Oregon
Theodore R. Kulongoski, Governor

Department of Land Conservation and Development
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NOTICE OF ADOPTED AMENDMENT

August 29, 2008

TO: Subscribers to Notice of Adopted Plan or Land Use Regulation Amendments

FROM: Mara Ulloa, Plan Amendment Program Specialist

SUBJECT: City of Newport Plan Amendment
DLCD File Number 001-08

The Department of Land Conservation and Development (DLCD) received the attached notice of adoption. Due to the size of amended material submitted, a complete copy has not been attached. A copy of the adopted plan amendment is available for review at the DLCD office in Salem and the local government office.

Appeal Procedures*

DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: September 15, 2008

This amendment was submitted to DLCD for review 45 days prior to adoption. Pursuant to ORS 197.830 (2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

If you wish to appeal, you must file a notice of intent to appeal with the Land Use Board of Appeals (LUBA) no later than 21 days from the date the decision was mailed to you by the local government. If you have questions, check with the local government to determine the appeal deadline. Copies of the notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR Chapter 661, Division 10). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

***NOTE:** **THE APPEAL DEADLINE IS BASED UPON THE DATE THE DECISION WAS MAILED BY LOCAL GOVERNMENT. A DECISION MAY HAVE BEEN MAILED TO YOU ON A DIFFERENT DATE THAN IT WAS MAILED TO DLCD. AS A RESULT YOUR APPEAL DEADLINE MAY BE EARLIER THAN THE ABOVE DATE SPECIFIED.**

Cc: Gloria Gardiner, DLCD Urban Planning Specialist
Laren Woolley, DLCD Regional Representative
Bill Holmstrom, DLCD Transportation Planner
James Bassingthwaite, City of Newport

<paa> ya/

FORM 2

DEPT OF

AUG 26 2008

LAND CONSERVATION AND DEVELOPMENT

DLCD NOTICE OF ADOPTION

This form **must be mailed** to DLCD **within 5 working days after the final decision** per ORS 197.610, OAR Chapter 660 - Division 18

(See reverse side for submittal requirements)

Jurisdiction: City of Newport   Local File No.: 1-CP-08 & 2-CP-08
(If no number, use none)

Date of Adoption: August18, 2008 (Must be filled in)   Date Mailed: August 25, 2008 (Date mailed or sent to DLCD)

Date the Notice of Proposed Amendment was mailed to DLCD: February 28, 2008

X Comprehensive Plan Text Amendment   ___ Comprehensive Plan Map Amendment

___ Land Use Regulation Amendment   ___ Zoning Map Amendment

___ New Land Use Regulation   ___ Other: ____________
(Please Specify Type of Action)

Summarize the adopted amendment. Do not use technical terms. Do not write "See Attached."

Adopted amendments to Newport Transportation System Plan and summary section of Comprehensive Plan for the Newport TSP to adopt a new existing conditions and Northside Local Street Plan and a new existing conditions for bicycle and pedestrian facilities and a Pedestrian and Bicycle Plan to the Newport TSP as part of the Newport TSP Update funded through a TGM Grant. The TSP summary section of the Comprehensive Plan had changes in text, tables, and Goals/Policies to reflect adoption of the updates to the TSP.

Describe how the adopted amendment differs from the proposed amendment. If it is the same, write "Same." If you did not give notice for the proposed amendment, write "N/A."

Adjustments to projects and text were made based on public input, Planning Commission and City Council review.

Plan Map Changed from : --- to ---

Zone Map Changed from: --- to ---

Location: ---   Acres Involved: ---

Specify Density: Previous: ---   New: ---

Applicable Statewide Planning Goals: 1, 2, 12

Was an Exception Adopted? Yes:___ No: X

DLCD File No.: 001-08 (16738)

Did the Department of Land Conservation and Development receive a notice of Proposed

Amendment **FORTY FIVE (45) days prior to the first evidentiary hearing**. Yes: X* No: ___

*Submitted in time for DLCD to receive 45 days prior.

If no, do the Statewide Planning Goals apply. Yes: ___ No: ___

If no, did The Emergency Circumstances Require immediate adoption. Yes: ___ No: ___

Affected State or Federal Agencies, Local Governments or Special Districts: City of Newport, Port of Newport, ODOT, Lincoln County

Local Contact: James Bassingthwaite Area Code + Phone Number: 541-5740626

Address: 169 SW Coast Hwy

City: Newport Zip Code+4: 97365-3806

ADOPTION SUBMITTAL REQUIREMENTS

This form **must be mailed** to DLCD **within 5 working days after the final decision** **per ORS 197.610, OAR Chapter 660 - Division 18.**

1. Send this Form and **TWO (2) Copies** of the Adopted Amendment to:

   ATTENTION: PLAN AMENDMENT SPECIALIST
   DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT
   635 CAPITOL STREET NE, SUITE 150
   SALEM, OREGON 97301-2540

2. Submit **TWO (2) copies** the adopted material, if copies are bounded please submit **TWO (2) complete copies** of documents and maps.

3. Please Note: Adopted materials must be sent to DLCD not later than **FIVE (5) working days** following the date of the final decision on the amendment.

4. Submittal of of this Notice of Adoption must include the text of the amendment plus adopted findings and supplementary information.

5. The deadline to appeal will be extended if you submit this notice of adoption within five working days of the final decision. Appeals to LUBA may be filed within **TWENTY-ONE (21) days** of the date, the "Notice of Adoption" is sent to DLCD.

6. In addition to sending the "Notice of Adoption" to DLCD, you must notify persons who participated in the local hearing and requested notice of the final decision.

7. **Need More Copies?** You can copy this form on to 8-1/2x11 green paper only ; or call the DLCD Office at (503) 373-0050; or Fax your request to:(503) 378-5518; or Email your request to Larry.French@state.or.us - ATTENTION: PLAN AMENDMENT SPECIALIST.

CITY OF NEWPORT

ORDINANCE NO. 1963

AN ORDINANCE AMENDING ORDINANCE NO. 1621 (AS AMENDED) OF THE CITY OF NEWPORT, OREGON, TO AMEND THE NEWPORT TRANSPORTATION SYSTEM PLAN OF THE CITY OF NEWPORT COMPREHENSIVE PLAN: 1990-2010

Summary of Findings:

1. The Newport City Council authorized the application for a Transportation & Growth Management (TGM) Program grant for consultant services to update the Newport Transportation System Plan for which the City was awarded TGM funding. The professional consultants on the project pursuant to the TGM Program grant that prepared the technical memorandums that serve as the basis for the amendments included Parametrix and Alta Planning + Design.

2. The Mayor appointed and the Newport City Council confirmed a Transportation System Plan Update Ad Hoc Advisory Committee representing a variety of interests which met six times to provide input and review of proposed amendments to the Transportation System Plan and also allowed for public input at the meetings. The Newport Bicycle and Pedestrian Advisory Committee also reviewed the proposed bicycle and pedestrian plan amendment and provided input on the plan.

3. The City of Newport hosted three public open houses allowing for public input and comment during the formation of the amendments to the Transportation System Plan.

4. The Newport Planning Commission held two work sessions and one public open house/work session on the proposed legislative amendments (Newport File Nos. 1-CP-08 and 2-CP-08) to the Transportation System Plan.

5. The Newport Planning Commission held a duly noticed public hearing on April 14, 2008, on the proposed amendments to the Transportation System Plan and following public input, deliberated, and made a recommendation to the City Council on the proposed amendments.

6. The Newport City Council held a duly noticed public hearing on May 19, 2008, continued to June 16, 2008, July 21, 2008, and August 18, 2008, and based on public input, the Newport Planning Commission recommendation, and the Newport Community Development Department planning staff memorandum, voted 6-0 to adopt the proposed amendments finding that the proposed amendments were consistent with applicable criteria.

THE CITY OF NEWPORT ORDAINS AS FOLLOWS:

Section 1. The City Council adopts the findings (as supported by the Planning Staff Memorandum with the attachments and testimony submitted before the City Council and Planning Commission) contained in Exhibit "A" in support of approval of the amendments to the Newport Transportation System Plan of the City of Newport Comprehensive Plan: 1990-2010.

Section 2. Ordinance No. 1621 (as amended) is amended to adopt the attached changes as identified in Exhibit "B" to the Newport Transportation System Plan summary currently found beginning on page 152a of the City of Newport Comprehensive Plan: 1990-2010.

Section 3. Ordinance No. 1621 (as amended) is amended to adopt the attached Newport Transportation System Plan Update Technical Memorandums #1, #2, #3, and #4 in Exhibits "C", "D", "E", and "F" as part of the Newport Transportation System Plan.

Date adopted on initial vote and read by title only: 8/18/08

Date adopted on final roll call vote: 8/18/08

Signed by the Mayor on August 19, 2008.

William D. Bain, Mayor

ATTEST:

Margaret M. Hawker

Margaret M. Hawker, City Recorder

ORDINANCE NO. 1963

NEWPORT FILE NO. 1-CP-08/2-CP-08

Exhibit "B"

NEWPORT TRANSPORATION SYSTEM PLAN

This Transportation System Plan (TSP) describes the individual elements that make up the transportation framework for the City of Newport. Plus, the TSP represents recommended project improvements and goals and policies towards establishing a coordinated multi-modal transportation network for the City of Newport.

The complete TSP describes in detail the various components of a transportation system, makes a complete analysis of those various components, and describes the process used to develop the plan. The current Transportation System Plan was completed in 1997 and adopted in 1999. In 2008, several updates to the plan were adopted. By this reference, the complete TSP as amended by Ordinance No(s). 1963 is incorporated herein. Where the text references "TSP", the reference is to the TSP as amended unless otherwise noted.

However, the complete plan, including the updates, is more than most want to wade through to help guide the future decisions to implement the plan. This section will therefore summarize the projects contained in the TSP and include the goals and policies needed to assure compliance. For a more complete understanding or analysis, the TSP should be consulted.

Transportation System Plans for Each Mode

The Transportation System Plan places a strong emphasis on the preservation and improved operation of the Highway 20 and Highway 101 corridors. The City of Newport views Highway 101 and Highway 20 as the most important arterials in the multi-modal transportation network and likewise recognizes the importance of these facilities as statewide facilities per the Oregon Highway Plan. In implementation of the City's Comprehensive Plan and the associated Transportation System Plan, the City will strive to maintain the function of these facilities to meet their statewide as well as regional needs.

The Transportation System Plan comprises all the improvements in the Middle Alternative, as developed during the TSP process. The Middle Alternative has been identified as the preferred alternative, which includes transportation improvements that support the identified goals and objectives and the adopted and acknowledged Comprehensive Plan. The preferred alternative recommends $77 million in capital improvements over the next 20 years ($31 million in surface transportation improvements). The following describes the recommended projects for each mode contained in the preferred alternative. For further specifics on the projects, refer to the complete Transportation System Plan.

The Transportation System Plan was amended in 2008 to add a North Side Local Street Plan to support commercial development and redevelopment activity within the area bounded by 12th Street on the north, John Moore/Harney Drive on the east, the Pacific Ocean on the west, and the Yaquina Bay on the south. The 2008 amendment included a more comprehensive Pedestrian and Bicycle Plan for the entire City.

Roadway Improvements

The roadway improvements include new roadway construction, focusing primarily on a north-south arterial to be constructed in stages. The majority of the projects include reconstruction or making minor improvements to existing roads in order to increase traffic flow. The recommended roadway improvements are listed in Table 1 and Table 2 and are discussed in more detail in the Transportation System Plan. Table 2A identifies the recommended projects based on the north side local street plan amendment.

Table 1: New Roadway Improvement Projects as identified in the 1997 TSP

New Roadway Projects or Extensions	Functional Class	Sidewalks	Bicycle Lanes	Priority (Years)	Estimated Cost
North-South Arterial - Phase IA (between US 20 and NE 7th St.)	Arterial	Yes	Yes	1-5	$300,000
North-South Arterial – Phase IIA (between NE Harney Dr. and NE 36th St.)	Arterial	Yes	Yes	1-5	$409,000
North-South Arterial – Phase IB (between NE 7th St and NE 32nd St)	Arterial	No	No	6-10	$2,064,000
Extend NW Nye St to Ocean View Dr	Collector	Yes	Yes	1-5	$134,000
Connect SE 1st St (between SE Douglas and SE Fogarty)	Local	Yes	Yes (one side)	1-5	$139,000
Extend NE Avery St (between NE 71st St and NE 73rd St	Collector	Yes	No	11-15	$185,000
Extend SW Abbey St to SW Elizabeth St	Collector	Yes	No	11-15	$84,000
Extend NE 5th St (between NE 7th Dr and Newport Heights Rd	Collector	No	No	11-15	$268,000
Extend SW Abalone St to SW 32nd St	Arterial	Yes	Yes (one side)	6-10	$182,000
Extend NW Biggs to NW 60th St and Extend NW 60th St to US 101	Collector	Yes	No	11-15	$38,000
Extend NW Harney Dr (between US 101 and Ocean View Dr)	Collector	Yes	Yes	6-10	$232,000
Total Cost (New Roadways)					**$4,035,000**

Table 2: Existing Street Improvement Projects as identified in the 1997 TSP

Improvements to Existing Roadways	Func. Class	Sidewalks	Bicycle Lanes	Priority (years)	Estimated Cost
Reconstruct NE 3rd St (between NE Eads St and NE Harney Dr	Local	Yes	No	1-5	$135,000
Reconstruct NW 60th/Biggs Ave/NW 55th (between Hazel Ct and 60th St)	Collector	Yes	No	11-15	$52,000
Widen Hwy 101 to four lanes (between Bridge and SE 123rd St)	Principal Arterial	Yes	Yes	16-20	$10,690,000
Widen Hwy 101 to five lanes (NE Harney Dr to North City Limits)	Principal Arterial	Yes	Yes	11-15	$7,165,000
Widen Hwy 20 to five lanes (John Moore Rd to Hwy 101)	Principal Arterial	Yes	Yes	6-10	$960,000
Total Cost (Existing Roads)					**$19,001,000**

Table 2A: North Side Local Plan Street and Roadway Projects and Priorities (Table 4-2 of the North Side Local Street Plan adopted in 2008)

No.	Location/Limits	Project Description	Purpose	Priority	Cost
2	NE Benton Street from NE 8th Street to NE 10th Street	Improve to 2-lane urban standard with sidewalks to add system connectivity.	▫ Provides and alternate North/South route to reduce traffic on US 101 ▫ Completes street grid ▫ Improves local connectivity	High	Engr - $54,000 Con - $216,000
7	SW 9th Street/ NE Benton St Connectivity Enhancement	Pedestrian crossing and signage improvements from Abbey to NE 11th Street to facilitate corridor as a local parallel route to US 101 and access between US 20 and the bay front area. Consider all way stop at 9th/Hurbert.	▫ Improves Downtown tourism by improving access to commercial center ▫ Can improve pedestrian environment and safety ▫ Reduces congestion along US 101 by avoiding the highway	High	Engr - $6,000 Con - $23,000
8	NE 1st Street from US 101 to US 20	Improve to 3-lane urban standard with sidewalks and bike lanes to provide westbound-to-northbound bypass of intersection of US 101 with US 20.	▫ Preserves US 101 functionality ▫ Local economic development benefits	High	Engr - $95,000 Con - $381,000 ROW needed
12	SW Neff Street from US 101 to SW 2nd Street	Improve to 2-lane urban standard with sidewalks and bike lanes to add system connectivity.	▫ Enhances Downtown and Beach access ▫ Improves local connectivity	High	Engr - $88,000 Con - $350,000
13	SW 7th Street from SW 2nd Street to SW Elizabeth Street	Improve to 2-lane urban standard with sidewalks and bike lanes to add system connectivity.	▫ Enhances beach access ▫ Enhances Downtown access ▫ Preserves US 101 functionality	Low	Engr - $3,280,000 Con - $13,126,000
14	Alternative Port Access Road Improvements	Evaluate improvements to SE Benson Road and/or SE John Moore Drive to improve access to	▫ Improves Port access ▫ Reduces congestion at US 101 and US 20	Medium/ Low	Planning study needed to determine alignment and cost

No.	Location/Limits	Project Description	Purpose	Priority	Cost
		waterfront area	• Reduces Bay Front truck traffic • Joint City and County project		

Transportation System Management/New Traffic Signals

Transportation System Management is a traffic control tool that attempts to maximize the efficiency of the existing transportation system without additional roadway capacity. TSM projects can be characterized as being low-capital cost alternatives that can be implemented in a relatively short time frame and that aim to make better use of existing facilities, either by operational changes or by better traffic management.

There are several TSM projects that have been recommended for implementation in Newport. These projects are listed in Table 3 below. Table 3A identifies the projects and priorities for the adopted north side local street plan amendment.

Table 3: Transportation Management System (TSM) Improvement Projects as identified in 1997 TSP

TSM Improvement	Priority (years)	Estimated Cost
Highway 101 Revisions (between Hwy 20 and Yaquina Bay Bridge): Removal of on-street parking, no bike lanes, left turns only at Bayley, Abbey, Hurbert, Angle, and Olive	1-5	$17,400
Highway 101/NE Avery Street: Access management modification (right-in, right-out only)	1-5	$10,000
US 20 at SE Avery St: Provide signing and channelization. Right-in; right-out; prevent left turn off Avery to go to Hwy 20 and on to Hwy 101	1-5	$6,700
John Moore Rd at SE Bay Blvd: Provide realignment and channelization	6-10	$28,100
US 101 at SE 1st and South Cape: Provide island and channelization	1-5	$4,000
US 101 at SW Fall and Frontage Rd: Change traffic flow to one-way north on Frontage Rd and extend island	1-5	$2,000
Naterlin at US 101 (Yaquina Bay Bridge): Provide realignment and channelization	1-5	$24,100
NE 52nd St Area Improvements: Align NE 52nd with Lighthouse Dr; eliminate Hwy 101 access from NE 54th St; improve NE Lucky Gap between NE 52nd St and NE 54th St; vacate NE Pacific St and NE Shell World Pl between NE 52nd St and NE 54th St; provide access from Longview Hills to NE 52nd St	6-10	$554,900
NW 56th St Improvement Area: Eliminate Old Hwy Loop between NW 55th St and NW 58th St; extend NW 56th St to Hwy 101; improve NW Gladys St between NW 56th St and NW 60th St as a frontage road	1-5	$302,000

Surface Parking Lots for 101 Business: Construct surface parking lots to supplement parking removed from 101 restriping	6-10	$150,000
Construct a new parking structure on Abbey St parking lot (4 levels with top level open); include bike racks; restripe Bay Blvd to accommodate parallel parking south of Fall St to Naterlin Dr	16-20	$2,207,000
NE 57th St: Eliminate Hwy 101 access; cul-de-sac NE 57th St on its western terminus; connect NE Hazel Ct to NE 60th St	6-10	$150,000
Close SW 2nd St between Hwy 101 and SW Angle St (to be completed as part of signalization project at Hwy 101 and Angle St)	16-20	$25,000
Hwy 101 and Hurbert St: Signal improvements to provide for left turns	1-5	$150,000
Hwy 101/Hwy 20: Signal revisions/improvements; realign E Olive St	1-5	$620,000
Total Cost (TSM Improvements)		**$5,251,200**

Table 3A: North Side Local Street Plan Transportation System Management Projects and Priorities (Table 4-3 of the North Side Local Street Plan adopted in 2008)

Table 3A: North Side Transportation System Management Projects and Priorities

No.	Location/Limits	Project Description	Purpose	Priority	Cost
1	US 101 at NW 11th Street	Realign intersection to eliminate slight off-set. Consider need for additional east/west turning lanes and/or signalization improvements.	▫ Preserves US 101 functionality ▫ Improves local connectivity and enhances beach access	High	Engr - $97,000 Con - $387,000 ROW needed
3	US 101 at NW 6th Street	Realign intersection to eliminate off-set. Consider need for added east/west turning lanes and/or improved signal to address congestion problem.	▫ Preserves US 101 functionality ▫ Improves local connectivity and enhances beach access	High	Engr - $125,000 Con- $499,000 ROW needed
4	US 101, US 20 north to NW 12th Street	Evaluate opportunities for driveway and/or minor street closures or consolidation.	▫ Preserves US 101 functionality and safety	High	As redevelopment occurs.
5	US 101 at US 20	Add 2nd southbound left turn lane. Widen eastbound US 20 to receive 2 lanes of traffic, transition to one lane east of US 101.	▫ Preserves US 101 functionality and safety ▫ Reduced congestion at US 101 and US 20	High	Engr - $151,000 Con- $604,000 ROW needed
6	US 20 at NE Coos Street	Add signal and improve intersection to encourage north/ south local street alternative to US 101. Signal could help relieve congestion at NE Eads.	▫ Improves local North/South connectivity ▫ Reduced congestion on US 20 at NE Eads and US 101	High	Engr - $103,000 Con - $413,700
9	US 20 at SE John Moore Drive	Add north/south left turn lanes and adapt signal phase. Combine northbound right/through lanes.	▫ Improves access to the Bay Front	Medium	Engr - $37,000 Con - $150,000
10	SW Hatfield Drive at SW Bay Boulevard	Stripe separate right and left turn lanes, add crosswalk and no parking designation on Hatfield Dr. in the vicinity of the intersection. Add curb extensions on Bay Blvd. to facilitate pedestrian crossing.	▫ Improves access to the Bay Front	High	Engr - $9,000 Con - $35,000
11	SW 2nd Street, SW Coast Street to SW Lee Street	Realign intersections of SW Lee Street, SW Hurbert Street, SW High Street and SW Coast Street to	➢ Enhances Beach access ➢ Improves local	Medium	Engr - $137,000 Con - $549,000

Table 3A: North Side Transportation System Management Projects and Priorities

No.	Location/Limits	Project Description	Purpose	Priority	Cost
		eliminate off-sets.	North/South connectivity		ROW needed
15	US 101 at Angle Street	Modify 1997 TSP project #7 to install traffic signal and left turn lanes on US 101. Remove on-street parking in vicinity of intersection to accommodate added lanes. Consider alternative to retain on-street parking by eliminating lefts on US 101 at Angle and evaluating local connectivity thru refinement plan after installation of signal at US 101/Abbey.	▫ Improves access to the Bay Front ▫ Enhances Beach access ▫ Preserves US 101 functionality	Medium	Engr - $102,000 Con - $408,000

No.	Location/Limits	Project Description	Purpose	Priority	Cost
16	US 101 at Hurbert Street	Modify 1997 TSP project #7 to install left turn lanes on US 101. Remove on-street parking in area of intersection for added lanes. Consider alternative to retain on-street parking by eliminating lefts on US 101 at Hurbert and evaluating local connectivity thru refinement plan after installation of signal at US 101/Angle.	▫ Improves access to the Bay Front ▫ Enhances Beach access ▫ Preserves US 101 functionality	High	Engr - $17,000 Con - $67,000
17	John Moore Drive at Bay Blvd.	Stripe John Moore for separate left and right turns. Modify curb radii to enhance right turns from John Moore onto Bay. Add eastbound left turn lane and pedestrian crossing.	▫ Improves access to the Bay Front	High	Engr - $68,000 Con – $273,000
18	Various Locations	Signage Improvements: ▫ Directional signs from US 20 to both John Moore and 9th for Bay Front visitors ▫ Directional signs from Bay Front parking lots and along Bay Blvd to Naterlin for Ocean access ▫ Improve signage to parking on Bay.	▫ Enhances Beach access ▫ Improves access to the Bay Front ▫ Reduces congestion along US 101 by avoiding the highway	High	Engr - $3,500 Con - $14,500

New Traffic Signals

It has been identified that as traffic volumes increase, several intersections throughout Newport will require the installation of traffic signals. The cost for each traffic signal is estimated at $200,000, totaling $1 million for five signals. This includes the cost for installation and signal coordination infrastructure but does not include intersection road work.

Listed below are the locations that will likely require new traffic signals or turn lanes, or both, as traffic volumes increase. The proposed location and spacing of new traffic signals on state facilities would comply with existing plans and policies, as indicated in the 1991 Oregon Highway Plan and as detailed in the City of Newport Access Management Plan. These intersections should be monitored to determine the point in time at which signalization is warranted:

- Highway 101 at Abbey Street (1-5 years)
- Highway 101 at Angle Street (11-15 years)
- Highway 101 at NE 36th St. (6-10 years)
- Highway 101 at NE 52nd St. (6-10 years)
- Highway 101 at NE 73rd St. (16-20 years)

Functional Classification System

Streets perform various roles in a community, ranging from carrying large volumes of through traffic to providing direct access to abutting property. These functions are often conflicting, and a hierarchical classification system is needed to determine the appropriate function and purpose of each roadway.

Figure 4 and Table 4 presents the recommended functional classification system plan for the City of Newport. This plan recommends four roadway classifications as follows:

- **Principal Arterials** – These facilities carry the highest volumes of through traffic and primarily function to provide mobility and not access. Principal arterials provide continuity for intercity traffic through the urban area and are usually multi-lane facilities. The only facilities identified as principal arterials are US Highways 101 and 20.

- **Minor Arterials** – These facilities interconnect and augment the principal arterial system and accommodate trips of somewhat shorter length. Such facilities interconnect residential, shopping, employment, and recreational activities within the community.

- **Collector Streets** – These streets provide both land access and movement within residential, commercial, and industrial uses. These streets gather traffic from local roadways and serve as connectors to arterials.

- **Local Streets** – These streets provide land access to residential and other properties within neighborhoods and generally do not intersect any arterial routes. All remaining streets not listed in Table 4 are classified as local streets.

Table 4: Recommended Functional Classification of Roadways from 1997 TSP

Principal Arterials	**Limits**
US Hwy 101	North UGB Limits to South UGB Limits
US Hwy 20	Hwy 101 to East UGB Limits
Minor Arterials	**Limits**
SW Abalone St	SW 29th St to OSU Dr
SE Bay Blvd	John Moore Rd to East UGB Limits
SE Ferry Slip Rd	Hwy 101 to SE OSU Dr
Harney Dr	Hwy 101 to North-South Arterial
John Moore Rd	SE Bay Blvd to Hwy 20
North-South Arterial	Harney Dr to Harney Dr
SE OSU Dr	SW Abalone St to end of Street
SW 32nd St	SE Abalone St to Hwy 101

Collectors	**Limits**
SE Abbey St	Hwy 101 to SW Harbor Way
SW Alder St	SW 2nd St to SW Neff Way
SW Angle St	SW 2nd St to SW 9th St
SE Avery St	SE 2nd St to East Olive (Hwy 20)
NE Avery St	East Olive (Hwy 20) to NE 12th St
SE Bay Blvd	SE John Moore Rd to SW Naterlin Dr
SW Bayley St	SW 7th St to SW 11th St

SW Canyon Way	SW Hurbert St to SW Fall St
NW Coast St	SW 2nd St to NW 8th St
NE Eads St	East Olive (Hwy 20) to NE 12th St
NW Edenview Way	Hwy 101 to NW Ocean View Dr
SW Elizabeth St	SW Bayley St to W Olive St
SW Fall St	SW Canyon Way to SW Bay Blvd
SW Fall St	SW Elizabeth St to Hwy 101
SE Fogarty St	SE Bay Blvd to SE 4th St
SW Harbor Way	SW Abbey St to SW 13th St
SE Harney Dr	SE 4th St to SE John Moore Rd
SW Hatfield Dr	SW 9th St to SW Bay Blvd
SW Hurbert St	SW 2nd St to SW Canyon Way
SW Naterlin Dr	SW Government St to SW Bay Blvd
SW Neff Way	SW Alder St to Hwy 101
NW Nye St	West Olive St to NW Ocean View Dr
SW Nye St	SW 2nd St to West Olive St
NW Ocean View Dr	NW 12th St to Hwy 101
W Olive St	SW Elizabeth St to Hwy 101
NW Spring St	NW 8th St to NW 12th St
NE Yaquina Heights Rd	NE Harney Dr to Hwy 20
SW 2md St	SW Elizabeth St to SW Angle St
NW 3rd St	NW Coast St to Hwy 101
NE 3rd St	NW Harney St to NE Eads St
SE 4th St	SE Fogarty St to SE Harney Dr
NW 6th St	NW Coast St to Hwy 101
NE 6th St	Hwy 101 to NE Eads St
NE 7th St	NE 7th Dr to Yaquina Heights Dr
NW 8th St	NW Coast St to NW Spring St
SW 9th St	Hwy 101 to SE 2nd St
NW 11th St	NW Spring St to Hwy 101
NE 11th St	Hwy 101 to NE Eads St
NE 12th St	Hwy 101 to NE Eads St
SW 13th St	SW Harbor Way to SW Bay St
NW 15th St	NW Ocean View Dr to Hwy 101
NE 20th St	Hwy 101 to NE Crestview Dr

The hierarchical functional classification system requires different design standards for each roadway classification. For instance, major thoroughfare routes require different access control standards, paving requirements, right-of-way widths, and traffic safety devices. Figure 5 shows the typical design standards for each roadway under the functional classification system.

The suggested design standards are to be used as a guideline for roadway construction, including the development of new roads and the reconstruction of existing roads. The roadway design standards are established to ensure consistency throughout the City, but because the City has diverse topographic and natural constraints, they must provide flexibility for unique and special situations.

Pedestrian Facility Improvements

Sidewalk improvements were identified to link existing sidewalks and to provide a system of sidewalks to ensure a balanced transportation system that offers realistic alternative. Particular focus was on providing safe and convenient travel for children who walk to school. Figure 5 through Figure 8 of the 1997 Transportation System Plan presented the recommended pedestrian plan element of the transportation network for Newport that was adopted in 1999. Existing sidewalks were also shown on the 1997 TSP recommended plan. The pedestrian and bicycle plan was greatly expanded as part of the Transportation System Plan Update project and resulted in a new pedestrian and bicycle plan being adopted by the City of Newport in 2008. The existing pedestrian facilities and proposed pedestrian system in the pedestrian and bicycle plan adopted in 2008 are illustrated in Maps 2-1, 3-1, 3-2, and 3-3 of that plan.

Specific to the plan are recommendations for a continuous sidewalk system in good repair that will connect existing and future pedestrian and transit traffic generators. Emphasis is given to the pedestrian/transit interface. Also critical to the plan is the support it provides for tourist foot traffic, from the main traffic area and to specific tourist attractions. Table 5 displays the recommended pedestrian facility improvements from the 1997 TSP along existing streets needed over the next 20 years. Table 6A identifies the pedestrian and bicycle facility improvements from the Newport Pedestrian and Bicycle Plan adopted in 2008.

