and McCormick Loop /McCormick Loop/Schild Road	Shoulder widening on Long Prairie Road, new section of road between Long Prairie Road and McCormick Loop (including new bridge), Shoulder widening on McCormick Loop, Shoulder widening on Schild Road, improvements at US 101/Long Prairie Road intersection, improvements at 3rd Street/McCormick Loop/Schild Road intersection, improvements at OR 6/Schild Road intersection	Minor Residential Impacts (Long Prairie Road, McCormick Road, Schild Road), Major farmland and wetland impacts, Existing Roadway Conditions, Might require removal of farm structures	0	Does not differentiate alternatives (+)	0	++	--	--	0	--	+	-	$4,200,000	$3,300,000	3.5 miles	0	1	2	4	2	0	0	0	2	0	4	0	14
S-4	Connection between 12th Street and US 101/12th Street/Marolf Loop/3rd Street/Wilson River Loop	New section of roadway between 12th Street and US 101, Shoulder widening on 12th Street, Shoulder widening on Marolf Loop, Shoulder widening on 3rd Street, shoulder widening on Wilson River Loop, improvements at new US 101 intersection, improvements at 3rd Street/Marolf Loop intersection, improvements at 3rd Street/Wilson River Loop intersection, improvements at OR 6/Wilson River Loop intersection, improvements at rail crossing on 12th Street	Major Residential Impacts (12th Street, Marolf Loop), Existing Roadway Conditions, Public Use impacts, rail crossing, Major wetland impacts, Minor farmland impacts	+	Does not differentiate alternatives (+)	-	--	Varies - to --	--	0	-	+	0	$2,800,000	$2,800,000	2.6 miles	5	1	4	4	0	0	0	0	2	1.33	4	2	17.33

Tillamook County Transportation System Plan:
DRAFT Large Vehicle Alternate Route Study

				Evaluation Criteria																Rating										
#	Roadway Segment Alternatives	Improvements	Constraints	Distance (Out of Direction Travel)	Commercial Impacts	Residential Impacts	Public Use Impacts	Farmland Impacts	Wetland/Floodplain Impacts	Coordination/Policy	Existing Roadway Conditions	Truck Traffic Origin/Destination	Cost	Total Cost ($)	Cost($) Without Committed Projects	Total Length	Total Public Use Impacts	Truck Traffic Origin/Destination	Distance (Out of Direction Travel)	Commercial Impacts	Residential Impacts	Public Use Impacts	Farmland Impacts	Wetland/Floodplain Impacts	Coordination/Policy	Existing Roadway Conditions	Truck Traffic Origin/Destination	Cost	Total
Existing Infrastructure																														
NB-1	No-Build	None	Commercial and residential impacts. Congestion in downtown. Safety issues associated with public use impacts	+	-	-	Varies - to --	+	+	+	--	+	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	-	-	-	-	-	-	-	-	-
NB-2	Modified No-Build	Make improvements to existing infrastructure (I.e. intersection of US 101 and OR 6, US 101 in downtown Tillamook) to better accommodate trucks.	Commercial and residential impacts. Safety issues associated with public use impacts	+	-	-	Varies - to --	+	+	+	--	+	Not Estimated	N/A	N/A	N/A	N/A	N/A	-	-	-	-	-	-	-	-	-	-	-
North Segment																														
N-1	Latimer Road/Wilson River Loop	Shoulder widening on Latimer Road, Shoulder widening on Wilson River Loop, Bridge improvments on Wilson River Loop Road, Improvements at rail crossing on Latimer Road, Improvements at Latimer Road/Wilson River Loop intersection, improvements at Tillamook Cheese Factory Entrance on Latimer Road, improvements at OR 6/Wilson River Loop intersection, improvements at US 101/Latimer Road intersection	Minor residential impacts on Latimer Road, Bridges on Wilson River Loop, Existing Roadway Conditions, Minor Wetland Impacts, Minor Farmland Impacts, railroad crossing	0	Does not differentiate potential routes (+)	Does not differentiate potential routes (0)	Does not differentiate potential routes (++)	-	-	+	-	+	+	$2,500,000	$2,200,000	3.2 miles	0	1	2	4	0	4	1.33	1.33	4	1.33	4	4	25.99
N-2	Latimer Road/New Section of Road between Latimer Road and OR 6	Shoulder widening on Latimer Road, new section of roadway connecting Latimer Road and OR 6 (including 3 new bridges), Improvements at rail crossing on Latimer Road, new intersection with OR 6, improvements at US 101/Latimer Road intersection	Minor residential impacts on Latimer Road, Existing Roadway Conditions, Major Wetland and Farmland Impacts, railroad crossing, right-of-way acquisition	+	Does not differentiate potential routes (+)	Does not differentiate potential routes (0)	Does not differentiate potential routes (++)	--	--	-	--	+	-	$5,400,000	$5,000,000	2.5 miles	0	0	4	4	0	4	0	0	0	0	4	0	16
N-3	Latimer Road/Sollie Smith Road/Schild Road	Shoulder widening on Latimer Road, Shoulder widening on Sollie Smith Road, Major widening on Schild Road, new section of roadway connecting Sollie Smith Road with Schild Road (including 2 new bridges), Improvements at rail crossing on Latimer Road, Improvements at Latimer Road/Wilson River Loop intersection, improvements at Tillamook Cheese Factory Entrance on Latimer Road, improvements at Schild Road/OR 6 intersection, improvements at US 101/Latimer Road intersection	Minor residential impacts on Latimer Road and Sollie Smith Road, Existing Roadway Conditions, Major Wetland and Farmland Impacts, Would require removal of at least one structure on Schild Road, railroad crossing	0	Does not differentiate potential routes (+)	Does not differentiate potential routes (0)	Does not differentiate potential routes (++)	--	--	0	--	+	-	$4,500,000	$4,200,000	3.4 miles	0	1	2	4	0	4	0	0	2	0	4	0	16