Planning level cost estimates have been prepared for projects needed to provide continuous sidewalks within the school bus perimeter and in the core area, and to provide sidewalks where they do not currently exist on streets that will be part of the future arterial or collector network.

Adding sidewalks along a roadway are only part of the pedestrian solution; many busy streets and intersections are difficult to cross and can be barriers to walking. Allowing people to cross streets as freely as possible is important in maintaining a pedestrian-friendly environment. Often the width of the street, the geometry of the intersection, and the signal timing are designed only for the needs of the vehicle; not the pedestrian.

To increase pedestrian crossing opportunities and safety, two approaches can be considered: (1) designing roads that allow crossings to occur safely by incorporating design features such as raised medians or signal timing that creates gaps in traffic; or (2) constructing actual pedestrian crossings with pedestrian-activated signals, mid-block curb extensions, marked crosswalks, etc.

There are a variety of locations in Newport where crosswalk improvements are necessary to maintain pedestrian safety. The 1995 Oregon Bicycle and Pedestrian Plan identify several techniques that can be implemented at busy intersections.

Table 5: Pedestrian Facility Improvement Projects (Existing Streets) as identified in the 1997 Transportation System Plan

Roadway Segment	Priority (year)	Estimated Cost
Pedestrian network to serve schools (sidewalk improvements inside of the no school bus service zone). Including adding sidewalks along: • SE 2nd St (Fogarty St to Harney Dr) – south side only • SE 4th St (Fogarty St to Harney Dr) – south side only • NE 3rd St (Eads St to Harney Dr) – both sides • NE 4th St (Hwy 101 to Eads St) – both sides • NE 7th St (Eads St to Harney Dr) – both sides • NE 7th St (Harney Dr to Jefferies Pl) – north side only • NE 11th St (Hwy 101 to Eads St) – south side only • NE 12th St (Hwy 101 to Eads St) – south side only • Fogarty St (Bay Blvd to Hwy 20) – west side only • Harney Dr (SE 4th St to John Moore Rd) – both sides • John Moore Rd (Harney Dr to Hwy 20) – west side only • Harney Rd (Hwy 20 to NE 7th St) – both sides • Eads St (NE 4th St to NE 11th St) – both sides • Harney Dr (Hwy 101 to Big Creek Rd) – west side only	1-5	$160,600

• Big Creek Rd (Harney Dr to NE 12th St) – west side only		
Sidewalk improvements in other key pedestrian areas around Newport including adding sidewalks along: • Ocean View Dr (Spring St to Hwy 101) – west side only • Spring St (NW 8th St to Ocean View Dr) – west side only • NW 12th St (Spring St to Nye St) – south side only • NW 3rd St (Hurbert St to Hwy 101) – north side only • Fall St (SW 6th St to SW 7th St) – north side only • Bayley St (Elizabeth St to SW 8th St) – both sides • Along Yaquina Bay from Naterlin Dr to the Beach • Bay Blvd (Grant St to John Moore Rd) – south side only • Hwy 101 (Ocean View Dr to NW 55th St) – west side only • Lighthouse Dr (Hwy 101 to Yaquina Head Lighthouse) – north side only • NW 55th St (Biggs St to Hwy 101) – north side only • NW 58th St (NW Rhododendron St to Hwy 101) – both sides • NW 60th St (Biggs St to Hwy 101) – both sides • Biggs St (NW 55th St to NW 58th St) – both sides • OSU Dr (Abalone to Ferry Slip Rd) – north side only • Ferry Slip Rd (SW 32nd St to OSU Dr) – west side only • SW & SE 32nd St (Abalone St to Ferry Slip Rd) – both sides • Abalone St (SW 32nd St to OSU Dr) – west side only • NW 11th St (Spring St to Grove St) – north side only • Elizabeth St (SW 2nd St to Government St) – west side only • NW 6th St (Coast St to Nye St) – both sides	11-15 (unless noted)	$430,300
Total Cost (Pedestrian Improvements)		**$590,900**

Bicycle Facility Improvements

Figure 9 of the 1997 TSP illustrated the recommended bicycle plan for the City of Newport. The figure includes city- and state-designated facilities throughout the City, including bike lanes and designated bike routes. Highway 101 currently is a state-designated bike route. City-designated routes are along Ocean View Drive, Coast Street, and Elizabeth Street. These routes are currently signed, but lack separated bike lanes. The goal was to provide bicycle routes that enable safe and efficient travel for through bike traffic traveling along the Oregon Coast, as well as to provide a system for traveling within the city. The system of bicycle facilities has been designed to connect both north-south and east-west bicycle traffic. It has also been designed to connect all major generators of bicycle traffic with residential neighborhoods and tourist facilities. The pedestrian and bicycle plan was greatly expanded as part of the Transportation System Plan Update project and resulted in a new pedestrian and bicycle plan being adopted by the City of Newport in 2008. The existing bicycle facilities and proposed bicycle facilities in the pedestrian and bicycle plan adopted in 2008 are illustrated in Maps 2-2, 3-4, 3-5, and 3-6 of that plan.

Table 6 presents the recommended bicycle route improvements identified in the 1997 TSP. The cost estimate for upgrading existing roads to include bicycle lanes has been prepared for each route or series of routes. The cost estimates for bicycle facilities on new roadways have been included in the roadway construction cost estimates. Table 6A identifies the pedestrian and bicycle facility improvements from the Newport Pedestrian and Bicycle Plan adopted in 2008.

Table 6: Recommended Bicycle System Improvements from the 1997 TSP.

Bicycle Improvements	Priority (years)	Estimated Cost
Bicycle Parking at major bus stops and bus stations (for tourists)	1-5	$15,000
Bicycle Racks for all Dial-a-Ride vehicles (10 racks)	1-5	$7,500
Complete the East-West Bike Route. Including striping for bicycle lanes along: • West Olive St (Elizabeth St to Nye St) • SW 2nd St (Nye St to Angle St) • Angle St (SW 2nd St to SW 9th St) • SW 9th St/Avery St (Angle St to SE 1st St) • SE 1st St (Avery St to Fogarty St) • Fogarty St (SE 1st St to SE 2nd St) • SE 2nd St (Fogarty St to Harney Dr) • John Moore Rd (Harney Dr to Hwy 20)	1-5	$1,500
Provide a bike route on Eads St (NE 12th St to NE 3rd St) and provide a bike route on NE 3rd St (Eads St to Harney Rd)	11-15	$78,300
Provide bikeway along Big Creek Rd (Harney Dr to NE 12th St). Also includes sidewalk improvements. Road will be closed to traffic after completion of the North-South Arterial.	6-10	$112,500
Provide a north-south alternate bicycle route to Hwy 101 (signed route only). Add bicycle routes signs along: • Ocean View Dr (Hwy 101 to the new Nye St extension) • Nye St (Ocean View Dr to Olive St) • Olive St (Nye St to the Beach at Elizabeth St) • Elizabeth St (Olive St to SW 2nd St) – connects to existing bicycle path along Elizabeth St	1-5	$500
Total Cost (Bicycle Improvements)		**$215,300**

Table 6A: Recommended pedestrian and bicycle facility improvements from the Newport Pedestrian and Bicycle Plan adopted in 2008 (Table 3-3 of that Plan)

Newport Project Matrix

Project	From - to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
US 101 Crossings					
NW 68th Undercrossing	n/a	An undercrossing of US 101 at NW 68th	ODOT / Newport	3	$2,000,000

Newport Project Matrix					
Project	From – to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[1]
Mid-block between 16th Street & 17th Street	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	3	$225,000
13th Street	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	3	$225,000
10th Street	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	2	$225,000
8th Street	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	2	$225,000
3rd Street / 4th Street	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	1	$225,000
2nd Street (outside City Hall)	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	1	$225,000
SW Angle Street	n/a	Add curb extensions	ODOT / Newport	1	$32,000
SW Lee Street	n/a	Add curb extensions	ODOT / Newport	1	$32,000
SW Hurbert Street	n/a	Add curb extensions	ODOT / Newport	1	$32,000
SW Alder Street	n/a	Add curb extensions	ODOT / Newport	1	$32,000
SW Neff Way	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	2	$225,000
SW Abbey Street	n/a	Tighten the turning radius for vehicles, add marked crosswalks.	ODOT / Newport	3	$175,000
SW Bay Street	n/a	Tighten the turning radius for vehicles, add marked crosswalks.	ODOT / Newport	3	$175,000
Mid-block between SW Bayley Street & SW Minnie Street	n/a	Add median, raised stop bars, appropriate signage, striped continental crosswalk, and curb extensions	ODOT / Newport	2	$225,000
Sidewalks					
NE Avery Street	US 101 to end of street	Construct sidewalk on west side of street	Newport	2	$187,000
NE 71st Street	NE Avery Street to NE Echo Ct	Construct sidewalk on south side of street	Newport	3	$98,000
NE 70th Street	NE Avery St to fire access easement road	Construct sidewalk on north side of street	Newport	3	$66,700
Fire Access Easement	NE 70th St to NE 71st St	Construct pedestrian accessway	Newport	3	$15,000
US 101	NE Avery St to Agate Beach Access Rd	Construct sidewalk on west side of street	ODOT / Newport	3	$595,000
NE 57th Street	US 101 to NE Evergreen Ln	Construct sidewalk on south side of street	Newport	2	$107,000
NE Evergreen Lane	End of street to NE 54th St	Construct sidewalk on west side of street	Newport	3	$207,000
NE 54th Street	NE Evergreen Ln to NE 56th St	Construct sidewalk north side of street	Newport	3	$51,000
NE 56th Street	NE 54th St to NE Lucky Gap St	Construct sidewalk on east/south of street	Newport	3	$72,000
NE Lucky Gap Street	NE 56th St to NE 57th St	Construct sidewalk on east side of street	Newport	3	$46,000
NW 60th Street	US 101 to end of street	Construct sidewalks on both sides of street	Newport	2	$132,000

Newport Project Matrix					
Project	From – to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
NW 58th Street	US 101 to end of street	Construct sidewalks on both sides of street	Newport	2	$190,000 . . .
NW 57th Street	NW Gladys St to end of street / NW Biggs St to end of street	Construct sidewalk on south side of street	Newport	3	$94,500
NW 56th Street	US 101 Access Rd to end of street	Construct sidewalk on south side of street	Newport	2	$120,000
NW 55th Street	US 101 to end of street	Construct sidewalk on north side of street	Newport	2	$135,000
NW Rhododendron Street	NW 55th St to NW 60th St	Construct sidewalk on east side of street	Newport	2	$87,000
NW Biggs Street	NW 56th St to NW 60th St	Construct sidewalks on both side of street	Newport	2	$131,000
NW Gladys Street	NW 56th St to NW 60th St	Construct sidewalks on west side of street	Newport	3	$76,000
NW Lighthouse Drive	US 101 to end of street	Construct sidewalks on north side of street	Newport	3	$285,000
NE Harney Street	US 101 to NE Big Creek Rd	Construct sidewalks on south side of street	Newport	2	$178,000
NE Lakewood Drive	NE Harney to end of street	Construct sidewalk on one side of street	Newport	2	$160,000
NE Crestview Drive	NE 20th St to end of street	Complete sidewalk gaps on west side of street	Newport	3	$29,000
NE Crestview Place	NE 20th St to end of street	Construct sidewalks on west side of street	Newport	3	$53,000
NE 20th Place	NE 20th St to end of street	Construct sidewalks on south side of street	Newport	3	$52,000
NE Douglas Street	NE 20th Pl to end of street	Construct sidewalks on west side of street	Newport	3	$50,000
NW Oceanview Drive	US 101 to NW Spring St	Construct sidewalks on west side of street	Newport	3	$420,000
NW Spring Street	NW Oceanview Dr to NW 8th St	Construct sidewalks on west side of street	Newport	2	$88,000
NW 8th Street	NW Spring St to NW Coast St	Construct sidewalks on north side of street	Newport	2	$27,000
NW 15th Street	NW Oceanview Dr to NW Grove St	Construct sidewalks on south side of street	Newport	3	$58,000
NW 12th Street	NW Spring St to just east of NW Nye St	Construct sidewalks on south side of street	Newport	2	$74,000
NW 11th Street	NW Spring St to US 101	Complete sidewalk gaps on both sides of the street	Newport	1	$111,000
NW 10th Street	NW Spring St to NW Nye St	Construct sidewalk on south side of street	Newport	2	$67,000
NW 6th Street	NW Coast St to NW Nye St	Construct sidewalks on both sides of street	Newport	1	$184,000
NW 3rd Street	NW Hurbert St to US 101	Complete sidewalk gaps on north side of street	Newport	1	$81,000
NE 12th Street	US 101 to NE Benton St	Complete sidewalk gaps on south side of street	Newport	1	$51,000

Newport Project Matrix					
Project	From – to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
NE 8th Street	US 101 to NE Eads St	Construct sidewalks on one side of the street	Newport	2	$107,000
NE 7th Street	US 101 to NE Eads St	Construct sidewalks on one side of the street	Newport	1	$107,000
NE Jeffries Place	NE 7th St to end of street	Construct sidewalks on west side of street	Newport	3	$33,000
NE 7th Drive	NE 7th St to end of street	Construct sidewalks on west side of street	Newport	3	$80,000
NE 6th Street	NE 7th Drive to end of st	Construct sidewalks on south side of street	Newport	3	$84,000
NE 4th Street	US 101 to NE Douglas St	Construct sidewalks on both sides of the street	Newport	1	$145,000
NE 3rd Street	NE Eads St to NE Harney St	Complete sidewalk gaps on both sides of street	Newport	1	$117.000
NE 2nd Street	US 101 to NE Eads S	Complete sidewalk gaps on both sides of street	Newport	2	$106,500
SE 1st Street	US 101 to SE Douglas St	Construct sidewalks on south side of street	Newport	1	$89,000
SE 2nd Street	SE Benton St to SE Douglas St	Construct sidewalks on south side of street	Newport	1	$39,000
SE Benton Street	SE 1st St to US 20	Construct sidewalks on west side of street	Newport	1	$15,000
SE Coos Street	SE 2nd St to US 20	Construct sidewalk on west side of street	Newport	2	$33,000
SE Douglas Street	SE 2nd St to US 20	Construct sidewalk on west side of street	Newport	2	$33,000
SE 2nd Street	SE Fogarty St to SE Harney St	Construct sidewalks on south side of street	Newport	1	$38,000
SE 4th Street	SE Fogarty St to SE Harney St	Construct sidewalks on south side of street	Newport	1	$38,000
SE Harney Street	SE 4th Street to SE 2nd St	Construct sidewalks on east side of street	Newport	1	$33,000
Bay Blvd	Length of street	Complete sidewalk gaps on both side of street	Newport	2	$157,500
SW Hatfield Drive	SW Bay Blvd to SW 10th St	Construct sidewalks on west side of street	Newport	3	$57,000
SW Harbor Drive	SW Bay St to SW 11th St	Construct sidewalks on west side of street	Newport	1	$43,500
SW Neff Way / SW Alder Street	US 101 to SW 2nd St	Construct sidewalks on both sides of street	Newport	1	$143,000
SW 7th Street	SW Alder St to SW Elizabeth St	Construct sidewalks on north side of street	Newport	2	$152,000
SW Elizabeth Street	SW Government St to SW Abbey St	Construct sidewalk on west side of street	Newport	1	$121,000
SW Government Street / Yaquina State Park	Yaquina State Park	Construct sidewalk adjacent to road through park	State Parks / Newport	3	$116,000
SE OSU Drive	SE 26th St to end of street	Construct sidewalks on both sides of street	Newport	2	$210,000
SE OSU Drive	SW Abalone St to SE Ferry Slip Rd	Construct sidewalks on north side of street	Newport	2	$67,500

Newport Project Matrix					
Project	From – to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
SE Ferry Slip Road	SE 29th St to SE OSU Dr	Construct sidewalks on west side of street	Newport	1	$91,000
SW Abalone Street	SE OSU Dr to US 101	Construct sidewalks on west side of street	Newport	1	$100,000
SW Brant Street	SW Abalone St to end of street	Construct sidewalks on west side of street	Newport	1	$91,000
SE 35th Street	SE Ferry Slip Rd to end of street	Construct sidewalk on one side of street	Newport	1	$337,500
US 101	SE Ash St to South Beach State Park	Construct sidewalk on west side of road	ODOT / Newport	3	$250,000
US 101	SW Abalone St to SE 32nd St	Construct sidewalk on west side of road	ODOT / Newport	2	$32,000
SE Fogarty Street	US 20 to SE Bay Blvd	Construct sidewalk on east side of street	Newport	2	$93,000
NE 36th Street	US 101 to NE Harney St	Construct sidewalk on one side of street	Newport	2	$114,000
NE 10th Court	NE Eads to NE Benton St	Construct sidewalks on both sides of street	Newport	2	$100,000
NE 10th Street	NE Benton St to US 101	Construct sidewalks on both sides of street	Newport	2	$105,000
NE 5th Street	NE Benton St to NE Eads St	Construct sidewalks on both sides of street	Newport	2	$106,000
NE Fogarty Street	US 20 to NE 3rd Street	Construct sidewalks on both sides of street	Newport	2	$95,000
SE Moore Drive	Bay Blvd to SE 2nd Street	Construct sidewalk on west side of road	Newport	2	$106,000
SE 2nd Street	SE Moore Drive west	Construct sidewalks on both sides of street	Newport	2	$19,000
SE 5th Street	SE Moore Drive west	Construct sidewalks on both sides of street	Newport	2	$150,000
San Bay-O Circle	Proposed connection to Crestview to proposed connection to Chambers Ct	Construct sidewalk along one side of street from proposed connections to Crestview and to Chambers Court	Newport	2	$41,000
Sidewalks and Bike Lanes					
NW Nye Street	NW 15th St to SW 2nd St	Construct bicycle lanes on both sides of street and complete sidewalk gaps on east side of street	Newport	1	$166,000
NE Benton Street / NE Coos Street	NE 12th Street to US 20	Construct bicycle lanes and sidewalks on both sides of street	Newport	2	$439,000
NE 7th Street	NE Eads St to NE 6th St	Construct bicycle lanes and sidewalks on both sides of street and sidewalks on south side of street	Newport	1	$180,000
NE Harney Street	US 20 to NE 3rd St	Construct bicycle lanes and sidewalks on both sides of street and sidewalks on south side of street	Newport	2	$77,000
US 20	NE Harney St / SE Moore Dr to US 101 intersection	Construct bicycle lanes and fill in sidewalk gaps on both sides of street	ODOT / Newport	2	$47,000

Newport Project Matrix					
Project	From – to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[+]
SE Bay Blvd	SE Moore Dr to SE Vista Dr	Construct bicycle lanes and sidewalks as described in ODOT grant application	Newport	1	The city has received grant monies
SW 10th Street	SW Hatfield Dr to SE 2nd St	Stripe bicycle lanes on south side of street and fill in sidewalk gaps on both sides of street	Newport	2	$38,000
SW 2nd Street	SW Nye St to SW Coast St	Stripe bicycle lanes on both sides of the street and complete sidewalk gaps on north side of the street	Newport	3	$61,000
SW Naterlin Drive	SW Bay St to US 101	Construct bicycle lanes and sidewalk on south side of street	Newport	2	$94,000
Bicycle Lanes					
SW Canyon Way	SW Fall St to SW 9th St	Construct bicycle lane on east side of street	Newport	3	$9,000
US 101	Yaquina Bay Bridge to South Beach State Park Access	Stripe bicycle lanes on both sides of street	ODOT	3	$54,000
West Olive	US 101 to SW Elizabeth St	Stripe bicycle lanes on both sides of street	Newport	2	$20,000
New Boat Launch Pathway	OSU Drive to New Boat Launch	Designate bike and pedestrian lane on access road on Northern edge of parking lot	Port	3	$9,000
Shared Roadways / Bicycle Boulevards					
Oregon Coast Bicycle Route	US 101 to Yaquina Bay Bridge	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	2	$7,000
NE Harney Street	US 101 to NE Big Creek Rd	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	3	$1,500
11th Street	NW Spring St to NE Eads St	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	1	$1,500
6th Street	NW Coast St to NE Eads St	Implement Level 1, 2, and 3 bicycle boulevard applications (signage, pavement markings, intersection treatments)	Newport	1	$1,700
NW 3rd Street / NE 4th Street	NW Coast St to NE Eads St	Implement Level 1, 2, and 3 bicycle boulevard applications (signage, pavement markings, intersection treatments)	Newport	2	$2,300
SW 7th Street	SW 2nd St to SW Elizabeth St	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	2	$1,500
SW 10th / 9th Street	SE 2nd St to SW Bay St	Implement Level 1, 2, and 3 bicycle boulevard applications (signage, pavement markings, intersection treatments)	Newport	1	$2,200
SW Canyon Way / SW Hurbert Street	SW Bay Blvd to NW 6th St	Implement Level 1, 2, and 3 bicycle boulevard applications (signage, pavement markings, intersection treatments)	Newport	1	$1,900
SW Bay Street	SW 9th St to SW 12th St	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	1	$400
SW 10th Street / SW 12th Street	SW Bay St to US 101	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	1	$700
Bay Blvd	SW Naterlin Dr to SE Moore Dr	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	2	$2,500

Newport Project Matrix					
Project	From – to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
South Beach State Park	US 101	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	3	$2,300
NE Eads Street	US 20 to NE 12th Street	Implement Level 1, 2, and 3 bicycle boulevard applications (signage, pavement markings, intersection treatments)	Newport	1	$15,000
SE Moore Drive	Bay Blvd to US 20	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	1	$1,000
OSU Drive	US 101 to end	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	1	$2,000
SW 26th Street	US101 to west of town	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	2	$500
Old Boat Launch access	US 101 to old boat launch	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	3	$14,000
Shared-use Paths					
NE Big Creek Road	NE Harney St to NE 12th St	Construct a shared-use path along the NE Big Creek right-of-way	Newport	2	$440,000
SE 2nd Street Bridge	Se Douglas St to SE Fogarty St	Construct a non-motorized shared-use bridge over the existing ravine to provide a more direct connection to Yaquina View Elementary School from the nearby residential areas	Newport	3	$1,500,000 - $3,000,000
Yaquina Bay Bridge	Bridge	Provide a dedicated travel space for bicyclists and pedestrians	Newport	3	$15,000,000- $20,000,000
North Jetty Trail	SW Naterlin Dr to north jetty	Construct a shared-use path out the north jetty	Newport	1	$780,000
South Jetty Trail	SW 26th St to south jetty	Construct a shared-use path out along the south jetty	Newport / Oregon State Parks	2	$450,000
San-Bay-O Connection	San-Bay-O Circle to NE Crestview	Construct a shared-use path connection, requires an easement over private property. Exact location uncertain.	Newport	2	$35,000
Route to Main Shopping Area	NE Chambers Ct to Frank Wade Park and Park to San-Bay-O Circle	Construct a shared-use path connecting to main shopping area	Newport	1	$82,000
Path across old RV park	SE Pacific Way to OSU Drive	Improve pathway through RV park, route pedestrians off blind corner at SE Pacific Drive and OSU Drive	Newport	1	$500
Estuary Trail Access	SE 35th St to Chestnut St	Provide a dedicated travel space for bicyclists and pedestrians as an alternative to Idaho Point Road	Newport	2	$175,000
Connector to OCCC	SE 35th to OCCC	Provide a dedicated travel space for bicyclists and pedestrians	Newport	2	$450,000
Ash Extension	Ash Street end to SE 35th	Provide a dedicated travel space for bicyclists and pedestrians along railway right-of-way		2	$191,000
Connector to US 101 Stairways	US 101 to SW 26th and SW 27th Avenues	Provide access to US 101 stairways	Newport	1	$79,000
Connector to US 101 Bridge	SW 26th (S. Jetty Rd) to US 101 Bridge	Continues to the improvements on the east side of the US 101 bridge to OSU Drive	Newport	2	$60,000
Development of SW Coho Street	S. Jetty Rd to SW 30th St	Provides pedestrian access on unimproved road	Newport	2	$99,000

Newport Project Matrix					
Project	From – to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
Connector – SW 29th Street or SW 30th Street	State Park and South Beach neighborhood	Links into State Park trail system	Newport	1	$35,000
Connector	SW 26th to State Park	Links into State Park trail system	Newport	1	$83,000
Connector	State Park to South Shore	Links into State Park trail system	Newport	2	$156,000
Connector	South Shore to Airport	Links State Park trail system to airport	Newport	3	$869,000
Yaquina Bay Estuary Trail Extension	Yaquina Bay Trail to SE 35th Street	Extends existing trail	Newport	1	$321,000
NW Coast Street	NW 8th St to NW 11th St	Provide bicycle and pedestrian improvements over existing gravel road	Newport	2	$113,000
NW Nye Street	NW 15th St to Oceanview	Construct shared use path connecting Nye to Oceanview	Newport	2	$110,000

Transit Plan

If is difficult for cities the size of Newport to support fixed-route transit. The City had attempted to provide such transit service through the Newport Area Transit System, but low ridership and funding constraints lead to discontinuation of the service in July 1991. In November 1992, Lincoln County, with some funding from the City of Newport, began operation of a county-wide public transit system, the Central Coast Connection. Lincoln County currently provides the combined services of a scheduled stop system and a dial-a-ride service. County employees coordinate the fixed-route system consisting of an intercity shuttle and east and south county vans operating as feeder lines to the intercity shuttle. The CCC shuttle makes intercity runs from Newport to Lincoln City daily. The CC shuttle and the intercity feeder lines between Siletz, Toledo, Waldport, Yachats, and Newport are open to the general public.

Table 7 displays all the recommended transit improvements included in the Plan with their associated annual or capital costs. Funding is from state and federal sources.

Table 7: Recommended Transit Improvements

Transit Improvements	Priority (years)	Estimated Annual Operating Costs	Estimated Capital Cost
Support continuation of existing Lincoln County Transit Service	1-20	$434,200	------
Improve Dial-a-Ride service through the use of private taxis as a backup service	1-20	$8,000	------
Provide covered bus shelters at major bus stops	1-5	------	$40,000
Purchase two larger transit vehicles for Dial-a-Ride service	1-5	------	$130,000

Construct a centrally located multi-modal transit facility	11-15	-----	$500,000
Purchase two large vans and lease to Valley Retriever for service from Newport to Bend	6-10	------	$175,000
Total Cost (Transit Improvements)			**$845,000**

Airport Transportation Plan

The Newport Municipal Airport is owned by the City of Newport. It is classified as a General Aviation General Utility category airport and is a public airport capable of handling corporate-type aircraft. The Newport Municipal Airport Master Plan outlines a staged development program for the airport (see Table 8, below).

Table 8: Staged Development Program – Projected Development

Stage II (1995-1999)	Local	FAA	Other	Total
Road Relocation	$18,000	$162,000	$0	$180,000
Land Acquisition	$1,000	$9,000	$0	$10,000
Hangar Taxiways	$4,000	$32,000	$0	$36,000
Auto Parking	$40,000	$0	$0	$40,000
Aircraft Apron	$11,000	$94,000	$0	$105,000
Clear Zone Earthwork	$10,000	$90,000	$0	$100,000
Runway Marking	$200	$1,800	$0	$2,000
Single-Unit Hangars (5)	$0	$0	$125,000	$125,000
FBO Hangar	$0	$0	$300,000	$300,000
Corporate Hangar	$0	$0	$200,000	$200,000
Airport Maintenance Shop	$200,000	$0	$0	$200,000
ARFF Station/City Fire Station	$9,000	$81,000	$0	$90,000
Total Stage II	**$293,200**	**$469,800**	**$625,000**	**$1,388,000**
Stage III (2000-2009)				
Terminal	$300,000	$280,000	$0	$580,000
Auto Parking	$225,000	$0	$0	$225,000
Terminal Roadway	$22,000	$198,000	$0	$220,000
Apron Expansion	$10,000	$90,000	$0	$100,000
Relocate VOR	$50,000	$0	$0	$50,000
Parallel Taxiway Extension	$39,000	$351,000	$0	$390,000
Overall Runway 16-34 & Taxiway	$88,000	$787,000	$0	$875,000
Runway 2-20 Taxiway	$23,000	$207,000	$0	$230,000
Corporate Hangars (2)	$0	$0	$400,000	$400,000
Single-Unit Hangars (5)	$0	$0	$375,000	$375,000
Total Stage III	**$757,000**	**$1,913,000**	**$775,000**	**$3,445,000**
Total Stages II and III	**$1,050,200**	**$2,382,800**	**$1,400,000**	**$4,833,000**

Source: Newport Municipal Airport Master Plan, 1991

Water Transportation

The upland areas adjacent to, and development within, Yaquina Bay are controlled by the City of Newport, Lincoln County, the Port of Newport, and the State of Oregon. The tourism, commercial fishing, and commercial shipping industries that use the bay provide a significant part of the local economy. The Recommended Water Transportation Plan considers a wide variety of needs and acknowledges the competition between marine-related industries for certain tracts of waterfront property.

Recommended improvement projects for the port have been prioritized into three categories based on the time frame for implementation (see Table 9, below). Funding has not been determined for all of the projects.

Table 9: Recommended Port Improvement Projects

Priority 1 – Develop in the Next 5 Years **Project**	**Cost** **($ X 1,000)**	**Funding** **Source**
Rehabilitation of Port Dock 5 Pier	75	Port
Multi-Level Parking Structure	2,000	Urban Renewal
Revitalization of Newport International Terminal	Unknown	Port
Rehabilitation of Existing Corps of Engineers Breakwater and d175 Feet of New West Extension	1,200	Corps/State/Port
Marine Commercial Lease Facility	Undetermined	Undetermined
Priority 2 – Develop in the Next 5 to 10 Years **Project**		
Widening of Bay Blvd	Undetermined	Undetermined
Public Viewing Dock	Undetermined	Undetermined
Priority 3 – Develop in Next 10 to 15 Years **Project**		
Second Ship Berth	32,000	Port
Second Barge Berth	5,800	Port

Source: Public Facilities Plan, 1990 and Port of Newport Staff Review, 1996

Rail Transportation

Willamette and Pacific Railroad provides freight service from the western Willamette Valley to the terminus of the rail line at Toledo, six miles east of Newport. There is no direct service into Newport.

Pipeline Transportation

Current pipeline service includes transmission lines for electricity, cable television, and telephone service, and pipeline transport of water, sewage, and natural gas. The Newport TSP encourages the continued use of these services for the movement of these commodities through the City.

The Plan also recognizes the increasing likelihood that telecommuting and other "super-highway" technologies will become viable alternatives to physical commuting, thus reducing and possibly even eliminating some auto trips during the peak hours. The use of telecommuting and other similar technologies should be encouraged through land use policy and plans.

Other Elements of TSP

Funding

The City of Newport Transportation System Plan also contains a section on the funding of the various projects and an analysis of transportation funding alternatives. For a complete discussion on the available options, please refer to the TSP and the adopted TSP updates.

There are a variety of funding options available to the City of Newport. To fund all of the recommended capital improvement projects in the TSP and the TSP updates_would most likely require a number of new revenue sources. For purposes of illustration, the following provides an example of what it would take to fund the entire 1997 TSP (see Table 9). The funding options include:

- Obtain $16 million in additional revenue from State grants and programs
- Use revenue bonds to pay for recommended parking structure
- Create local improvement districts to pay for neighborhood street improvement projects
- Increase SDC charges from $300/dwelling unit to $837 (from 20% to 50% of needed capital expenditure)
- Implement a city-wide street utility fee (e.g. $2/month for all residences)

Table 10 shows that the new funding sources would generate a surplus of revenue of about $1 million in Years 1-5. If this surplus were carried forward into Year 6-10, there would be enough revenue for all of the recommended capital improvement projects.

Table 10 displays a potential scenario that would fund the entire recommended 1997 TSP over the 20 year period. It does show that the recommended 1997 TSP can realistically be implemented over the next 20 years. Regardless, the following funding strategy should include the following:

- Aggressively pursue federal and state funding options for capital improvement projects, especially for Highways 20 and 101.

- Increase System Development Charges (SDCs) to a more comparable rate with surrounding communities (i.e. 50 to 60% of the needed revenue, $875 to $1,000 per dwelling unit).

- Seek one or more of the local funding options previously discussed.

- Carefully prioritize capital improvement projects.

Table 10: Total Funding From Various Sources to Fund the Recommended 1997 TSP (1996 Dollars)

	Years 1-5	Years 6-10	Years 11-20	Total
Existing Highway Fund Revenue	$349,800	$384,000	$742,500	$1,476,300
City's Existing SDC Revenue	$763,000	$500,000	$1,000,000	$2,263,000
Additional State Contributions	$535,100	$1,024,300	$14,496,500	$16,055,900
Total Available Funds	**$1,647,900**	**$1,908,300**	**$16,239,000**	**$19,795,200**
Revenue Bonds for Parking Structure	$0	$0	$3,207,000	$32,070,000
Local Improvement Districts for Neighborhood Street Improvements	$268,000	$0	$268,000	$5,360,000
Increase SDC Charge (50% of needed TSP)	$895,000	$89,500	$1,790,000	$3,580,000
Street Utility Fee ($2/month residential)	$1,000,000	$10,000,000	$2,000,000	$4,000,000
Total Revenue from New Sources	**$2,163.000**	**$1,895,000**	**$7,265,000**	**$11,323,000**
TOTAL REVENUE	**$3,810,900**	**$3,803,300**	**$23,504,300**	**$11,323,000**
Total Project Costs	$2,807,300	$5,060,700	$23,079,400	$30,947,400
Unfunded Project Costs	**($1,003,600)**	**$1,257,400**	**($424,600)**	**($170,800)**

Access Management

The purpose of the Access Management Plan is to define an effective access management program that will enhance mobility and improve the safety of roadways in the City of Newport. Access management strategies that limit the number of conflict points, separate conflicts as much as possible, reduce deceleration requirements, and separate turning traffic from traffic will all contribute to better mobility and safety on the City of Newport's roadways.

The primary focus of the access management plan is on the major arterials in the City of Newport; Highway 101 and Highway 20. The plan seeks to maintain the function of these roadways as the primary through routes in the City of Newport. The Access Management Plan as detailed in the TSP establishes policies and criteria that support this function.

The Access Management Plan must address the growth in traffic in Newport through planning for the future transportation system. The Oregon Transportation Planning Rule requires in Section 660-12-045 Subsection (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 measure; for example, driveways 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.*

Access management can be most effectively implemented when it is integrated into the land use permitting process. Or developing areas, this allows jurisdictions an immediate tool to implement their access management goals as these areas apply for permits and submit plans for agency review. Applying access management to a developed arterial – representative of the conditions of many sections of Highway 101 and Highway 20 in the City of Newport – is a much more difficult task due to right-of-way limitations and the economic concerns of adjacent property owners. In such areas, access management can best be implemented as adjacent properties redevelop or as part of roadway improvement or retrofit plans.

Access management is a set of measures to regulate access to streets, roads, and highways from public roads and private driveways. The purpose of access management is to maximize the efficiency and safety of the existing roadway while preserving the flow of traffic and limiting the number of traffic conflicts. A traffic conflict occurs where the paths of two traffic movements intersect. Crossing conflicts are the most serious because of the potential for collisions. The area and complexity of the crossing conflicts are also affected by the roadway cross-section. For example, with a four-lane cross-section, each conflict involves two lanes, whereas with a two-lane section, each of the conflict points involves only one lane.

There are many different strategies for accomplishing access management, but the common theme of all strategies is to reduce traffic conflicts. Strategies to reduce conflicts are listed below followed by select examples for tools that can be used to implement the strategy:

- Limit the number of conflict points
  - Installation of median barriers or closure to eliminate left turns at ingress and egress points
  - Installation of traffic signals at high volume intersections or driveways
  - Optimization of traffic signal spacing and coordination
  - Installation of physical barriers along frontage properties, e.g. curbs, fences, Landscaping
  - Regulate maximum width of driveways

- Separate conflicts as much as possible when they cannot be eliminated
  - Regulate minimum spacing of driveways
  - Consolidate access for adjacent properties
  - Regulate maximum number of driveways per frontage property
  - Consolidate existing access as parcels redevelop
  - Require access on adjacent cross-section (when available) in lieu of driveways on major highways

- Reduce deceleration requirements
  - Improve driveway sight distance
  - Increase effective approach width of driveway
  - Restrict parking on roadway adjacent to driveway to increase driveway turning speeds
  - Install right-turn acceleration lane

- Separate turning traffic from through traffic
  - Install continuous two-way left turn lane
  - Require adequate internal design and circulation plan
  - Provide local service roads
  - Encourage connections between adjacent properties

Many of these tools can be used within the City of Newport. Specific recommendations for application of these access management strategies will be provided in the Goals ad Policies section.

During the development of the Newport TSP, specific access management goals were established for the City of Newport's primary arterials, Highway 101, and Highway 20. These access management goals address these facilities in both the established and the developing areas of the City as defined in the maps contained in the Access Management Plan contained in the TSP. The goals reflect the input of the Technical Advisory Committee, the Citizens Sounding Board, and public input from the Open Houses as well as correspondence from members of the public.

Supporting access management goals were developed for the two types of areas in the City: established areas and developing areas. The goals for these areas are defined below as well as the range of strategies that were explored by the study team.

Established Areas

Many properties now having direct access to the highway within these established areas will eventually redevelop. At such time, alternate access may be provided and existing private accesses can be closed. The reduction in traffic conflicts, due to preventing future private accesses and closing old private accesses, will allow the highway to operate safely at higher volumes of traffic.

The types of access management tools most appropriate for these established areas include:

- Optimize traffic signal spacing and coordination
- Install physical barriers along frontage properties, e.g. curbs, fences, landscaping
- Regulate maximum width of driveways
- Regulate minimum spacing of driveways
- Consolidate access for adjacent properties
- Regulate maximum number of driveways per frontage property
- Require access on adjacent cross-street (when available) in lieu of driveways on Highway 101 and Highway 20
- Require adequate internal design and circulation plan
- Encourage connections between adjacent properties
- Install traffic signals at high volume intersections or driveways

Spacing goals for the established areas are 500 feet for driveways, ¼ mile for public roads, and ½ mile for signals. As redevelopment occurs, these spacing standards and access management tools should be evaluated and applied as appropriate to the specific needs of the project.

Developing Areas

The types of access management tools most appropriate for these areas are:

- Install median barriers or closure to eliminate left turns at ingress and egress points
- Install traffic signals at high volume intersections or driveways
- Optimize traffic signal spacing and coordination
- Install physical barriers along frontage properties, e.g. curbs, fences, landscaping
- Regulate maximum width of driveways
- Regulate minimum spacing of driveways
- Consolidate access for adjacent properties
- Regulate maximum number of driveways per frontage of property
- Require access on adjacent cross-street (when available) in lieu of driveways on major highways
- Improve driveway sight distance

- Increase effective approach width of driveway
- Install right-turn acceleration lane
- Install continuous two-way left turn lane
- Require adequate internal design and circulation plan
- Provide local service roads
- Encourage connections between adjacent properties

Spacing standards for primary arterials in developing areas are 800 feet for driveways, ½ to one mile for public roads, and ½ to one mile for signals. As development and redevelopment occurs, these spacing standards and access management tools should be evaluated and applied as appropriate to the specific needs of the project.

GOALS AND POLICIES

The following goals and policies are intended to guide the decision makers and the development community in the administration of the Transportation System Plan (TSP) and the development of applicable implementing ordinances consistent with the TSP. This section is not intended to provide review criteria for specific projects or to function as a capital improvement plan.

Goal 1: To provide a safe and efficient multi-modal transportation system consistent with the Transportation System Plan.

Policy 1: The middle alternative shall be the preferred alternative of the 1997 TSP as amended by the project lists contained within the following updates:

A. Transportation System Plan Update Technical Memo # 2 (Northside Local Street Plan) dated July 2008.
B. Transportation System Plan Update Technical Memo # 4 (Pedestrian and Bicycle Plan) dated July 2008.

Policy 2: To develop implementing ordinances and funding options consistent with the following:

- Street System Plan

  1. New roadway projects, transportation management system improvements and improvements to existing roadways shall be consistent with the TSP subject to available funding.

  2. The City does hereby adopt the classification system contained in the TSP as guidelines and shall develop implementing ordinances consistent with the classifications. However, the topography of the City of Newport limits the ability to develop streets that are totally consistent with the classification system at all times. It is therefore imperative that the classification system be flexible in its application to account for specific circumstances.

  3. The City shall require that any change to the acknowledged Comprehensive Plan land use designations must make a finding that the change will not reduce the function of streets, especially Highway 101 and Highway 20, as identified in the TSP.

4. Because the cost of a new bridge is beyond the capability of the City of Newport, the City shall, within two years, prepare a refinement plan to develop a strategy for dealing with increased traffic across the Yaquina Bay Bridge.

- Pedestrian System Plan

  1. The City shall provide a continuous pedestrian network consistent with the TSP, to the greatest extent possible considering funding limitations, topographic constraints, and existing development patterns.

  2. The City shall provide a safe walking environment.

  3. The City shall provide a pedestrian-oriented urban design especially on the Bay Front, in the City Center, and in Nye Beach.

  4. The City shall work to implement the Goal, Policies and Implementation Strategies related to pedestrian facilities identified on pages 1-3 and 1-4 of the Newport Pedestrian and Bicycle Plan adopted in 2008.

- Bicycle System Plan

  1. The City shall provide a safe and efficient bicycle network consistent with the TSP, considering funding limitations, topographic constraints, and existing development patterns.

  2. The City shall work to implement the Goal, Policies and Implementation Strategies related to bicycle facilities identified on pages 1-3 and 1-4 of the Newport Pedestrian and Bicycle Plan adopted in 2008.

- Transit System Plan

  1. The City shall support the Lincoln County Transit Service consistent with the TSP considering funding limitations, topographic constraints, and existing development patterns.

  2. The City shall explore the possibility of providing a shuttle service during the busy tourist season to help reduce traffic congestion, i.e. on the Yaquina Bay Bridge subject to the availability of funding.

- Access Management Plan

  1. The City shall implement an access management strategy for the established and developing areas of the City of Newport along Highway 101, Highway 20, and other arterials that supports the City's Transportation Goal and ensures that those streets can accommodate traffic in a safe and efficient manner as traffic increases.

  2. In established areas of the City of Newport as identified in the TSP, the City shall encourage consolidation or reduction of accesses as possible during property redevelopment and/or frontage improvements. Spacing goals for the established areas are 500 feet for driveways, ¼ mile for public roads, and ½ mile for signals. As redevelopment occurs, these spacing standards and access

management tools should be evaluated and applied as appropriate to the specific needs of the project.

3. In developing areas of the City of Newport as identified in the TSP, as sites develop or redevelop, accesses shall be planned, consolidated, and/or reduced to meet the spacing standard to the greatest extent possible. Spacing standards for primary arterials in developing areas are 800 feet for driveways, ½ mile to one mile for public roads, and ½ mile to one mile for signals.

4. The City shall develop specific ordinance provisions to further this access management plan.

- Funding Plan

1. The City shall seek one or more of the local funding options discussed in the TSP (i.e., local gas tax, street utility fee, general obligation bonds, local improvement districts, developer exactions, system development charges).

2. The City shall carefully prioritize capital improvement projects through the development, maintenance, and implementation of the TSP and Capital Improvement Program.

3. The City shall aggressively pursue federal and state funding options for capital improvement projects, especially for Highways 101 and 20.

EXHIBIT "A"

FINDINGS FOR
COMPREHENSIVE PLAN AMENDMENT
TO THE NEWPORT TRANSPORTATION SYSTEM PLAN
(Newport File Nos. 1-CP-08 and 2-CP-08)

I. Required findings necessary to modify Data, Text, Inventories or Graphics, Conclusions of the Newport Transportation System Plan to adopt the Transportation System Plan Update Technical Memos # 1, #2, #3, and #4 and amend Policy 1 of Goal 1 of the Newport Transportation System Plan Section of the Newport Comprehensive Plan. (Requirements in bold font and Findings in plain text).

The Newport Comprehensive Plan Section entitled "Administration of the Plan" (p. 287-288) requires Findings of Fact as follows for the applicable amendments:

A. Data, Text, Inventories or Graphics:

1) New or updated information.

B. Conclusions:

1) Change or addition to the data, text, inventories, or graphics which significantly affects a conclusion that is drawn for that information.

C. Goals and Policies:

1) A significant change in one or more conclusion; or
2) A public need for the change; or
3) A significant change in community attitudes or priorities; or
4) A demonstrated conflict with another plan goal or policy that has a higher priority; or
5) A change in a statute or statewide agency plan; and
6) All the Statewide Planning Goals.

II. Updated Information to amend the Data, Text, Inventory, and Graphics:

Required Findings:

A. Amendment to the Data, Text, Inventories and Graphics of the Newport Transportation System Plan.

1) New or updated information.

Proposed Findings:

1. The current Transportation System Plan of the Newport Comprehensive Plan was developed in 1996 and 1997 and adopted by amendment in 1999 by Ordinance No. 1802. Most of the data in the current Transportation System Plan is based on information that is around 10-12 years old. A summary of the 1997 Transportation System Plan was adopted in Ordinance No. 1802 as an amendment to the Newport Comprehensive Plan and the entire document was incorporated by reference into the Comprehensive Plan.

2. The City of Newport completed an updated economic development strategy in 2005 for the City as part of the City of Newport's Employment Lands and Conceptual Land Use Planning project. Updated information included a new economic development visions and goals, a strategic action plan, an economic analysis (including a baseline analysis of national, state, and local trends, a commercial/industrial land inventory, an industry cluster analysis, a competitive market area analysis, an evaluation of business and land needs, projected growth scenarios, a discussion of employment land configuration and development issues, a discussion of the focus group consensus, and an identification of Newport support programs), and supporting documentation (including baseline economic statistics and analysis, Newport focus group summary, site requirements by land use type, Newport support programs, SBA loan and SBOR/STTR grant activity, and a commercial/industrial vacant land inventory). The updated information is contained in the document entitled Employment Lands and Conceptual Land Use Planning Project (September 2005). The updated information resulted in the adoption of an updated Economic Section of the Newport Comprehensive Plan in Newport File No. 2-CP-05. Policy 1, Implementation Measure 2 stated:

> Policy 1: *The City will address the need for commercial property within the City's Urban Growth Boundary.*
>
> *Implementation Measure 2. North of Yaquina Bay, the City will focus on the redevelopment and/or conversion of existing areas for commercial uses to encourage efficient use of land already developed with urban level services that are currently underdeveloped or underutilized. The City will also examine areas in the downtown area down to the Bayfront and west of the downtown area between Highway 101 and the Nye Beach area for potential conversion to commercial Comprehensive Plan designations and Zones or other such designations that may provide for additional commercial opportunities.*

3. The City Council authorized the application for a Transportation & Growth Management (TGM) Program grant to provide funding for updates to the Transportation System Plan by Resolution No. 3354 (adopted on May 16, 2005). The City was successful in obtaining a TGM grant for $ 155,302 (which included additional funds later added to the project) for consultant services (Parametrix and Alta Planning + Design) for three main elements of updates to the Transportation System Plan:

> 1) **<u>Newport Central Core Areas (North side of the Bay)</u>**: This portion of the update includes identification and prioritization of transportation system infrastructure needs for economic development for the north side central core areas (which includes an area bounded by the Pacific Ocean on the west, 12th Street on the north, John Moore Drive/Harney Street to the east). The recently updated Economic Section of the Newport Comprehensive Plan completed as part of the Employment Lands & Conceptual Land Use Planning Project and adopted in 2005 has identified a need for approximately 201 acres of commercial land (primarily visitor driven commercial) over the next 20 years. It is anticipated about two-thirds of the commercial demand will occur on the north side of the bridge. The City has adopted as a policy to encourage the redevelopment and potential expansion of commercial areas within the central core area of Newport to accommodate the need to provide commercial land consistent with Statewide Planning Goal 9 (Economic Development). This aspect of the project will focus on evaluating transportation facilities, access, and highway operating conditions for commercial properties in this study area with a goal of prioritizing transportation infrastructure needs. Additionally, the TSP will need to be updated to reflect current Oregon Highway Plan requirements adopted after the TSP was adopted.
>
> 2) **<u>Comprehensive Pedestrian and Bicycle Facility Plan:</u>** This portion of the update focuses on the development of a comprehensive pedestrian and bicycle facility plan for the entire Newport urban growth boundary (UGB). The current TSP pedestrian and bicycle facility plan focuses primarily only on key routes. To provide better linkage and continuity to the system, a more comprehensive plan with identification of needed and feasible sidewalk and bicycle routes will be developed as well as necessary implementation ordinances.
>
> 3) **<u>South Beach Area Refinement Plan</u>**: This portion of the update includes transportation refinement plan that will build on existing work completed as part of the South Beach Neighborhood Plan process and will look at capacity, access management, and circulation issues in the South Beach area (down to 65th Street) including a focus on Highway 101 and the Yaquina Bay Bridge.

4. Significant new and updated information has been provided by the

Transportation System Plan (TSP) Update for elements # 1 and # 2 of the TSP Update identified in Finding # 3 above requiring that the data, text, inventories and graphics of the Newport Transportation System Plan be amended to reflect the new information contained in the TSP Update Technical Memos #1 (Existing Conditions), #2 (North Side Local Street Plan), #3 (City of Newport Existing Bicycle and Pedestrian Conditions), and #4 (Newport Pedestrian and Bicycle Plan).

III. Amendment to the Conclusions of the Transportation System Plan Section:

A. **Required Findings:**

B. Conclusions:

1) Change or addition to the data, text, inventories, or graphics which significantly affects a conclusion that is drawn for that information.

B. Proposed Findings:

1. The existing conclusions of the Newport Transportation System Plan will be amended based on the change and addition to data, text, inventories, and graphics produced by the Transportation System Plan Update in Technical Memos #1, #2, #3, and #4.

IV. Amendment to the Policy 1 of Goal 1 of the Newport Transportation System Plan:

A. **Required Findings:**

C. Goals and Policies:

1) A significant change in one or more conclusion; or
2) A public need for the change; or
3) A significant change in community attitudes or priorities; or
4) A demonstrated conflict with another plan goal or policy that has a higher priority; or
5) A change in a statute or statewide agency plan; and
6) All the Statewide Planning Goals.

B. Proposed Policy Changes:

1. Change to Policy 1:

Policy 1 of Goal 1 currently states:

Policy 1: The middle alternative shall be the preferred alternative.

Policy 1 of Goal 1 is proposed to be amended to state:

Policy 1: *The middle alternative shall be the preferred alternative of the 1997 TSP as amended by the project lists contained within the following updates:*

1. *Transportation System Plan Update Technical Memo # 2 (Northside Local Street Plan) dated July 2008.*
2. *Transportation System Plan Update Technical Memo # 4 (Bicycle and Pedestrian Plan) dated July 2008.*

2. Change to Policy 2 related to the Pedestrian System Plan and Bicycle Plan elements:

The Pedestrian System Plan element of Policy 2 currently states:

- Pedestrian System Plan

1. The City shall provide a continuous pedestrian network consistent with the TSP, to the greatest extent possible considering funding limitations, topographic constraints, and existing development patterns.

2. The City shall provide a safe walking environment.

3. The City shall provide a pedestrian-oriented urban design especially on the Bay Front, in the City Center, and in Nye Beach.

The Pedestrian System Plan element of Policy 2 is proposed to be amended to add a fourth item as follows:

4. The City shall work to implement the Goal, Policies and Implementation Strategies related to pedestrian facilities identified on pages 1-3 and 1-4 of the Newport Pedestrian and Bicycle Plan adopted in 2008.

The Bicycle System Plan element of Policy 2 currently states:

- Bicycle System Plan

1. The City shall provide a safe and efficient bicycle network consistent with the TSP, considering funding limitations, topographic constraints, and existing development patterns.

The Bicycle System Plan element of Policy 2 is proposed to be amended to add a second item as follows:

2. The City shall work to implement the Goal, Policies and Implementation Strategies related to bicycle facilities identified *on pages 1-3 and 1-4 of the Newport Pedestrian and Bicycle Plan adopted in 2008.*

C. Proposed Findings:

1. The adoption of the proposed amendments to the Newport Transportation System Plan in Technical Memos #1, #2, #3, and #4 satisfies the requirement for amending a policy that a finding be made identifying a significant change in one or more conclusions for the proposed amendments.

2. Additionally, there is a public need for the proposed amendments as the proposed amendments are necessary to have an adequate transportation system.

3. The proposed amendment is also consistent with the Statewide Land Use Planning Goals. Specifically:

A. In regard to Statewide Planning Goal 1 (Citizen Involvement), the acknowledged Newport Comprehensive Plan establishes the City of Newport's Goal 1 program on pages 291 and 292. In regard to the specific Policies and Implementation Measures, the following information is provided demonstrating conformance with the goal of encouraging citizen involvement:

1. Policy 1 contains at least three possible implementation measures (IM) to implement Policy 1 requirements of encouraging public involvement that may be or not be applicable depending on the nature of the proposed amendment. The City may use any one of the three implementation methods (or combinations thereof) to meet the Policy 1 requirements of encouraging public involvement. Additionally, as the city undertook the legislative process of amending the Comprehensive Plan, additional opportunities for public involvement occurred at public hearings held by the Newport Planning Commission on April 14, 2008, and the Newport City Council on May 19, June 16, July 21, and August 18, 2008. A public worksession overview of the proposed amendments was also held by the Newport Planning Commission on March 31, 2008.

A. Policy 1, IM 1 (Planning Commission to serve as official Citizens' Advisory Committee to the City Council / appointment of a Citizens' Advisory Committee on major changes). Under Policy 1, IM

1, the Newport Planning Commission is the official Citizens' Advisory Committee to the City Council and the Planning Commission has been used to develop legislative changes to the Comprehensive Plan and implementing ordinances. If the Planning Commission determines that a major legislative change is under consideration, the Commission may designate a Citizens' Advisory Committee for the purposes of using Policy 1 IM 1 as a means to encourage public involvement. For the TSP Update, the City Council had already appointed a Transportation System Plan Update Ad Hoc Advisory Committee pursuant to Policy 1, IM 3 and the Planning Commission therefore did not need to appoint an additional Citizens' Advisory Committee.

B. Policy 1, IM 2 in the first part addresses possible City promotion or assistance to neighborhood organizations to assist in decision making. The second part of Policy 1, IM 2 relates to allowing the Council or Commission to hold meetings in neighborhoods affected by issues under consideration. Both the first and second parts are at the discretion of the Council or Commission and are not a specific requirement prior to amendment adoption. In regard to the Transportation System Plan Update, three public open houses were held in the development stage on November 16, 2006, (covered all three elements of the TSP Update) on February 1, 2007, (covering the bicycle and pedestrian element of the TSP Update), and on October 11, 2007 (covering all three elements of the TSP Update). The open houses were held in the Newport City Council Chambers, which is located within the area identified as the northside study area for Technical Memos #1 and #2.

C. Policy 1, IM 3 allows for the formation of an ad hoc advisory committee for the study of an important issue. A Transportation System Plan Ad Hoc Advisory Committee was appointed by Mayor William Bain and confirmed by the City Council. The TSP Update Ad Hoc Advisory Committee included a variety of persons representing different interests. The TSP Update Ad Hoc Advisory Committee had six ad hoc advisory committee meetings (occurring November 2006 through January 2008).

2. Policy 2 relates to encouraging the participation of citizens in the legislative stage of plan and ordinance development rather than in the quasi-judicial stage.

A. Policy 2, IM 1 relates to reasonable attempts for public contact and input in the formulation of comprehensive plan elements and ordinance provisions.

1. Opportunities for public contact and input on the proposed Transportation System Plan amendments included three public open houses, interviews with stakeholders, review by the Transportation System Plan Update Ad Hoc Advisory Committee with public input allowed at the meetings, and review by members of the Newport Bicycle and Pedestrian Advisory Committee. Press releases for the open houses were provided to the media and the Newport News-Times printed the press releases. Meeting agendas for the Transportation System Plan Update Ad Hoc Advisory Committee were also distributed to the media.

2. Formal public hearings were also held before both the Planning Commission (on April 14, 2008) and the City Council (on May 19, June 16, July 21, and August 18, 2008) prior to adoption of the proposed policies. Additionally, the Planning Commission hosted a public open house/worksession on March 31, 2008, to review the proposed amendment. These public hearings provided additional opportunity for public involvement in the legislative stage.

B. Policy 2, IM 2 and IM 3 are not applicable to this Comprehensive Plan amendment as these implementation measures related to clear and objective standards and discretionary standards and who makes the decision for review of development.

C. Policy 2, IM 4 establishes the Planning Commission as the official Committee for Citizen Involvement. As part of the Planning Commission's role in comprehensive plan amendments as established in the Newport Comprehensive Plan on page 287 (under Initiation and under Hearings and Notification), the Planning Commission held worksessions on the proposed amendment on February 24, 2008, and on March 24, 2008. The Planning Commission also hosted a public open house/worksession on the amendments on March 31, 2008. A public hearing before the Planning Commission was held on April 14, 2008. The Planning Commission reviewed the proposed amendments and made a recommendation to the City Council. The public hearing was advertised to the local media.

B. In regard to Statewide Planning Goal 2 (Land Use Planning), the City of Newport's Comprehensive Plan has been acknowledged as being in compliance with the Statewide Planning Goals, including Goal 2. The Newport Comprehensive Plan section entitled "Administration of the Plan" specifies how amendments to the plan are made. The proposed amendment followed the requirements for an amendment found in the Newport Comprehensive Plan and is therefore found to be in compliance with Statewide Planning Goal 2.

C. In regard to Statewide Planning Goal 3 (Agricultural Lands), Goal 4 (Forest Lands), Goal 5 (Open Spaces, Scenic and Historic Areas and Natural Resources), Goal 6 (Air, Water and Land Resources Policy), Goal 7 (Areas Subject to Natural Disasters and Hazards), Goal 8 (Recreation Needs), Goal 10 (Housing), Goal 11 (Public Facilities and Services), Goal 13 (Energy Conservation), Goal 14 (Urbanization), Goal 16 (Estuarine Resources), Goal 17 (Coastal Shorelands), Goal 18 (Beaches and Dunes), the following findings are proposed:

1. The proposed amendments to the Transportation System Plan are consistent with the above Statewide Planning Goals.

D. In regard to Statewide Planning Goal 9 (Economic Development), while no specific implementation measure or requirement of Goal 9 is applicable, the proposed amendments to the Transportation System Plan help the City of Newport's Economic Section Policy 1, IM 2 implementation of Statewide Planning Goal 9 to provide for at least an adequate supply of sites of suitable sizes, types, locations, and service levels for a variety of commercial uses consistent with comprehensive plan policies which encourage redevelopment and opportunities for more commercial uses.

E. The proposed amendments are an update of the existing Transportation System Plan and are consistent with Statewide Planning Goal 12 (Transportation).

F. In regard to Statewide Planning Goal 15 (Willamette River Greenway) and Goal 19 (Ocean Resources), these Statewide Planning Goals are not applicable to the proposed amendments as Statewide Planning Goal 15 involves land along the Willamette River and Statewide Planning Goal 19 involves Ocean Resources.

ORDINANCE NO. 1963

EXHIBIT "C"

Newport Transportation System Plan
Technical Memorandum #1 – Existing Conditions

Prepared for

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CITATION

This project 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 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), local government, and State of Oregon funds.

Parametrix. 2006. Newport Transportation System Plan
Technical Memorandum #1 – Existing Conditions. Prepared by Parametrix,
Portland, Oregon. November 2006.

CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

Prepared by John Evans and Shelley Oylear, E.I.T.

Checked by Anne Sylvester, P.T.E.

Approved by Anne Sylvester, P.T.E.

TABLE OF CONTENTS

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ACRONYMS

Hwy	Highway
LOS	Level of Service
MEV	Million Entering Vehicles
MVMT	Million Vehicle Miles of Travel
OAR	Oregon Administrative Rules
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
ORS	Oregon Revised Statues
OTP	Oregon Transportation Plan
PDO	Property Damage Only
STIP	State Transportation Improvement Program
Synchro	HCM compatible traffic analysis software for intersections
TPAU	Transportation Planning and Analysis Unit
TSP	Transportation System Plan
UGB	Urban Growth Boundary
V/C	Volume-to-Capacity (ratio)

1. INTRODUCTION

This report forms the initial step in updating the City of Newport Transportation System Plan (TSP). It addresses the North Side study area and includes analyses of the existing roadway and traffic conditions, applicable plans and policies, stakeholder comments, and future background traffic conditions. This report is divided into five sections. Chapter 1 is this introduction. Chapter 2 provides a review of the existing street system, traffic operations, and crash history. Chapter 3 provides a summary of local plans, goals, and policies relevant to the TSP update. Chapter 4 provides the results of a series of stakeholder interviews concerning North Side transportation facilities. Chapter 5 presents the results of an analysis of future traffic conditions without additional system improvements (no-build), and summarizes existing and future roadway needs and deficiencies. With this foundation of work complete, we can move forward to create a TSP that meets the future transportation needs of the local community, visitors, and those traveling through Newport.