Tillamook County Transportation System Plan:
DRAFT Large Vehicle Alternate Route Study

				Evaluation Criteria															Rating										
#	Roadway Segment Alternatives	Improvements	Constraints	Distance (Out of Direction Travel)	Commercial Impacts	Residential Impacts	Public Use Impacts	Farmland Impacts	Wetland/Floodplain Impacts	Coordination/Policy	Existing Roadway Conditions	Truck Traffic Origin/Destination	Cost	Total Cost ($)	Cost($) Without Committed Projects	Total Length	Total Public Use Impacts	Truck Traffic Origin/Destination	Distance (Out of Direction Travel)	Commercial Impacts	Residential Impacts	Public Use Impacts	Farmland Impacts	Wetland/Floodplain Impacts	Coordination/Policy	Existing Roadway Conditions	Truck Traffic Origin/Destination	Cost	Total
M-1A	Relocate Access to 3rd Street. Construct improvements from the new mill entrance to the large vehicle alternate route to the east.	New Access to the mill, possible internal reconfiguration of the mill, improvements on 3rd Street, improvements on other local streets to connect with truck route	Residential impacts, public use impacts, existing roadway conditions, right-of-way	-	0	-	--	+	+	-	-	N/A	+	Not Estimated	N/A	N/A	N/A	N/A	0	2	0	0	4	4	0	1.33	0	4	15.33
M-1B	Relocate Access to 12th Street. Construct improvements from the new mill entrance to the large vehicle alternate route to the east.	New Access to the mill, possible internal reconfiguration of the mill, improvements on 12th Street, improvements on other local streets to connect with truck route	Residential impacts, public use impacts, existing roadway conditions, right-of-way	-	+	-	Varies 0 to --	+	+	-	-	N/A	+	Not Estimated	N/A	N/A	N/A	N/A	0	4	0	0	4	4	0	1.33	0	4	17.33
M-2	New section of road from mill to North US 101 along Port of Tillamook Bay Railroad tracks.	New Access to the mill, possible internal reconfiguration of the mill, new section of roadway from US 101 to the mill along railroad right-of-way	right-of-way, major farmland impacts, major wetland impacts, ODOT approval	+	+	+	+	--	--	-	--	N/A	0	$3,000,000	$3,000,000	0.8 miles minimum	N/A	N/A	4	4	4	3	0	0	0	0	0	2	17
M-3	New section of road from mill to South US 101 (Note: this improvement could be constructed as an extension of 12th Street to the west to US 101 or as a new section of roadway directly south of mill to US 101).	New Access to the mill, possible internal reconfiguration of the mill, new section of roadway from US 101 to the mill along railroad right-of-way	right-of-way, major farmland impacts, minor wetland impacts, ODOT approval	+	+	+	Varies ++ to +	Varies - to --	--	-	--	N/A	0	$1,400,000	$1,400,000	0.4 miles minimum	N/A	N/A	4	4	4	0	0	0	0	0	0	2	14
M-4	Relocate the mill to Port of Tillamook Bay Industrial area.	N/A	Port of Tillamook Bay	N/A	+	+	++	+	+	N/A	--	N/A	-	Not Estimated	N/A	N/A	N/A	N/A	0	4	4	0	4	4	0	0	0	0	16

Tillamook County Transportation System Plan:
DRAFT Large Vehicle Alternate Route Study