2. INVENTORY OF EXISTING CONDITIONS

2.1 OVERVIEW

This memorandum documents the transportation system conditions within the North Side study area of Newport. An overview of the existing street system is provided, along with a physical description of the intersections selected for traffic analysis and existing access features. Also provided is an evaluation of existing and future operations at these intersections with a discussion of existing transit services and crash history along the state highway facilities.

2.2 STUDY AREA

For purposes of this project the North Side study area consists primarily of the downtown business district and its immediate surroundings. The study area is bounded by the Pacific Ocean to the west, Yaquina Bay to the south, 12th Street to the north, and John Moore Drive/Harney Street to the east. This area includes the downtown core stretch of US 101 and US 20, along with the Bay Front and Nye Beach Districts.

2.3 EXISTING STREET SYSTEM

This section describes the physical characteristics of state highways in the Newport transportation system and identifies the features of local streets in the study area. The inventory includes functional classification, number of lanes, posted speeds, destinations served, and surrounding land uses. An inventory of bicycle and pedestrian facilities on and near study area streets is included in Technical Memorandum #3.

US 101

US 101 is the main transportation facility in the North Side and along the Oregon Coast. This highway is classified by the Newport Transportation System Plan (TSP) as a Principal Arterial and by the Oregon Department of Transportation (ODOT) as a Statewide Highway. US 101 is also referred to as Oregon Coast Highway #9 by ODOT. The Oregon Highway Plan (OHP) classifies US 101 as a scenic byway. Within the study area, the highway has two travel lanes in each direction with a two-way left turn lane generally north of Angle Street. No on-street parking is provided in the segment. From Angle Street to just south of Hurbert Street, the center turn lane is eliminated and parallel on-street parking is provided. On-street parking is discontinued south of Hurbert Street. North of the Yaquina Bridge the highway narrows to a single through lane in each direction, a configuration that is carried across the bridge into the South Beach area.

US 101 carries the highest volume of traffic of any facility in the City of Newport. 2005 daily traffic volumes ranged from approximately 18,000 near the Yaquina Bridge to nearly 29,000 just south of 15th Street. The primary function of US 101 is to carry high volumes of traffic safely and efficiently, with a minimal number of access points to interrupt continuous flow. The posted speed is 35 mph through much of the study area, with the exception of the downtown business core area where the posted speed is 25 mph. The pavement condition in the study area is rated as very good in the 2004 Oregon State Highway System Pavement Conditions report.

US 20

US 20 is an Urban Principal Arterial that connects US 101 at Newport with destinations in the Willamette Valley. US 20 is also referred to as the Corvallis-Newport Highway #33. Daily traffic volumes along US 20 in the City of Newport range from just over 14,000 vehicles near the east city limits to nearly 18,000 vehicles approaching US 101. The posted speed for US 20 within the City Limits is 30 mph. The adjacent land uses are primarily businesses. From John Moore Drive to the US 101 intersection, US 20 has one through lane in each direction, with a two-way center left turn lane. US 20 is a state-designated freight route.

US 101 at US 20/Olive Street is a major intersection along US 101, bringing traffic from Central Oregon into the City.

Local Streets

NE 11th Street, NE 6th Street, and NE Hurbert Street

NE 11th Street, NE 6th Street and NE Hurbert Street are all local streets providing east/west connections within the study area, linking neighborhoods with Newport's downtown business district. They also provide connections to some of the local north/south streets that serve as alternatives to travel on US 101. These streets carry predominately local traffic and have one travel lane in each direction. The posted speed on these streets is 25 mph.

Nye Street

Nye Street is a north/south facility running parallel to and the west of US 101. The posted speed on Nye Street is 25 mph. The adjacent land uses are primarily residential except for the tourist oriented retail-recreational uses near Nye Beach. This route is an alternate route for local travel west of US 101. Nye Street is one lane in each direction.

John Moore Drive

John Moore Drive is a city street that connects US 20 with the Bay Front district. The adjacent land uses are mixed residential, business, and institutional. The posted speed on John Moore Drive is 30 mph; the street has one travel lane in each direction. The road has a steep uphill gradient as it approaches US 20.

Eads Street

Eads Street is a north/south city street which connects with US 20 and is bordered by a mixture of land use types including residential, business and institutional. The posted speed on Eads Street is 25 mph with pedestrian and school warning signs present.

Fall Street

Fall Street connects US 101 with the Bay Front shopping district. Local land uses include residential and business. The posted speed limit on Fall Street is 25 mph.

Bay Boulevard

Bay Boulevard serves Newport's Bay Front shopping district. The adjacent land uses include tourist and fishery related businesses. The posted speed on this street is 25 mph, and pedestrian crossing warning signs are present. This street is frequently busy, with shoulder parking running along the south side and angle parking running along portions of the north side.

2.4 ACCESS MANAGEMENT AND CONDITIONS

The term access management refers to the process of balancing the need for vehicle access to parcels of land adjacent to roadways with the need for safe and efficient through movement of vehicular traffic on the roadway. Access management can be implemented by a variety of means. These include median controls (e.g., raised concrete medians); driveway spacing and/or driveway consolidation (so that there are fewer driveways serving one parcel or multiple parcels), requiring that driveways be placed on lower order streets where a parcel abuts both higher and lower order streets; and intersection spacing to reduce the number of conflict points or signal-controlled locations along a street, as the frequency of these locations can reduce the benefits of effective signal timing progression.

Access management is closely related to street functional classification. Typically, when access controls are in place, the frequency of driveways and intersecting streets is more restrictive along state highways and major arterials where the movement of traffic takes a higher priority. Access controls are less restrictive along collector streets where there is greater balance between access and mobility. Access controls are restricted only by safety considerations along local streets where property access is the primary function of the street.

Frequent driveway and cross-street access can significantly degrade traffic operations along major streets, as motorists must contend with people slowing to turn into adjacent properties or attempting to get back onto the major street from a side access location. Not only do frequent driveways adversely affect the operational capacity of a road, they also affect safety in that each driveway or intersecting street represents a potential conflict point for through-moving vehicles. The strip development that often occurs as a result of the lack of access control is often inhospitable to pedestrians and bicyclists, and dispersed uses make efficient transit service difficult. In Newport, US 101 shares some of these characteristics, including frequent driveways with a significant crash history.

Access management can be most effectively implemented during the land development process when access locations and localized street improvements can be adapted to ensure that adjacent street traffic-carrying functions are not degraded. Access management controls are more difficult to implement along streets with developed property due to possible right-of-way limitations and/or the concerns of property owners about business or on-site circulation impacts. In these cases, access controls can be incorporated into a roadway improvement project.

Along state highways, access is commonly controlled by ODOT through the purchase of access rights. New access to/from a state highway is provided consistent with the standards adopted in the OHP for each highway classification, its location within an urban or rural area, and its posted speed. Access management guidelines for state highways are published in OAR 734-051. Access management standards along US 101 within the Newport area are shown in Table 2-1.

Table 2-1. Access Management Spacing Standards for Approaches on US 101

Posted Speed (mph)	Public and Private Approach Spacing[a]
$\geq$ 55	1,320 feet
50	1,100 feet
40 & 45	990 feet
30 & 35	720 feet
$\leq$ 25	520 feet

Source: OAR 734-051-00115 Table 2.
[a] Measurement of the approach road spacing is from center to center on the same side of road.

Figure 2-1 illustrates the number and location of existing private and public access points along US 101 in the North Side study area. Each of the approximate half mile roadway segments – US 101 from 11th Street to US 20, US 20 to John Moore Drive, and US 101 from US 20 to Fall Street – have 22 to 29 unsignalized access points, depending on the segment.

2.5 EXISTING (2006) TRAFFIC OPERATIONS

This section addresses existing transportation system volumes and operations along US 101 at key study area intersections in the North Side area.

Intersection Traffic Control and Geometrics

Five signalized and six unsignalized intersections were evaluated as part of the analysis of the existing conditions:

- US 101 at 11th Street (signalized)
- US 101 at 6th Street (signalized)
- US 101 at US 20/Olive Street (signalized)
- US 101 at Hurbert Street (signalized)
- US 20 at John Moore Drive (signalized)
- US 20 at Eads Street (unsignalized)
- US 101 at Fall Street (unsignalized)
- Bay Blvd. at Fall Street (unsignalized)
- Olive Street at Nye Street (unsignalized)
- 11th Street at Nye Street (unsignalized)
- 9th Street at Hurbert Street (unsignalized)

Existing lane configurations and traffic control for the twelve study area intersections are shown in Figure 2-2.

Intersection Operational Standards

Within the state of Oregon, traffic operations are evaluated based on two sets of criteria or standards. The operative standard used by ODOT for state highways is the volume-to-capacity (V/C) ratio, and is expressed in terms of a ratio between traffic volumes and the roadway or intersection's capacity. Many local communities assess the quality of traffic performance in terms of intersection or roadway levels of service (LOS). These two operational standards are described below.

<u>Volume to Capacity Ratios</u>

As adopted in the 1999 Oregon Highway Plan (OHP), ODOT uses V/C ratios to measure state highway performance rather than intersection or roadway LOS. A V/C ratio expresses the relationship between traffic volumes and a roadway or intersection's theoretical capacity. Various V/C thresholds are applied to all state highways based on functional classification of these facilities.

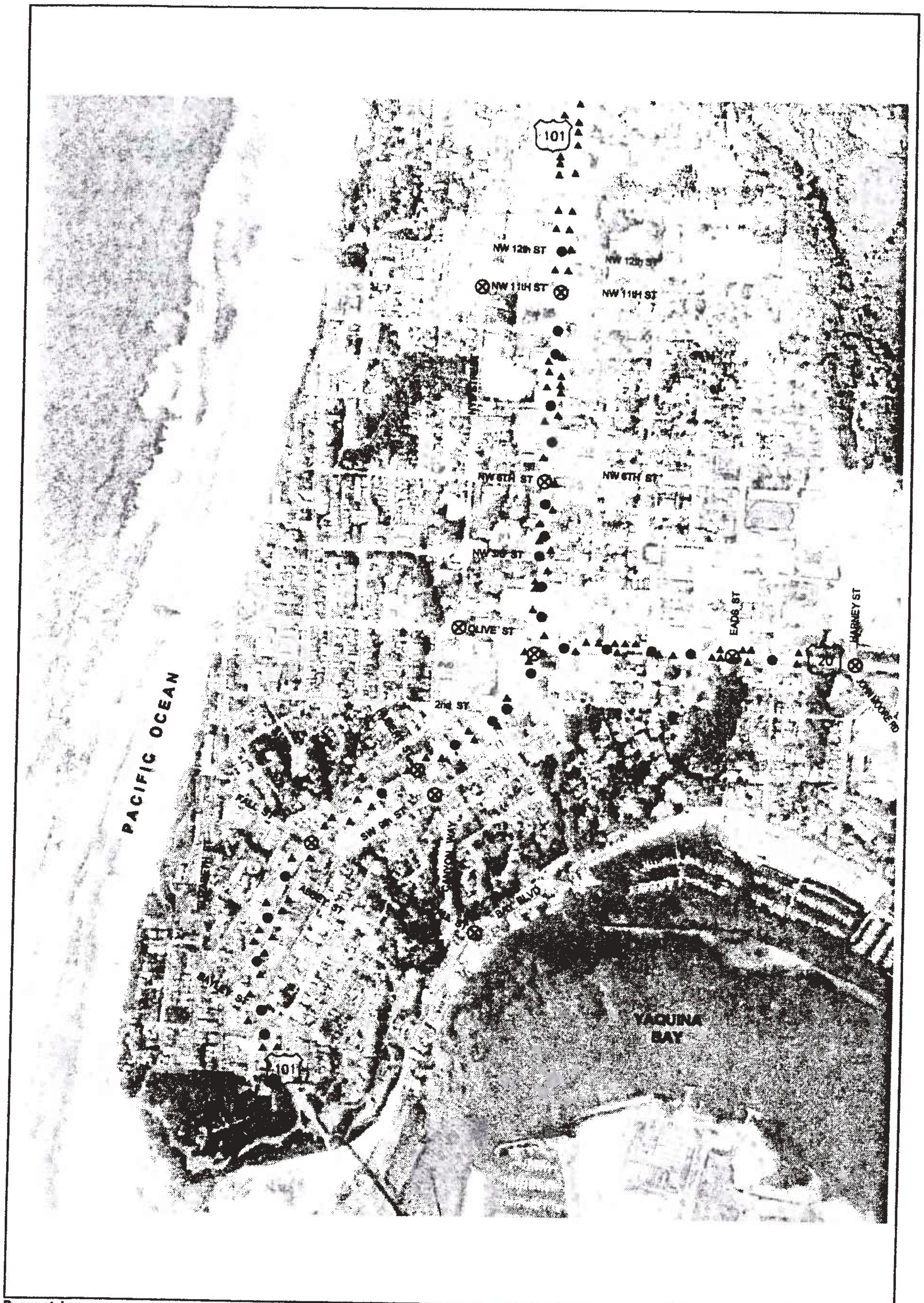
Both US 101 and US 20 in the North Side area are classified as Statewide Highways. The peak hour, maximum V/C standards for these highway are related to posted roadway speeds and are summarized in Table 2-2.

Table 2-2. Maximum Volume to Capacity for Peak Hour Operating Conditions

Statewide Highway Designation	Posted Speed	Maximum V/C Ratio
US 101 (Non-freight route)	≤ 35 mph	0.85
US 20 (Freight Route)	≤ 35 mph	0.80

Source: Oregon Highway Plan, Policy 1F Mobility Standards, Table 6.

Figure 2-1. North Newport Driveway Inventory



Parametrix DATE Nov 02, 2006 FILE P2798081-P02TF-08

N

LEGEND

⊗ STUDIED INTERSECTIONS

● PUBLIC STREETS

▲ DRIVEWAYS

Figure 2-1
North Newport
Driveway Inventory

Figure 2-2. North Side Existing Lane Characteristics

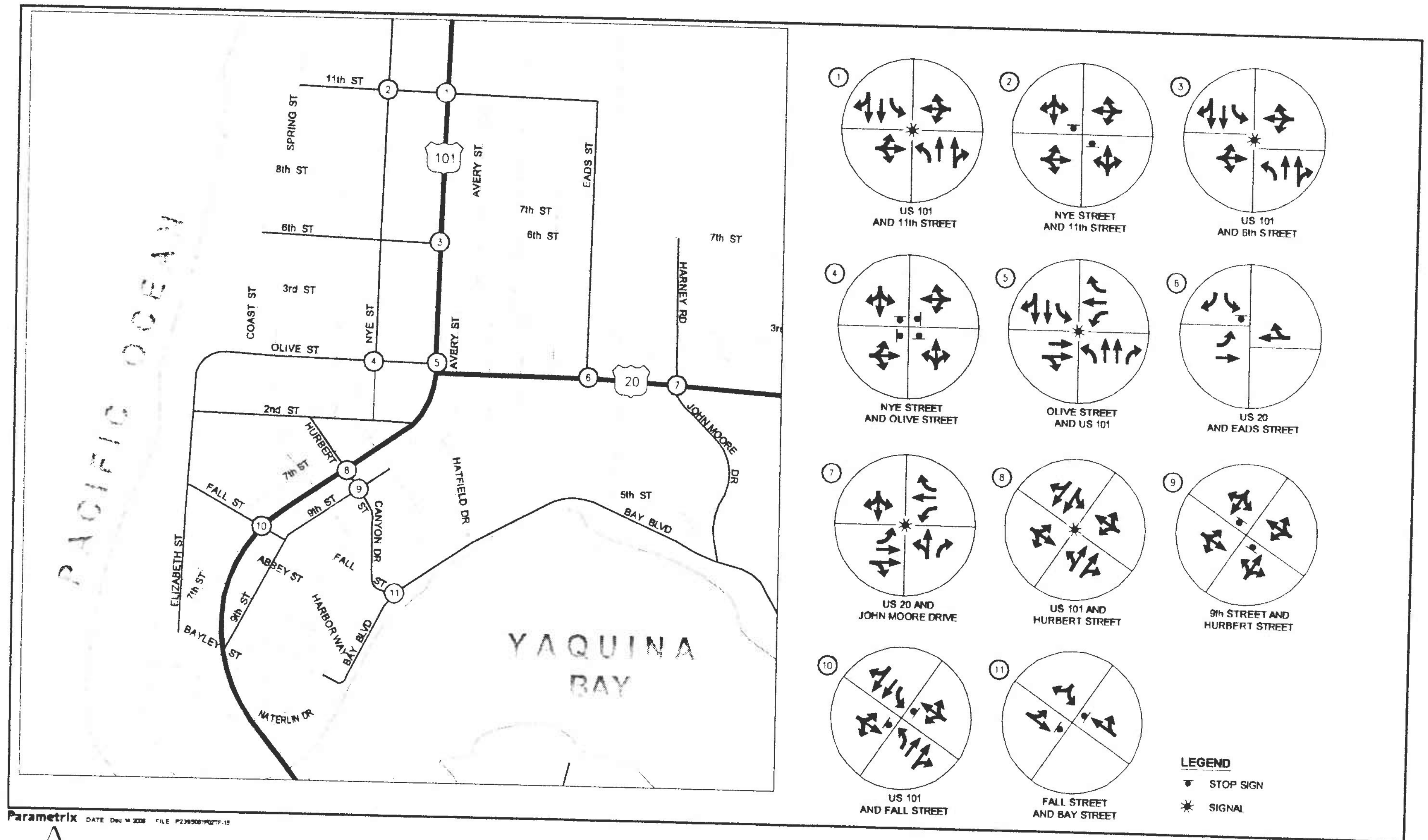


Figure 2-2
North Side
Existing Lane Characteristics

Intersection Levels of Service

Another measure of intersection operating performance during peak travel periods is based on average control delay per vehicle entering the intersection. This delay is calculated using equations that take into account turning movement volumes, intersection lane geometry and traffic signal features, as well as characteristics of the traffic stream passing through the intersection, including time required to slow, stop, wait, and accelerate to move through the intersection. Various levels of delay are then expressed in terms of levels of service for either signalized or unsignalized intersections. The various LOS range from LOS A (free-flow conditions) through LOS F (operational breakdown). Between LOS A and LOS F, progressively higher LOS grades reflect increasingly worse intersection performance, with higher levels of control delay and increased congestion and traffic queues. Characteristics of each LOS are briefly described below in Table 2-3.

Table 2-3. Level of Service Definitions

	Average Delay/Vehicle (sec.)		
Level of Service	**Signalized**	**Unsignalized**	**Description**
A (Desirable)	<10 seconds	<10 seconds	Very low delay; most vehicles do not stop.
B (Desirable)	>10 and <20 seconds	>10 and <15 seconds	Low delay resulting from good progression, short cycle lengths, or both.
C (Desirable)	>20 and <35 seconds	>15 and <25 seconds	Higher delays with fair progression, longer cycle lengths, or both.
D (Acceptable)	>35 and <55 seconds	>25 and <35 seconds	Noticeable congestion with many vehicles stopping. Individual cycle failures occur.
E (Unsatisfactory)	>55 and <80 seconds	>35 and <50 seconds	High delay with poor progression, long cycle lengths, high V/C ratios, and frequent cycle failures.
F (Unsatisfactory)	>80 seconds	>50 seconds	Very long delays, considered unacceptable by most drivers. Often results from over-saturated conditions or poor signal timing.

Source: 2000 Highway Capacity Manual, Transportation Research Board.

Traffic Volumes

AM, Midday and PM peak period traffic counts were collected specifically for this study for all but one of the study area intersections. These counts were taken in September of 2006, and are documented in Appendix A. These counts were supplemented with a count provided by ODOT for the intersection of NE 11th and US 101 which was taken in December of 2004.

Traffic volumes vary with the seasons, and adjustments are required for the counts taken outside of the peak season to ensure that they reflect appropriate conditions for use in assessing design/improvement options. An adjustment is also required to translate the 2004 counts to current year volumes. Seasonal growth adjustments of the Newport count data were also required to represent 30th highest hourly volumes (HV) to be useful in assessing "typical" operating conditions. The traffic count data is summarized in Figures 2-3, 2-4, 2-5 and reflects annual and seasonally adjusted traffic volumes for AM, Midday, and PM peak hours, respectively. The methodology for adjustments is summarized in Appendix B.

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Figure 2-3. 2006 AM Existing Turning Movement Counts

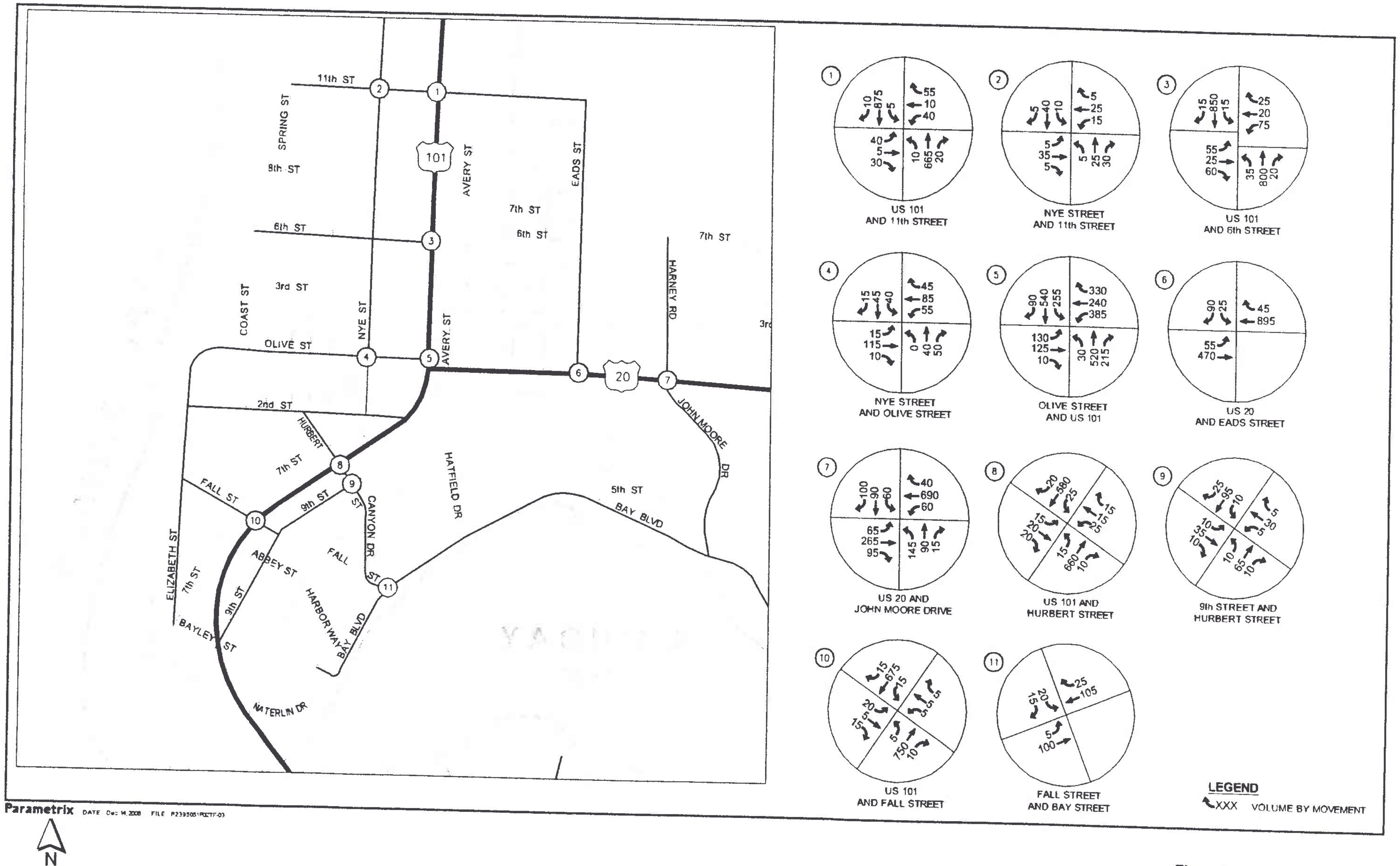

Figure 2-3
2006 AM Existing
Turning Movements Counts

Figure 2-4. 2006 Midday Existing Turning Movement Counts

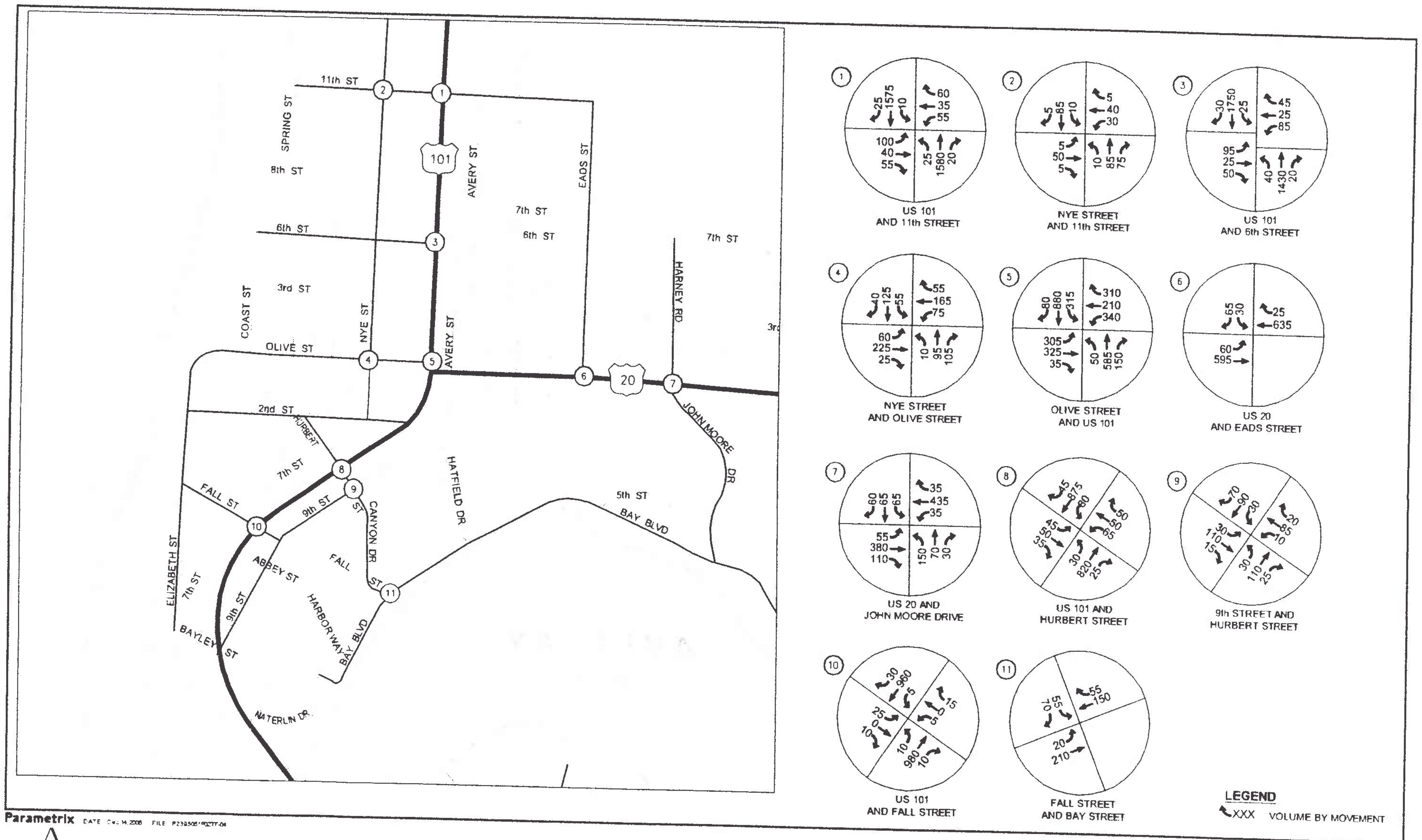

Figure 2-4
2006 Midday Existing
Turning Movement Counts

Figure 2-5. 2006 PM Existing Turning Movement Counts

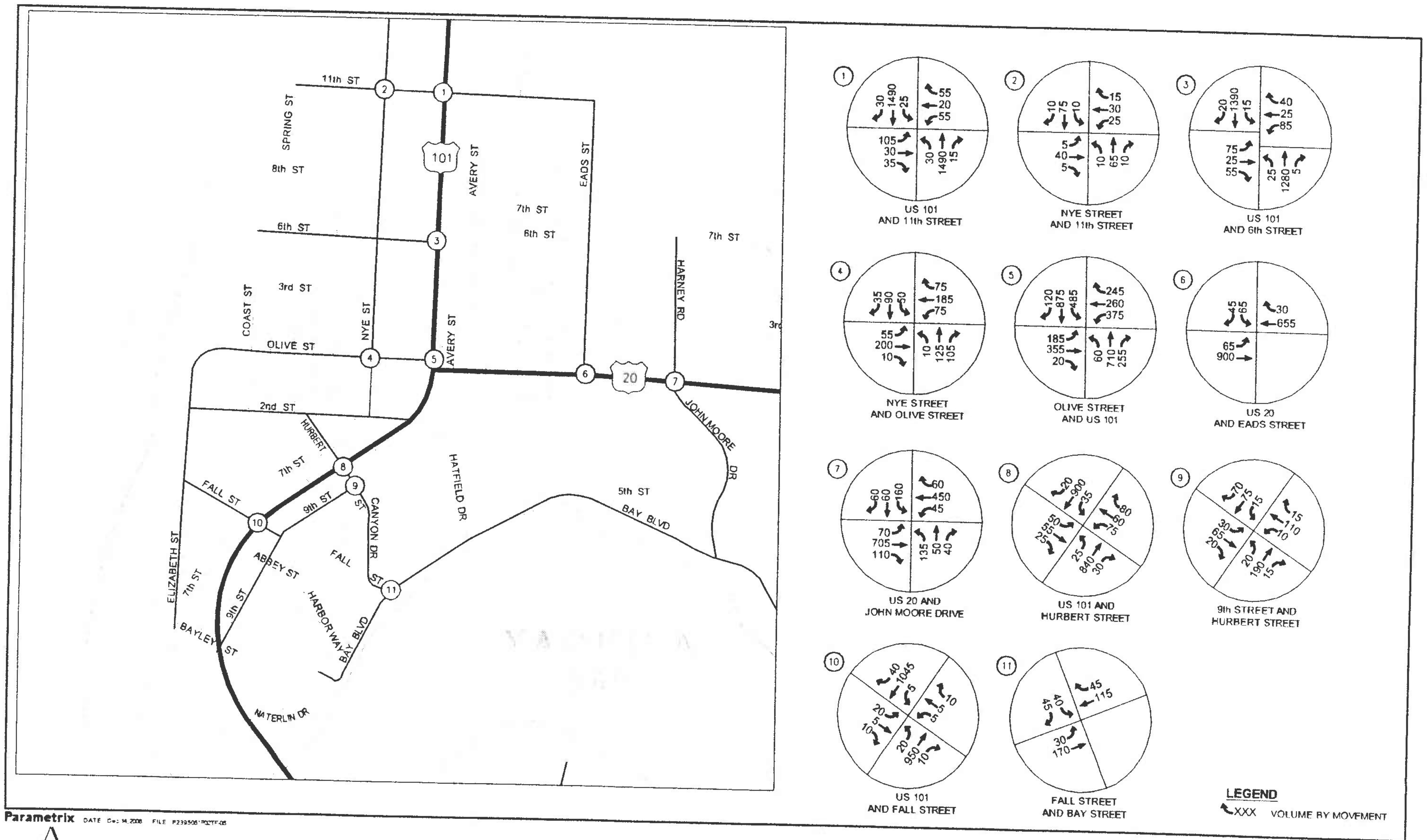

Figure 2-5
2006 PM Existing
Turning Movement Counts

Traffic Operations

The analysis of existing peak hourly traffic operations was conducted using a Synchro traffic simulation model developed specifically for the study intersections. This model includes field-verified geometrics and other relevant physical data for each intersection. Analysis procedures follow the ODOT Transportation Planning and Analysis Unit's (TPAU) guidelines.

Table 2-4 summarizes existing (2006) traffic operations for the AM, Midday and PM peak hours at the 11 intersections in North Side study area. Data in these tables includes overall intersection V/C ratios, average intersection delay, and intersection levels of service. V/C ratios above 1.0 are useful indicators of potential concerns such as sub-optimal signal timing or inadequate turn lane storage. Intersection analysis worksheets are included in Appendix C.

Currently, most of the signalized intersections generally experience V/C ratios close to or exceeding state V/C standards during at least one time period (Table 2-4, shown in bold). The intersection of US 101 and US 20 operates below standards for all three time periods. For the PM peak, three of the signalized intersections are failing and the remaining two study intersections are nearing failure. Updates to two signals on US 101 will trigger a review of system signal timing for better optimization. Although all of the unsignalized intersections currently do not exceed state standards, the minor movements at several of the intersections such as US 20 and Eads, and US 101 and Fall Street, experience significant delays.

Table 2-4. 2006 Peak Hour Traffic Operations

	AM			Midday			PM		
Signalized Intersections	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**
US 101 @ Olive Street/US 20	**0.99**	**72.6**	**E**	**>1.00**	**>80**	**F**	**>1.00**	**>80**	**F**
US 101 @ 11th Street	0.43	9.5	A	**0.86**	**24.0**	C	0.79	21.5	C
US 101 @ 6th Street	0.62	21.8	C	**0.98**	**75.6**	E	**0.82**	**24.2**	**C**
US 101 @ Hurbert Street	0.53	26.9	C	0.84	41.1	D	**0.86**	**40.4**	**D**
US 20 @ John Moore Drive	0.84	31.6	C	0.63	19	B	0.75	24.1	C
Unsignalized Intersections Critical Movement/Control									
US 20 @ Eads Street									
Southbound Left	0.28	54.3	F	0.21	35.9	E	0.77	>80	F
9th Street @ Hurbert Street									
Northbound	0.14	10.7	B	0.35	15.3	C	0.51	18.4	C
US 101 @ Fall Street									
Eastbound	0.23	29.7	D	0.35	58.9	F	0.61	>80	F
Westbound	0.12	34.7	D	0.09	23.3	C	0.25	61.3	F
Olive Street & Nye Street									
All-Way Stop	--	8	A	--	10.5	B	--	10.5	B
11th Street & Nye Street									
All-Way Stop	--	7.2	A	--	7.7	A	--	7.4	A
Fall Street & Bay Blvd									
All-Way Stop	--	7.5	A	--	8.3	A	--	7.8	A

Note 1: V/C ratio is a ratio between traffic volumes and the roadway or intersection's capacity.
Note 2: LOS means intersection level of service.
Note 3: "Critical Delay" and "Critical LOS" refers to the delay or LOS experienced for the specific intersection traffic movement listed.

2.6 CRASH HISTORY

Crash data for the study area intersections were provided by ODOT for the 4-year period from January 1, 2002, through December 31, 2005. Analysis of this data was conducted for both roadway segments through the study area and the key intersections. A discussion of pedestrian and bicycle-related collisions are discussed in Memo #3, Existing Bicycle and Pedestrian Conditions.

Roadway Segment Crash Analysis

Roadway segment crash data is analyzed on the basis of annual accidents per million vehicle miles of travel, which considers both the number of crashes and the level of exposure to crashes expressed in terms of the total traffic volume carried along the roadway segment.

Table 2-5 identifies crash data for one-half mile segments of US 101 and US 20. For each highway, data was aggregated for two segments. For US 101, crash rates were calculated for the highway segments on either side of US 20. For US 20, crash rates were calculated on either side of NE Eads Street. Using 4-year crash data, analysis indicates that both segments on both highways experience crash rates greater than 1.0/MVMT (million vehicle miles of travel). One segment experienced crash rates that exceed the 2005 crash rate of 2.05 for all urban principal arterial highways in Oregon (see bold values in table). A review of the data for the segment of US 101 from 11th Street to US 20 indicates that many of the collisions are rear end or turning movement crashes at public and private access points.

Table 2-5. 2003-2005 North Side Study Area Street Segment Crash History

	Crash Type					Crash Severity			Total	
Intersection	Rear-end	Turn	Angle	Side-swipe	Other	PDO	Injury	Fatal	Reported Crashes	Crash Rate (per MVMT)
Along US 101										
• 11th Street to US 20	13	17	1	4	6	29	12	0	41	**2.46**
• US 20 to Fall Street	7	5	2	7	2	15	8	0	23	1.93
Along US 20										
• US 101 to John Moore Drive	7	2	4	1	2	12	4	0	16	1.69

Source: ODOT 2006.
Note: PDO means Property Damage Only and MVMT means Million Vehicle Miles of Travel.
"Other" crashes include backing, pedestrian collisions, and hitting fixed objects.

Intersection Crash Analysis

The number of crashes per million entering vehicles is used to calculate an intersection's "crash rate." A rate greater than 1.0 crashes per million entering vehicles (MEV) is commonly used as a threshold to identify locations that warrant further analysis, potentially leading to implementation of measures to improve safety. Table 2-6 identifies crash rates and types and severity at study area intersections. None of the study intersections exceed the 1.0 MEV rate.

A review of the data in Table 2-6 indicates that about 42 percent of the collisions are rear end, and 17 percent involve turning movements at or in the immediate vicinity of the intersection. With respect to crash severity, 71 percent of the intersection collisions involved only property damage, while 19 percent resulted in an injury. The number of injury crashes at intersections is lower than for roadway segments as a whole, indicating that some of the injury collisions are occurring at roadway access points between the intersections. As also indicated in the table, there were no fatal collisions at study area intersections during the 2002 to 2005 time period.

The high rear end and turning movement crash experience at the intersections is likely related to the level of congestion along the two highways and to the frequent driveways.

Table 2-6. 2003-2005 North Side Study Area Intersection Crash History

	Crash Type					Crash Severity			Total	
Intersection	Rear-end	Turn	Angle	Side-swipe	Other	PDO	Injury	Fatal	Reported Crashes	Crash Rate (per MEV)
US 101 @ 11th Street	9	5	6	1	1	17	5	0	22	0.68
US 101 @ 6th Street	4	0	0	0	0	3	1	0	4	0.12
US 101 @ US 20/Olive Street	6	1	0	2	0	6	3	0	9	0.20
US 20 @ John Moore Drive	1	4	2	1	0	7	1	0	8	0.38
US 101 @ Hurbert Street	6	0	0	3	0	7	2	0	9	0.37
US 101 @ Fall Street	1	1	0	0	1	3	0	0	3	0.14

Source: ODOT, 2006
Note: PDO means Property Damage Only and MEV means Million Entering Vehicles
Other crashes include sideswipes and head-on collisions

2.7 EXISTING TRANSIT OPERATIONS

Currently, two public transit systems operate in the North Side project area. Lincoln County provides a Free Shuttle and runs three bus services linking Newport with Yachats, Siletz / Toledo, and Lincoln City (see Figure 2-6).

The Free Bay & Beach Shuttle currently operates year round, linking major business areas and tourist attractions in the city. During the summer months (July, August and September), the Shuttle operates between 9 am and 9 pm. The rest of the year the Shuttle runs on weekends (Saturday and Sunday) only, from 10 am to 5 pm. The Shuttle began operating in 2006 and is widely used by both local residents and visitors. The Shuttle currently makes fourteen stops in the North Side study area. Originating at 9th & Canyon Way, the Shuttle stops at the first eight locations listed below before crossing the Yaquina Bay Bridge; the route returns from the south and continues with the last six stop along Bay Boulevard:

- 9th & Canyon Way
- Post Office, 2nd & Nye
- Library – JC Market
- 3rd & Coast
- Don Davis Park
- Elizabeth Street Inn/Shilo Inn
- Hallmark/Georgies
- Yaquina Bay State Park
- Bay Street Pier
- Abbey Street Pier
- Undersea Gardens
- Port Dock 5
- Yaquina Yacht Club, and
- Bay Boulevard & Fall Street

Lincoln County's bus service operates year round, from Monday through Saturday. All services begin at the Newport City Hall. The cost of this service is based on the number of zones traveled. The county bus routes include the following:

- The Newport-to-Yachats service makes various stops between Newport and Yachats; the only stop within the North Side study area is City Hall. This route continues south through South Beach to Yachats.
- The Newport-Siletz/Toledo route goes from City Hall along the Bay Front to US 20. Within the North Side study area this route stops at City Hall, Pacific Communities Hospital, Abbey Street Pier, and Oregon Coast Bank.
- The Newport-to-Lincoln City route, also beginning at City Hall, goes north, veering slightly off US 101. Within the North Side study area, this route stops at City Hall, the Avery Building, the State Offices on NE 4th Street, and the Courthouse.

Each of these routes runs on an individual schedule (see Appendix E for routing and schedule information).

Figure 2-6. Existing Transit Systems

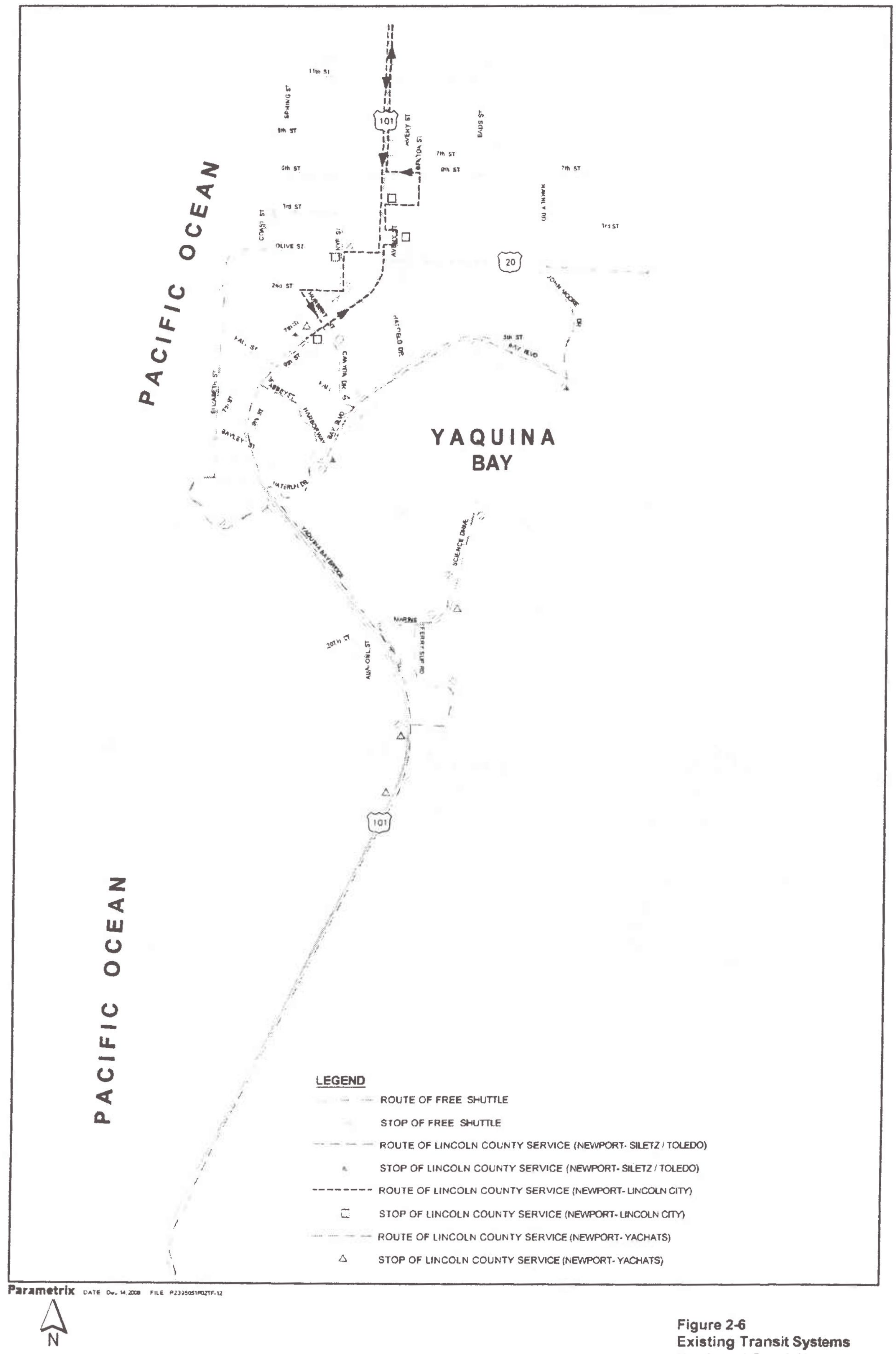

Figure 2-6
Existing Transit Systems
North and South Newport

3. PLANS, POLICIES AND PROGRAMS

3.1 OVERVIEW

The purpose of this section is to identify and review existing plans, policies and programs that need to be considered in the revisions to the TSP for the North Side study area. All local transportation improvements are subject to numerous state and federal requirements, and are influenced by other transportation studies, transportation plans, and transportation-related documents and standards. The 1997 TSP serves as the current guiding planning document for transportation improvements in the study area and much of it remains relevant today. This chapter will summarize the following:

- Draft Lincoln County TSP
- City of Newport Comprehensive Plan (1991)
- Newport TSP (1997)
- Newport Peninsula Urban Design Plan (1994)
- Nye Beach Study (1989), and
- Highway 101 Corridor Plan. (2002 – not adopted)

Summaries of all relevant Federal and Statewide Plans, Policies and Programs are included in Technical Memo #5, South Beach Refinement Plan.

3.2 SUMMARY OF PLANS, POLICIES AND PROGRAM

Lincoln County TSP (Draft, expected adoption in spring 2007)

It is anticipated that the Lincoln County TSP will be adopted by the Lincoln County Board of Commissioners in early 2007. Currently the draft TSP is under revision by the Lincoln County Planning Commission and Board of Commissioners. This will be a multi-modal plan addressing automobile, walking, bicycle, transit, air, rail, and water and pipeline transportation. The following goals and objectives from the draft TSP are relevant to the Newport TSP update.

Goal 1

"To provide a safe, convenient and economic multimodal transportation system that serves the needs of residents, businesses, visitors and freight transport.

- *Objective 1-1. Provide a network of arterials and collectors that are interconnected, appropriately spaced and reasonable direct.*
- *Objective 1-2. Maintain functional classification standards and criteria.*
- *Objective 1-3. Balance the simultaneous needs to accommodate local traffic and through-travel.*
- *Objective 1-4. Minimize travel distances and vehicle-miles traveled.*
- *Objective 1-5. Move motor vehicles, pedestrians, bicyclists, transit, trucks, and trains to and through the County safely, efficiently and economically.*

- *Objective 1-6. Develop and adopt design standards for major collectors, minor collectors and arterials describing minimum right-of-way width, pavement pedestrian service, bicycle travel and other design elements.*
- *Objective 1-7. Recognize and balance freight needs for local circulation, safety and access.*
- *Objective 1-9. Balance the need for truck access to industrial and waterfront areas with the desire for minimization of disruptions to urban areas.*
- *Objective 1-10. Improve signage for streets, bicycle and pedestrian ways, and trails as well directional signs to points of interest.*
- *Objective 1-11. Promote through-movement on US 101.*
- *Objective 1-12. Require developers to bear the entire cost of new development infrastructure for roads, bicycle and pedestrian facilities associated with their development, or impacted by their development.*
- *Objective 1-13. Investigates high accident locations and locations involving traffic fatalities to determine if road improvements might benefit the safety of travel."*

Goal 2

"To provide a transportation system that balances transportation system needs with the community desire to maintain a pleasant, economically viable county.

- *Objective 1-1. Minimize adverse social, economic and environmental impacts created by the transportation system, including balancing the need for road capacity improvements and the need to minimize impacts to existing neighborhoods.*
- *Objective 1-3. Work to develop alternate transportation facilities to natural features and historic sites.*
- *Objective 1-4. Minimize congestion for travelers and goods movements.*
- *Objective 1-5. Ensure the tourist based businesses are allowed sufficient access to the county arterials network to promote tourist spending in Lincoln County.*
- *Objective 1-6. Require developers to provide landscaping along roads and within parking lots."*

Goal 3

"To maintain a TSP that is consistent with the goals and objectives of Lincoln County, Lincoln County jurisdictions and the state.

- *Objective 1-1. Provide a transportation system that is consistent with other elements and objectives of the Lincoln County Comprehensive Plan.*
- *Objective 1-2. Coordinate land use and transportation decisions to efficiently use public infrastructure investment to maintain the mobility and safety of the roadway system, foster compact development patterns, encourage the availability and use of transportation alternatives, and enhance livability and economic competitiveness.*
- *Objective 1-6. Support the maintenance and expansion of port and harbor facilities to keep them a viable part of Lincoln County's economy.*
- *Objective 1-7. Support expansion of local boating and shipping activities in the County's cities and ports.*

- *Objective 1-9. Coordinate with utility service providers when planning new roadway or expanding or upgrading existing roadway to explore efficient location of utilities that can be located in the public right-of-way."*

Goal 4

"To provide cost-effective and safe public transportation options and access to alternative transportation modes to county residents.

- *Objective 1-1. Ensure an appropriate level of county support for public transportation.*
- *Objective 1-2. Support Lincoln County Transit's efforts to work with ODOT to secure Federal funding for the County Transit System on a regular and on-going basis.*
- *Objective 1-3. Ensure appropriate lock-up and storage facilities for bicycles at destinations within Lincoln County.*
- *Objective 1-4. Work to improve the signage and amenities at transit stops and stations.*
- *Objective 1-5. Work with Lincoln County Transit to expand transit service as necessary during summer months of peak travel.*
- *Objective 1-6. Support Lincoln County Transit's coordination efforts with local jurisdiction to meet the transit needs in Lincoln County communities."*

Goal 5

"To provide for an interconnected system of pedestrian and bicycle facilities in Lincoln County to serve residents and recreational users.

- *Objective 1-1. Continue to implement the County Bicycle Plan to provide needed shoulder width for cycling and pedestrian use in rural areas.*
- *Objective 1-2. Ensure consistency between county and city plans for bicycle and pedestrian improvements.*
- *Objective 1-3. Ensure consistency between county standards and city standards for bicycle and pedestrian facilities within urban growth boundaries.*
- *Objective 1-4. Develop bicycle lanes or shoulder bikeways on all arterial streets, major collectors and minor collectors.*
- *Objective 1-5. Adopt, implement and maintain appropriate design and construction standards for pedestrian access in new subdivisions, office parks, shopping centers and public building developments.*
- *Objective 1-6. Ensure adequate pedestrian access on all streets in commercial zones.*
- *Objective 1-8. Improve public access to the waterfront and trails along the waterfront.*
- *Objective 1-9. Establish signage to indicate trail access points and rules.*
- *Objective 1-10. Promote multimodal connections where appropriate.*
- *Objective 1-11. Promote increased bicycle awareness and support safety education and enforcement programs.*
- *Objective 1-12. Support and encourage increased levels of bicycling and walking.*

- *Objective 1-13. 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, such as the beach or park facilities.*
- *Objective 1-14. Adopt and maintain development standards that support pedestrian and bicycle access to commercial and industrial development, including (but not limited to) direct pathway connections, bicycle parking facilities and signage where appropriate."*

Goal 6

"To provide a transportation system that serves that needs of all members of the community.

- *Objective 1-1. Coordinate with Lincoln County Transit to encourage programs that serve the needs of the transportation disadvantaged.*
- *Objective 1-2. Provide for the transportation disadvantaged by complying with state and federal regulations and cooperating with Lincoln County Transit and other agencies to provide transportation services for the disadvantaged.*
- *Objective 1-3. Upgrade existing transportation facilities and work with public transportation providers to provide services that improve access for all users."*

Goal 7

"To provide a transportation system that balances transportation services with the need to protect the environment and significant natural features.

- *Objective 1-1. Promote a transportation system that encourages energy conservation, in terms of efficiency of the roadway network and the standards developed for road improvements.*
- *Objective 1-2. Encourage use of alternative modes of transportation and encourage development that minimizes reliance on the automobiles.*
- *Objective 1-3. Work to balance transportation needs with the preservation of significant natural features.*
- *Objectives 1-4. Minimize transportation impacts on wetlands and wildlife habitat and promote the protection of rare and endangered plant and animal species.*
- *Objective 1-5. Help promote the Lincoln County Public Transit system to increase its ridership."*

Goal 8

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

- *Objective 1-1. 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 needed to serve new development and by constructing off-street pedestrian, bicycle and transit facilities when appropriate.*
- *Objective 1-2. 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 decision.*

- *Objective 1-3. Ensure that development does not preclude the construction of identified future transportation improvements.*
- *Objective 1-4. Discourage through-traffic and high speeds in residential areas.*
- *Objective 1-5. Maintain bridges as a priority that provides community lifelines, specifically connectivity for commerce and access to hospitals by emergency vehicles."*

Goal 9

"To provide a transportation system that has sufficient capacity to serve the needs of all users.

- *Objective 1-1. Protect capacity on existing and improved roads to provide acceptable service levels to accommodate anticipated demand.*
- *Objectives 1-2. Limit access points on highways and major arterials, and use techniques such as alternative access points when possible to protect existing capacity.*
- *Objective 1-3. Minimize direct access points onto arterial rights-of-way by encouraging common driveways or frontage roads.*
- *Objective 1-4. Update and maintain County access management standards to preserve the safe and efficient operation of roadways, consistent with functional classification.*
- *Objective 1-5. Establish and maintain access spacing standards to protect capacity.*
- *Objective 1-6. Consider acceleration/deceleration lanes and other special turning lanes for capacity maintenance where appropriate."*

Goal 10

"To provide reasonable and effective funding mechanisms for County transportation improvements identified in the TSP.

- *Objective 1-1. Develop a financing program that establishes transportation priorities and identifies funding mechanism for implementation.*
- *Objective 1-2. 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.*
- *Objective 1-3. Identify funding opportunities for a range of projects and coordinate with county, state and federal agencies."*

Goal 11

"To provide a transportation system that maintains adequate levels of safety for all users.

- *Objective 1-1. Undertake, as needed, special traffic studies in problem areas, especially around tourist destination sites, to determine appropriate traffic controls too effectively and safety manage vehicle and pedestrian traffic.*
- *Objective 1-2. Work to improve the safety of rail, bicycles and pedestrians routes and crossings.*

- *Objective 1-3. Identify safe connections for vehicles, bicycles and pedestrians across US 101.*
- *Objective 1-4. Coordinate lifeline and tsunami/evacuation routes with local, state and private entities."*

City of Newport Comprehensive Plan 1990-2010 (1991)

The City of Newport Comprehensive Plan was adopted in 1991. The purpose of the Comprehensive Plan is to guide growth and land development in the City of Newport. The Comprehensive Plan is the City's highest tier policy document, and establishes the policy framework for future growth decisions. It establishes the goals and policies by which the City will grow over a 20-year period.

The Comprehensive Plan Goals relevant to the Newport TSP include:

Goal: Physical Description

"To protect and, where appropriate, enhance the natural and scenic beauty of the Newport area."

Policies include encouraging neighborhood commercial areas to reduce trip-making and, thus, conserve energy, and encouraging the development of high density residential areas near high capacity transit corridors to achieve the same objectives.

Goal: Economics

"To maintain an adequate supple of land within the Newport city limits and urban growth boundary to accommodate the anticipated need."

Relevant policies speak to the need to address commercial property development within the City's Urban Growth Boundary.

Goal: Transportation

"To provide for safe and efficient transportation facilities for the Newport urbanizable area."

Key policies address street design standards, street classification, service to transportation-disadvantaged persons, development of bicycle and pedestrian routes, coordination with ODOT to develop and implement the State Transportation Improvement Program (STIP), and additional coordination with ODOT to formulate and implement access management programs along US 101 and US 20.

Goal: Public Facilities

"To assure adequate planning for public facilities to meet the changing needs of the City of Newport urbanizable area."

Relevant policies speak to the development of public facility master plans and the use of these plans in capital improvement planning, the orderly and cost efficient extension of public facilities and services, and the siting of public services (including streets) with sufficient capacity before development approvals are granted.

Newport TSP (1997)

The City of Newport TSP was adopted in 1997. It is a multi-modal transportation system plan that addresses automobile, bicycle, pedestrian, transit, air, water, rail and pipeline transportation. This memo will serve to update a portion of the 1997 TSP. The following TSP goals and policies are of significance to the current Newport TSP revision.

Goal 1

"To provide a safe and efficient multi-modal transportation system consistent with the TSP.

- *Policy 2. To develop implementing ordinances and funding options consistent with the following: "*

Street System Plan

- *"New roadway projects, transportation management system improvements and improvements to existing roadways shall be consistent with the TSP subject to available funding.*
- *The City does hereby adopt the classification system contained in the TSP as guidelines and shall develop implementing ordinances consistent with the classifications. However, the topography of the City of Newport limits the ability to develop streets that are totally consistent with the classification system at all times. It is therefore imperative that the classification system be flexible in its application to account for specific circumstances.*
- *The City shall require that any change to the acknowledged Comprehensive Plan land use designations must make a finding that the change will not reduce the function of streets, especially Highway 101 and Highway 20, as identified in the TSP.*
- *Because the cost of a new bridge the capability of the City of Newport, the City shall, within two years, prepare a refinement plan to develop a strategy for dealing with increased traffic across the Yaquina Bay Bridge."*

Pedestrian System Plan

- *"The City shall provide a continuous pedestrian network consistent with the TSP, to the greatest extent possible considering funding limitations, topographic constraints and existing development patterns.*
- *The City shall provide a safe walking environment.*
- *The City shall provide a pedestrian-oriented urban design especially on the Bay Front, in the City Center and in Nye Beach."*

Bicycle System Plan

- *"The City shall provide a safe and efficient bicycle network consistent with the TSP, considering funding limitations, topographic constraints and existing development patterns."*

Transit System Plan

- *"The City shall support the Lincoln County Transit Service consistent with the TSP considering funding limitations, topographic constraints and existing development patterns.*
- *The City shall explore the possibility of providing a shuttle service during the busy tourist season to help reduce traffic congestion, i.e. on the Yaquina Bay Bridge subject to the availability of funding."*

Access Management Plan

- *"The City shall implement an access management strategy for the established and developing areas of the City of Newport along Highway 101, Highway 20 and other arterials that supports the City's Transportation Goal and ensures that those streets can accommodate traffic in a safe and efficient manner as traffic increases.*
- *In established areas of the City of Newport as identified in the TSP, the City shall encourage consolidation or reduction of accesses as possible during property redevelopment and/or frontage improvements. Spacing goals for the established areas are 500 feet for driveways, ¼ mile for public roads and ½ mile for signals. As redevelopment occurs, these spacing standards and access management tools should be evaluated and applied as appropriate to the specific needs of the project.*
- *In developing areas of the City of Newport as identified in the TSP, as sites develop or redevelop, accesses shall be planned, consolidated and/or reduced to meet the spacing standards to the greatest extent possible. Spacing standards for primary arterials in developing areas are 800 feet for driveways, ½ mile to one mile for public roads, and ½ mile to one mile for signals.*
- *The City shall develop specific ordinance provisions to further this access management plan."*

Funding Plan

- *"The City shall increase system development charges to a more comparable rate with surrounding communities.*
- *The City shall seek one or more of the local funding options discussed in the TSP (i.e., local gas tax, street utility fee, general obligation bonds, local improvement districts, developer exactions)*
- *The City shall carefully prioritize capital improvement projects through the development, maintenance and implementation of the TSP and Capital Improvement Program.*
- *The City shall aggressively pursue federal and state funding options for capital improvement projects, especially for Highway 101 and 20."*

Newport Peninsula Urban Design Plan (1994)

The City of Newport adopted the Newport Peninsula Urban Design Plan in 1994. The study conducted to develop this plan was intended to look at urban design issues for the entire Peninsula, specifically addressing the relationship between the City Center and other commercial or residential properties nearby. The plan documents all urban design work completed in the study area through 1994, providing a foundation for further planning efforts, as well as existing conditions in the study area. It also formulated a design plan for each neighborhood, with the intention that these geographic areas should strive to maintain their unique characters. The plan does not directly address transportation system improvements.