				Evaluation Criteria														Rating									
#	Roadway Segment Alternatives	Improvements	Constraints	Distance (Out of Direction Travel)	Commercial Impacts	Residential Impacts	Public Use Impacts	Farmland Impacts	Wetland/Floodplain Impacts	Coordination/Policy	Existing Roadway Conditions	Truck Traffic Origin/Destination	Cost	Total Cost ($)	Cost($) Without Committed Projects	Total Length	Total Public Use Impacts	Truck Traffic Origin/Destination	Distance (Out of Direction Travel)	Commercial Impacts	Residential Impacts	Public Use Impacts	Farmland Impacts	Wetland/Floodplain Impacts	Coordination/Policy	Existing Roadway Conditions	Truck Traffic Origin/Destination	Cost	Total
S-5	Connection between 12th Street and US 101/12th Street/Connection between 12th Street and McCormick Loop/McCormick Loop/Schild Road	New section of roadway between 12th Street and US 101, Shoulder widening on 12th Street, new section of road between 12th Street and McCormick Loop, Shoulder widening on McCormick Loop, Shoulder widening on Schild Road, improvements at new US 101 intersection, improvements at 3rd Street/McCormick Loop/Schild Road intersection, improvements at OR 6/Schild Road intersection, improvements at rail crossing on 12th Street	Major Residential Impacts (12th Street), Existing Roadway Conditions, Public Use impacts, rail crossing, Major farmland and wetland impacts		Does not differentiate alternatives (+)	-	0	--		-	--	+	0	$3,000,000	$3,000,000	2.9 miles	2	1	2	4	0	2	0	0	0	0	4	2	14
S-6	Connection between 12th Street and US 101/12th Street/Connection between 12th Street and Trask River Road/ Trask River Road/Olsen Road	New section of roadway between 12th Street and US 101, Shoulder widening on 12th Street, new section of roadway between 12th Street and Trask River Road, Shoulder widening on Trask River Road, Shoulder widening on Olsen Road, improvements at 3rd Street Olsen Road/Trask River Road intersection, improvements at OR 6/Olsen Road intersection, improvements at 12th Street rail crossing	Major Residential Impacts (12th Street), Existing Roadway Conditions, Public Use impacts, rail crossing, Major farmland and wetland impacts		Does not differentiate alternatives (+)	-	0	--	--	-	--	+	0	$3,600,000	$3,600,000	3.5 miles	2	1	2	4	0	2	0	0	0	0	4	2	14
S-7	Connection between 12th Street and US 101/12th Street/Marolf Loop/Marolf Loop Extension	New section of roadway between 12th Street and US 101, Shoulder widening on 12th Street, Shoulder widening on Marolf Loop, new section of roadway for Marolf Loop Extension, improvements at new US 101 intersection, improvements at 3rd Street/Marolf Loop intersection, improvements at OR 6/Marolf Loop intersection, improvements at rail crossing on 12th Street	Major Residential Impacts (12th Street, Marolf Loop), Existing Roadway Conditions, Public Use impacts, rail crossing, Major wetland impacts, Minor farmland impacts	+	Does not differentiate alternatives (+)	-	-	Varies - to --	--	-	--	+	+	$2,500,000	$2,500,000	2.2 miles	3	1	4	4	0	1	0	0	0	0	4	4	17
S-8	McCormick Loop/Connection between McCormick Loop and Trask River Road/Trask River Road/Olsen Road	Shoulder widening on McCormick Loop, new section of roadway between McCormick Loop and Trask River Road, Shoulder widening on Trask River Road, Shoulder widening on Olsen Road, improvements at US 101/McCormick Loop intersection, improvements at 3rd Street/Olsen Road/Trask River Road intersection, improvements at OR 6/Olsen Road intersection, improvements at McCormick Loop rail crossing	Minor Residential Impacts (McCormick Loop and Trask River Road), Major wetland and farmland impacts, Might require removal of farm structures, Existing Roadway Conditions, railroad crossing		Does not differentiate alternatives (+)	0	++	--	--	-	--	-	+	$2,500,000	$2,500,000	4.5 miles	0	0	0	4	2	0	0	0	0	0	0	4	10
S-9	Long Prairie Road/Connection between McCormick Loop and Long Prairie Road/McCormick Loop/Connection between McCormick Loop and Trask River Road/Trask River Road/Olsen Road	Shoulder widening on Long Prairie Road, new section of roadway between Long Prairie Road and McCormick Loop (including new bridge), Shoulder widening on McCormick Loop, new section of roadway between McCormick Loop and Trask River Road, Shoulder widening on Trask River Road, Shoulder widening on Olsen Road, improvements at US 101/Long Prairie Road intersection, improvements at 3rd Street/Olsen Road/Trask River Road intersection, improvements at OR 6/Olsen Road intersection	Minor Residential Impacts (McCormick Road and Trask River Road), Major wetland and farmland impacts, Might require removal of farm structures, Existing Roadway Conditions	-	Does not differentiate alternatives (+)	0	++	--	--	0	--	+	-	$4,700,000	$3,800,000	5.3 miles	0	1	0	4	2	0	0	0	2	0	4	0	12
S-10	McCormick Loop/Connection between McCormick Loop and Marolf Loop/Marolf Loop/Connection between 3rd Street and OR 6	Shoulder widening on McCormick Loop, new section of roadway between McCormick Loop and Marolf Road, shoulder widening on Marolf Loop, new section of road between Marolf Loop and OR 6	Major Residential Impacts (Marolf Loop), Existing Roadway Conditions, Public Use impacts, new rail crossing, Major wetland impacts, Major farmland impacts, right of way acquisition.	+	Does not differentiate alternatives (+)	-	-	--	--	-	--	-	-	$4,200,000	$4,200,000	2.3 miles												
Mill Access																											