Nye Beach Study (1989)

The Nye Beach Study was adopted in 1989 and served as the seventh amendment to the City of Newport Urban Renewal Plan. This study was conducted for the purpose of gaining public input on the urban design standards for the Nye Beach neighborhood. The study includes a summary of the comments received from public meetings with community members. These comments became the basis of the design for urban renewal in the Nye Beach area. The plan does not directly address transportation system improvements.

Highway 101 Corridor Plan (2002 - not adopted)

The Highway 101 Corridor Plan, drafted in 2002, was not taken through the adoption process. However, it contains guidance that will be useful in developing the North Side study. The Plan found that while the corridor was mostly developed, a case could be made for additional development and/or redevelopment activity in the area. The Plan's purpose was to outline the process for managing development along the Corridor. It primarily focused on land use issues, but also considered the importance of economic development.

4. STAKEHOLDER INTERVIEWS

4.1 OVERVIEW

During the month of October 2006, the study team conducted a series of stakeholder interviews with local elected officials and business and property owners. These interviews were intended to identify local transportation system problems and associated economic development issues, areas of concern, and locations of possible improvements.

4.2 METHODOLOGY

The City of Newport staff identified six individuals who were not directly involved in the TSP update process, and who also had direct knowledge of economic development and transportation system issues within the North Side study area. Four of these individuals agreed to be interviewed for this report. Additionally, one of the interviewees suggested that a representative from the Port of Newport be included in the interview process. However, of the two candidates identified, neither Port representative was available to be interviewed. The interviewees were provided with a list of questions in advance during the interview period. The interviews were conducted over the phone and interviewees were provided with a list of questions in advance. Each call lasted approximately 30 minutes, and were conducted during the third and fourth weeks of October 2006.

4.3 SUMMARY OF OBSERVATIONS

The interviewees were in agreement that improvements are needed to the current Newport transportation system. However, the interviewees differed on the types of improvements that should be made. The following are observations from the various interviews. In most cases, these observations were shared by the majority of interviewees.

Parking

Parking was consistently a point of concern, especially in the downtown core area. Interviewees want to see the entire downtown area studied, not just Highway 101. Some suggested removing parking on Highway 101 and increasing parking on side streets. Given the unique characteristics of each block, there was some concern that each block be studied independently to ensure that the unique needs of the affected downtown businesses were addressed. One interviewee thought it would be most efficient to turn some alternative north/south roads into one-way streets, thus providing more space for parking and reducing conflicts that interfere with smooth traffic movement along US 101.

A second suggestion was to take right-of-way from sidewalks along US 101 and convert this space into on-street parking. To maintain existing street crossing distances, curb extensions could be placed at the end of each block of parking. Both these suggestions stemmed from concerns for driver and parking safety. One interviewee felt that additional parking needed to be coupled with clear signage directing users to off-street parking facilities. This would help to keep traffic moving on the state highway and could shorten the time that both local residents and visitors spend searching for parking places. To achieve any improvements, the interviewees were in agreement that the current in-lieu fee program is inadequate.

North/South Alternate Route

Most interviewees felt the highest priority problem in the North Side study area was traffic congestion along US 101. Interviewees felt that development or improvement of alternative north/south routes that paralleled US 101 would greatly alleviate this problem. One point of disagreement among the interviewees was the decision on which routes would be appropriate for development. Some interviewees felt alternate routes should be built on both the west and east sides of US 101. However, some interviewees felt the increased development in the Nye Beach area warranted designing a north/south alternate route only on the east side of US 101. An east-side alternate route would require paving of various roads north of US 20, thus improving bicycle and pedestrian traffic in the area.

Limiting Access to US 101

The discussion of north/south alternate routes led interviewees to mention their desire for limiting the number of access points onto US 101. If an alternative north/south route was in place, the interviewees felt that access to US 101 should be limited to signalized intersections wherever possible. They also felt that right turn only lanes onto US 101 from signalized side streets would improve traffic flow and lessen the signal green time required for side-streets.

Public Transportation/Bicycles/Pedestrians

The current bus service has proved to be a success according to the interviewees. They would like to see the service continue and expand, along with operational improvements to clarify where to catch a bus and how to use the system. The route plan should continue to be updated as further development occurs. Additionally, clear and unique signage of route stops would make the service more accessible to visitors. Adding an extension to the Newport Airport was suggested by one interviewee.

According to many of the interviewees, the current image of Newport with respect to serving bicycle and pedestrian travel modes is not favorable. When asked about improving existing bicycle and pedestrian facilities and building new facilities, all interviewees felt that improvements were needed. Adding bike lanes and sidewalks to a possible north/south US 101 alternate route were mentioned by most interviewees. Some suggested adding bike facilities such as bike lockers near visitor attractions.

Visual Aesthetics

Most interviewees felt that the under-grounding of utilities needed to be a higher priority. Interviewees agreed that this action should take place soon and should be completed across the town as a whole rather than in small sections. The interviewees recognized the high cost, but felt the improvements to the city's image, visibility, and driver safety outweighed the costs.

5. FUTURE BACKGROUND TRAFFIC CONDITIONS

The purpose of this chapter is to estimate future traffic growth patterns along US 101, US 20 and other local streets in the North Side study area and to identify any potential traffic intersection operational problems associated with that growth. This chapter includes a discussion of the methodology and assumptions used in developing future traffic forecasts and the results of intersection analysis.

5.1 2027 FUTURE TRAFFIC FORECASTS

Based on the 2006 traffic volume counts documented in Chapter 2, a single peak hour was selected for future volume forecasting and analysis. Future traffic volumes were estimated using guidelines found in ODOT's Transportation Planning Analysis Procedures Manual (APM) (2006). The methodology is summarized in Appendix B. Future (2027) peak traffic volumes at the subject intersections are shown in Figure 5-1.

5.2 2027 FUTURE TRAFFIC OPERATIONS

Table 5-1 summarizes 2027 traffic operations for peak hourly volumes, the peak hour being the 30th highest hourly volumes. Intersection analysis worksheets are included in Appendix D. In the future, if no improvements are made to the street and highway system, all the signalized intersections will experience V/C ratios exceeding state standards (see values show in **bold** in Table 5-1). In addition, critical side street turning movements at the intersections of US 101 with Fall Street and US 20 with Eads Street will also exceed ODOT's V/C standards for a Statewide Highway of this type.

Table 5-1. 2027 Peak Hour Signalized Traffic Operations (No-Build)

Signalized Intersections	V/C Ratio	Critical Delay (sec/vehicles)	Critical LOS
US 101 @ Olive Street/US 20	**1.57**	**>100**	**F**
US 101 @ 11th Street	**1.02**	**56.9**	**E**
US 101 @ 6th Street	**1.03**	**104.4**	**F**
US 101 @ Hurbert Street	**1.05**	**72.0**	**E**
US 20 @ John Moore Drive	**1.04**	**43.6**	**D**
Unsignalized Intersections Critical Movement/Control			
US 20 @ Eads Street			
Southbound Left	**2.29**	**>100**	**F**
9th Street @ Hurbert Street			
Northbound	0.59	21.2	C
US 101 @ Fall Street			
Eastbound	**2.16**	**>100**	**F**
Westbound	0.70	>100	F
Olive Street & Nye Street			
All-Way Stop	--	15.4	C
11th Street & Nye Street			
All-Way Stop	--	7.6	A
Fall Street & Bay Blvd			
All-Way Stop	--	8.0	A

Note 1: V/C ratio is a ratio between traffic volumes and the roadway or intersection's capacity.
Notes 2: LOS means intersection level of service.
Note 2: "Critical Delay" and "Critical LOS" refers to the delay or LOS experienced for the specific intersection traffic movement listed.

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Figure 5-1. 2027 Projected Peak Hour Traffic Volumes

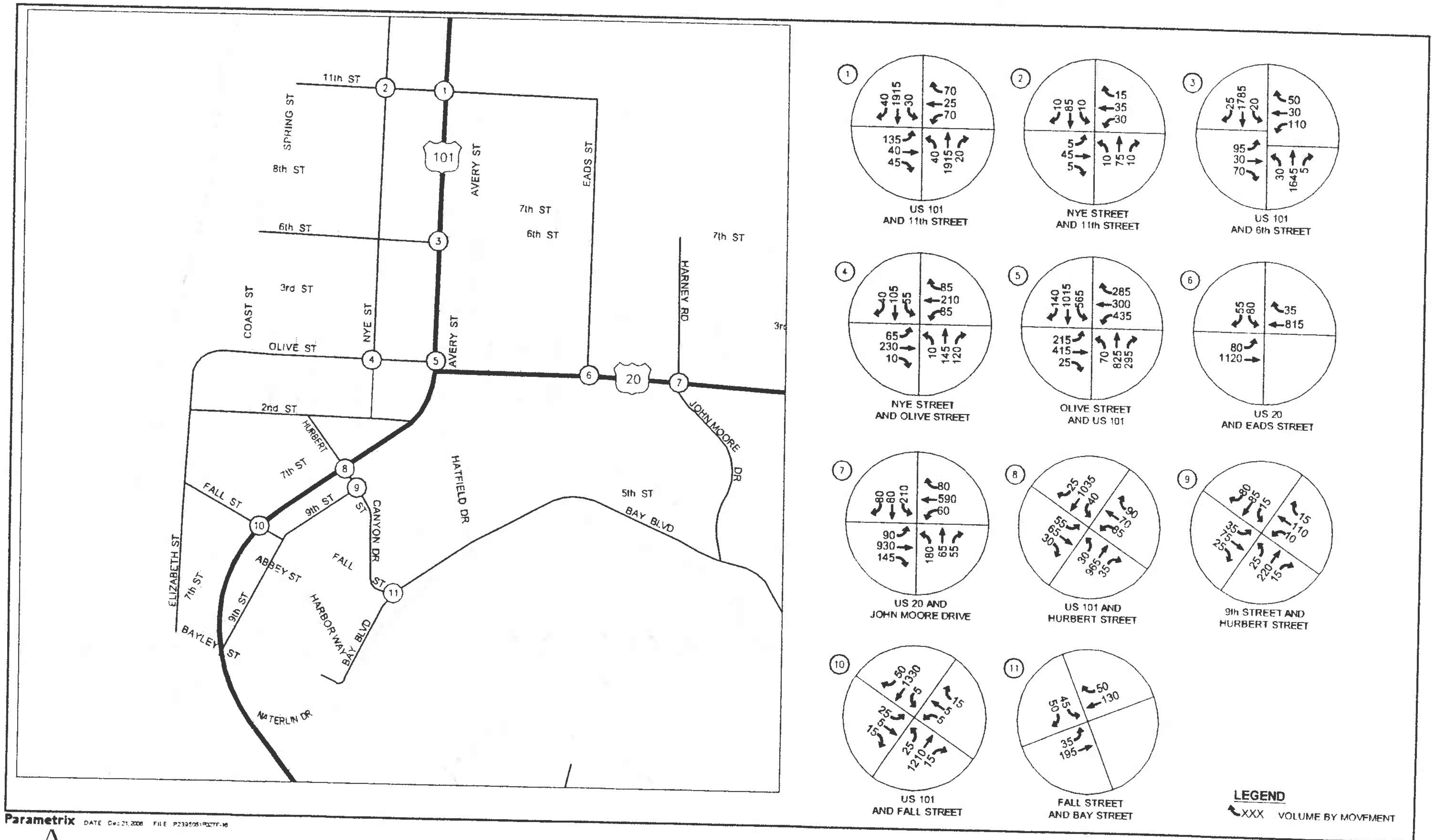


Figure 5-1
2027 Projected Peak Hour Traffic Volumes

APPENDIX A

2006 Traffic Counts

TRAFSTATS
PO Box 13699
Salem, OR 97309
Tel: (503) 646-2942
Fax: (503) 526-0628

Intersection Turning Movement
Summary Report

Location HIGHWAY 20 AT EADS STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
7:00 - 7:15	0	83	8	2	109	0	0	0	0	6	0	4	212
7:15 - 7:30	0	99	12	6	137	0	0	0	0	11	0	2	267
7:30 - 7:45	0	96	4	9	177	0	0	0	0	20	0	3	309
7:45 - 8:00	0	112	24	15	210	0	0	0	0	24	0	7	392
8:00 - 8:15	0	112	16	13	202	0	0	0	0	20	0	7	370
8:15 - 8:30	0	104	7	5	219	0	0	0	0	19	0	4	358
8:30 - 8:45	0	85	5	3	171	0	0	0	0	12	0	8	284
8:45 - 9:00	0	75	6	4	154	0	0	0	0	13	0	1	253
Movement Totals	0	766	82	57	1379	0	0	0	0	125	0	36	2445
Enter Totals		848			1436			0			161		
Exit Totals		802			1504			139			0		

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	37	2	1	41	0	0	0	0	0	0	0	81
Medium Trucks	0	13	0	0	16	0	0	0	0	0	0	0	29
Heavy Trucks	0	26	0	0	11	0	0	0	0	1	0	0	38
% Trucks	NA	9.9%	2.4%	1.8%	4.9%	NA	NA	NA	NA	0.8%	NA	0.0%	6.1%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	1	0	0	0	0	0	0	0	0	0	0	1

	South	West	East	North	
Pedestrians	0	0	2	1	3

Peak Hour Information

Peak Hour 7:30 8:30

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	0	424	51	42	808	0	0	0	0	83	0	21	1429
Peak Hour Factor	NA	0.95	0.53	0.70	0.92	NA	NA	NA	NA	0.86	NA	0.75	0.91
Enter Totals		475			104			0			850		
Peak Hour Factor		0.87			0.84			NA			0.94		
Exit Totals		445			0			93			891		
Peak Hour Factor		0.93			NA			0.60			0.94		
Light Trucks	0	20	2	1	23	0	0	0	0	0	0	0	46
Medium Trucks	0	8	0	0	8	0	0	0	0	0	0	0	16
Heavy Trucks	0	12	0	0	4	0	0	0	0	1	0	0	17
% Trucks	NA	9.4%	3.9%	2.4%	4.3%	NA	NA	NA	NA	1.2%	NA	0.0%	5.5%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	0	0	2	0	2

TrafStats

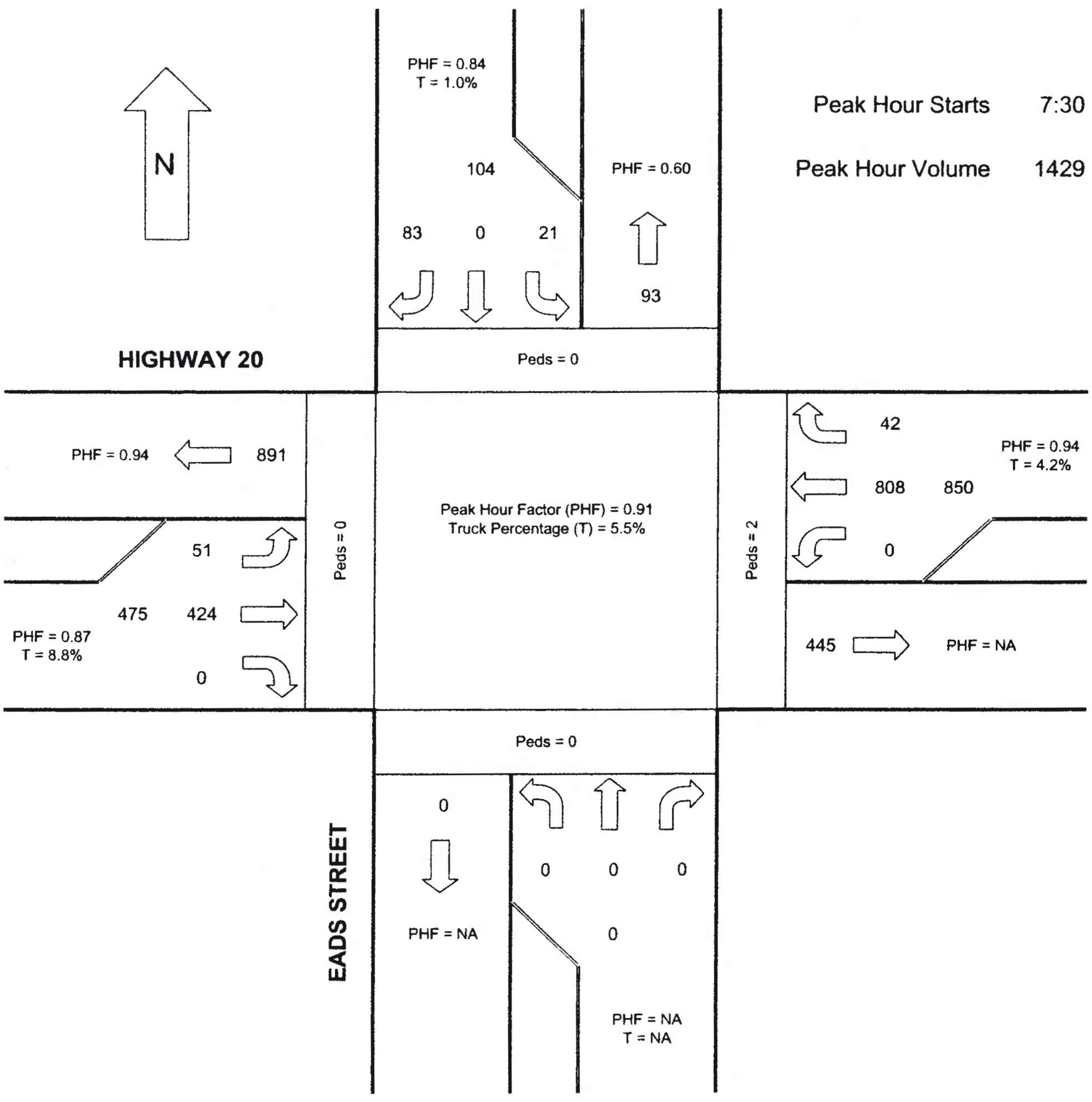
Intersection Turning Movement

Peak Hour Diagram

Location HIGHWAY 20 AT EADS STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV

Peak Hour Starts 7:30

Peak Hour Volume 1429



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Intersection Turning Movement
Summary Report

Location W OLIVE STREET AT NW NYE STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	3	31	12	17	29	27	23	10	3	8	21	9	193
11:15 - 11:30	4	38	7	14	24	28	20	11	3	6	16	11	182
11:30 - 11:45	5	44	14	14	14	15	24	14	4	9	21	8	186
11:45 - 12:00	3	43	16	7	30	16	17	34	2	13	19	18	218
12:00 - 12:15	10	61	11	9	36	15	28	25	4	5	16	11	231
12:15 - 12:30	4	43	8	13	31	15	18	22	3	11	29	14	211
12:30 - 12:45	7	52	15	17	50	18	20	20	1	8	35	12	255
12:45 - 13:00	2	47	19	11	31	21	29	20	3	10	32	14	239
Movement Totals	38	359	102	102	245	155	179	156	23	70	189	97	1715
Enter Totals	499			502			358			356			
Exit Totals	635			338			360			382			

Two-Hour Totals

Light Trucks	0	5	0	2	3	5	2	4	1	3	5	3	33
Medium Trucks	0	0	1	0	0	0	0	0	0	0	0	0	1
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	1.4%	1.0%	2.0%	1.2%	3.2%	1.1%	2.6%	4.3%	4.3%	2.6%	3.1%	2.0%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	1	0	1	0	0	1	0	0	1	0	4

	South	West	East	North	
Pedestrians	8	11	0	24	43

Peak Hour Information

Peak Hour 12:00 13:00

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	23	203	53	50	148	69	95	87	11	34	112	51	936
Peak Hour Factor	0.58	0.83	0.70	0.74	0.74	0.82	0.82	0.87	0.69	0.77	0.80	0.91	0.92

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	279	197	193	267
Peak Hour Factor	0.85	0.88	0.85	0.79
Exit Totals	349	204	190	193
Peak Hour Factor	0.87	0.85	0.91	0.82

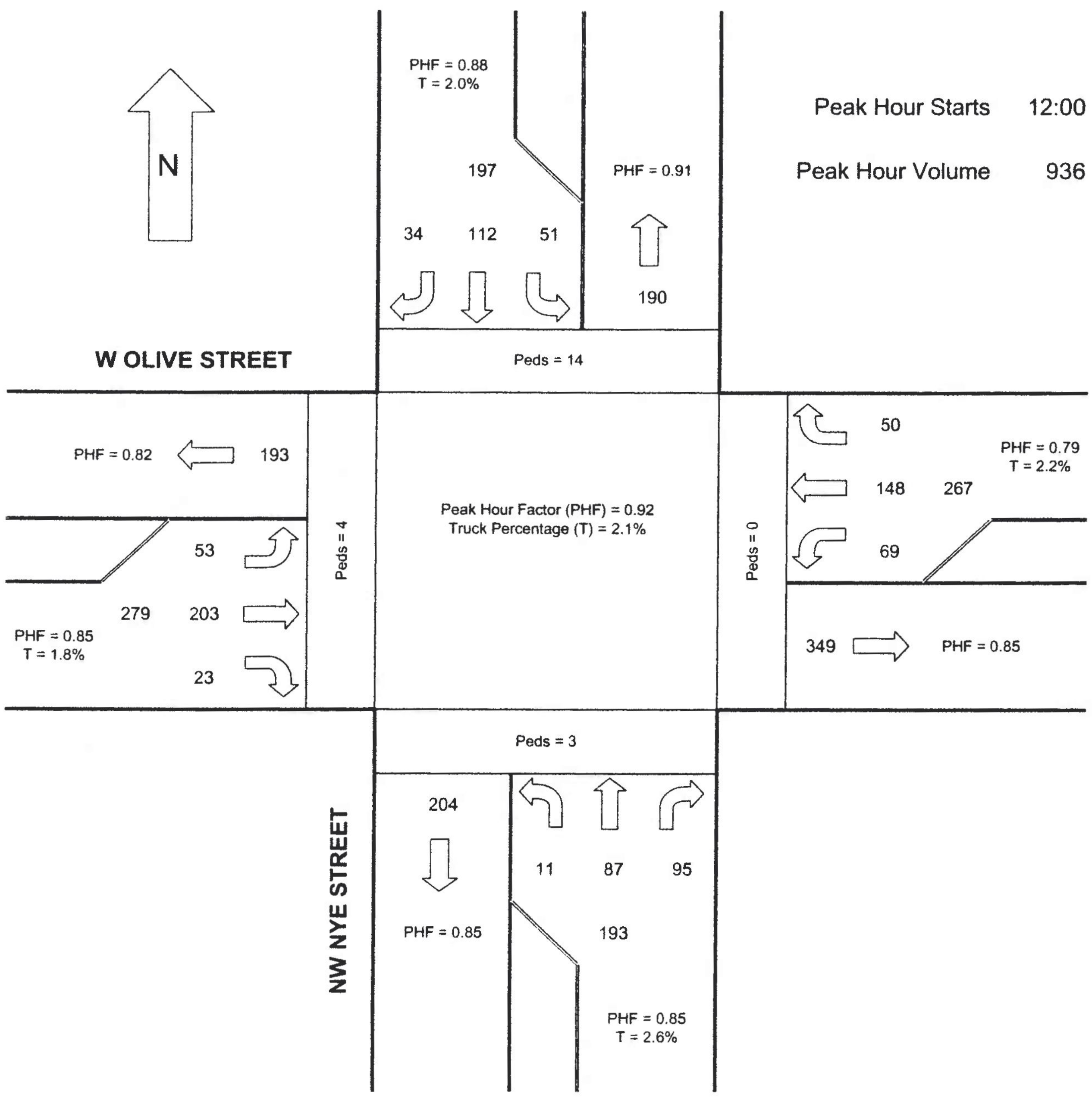
Light Trucks	0	5	0	0	3	3	0	4	1	2	1	1	20
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	2.5%	0.0%	0.0%	2.0%	4.3%	0.0%	4.6%	9.1%	5.9%	0.9%	2.0%	2.1%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	1	0	1	0	0	0	0	0	1	0	3

	South	West	East	North	
Pedestrians	3	4	0	14	21

Intersection Turning Movement
Peak Hour Diagram

Location W OLIVE STREET AT NW NYE STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: BV

Peak Hour Starts 12:00
Peak Hour Volume 936



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Intersection Turning Movement
Summary Report

Location HIGHWAY 20 AT EADS STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
7:00 - 7:15	0	83	8	2	109	0	0	0	0	6	0	4	212
7:15 - 7:30	0	99	12	6	137	0	0	0	0	11	0	2	267
7:30 - 7:45	0	96	4	9	177	0	0	0	0	20	0	3	309
7:45 - 8:00	0	112	24	15	210	0	0	0	0	24	0	7	392
8:00 - 8:15	0	112	16	13	202	0	0	0	0	20	0	7	370
8:15 - 8:30	0	104	7	5	219	0	0	0	0	19	0	4	358
8:30 - 8:45	0	85	5	3	171	0	0	0	0	12	0	8	284
8:45 - 9:00	0	75	6	4	154	0	0	0	0	13	0	1	253
Movement Totals	0	766	82	57	1379	0	0	0	0	125	0	36	2445
Enter Totals	848			1436			0			161			
Exit Totals	802			1504			139			0			

Two-Hour Totals

Light Trucks	0	37	2	1	41	0	0	0	0	0	0	0	81
Medium Trucks	0	13	0	0	16	0	0	0	0	0	0	0	29
Heavy Trucks	0	26	0	0	11	0	0	0	0	1	0	0	38
% Trucks	NA	9.9%	2.4%	1.8%	4.9%	NA	NA	NA	NA	0.8%	NA	0.0%	6.1%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	1	0	0	0	0	0	0	0	0	0	0	1

	South	West	East	North	
Pedestrians	0	0	2	1	3

Peak Hour Information

Peak Hour 7:30 8:30

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	0	424	51	42	808	0	0	0	0	83	0	21	1429
Peak Hour Factor	NA	0.95	0.53	0.70	0.92	NA	NA	NA	NA	0.86	NA	0.75	0.91

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	475	104	0	850
Peak Hour Factor	0.87	0.84	NA	0.94
Exit Totals	445	0	93	891
Peak Hour Factor	0.93	NA	0.60	0.94

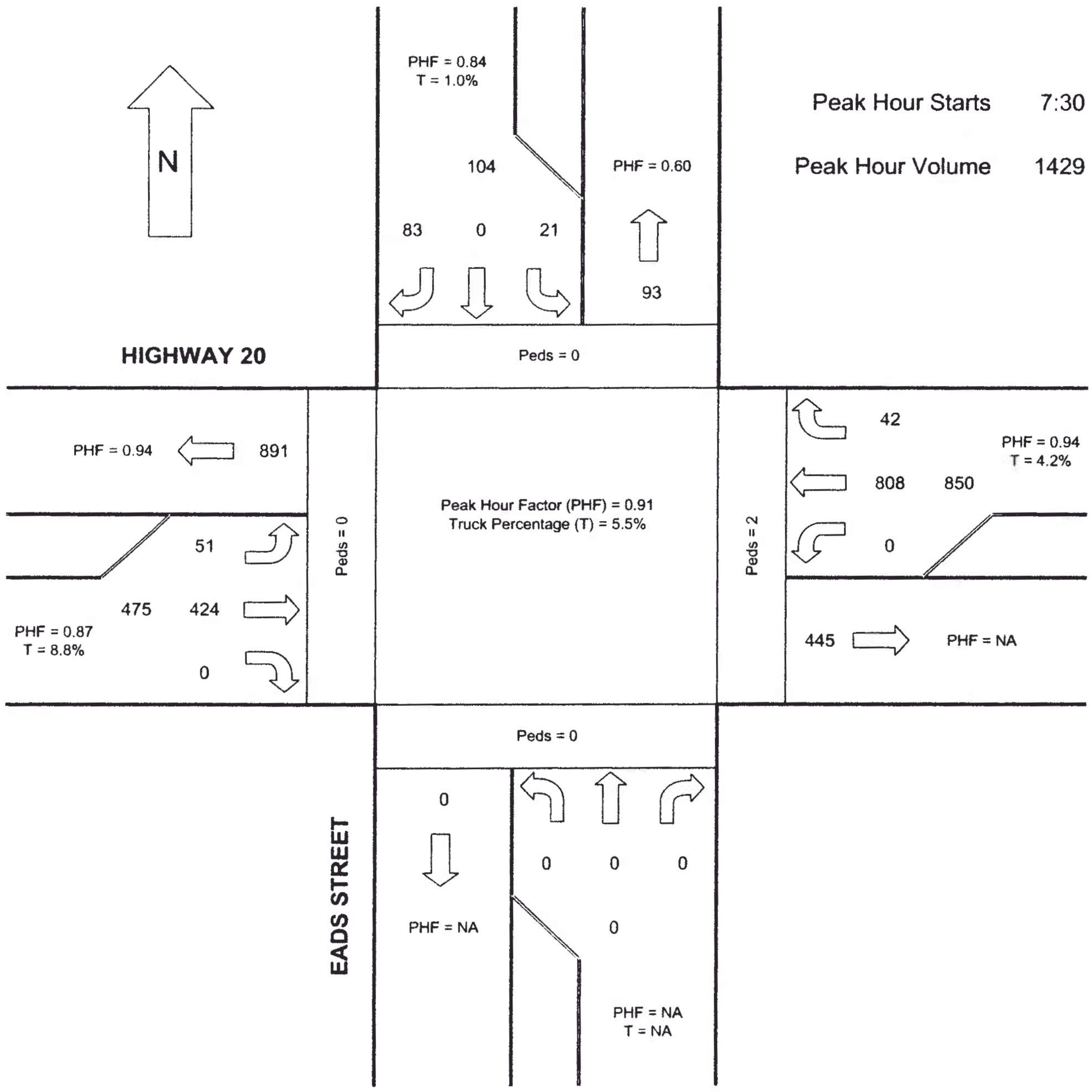
Light Trucks	0	20	2	1	23	0	0	0	0	0	0	0	46
Medium Trucks	0	8	0	0	8	0	0	0	0	0	0	0	16
Heavy Trucks	0	12	0	0	4	0	0	0	0	1	0	0	17
% Trucks	NA	9.4%	3.9%	2.4%	4.3%	NA	NA	NA	NA	1.2%	NA	0.0%	5.5%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	0	0	2	0	2

Intersection Turning Movement
Peak Hour Diagram

Location HIGHWAY 20 AT EADS STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV

Peak Hour Starts 7:30
Peak Hour Volume 1429



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Intersection Turning Movement
Summary Report

Location HIGHWAY 20 AT EADS STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	0	107	8	4	142	0	0	0	0	12	0	1	274
11:15 - 11:30	0	120	9	4	152	0	0	0	0	9	0	1	295
11:30 - 11:45	0	137	10	6	152	0	0	0	0	11	0	4	320
11:45 - 12:00	0	143	17	4	138	0	0	0	0	15	0	7	324
12:00 - 12:15	0	129	14	6	132	0	0	1	0	18	0	4	304
12:15 - 12:30	0	126	12	6	152	0	0	0	0	14	0	12	322
12:30 - 12:45	0	140	10	2	144	0	0	0	0	12	1	10	319
12:45 - 13:00	0	139	5	2	143	0	0	0	0	14	0	7	310
Movement Totals	0	1041	85	34	1155	0	0	1	0	105	1	46	2468
Enter Totals	1126			1189			1			152			
Exit Totals	1087			1260			120			1			

Two-Hour Totals

	EB Right	EB Thru	EB Left	WB Right	WB Thru	WB Left	NB Right	NB Thru	NB Left	SB Right	SB Thru	SB Left	Totals
Light Trucks	0	42	6	2	41	0	0	0	0	4	0	0	95
Medium Trucks	0	9	2	0	13	0	0	0	0	1	0	0	25
Heavy Trucks	0	24	0	0	20	0	0	0	0	0	0	0	44
% Trucks	NA	7.2%	9.4%	5.9%	6.4%	NA	NA	0.0%	NA	4.8%	0.0%	0.0%	6.6%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	1	0	0	1	0	2

	South	West	East	North	
Pedestrians	0	1	4	1	6

Peak Hour Information

Peak Hour 11:30 12:30

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	0	535	53	22	574	0	0	1	0	58	0	27	1270
Peak Hour Factor	NA	0.94	0.78	0.92	0.94	NA	NA	0.25	NA	0.81	NA	0.56	0.98

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	588	85	1	596
Peak Hour Factor	0.92	0.82	0.25	0.94
Exit Totals	562	0	76	632
Peak Hour Factor	0.94	NA	0.90	0.95

	EB Right	EB Thru	EB Left	WB Right	WB Thru	WB Left	NB Right	NB Thru	NB Left	SB Right	SB Thru	SB Left	Totals
Light Trucks	0	21	4	1	21	0	0	0	0	0	0	0	47
Medium Trucks	0	5	0	0	7	0	0	0	0	0	0	0	12
Heavy Trucks	0	12	0	0	8	0	0	0	0	0	0	0	20
% Trucks	NA	7.1%	7.5%	4.5%	6.3%	NA	NA	0.0%	NA	0.0%	NA	0.0%	6.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	1	0	0	0	0	1

	South	West	East	North	
Pedestrians	0	0	0	1	1

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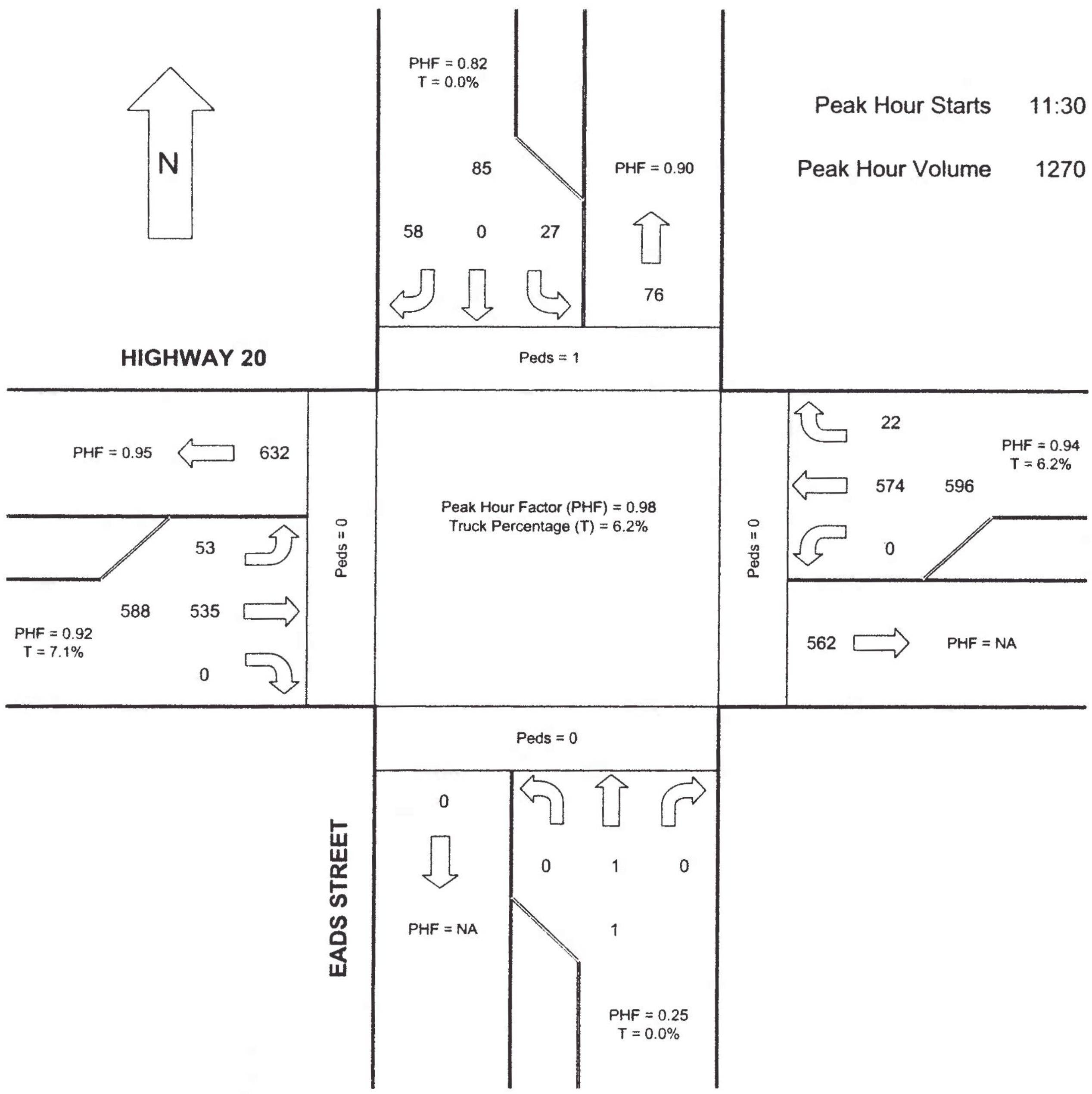
Intersection Turning Movement
Peak Hour Diagram

Location HIGHWAY 20 AT EADS STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: BV

Peak Hour Starts 11:30

Peak Hour Volume 1270



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Intersection Turning Movement
Summary Report

Location HIGHWAY 20 AT EADS STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: BV

Time Period	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
16:00 - 16:15	0	169	9	4	158	0	0	0	0	15	0	10	365
16:15 - 16:30	0	183	19	2	147	0	0	0	0	12	0	8	371
16:30 - 16:45	0	208	8	12	154	0	0	0	0	15	0	12	409
16:45 - 17:00	0	220	13	9	145	0	0	0	0	12	0	7	406
17:00 - 17:15	0	198	18	5	144	0	0	0	0	18	0	13	396
17:15 - 17:30	0	219	8	5	103	0	0	0	0	12	0	16	363
17:30 - 17:45	0	151	12	6	112	0	0	1	0	13	0	10	305
17:45 - 18:00	0	129	6	3	99	0	0	0	0	23	0	12	272
Movement Totals	0	1477	93	46	1062	0	0	1	0	120	0	88	2887
Enter Totals	1570			1108			1			208			
Exit Totals	1565			1182			140			0			

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	30	2	1	18	0	0	0	0	0	0	0	51
Medium Trucks	0	3	0	0	10	0	0	0	0	0	0	0	13
Heavy Trucks	0	20	0	1	15	0	0	0	0	0	0	0	36
% Trucks	NA	3.6%	2.2%	4.3%	4.0%	NA	NA	0.0%	NA	0.0%	NA	0.0%	3.5%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	1	0	0	0	0	1

	South	West	East	North	
Pedestrians	0	0	14	0	14

Peak Hour Information

Peak Hour 16:15 17:15

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Movement Total	0	809	58	28	590	0	0	0	0	57	0	40	1582
Peak Hour Factor	NA	0.92	0.76	0.58	0.96	NA	NA	NA	NA	0.79	NA	0.77	0.97

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	867	97	0	618
Peak Hour Factor	0.93	0.78	NA	0.93
Exit Totals	849	0	86	647
Peak Hour Factor	0.94	NA	0.93	0.96

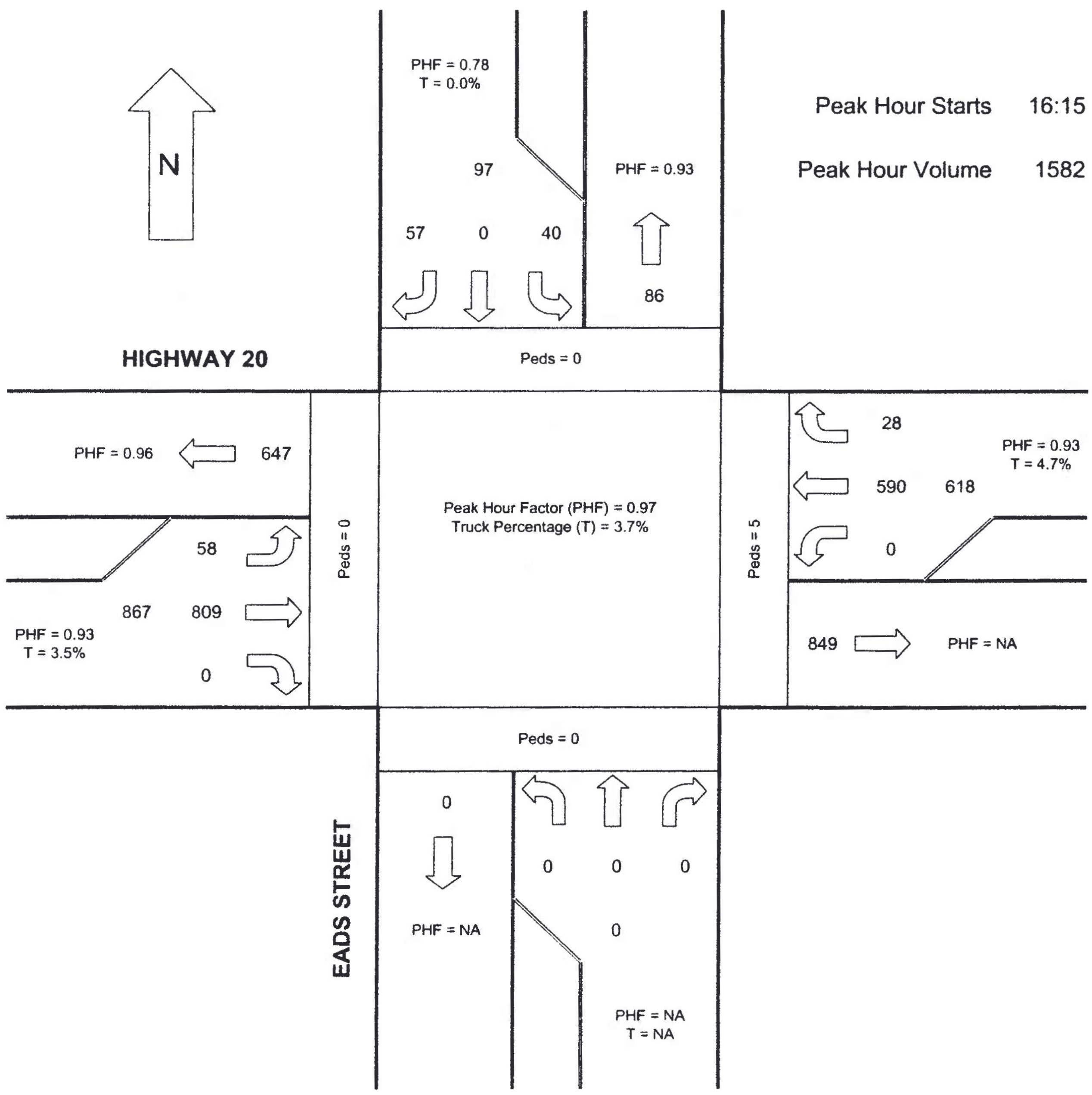
	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	18	2	0	10	0	0	0	0	0	0	0	30
Medium Trucks	0	3	0	0	7	0	0	0	0	0	0	0	10
Heavy Trucks	0	7	0	0	12	0	0	0	0	0	0	0	19
% Trucks	NA	3.5%	3.4%	0.0%	4.9%	NA	NA	NA	NA	0.0%	NA	0.0%	3.7%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	0	0	5	0	5

TrafStats

Intersection Turning Movement
Peak Hour Diagram

Location HIGHWAY 20 AT EADS STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: BV



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Intersection Turning Movement

Summary Report

Location HIGHWAY 20 AT SE JOHN MOORE ROAD/NE HARNEY STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: VB

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
7:00 - 7:15	14	55	5	4	64	3	5	6	11	6	4	4	181
7:15 - 7:30	8	71	5	6	122	4	4	8	14	8	8	15	273
7:30 - 7:45	13	82	9	11	167	9	5	7	25	17	12	10	367
7:45 - 8:00	18	62	15	11	186	19	3	25	38	18	15	16	426
8:00 - 8:15	29	41	21	9	130	15	3	37	30	23	37	18	393
8:15 - 8:30	24	54	12	6	140	9	3	14	36	34	19	12	363
8:30 - 8:45	23	54	5	6	134	6	5	17	43	21	6	13	333
8:45 - 9:00	14	39	5	8	137	6	5	1	33	10	6	10	274
Movement Totals	143	458	77	61	1080	71	33	115	230	137	107	98	2610
Enter Totals	678			1212			378			342			
Exit Totals	589			1447			253			321			

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	4	24	2	1	12	2	3	4	5	4	4	3	68
Medium Trucks	6	10	2	0	13	0	1	0	6	1	0	1	40
Heavy Trucks	0	11	1	0	9	0	0	0	0	0	0	5	26
% Trucks	7.0%	9.8%	6.5%	1.6%	3.1%	2.8%	12.1%	3.5%	4.8%	3.6%	3.7%	9.2%	5.1%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	0	2	0	0	2

Peak Hour Information

Peak Hour 7:30 8:30

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	84	239	57	37	623	52	14	83	129	92	83	56	1549
Peak Hour Factor	0.72	0.73	0.68	0.84	0.84	0.68	0.70	0.56	0.85	0.68	0.56	0.78	0.91

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	380	231	226	712
Peak Hour Factor	0.91	0.74	0.81	0.82
Exit Totals	309	219	177	844
Peak Hour Factor	0.80	0.68	0.66	0.87

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	3	10	1	0	7	1	0	4	3	1	3	3	36
Medium Trucks	2	5	1	0	7	0	0	0	2	1	0	1	19
Heavy Trucks	0	6	0	0	4	0	0	0	0	0	0	4	14
% Trucks	6.0%	8.8%	3.5%	0.0%	2.9%	1.9%	0.0%	4.8%	3.9%	2.2%	3.6%	14.3%	4.5%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

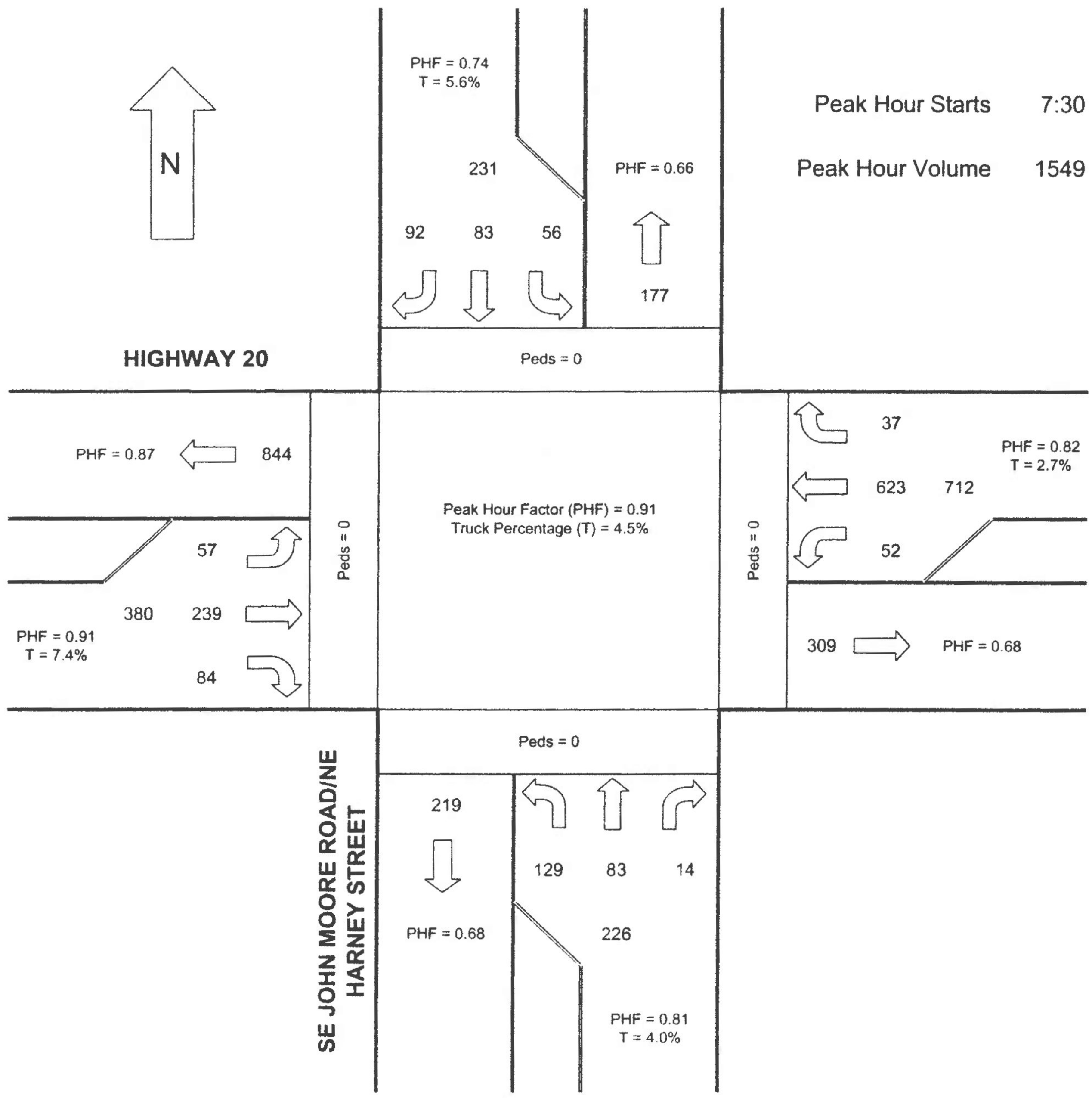
	South	West	East	North	
Pedestrians	0	0	0	0	0

TRAFSTATS

Intersection Turning Movement

Peak Hour Diagram

Location HIGHWAY 20 AT SE JOHN MOORE ROAD/NE HARNEY STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: VB



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Intersection Turning Movement

Summary Report

Location HIGHWAY 20 AT SE JOHN MOORE ROAD/NE HARNEY STREET
Date 9/11/2006
Day of Week Monday
Time Begin 11:00
Reviewed By: VB

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	23	77	13	3	106	3	5	5	31	11	5	13	295
11:15 - 11:30	22	60	12	11	107	7	10	7	37	16	5	11	305
11:30 - 11:45	20	68	17	7	92	6	3	7	42	17	17	8	304
11:45 - 12:00	30	93	16	8	91	13	7	16	37	9	13	20	353
12:00 - 12:15	20	69	18	12	91	10	5	10	46	6	7	11	305
12:15 - 12:30	19	93	6	2	101	7	9	14	28	22	15	17	333
12:30 - 12:45	31	89	11	8	111	3	4	21	22	15	22	12	349
12:45 - 13:00	25	88	7	4	88	5	9	16	32	9	10	11	304
Movement Totals	190	637	100	55	787	54	52	96	275	105	94	103	2548
Enter Totals	927			896			423			302			
Exit Totals	792			1167			251			338			

Two-Hour Totals

Light Trucks	2	29	3	2	20	2	1	0	4	5	2	2	72
Medium Trucks	2	7	4	0	11	0	1	0	1	4	0	0	30
Heavy Trucks	1	6	6	0	12	1	0	0	2	3	0	0	31
% Trucks	2.6%	6.6%	13.0%	3.6%	5.5%	5.6%	3.8%	0.0%	2.5%	11.4%	2.1%	1.9%	5.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	2	0	0	0	0	0	0	0	2

	South	West	East	North	
Pedestrians	2	0	1	0	3

Peak Hour Information

Peak Hour 11:45 12:45

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	100	344	51	30	394	33	25	61	133	52	57	60	1340
Peak Hour Factor	0.81	0.92	0.71	0.63	0.89	0.63	0.69	0.73	0.72	0.59	0.65	0.75	0.95

Enter Totals	495	169	219	457
Peak Hour Factor	0.89	0.78	0.90	0.94

Exit Totals	429	190	142	579
Peak Hour Factor	0.89	0.85	0.89	0.96

Light Trucks	1	17	2	0	8	0	1	0	3	2	1	1	36
Medium Trucks	0	7	1	0	6	0	1	0	1	2	0	0	18
Heavy Trucks	1	2	1	0	5	0	0	0	1	1	0	0	11
% Trucks	2.0%	7.6%	7.8%	0.0%	4.8%	0.0%	8.0%	0.0%	3.8%	9.6%	1.8%	1.7%	4.9%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	2	0	0	0	0	0	0	0	2

	South	West	East	North	
Pedestrians	2	0	1	0	3

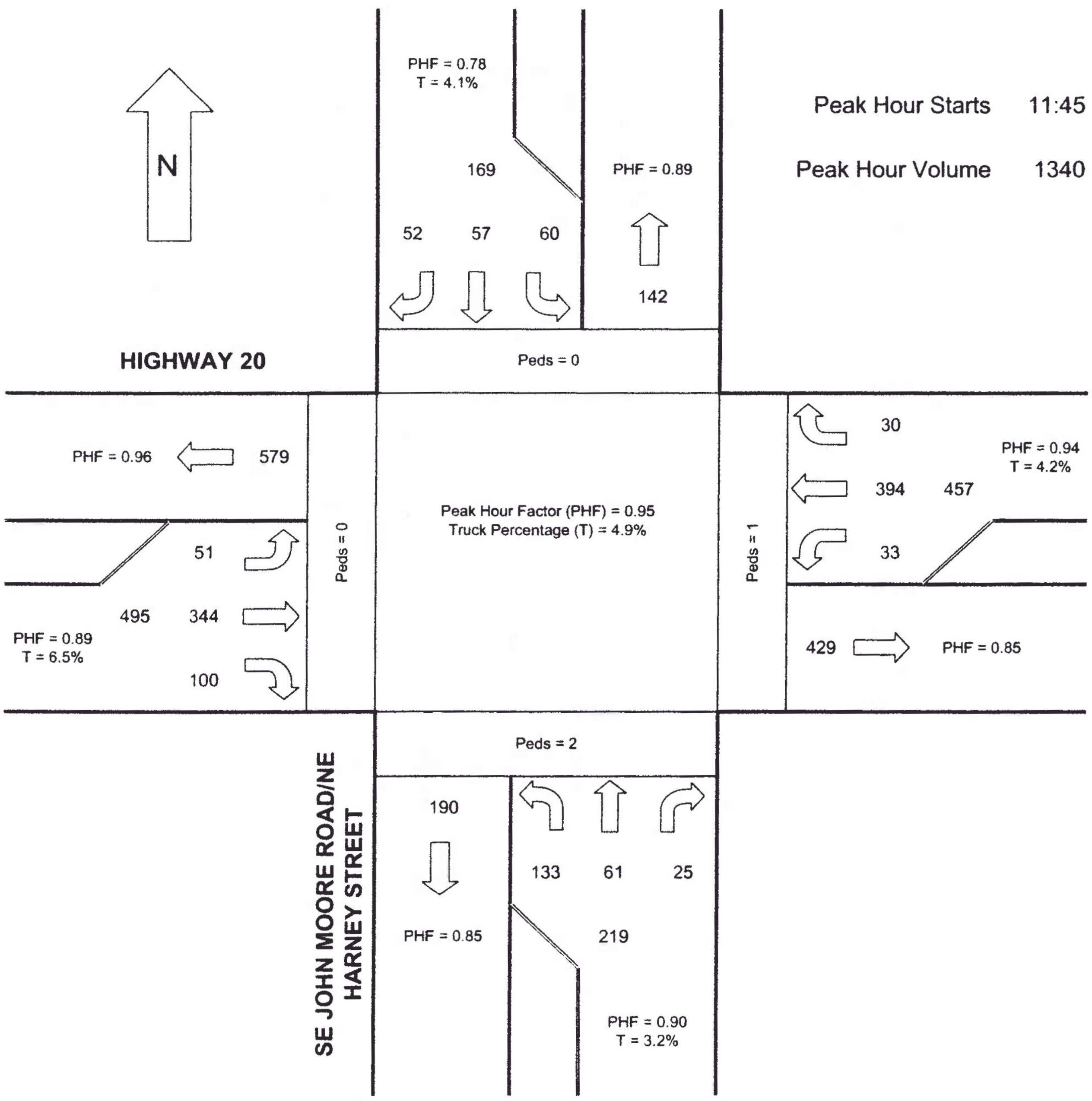
TrafStats

Intersection Turning Movement
Peak Hour Diagram

Location HIGHWAY 20 AT SE JOHN MOORE ROAD/NE HARNEY STREET
Date 9/11/2006
Day of Week Monday
Time Begin 11:00
Reviewed By: VB

Peak Hour Starts 11:45

Peak Hour Volume 1340



TRAF STATS
PO Box 13699
Salem, OR 97309
Tel: (503) 646-2942
Fax: (503) 526-0628

Intersection Turning Movement
Summary Report

Location HIGHWAY 20 AT SE JOHN MOORE ROAD/NE HARNEY STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: VB

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
16:00 - 16:15	28	148	15	7	113	4	5	13	34	13	17	26	423
16:15 - 16:30	22	134	16	12	90	9	7	13	32	7	17	35	394
16:30 - 16:45	31	127	21	22	101	10	7	6	27	19	13	25	409
16:45 - 17:00	19	190	14	11	107	4	11	21	30	17	10	44	478
17:00 - 17:15	27	183	10	9	107	16	10	6	31	12	16	39	466
17:15 - 17:30	24	173	23	5	66	7	9	5	20	11	9	41	393
17:30 - 17:45	25	123	9	9	82	5	4	9	27	14	10	19	336
17:45 - 18:00	24	101	6	6	70	7	9	11	16	7	14	27	298
Movement Totals	200	1179	114	81	736	62	62	84	217	100	106	256	3197
Enter Totals	1493			879			363			462			
Exit Totals	1497			1053			279			368			

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	3	17	7	3	16	3	1	0	2	2	0	4	58
Medium Trucks	0	6	1	3	9	0	1	0	0	3	0	2	25
Heavy Trucks	0	9	7	0	8	0	1	0	1	1	0	0	27
% Trucks	1.5%	2.7%	13.2%	7.4%	4.5%	4.8%	4.8%	0.0%	1.4%	6.0%	0.0%	2.3%	3.4%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	1	1	0	0	0	0	1	2	0	0	0	0	5

	South	West	East	North	
Pedestrians	1	32	0	1	34

Peak Hour Information

Peak Hour 16:15 17:15

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	99	634	61	54	405	39	35	46	120	55	56	143	1747
Peak Hour Factor	0.80	0.83	0.73	0.61	0.95	0.61	0.80	0.55	0.94	0.72	0.82	0.81	0.91

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	794	254	201	498
Peak Hour Factor	0.89	0.89	0.81	0.94
Exit Totals	812	194	161	580
Peak Hour Factor	0.83	0.82	0.82	0.94

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	2	6	4	3	9	3	0	0	0	0	0	1	28
Medium Trucks	0	4	1	3	6	0	1	0	0	3	0	2	20
Heavy Trucks	0	4	3	0	6	0	0	0	1	1	0	0	15
% Trucks	2.0%	2.2%	13.1%	11.1%	5.2%	7.7%	2.9%	0.0%	0.8%	7.3%	0.0%	2.1%	3.6%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	1	1	0	0	0	0	0	1	0	0	0	0	3

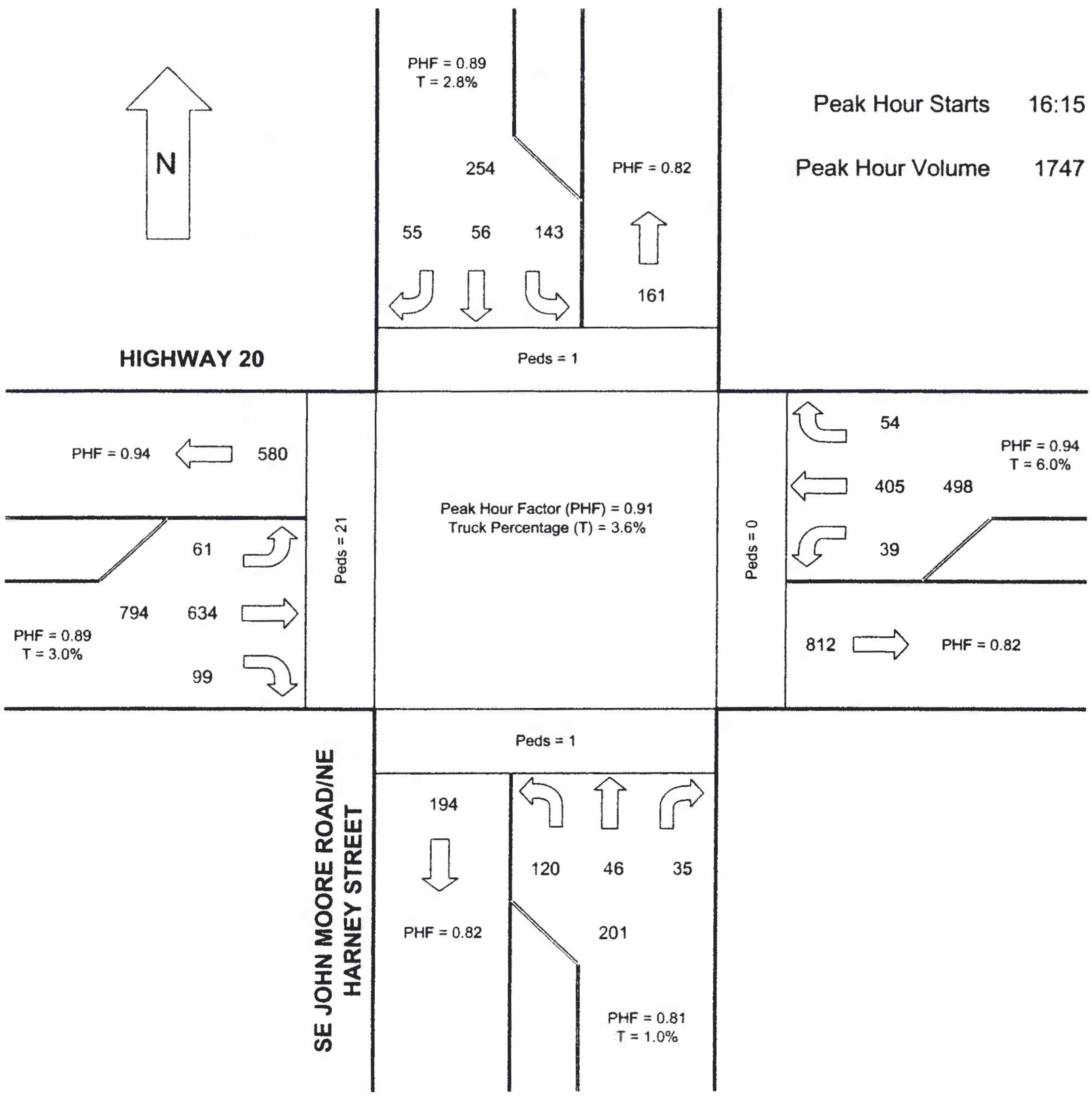
	South	West	East	North	
Pedestrians	1	21	0	1	23

TrafStats

Intersection Turning Movement

Peak Hour Diagram

Location HIGHWAY 20 AT SE JOHN MOORE ROAD/NE HARNEY STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: VB



TRAF STATS
PO Box 13699
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Fax: (503) 526-0628

Intersection Turning Movement

Summary Report

Location 6TH STREET AT HIGHWAY 101
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BM

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
7:00 - 7:15	1	0	6	2	0	5	3	109	0	3	97	0	226
7:15 - 7:30	6	2	6	4	1	6	3	135	5	7	167	1	343
7:30 - 7:45	10	2	12	5	0	6	1	132	3	3	204	2	380
7:45 - 8:00	19	6	11	3	6	18	8	164	6	3	245	3	492
8:00 - 8:15	13	9	17	10	3	19	3	150	9	3	188	2	426
8:15 - 8:30	9	1	16	3	8	19	4	205	6	4	167	4	446
8:30 - 8:45	11	5	7	5	3	12	5	204	10	3	167	6	438
8:45 - 9:00	8	5	14	6	6	17	3	178	9	9	183	6	444
Movement Totals	77	30	89	38	27	102	30	1277	48	35	1418	24	3195
Enter Totals	196			167			1355			1477			
Exit Totals	84			110			1404			1597			

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	3	0	3	1	0	3	0	27	2	0	33	0	72
Medium Trucks	0	1	1	0	0	1	1	12	0	0	10	0	26
Heavy Trucks	0	0	2	0	0	2	0	25	0	0	28	1	58
% Trucks	3.9%	3.3%	6.7%	2.6%	0.0%	5.9%	3.3%	5.0%	4.2%	0.0%	5.0%	4.2%	4.9%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	4	0	0	1	1	0	0	0	0	1	0	7

	South	West	East	North	
Pedestrians	12	6	9	7	34

Peak Hour Information

Peak Hour 7:45 8:45

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	52	21	51	21	20	68	20	723	31	13	767	15	1802
Peak Hour Factor	0.68	0.58	0.75	0.53	0.63	0.89	0.63	0.88	0.78	0.81	0.78	0.63	0.92

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	124	795	774	109
Peak Hour Factor	0.79	0.79	0.88	0.85
Exit Totals	56	887	795	64
Peak Hour Factor	0.82	0.79	0.89	0.89

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	3	0	2	1	0	3	0	16	2	0	19	0	46
Medium Trucks	0	1	1	0	0	0	1	6	0	0	3	0	12
Heavy Trucks	0	0	1	0	0	1	0	11	0	0	15	1	29
% Trucks	5.8%	4.8%	7.8%	4.8%	0.0%	5.9%	5.0%	4.6%	6.5%	0.0%	4.8%	6.7%	4.8%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	4	0	0	1	0	0	0	0	0	0	0	5

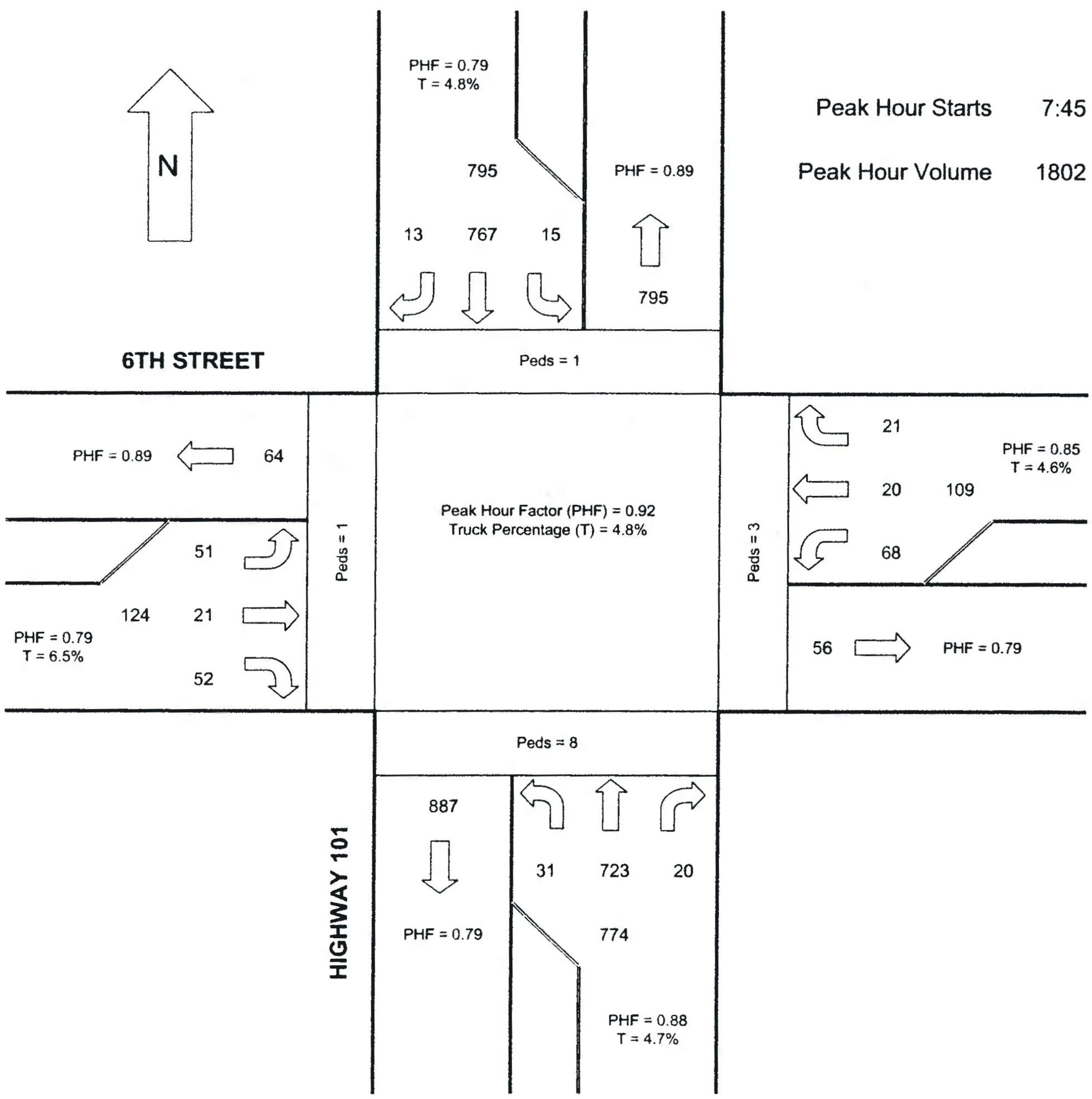
	South	West	East	North	
Pedestrians	8	1	3	1	13

TRAFSTATS

Intersection Turning Movement

Peak Hour Diagram

Location 6TH STREET AT HIGHWAY 101
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BM



TRAF STATS
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Intersection Turning Movement

Summary Report

Location 6TH STREET AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: VB

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	15	4	14	5	4	12	3	263	7	12	295	5	639
11:15 - 11:30	10	1	10	6	5	10	6	275	10	6	323	2	664
11:30 - 11:45	9	1	23	5	7	16	6	317	3	12	386	2	787
11:45 - 12:00	9	8	25	13	8	16	4	324	12	7	380	5	811
12:00 - 12:15	12	6	27	9	7	17	1	301	10	4	364	4	762
12:15 - 12:30	12	5	17	8	3	24	6	347	13	6	427	6	874
12:30 - 12:45	13	5	18	9	5	19	8	316	3	8	405	7	816
12:45 - 13:00	13	6	24	3	6	14	7	271	8	11	371	3	737
Movement Totals	93	36	158	58	45	128	41	2414	66	66	2951	34	6090
Enter Totals	287			231			2521			3051			
Exit Totals	111			177			2630			3172			

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	3	1	3	0	0	1	1	55	3	0	46	1	114
Medium Trucks	1	0	0	0	0	0	0	12	0	1	11	0	25
Heavy Trucks	1	0	1	0	1	1	1	26	0	0	25	0	56
% Trucks	5.4%	2.8%	2.5%	0.0%	2.2%	1.6%	4.9%	3.9%	4.5%	1.5%	2.8%	2.9%	3.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	2	0	0	0	0	0	0	0	0	2	0	4

	South	West	East	North	
Pedestrians	3	5	0	9	17

Peak Hour Information

Peak Hour 11:45 12:45

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	46	24	87	39	23	76	19	1288	38	25	1576	22	3263
Peak Hour Factor	0.88	0.75	0.81	0.75	0.72	0.79	0.59	0.93	0.73	0.78	0.92	0.79	0.93

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	157	1623	1345	138
Peak Hour Factor	0.87	0.92	0.92	0.93
Exit Totals	65	1698	1414	86
Peak Hour Factor	0.81	0.92	0.95	0.80

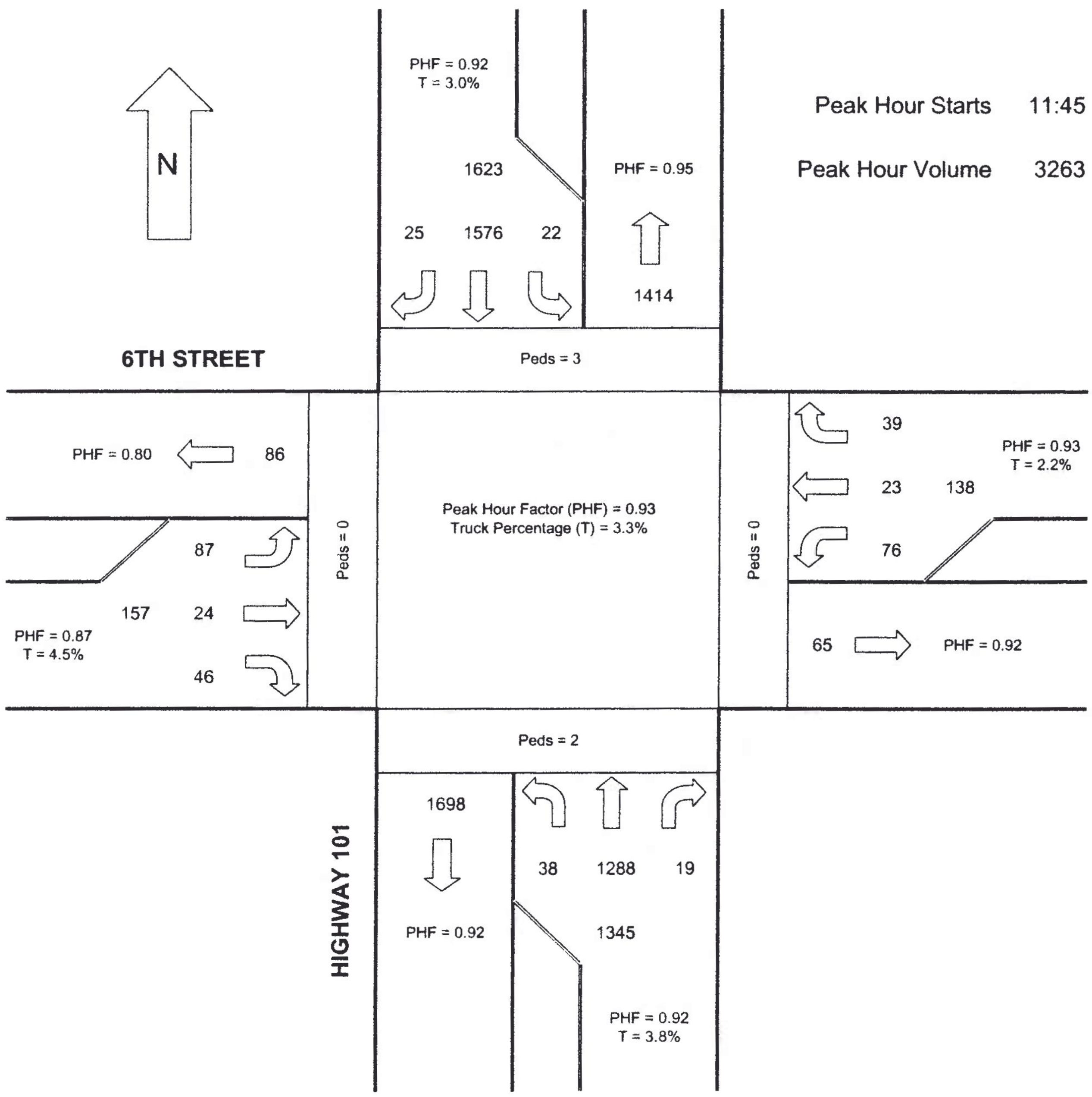
	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	2	1	2	0	0	1	1	27	3	0	26	0	63
Medium Trucks	1	0	0	0	0	0	0	4	0	1	5	0	11
Heavy Trucks	0	0	1	0	1	1	1	15	0	0	16	0	35
% Trucks	6.5%	4.2%	3.4%	0.0%	4.3%	2.6%	10.5%	3.6%	7.9%	4.0%	3.0%	0.0%	3.3%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	1	0	0	0	0	0	0	0	0	0	0	1

	South	West	East	North	
Pedestrians	2	0	0	3	5

Intersection Turning Movement

Peak Hour Diagram

Location 6TH STREET AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: VB



TRAF STATS
PO Box 13699
Salem, OR 97309
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Intersection Turning Movement

Summary Report

Location 6TH STREET AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: VB

Time Period	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
16:00 - 16:15	10	12	12	8	9	9	2	316	13	6	289	8	694
16:15 - 16:30	11	5	13	5	9	23	1	232	6	3	303	6	617
16:30 - 16:45	22	0	15	10	1	14	1	323	9	6	349	4	754
16:45 - 17:00	10	6	28	8	8	23	0	265	6	5	265	2	626
17:00 - 17:15	5	11	13	11	5	16	1	334	3	6	336	2	743
17:15 - 17:30	5	4	9	2	2	18	2	249	7	7	270	7	582
17:30 - 17:45	11	8	19	1	5	15	1	189	4	9	256	4	522
17:45 - 18:00	9	5	17	6	3	10	2	153	6	9	236	1	457
Movement Totals	83	51	126	51	42	128	10	2061	54	51	2304	34	4995
Enter Totals		260			221			2125			2389		
Exit Totals		95			147			2238			2515		

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	2	3	1	0	1	0	40	0	0	29	0	76
Medium Trucks	0	0	1	0	0	0	0	6	1	0	9	0	17
Heavy Trucks	0	0	0	0	0	0	0	6	0	1	13	0	20
% Trucks	0.0%	3.9%	3.2%	2.0%	0.0%	0.8%	0.0%	2.5%	1.9%	2.0%	2.2%	0.0%	2.3%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	2	0	0	1	0	0	1	0	0	8	0	12

	South	West	East	North	
Pedestrians	6	2	0	3	11

Peak Hour Information

Peak Hour 16:15 17:15

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Movement Total	48	22	69	34	23	76	3	1154	24	20	1253	14	2740
Peak Hour Factor	0.55	0.50	0.62	0.77	0.64	0.83	0.75	0.86	0.67	0.83	0.90	0.58	0.91

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	139	1287	1181	133
Peak Hour Factor	0.79	0.90	0.87	0.85
Exit Totals	39	1377	1257	67
Peak Hour Factor	0.70	0.89	0.88	0.88

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	1	0	1	0	1	0	21	0	0	15	0	39
Medium Trucks	0	0	0	0	0	0	0	5	0	0	6	0	11
Heavy Trucks	0	0	0	0	0	0	0	5	0	1	6	0	12
% Trucks	0.0%	4.5%	0.0%	2.9%	0.0%	1.3%	0.0%	2.7%	0.0%	5.0%	2.2%	0.0%	2.3%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	2	0	0	0	0	0	0	0	0	8	0	10

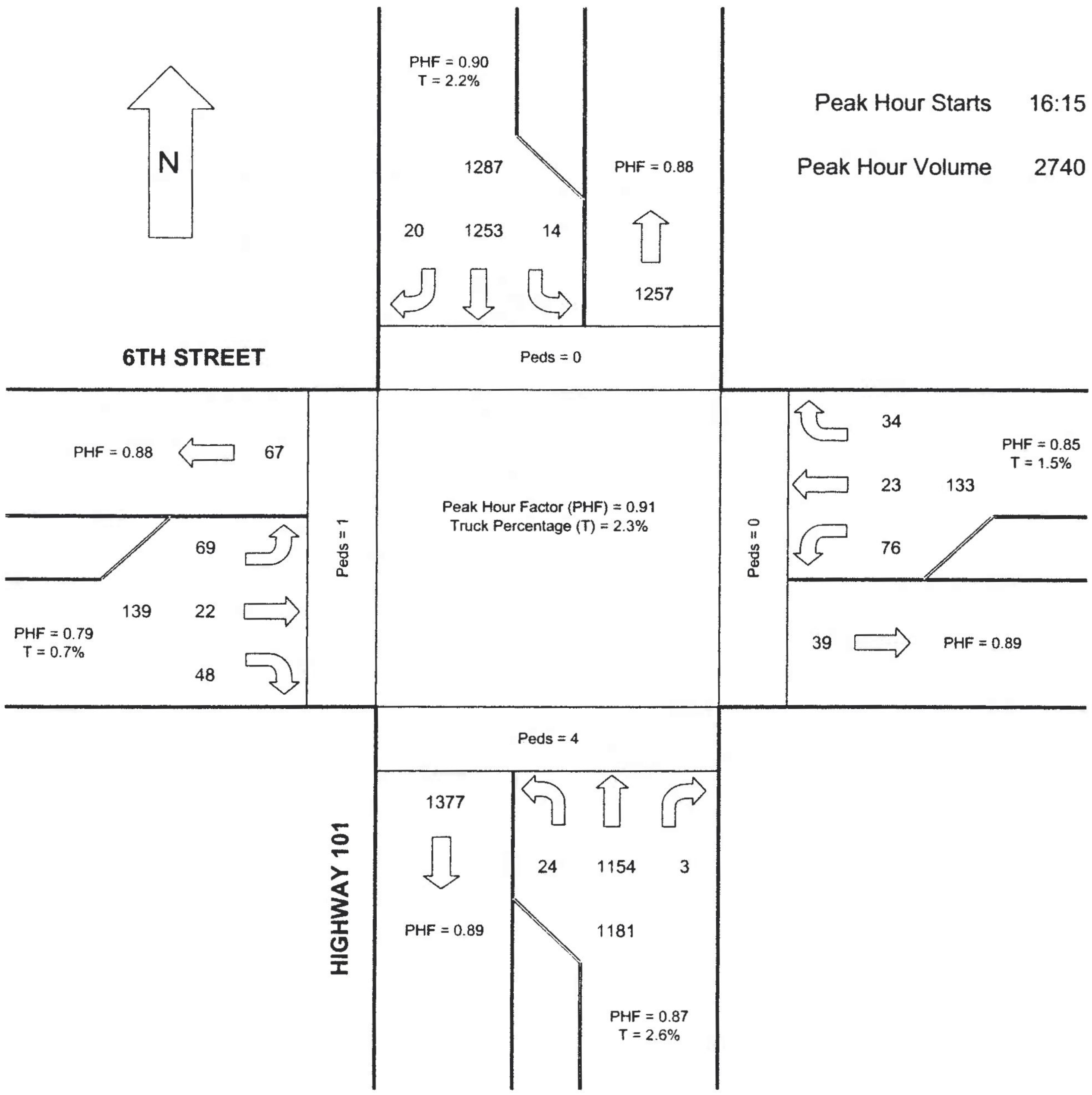
	South	West	East	North	
Pedestrians	4	1	0	0	5

TRAFSTATS

Intersection Turning Movement

Peak Hour Diagram

Location 6TH STREET AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: VB



TRAFSTATS
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Intersection Turning Movement
Summary Report

Location HIGHWAY 20 AT HIGHWAY 101
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: DH

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
7:00 - 7:15	0	6	11	38	15	26	40	87	2	4	51	34	314
7:15 - 7:30	5	13	12	55	24	52	36	78	5	6	110	39	435
7:30 - 7:45	1	11	11	61	28	58	37	96	3	13	113	52	484
7:45 - 8:00	1	26	30	48	85	80	52	117	5	30	162	59	695
8:00 - 8:15	1	38	24	90	33	104	61	105	4	18	114	59	651
8:15 - 8:30	1	22	27	94	64	90	54	115	10	19	112	51	659
8:30 - 8:45	7	25	36	65	35	73	29	132	8	16	98	63	587
8:45 - 9:00	3	22	25	64	53	75	36	132	8	19	133	45	615
Movement Totals	19	163	176	515	337	558	345	862	45	125	893	402	4440
Enter Totals	358			1410			1252			1420			
Exit Totals	910			507			1553			1470			

Two-Hour Totals

Light Trucks	1	10	3	13	1	16	15	23	1	1	29	13	126
Medium Trucks	0	0	0	4	0	13	4	7	0	0	3	7	38
Heavy Trucks	1	1	1	9	0	4	15	12	0	1	13	14	71
% Trucks	10.5%	6.7%	2.3%	5.0%	0.3%	5.9%	9.9%	4.9%	2.2%	1.6%	5.0%	8.5%	5.3%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	1	0	4	0	5

Peak Hour Information

Peak Hour 7:45 8:45

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	10	111	117	297	217	347	196	469	27	83	486	232	2592
Peak Hour Factor	0.36	0.73	0.81	0.79	0.64	0.83	0.80	0.89	0.68	0.69	0.75	0.92	0.93

Enter Totals	238	801	692	861
Peak Hour Factor	0.88	0.80	0.97	0.87

Exit Totals	539	843	883	327
Peak Hour Factor	0.85	0.87	0.94	0.68

Light Trucks	1	8	2	7	0	12	7	14	1	1	18	5	76
Medium Trucks	0	0	0	2	0	8	2	3	0	0	0	4	19
Heavy Trucks	0	0	1	3	0	2	9	7	0	1	3	8	34
% Trucks	10.0%	7.2%	2.6%	4.0%	0.0%	6.3%	9.2%	5.1%	3.7%	2.4%	4.3%	7.3%	5.0%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	1	0	3	0	4

TRAFSTATS

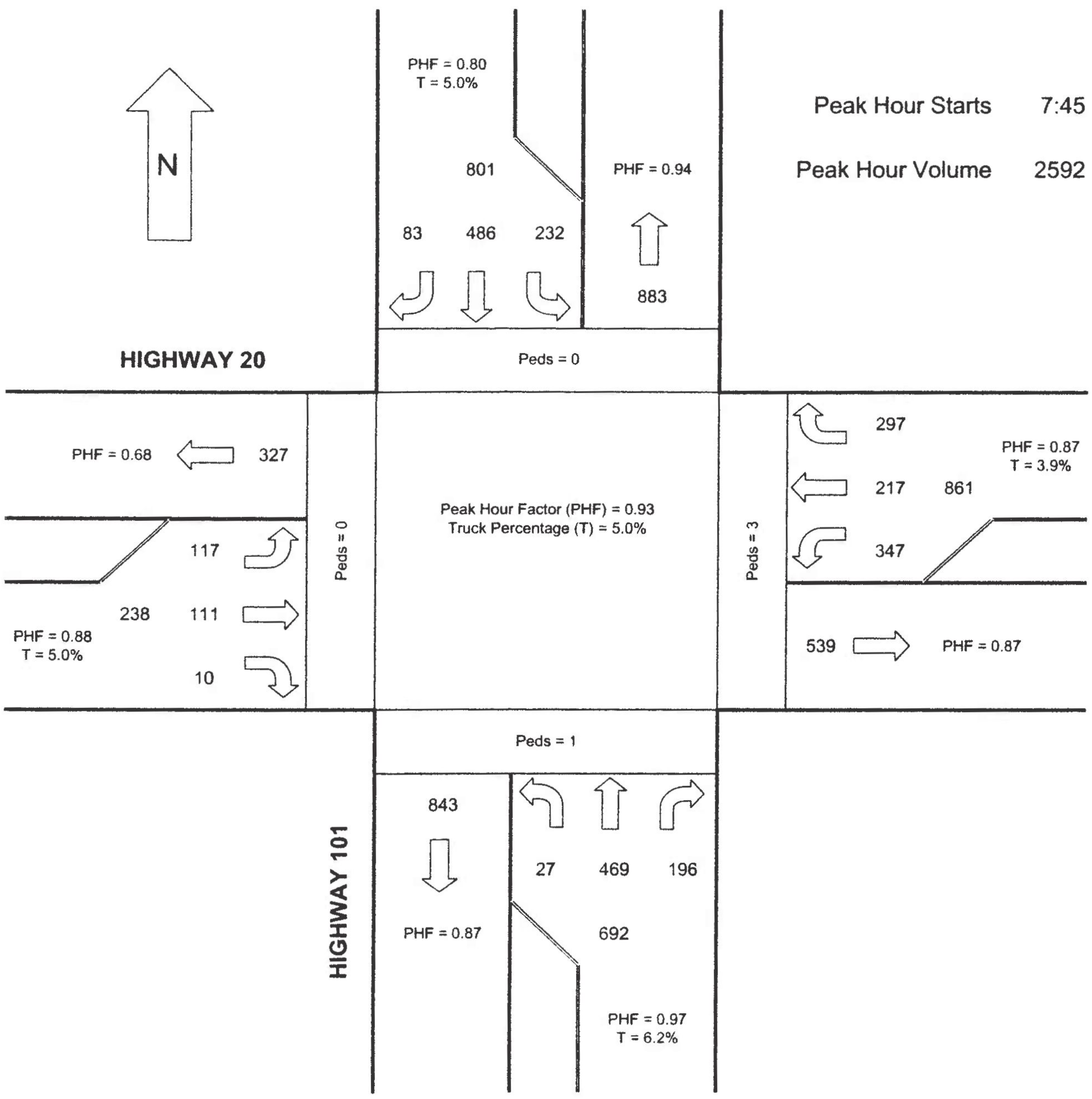
Intersection Turning Movement

Peak Hour Diagram

Location HIGHWAY 20 AT HIGHWAY 101
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: DH

Peak Hour Starts 7:45

Peak Hour Volume 2592



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Intersection Turning Movement

Summary Report

Location HIGHWAY 20 AT HIGHWAY 101
Date 9/7/2006
Day of Week Thursday
Time Begin 11:00
Reviewed By: DH

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	6	72	76	64	40	45	55	138	8	16	178	75	773
11:15 - 11:30	5	40	50	93	41	80	33	132	11	18	217	91	811
11:30 - 11:45	4	28	48	74	78	108	34	118	10	15	197	70	784
11:45 - 12:00	5	54	62	70	56	71	28	160	7	28	162	83	786
12:00 - 12:15	12	77	64	67	44	75	34	168	14	13	172	73	813
12:15 - 12:30	5	72	57	85	46	91	33	106	5	12	176	72	760
12:30 - 12:45	11	64	80	48	60	74	31	131	13	22	219	68	821
12:45 - 13:00	3	79	75	80	39	65	35	122	11	25	224	70	828
Movement Totals	51	486	512	581	404	609	283	1075	79	149	1545	602	6376
Enter Totals	1049			1594			1437			2296			
Exit Totals	1371			632			2168			2205			

Two-Hour Totals

Light Trucks	1	10	3	13	6	16	10	39	2	1	53	18	172
Medium Trucks	0	0	2	2	0	4	4	4	0	1	2	3	22
Heavy Trucks	1	0	1	11	2	11	15	11	0	0	13	7	72
% Trucks	3.9%	2.1%	1.2%	4.5%	2.0%	5.1%	10.2%	5.0%	2.5%	1.3%	4.4%	4.7%	4.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	1	0	1

	South	West	East	North	
Pedestrians	3	5	11	11	30

Peak Hour Information

Peak Hour 12:00 13:00

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	31	292	276	280	189	305	133	527	43	72	791	283	3222
Peak Hour Factor	0.65	0.92	0.86	0.82	0.79	0.84	0.95	0.78	0.77	0.72	0.88	0.97	0.97

Enter Totals	599	1146	703	774
Peak Hour Factor	0.95	0.90	0.81	0.87

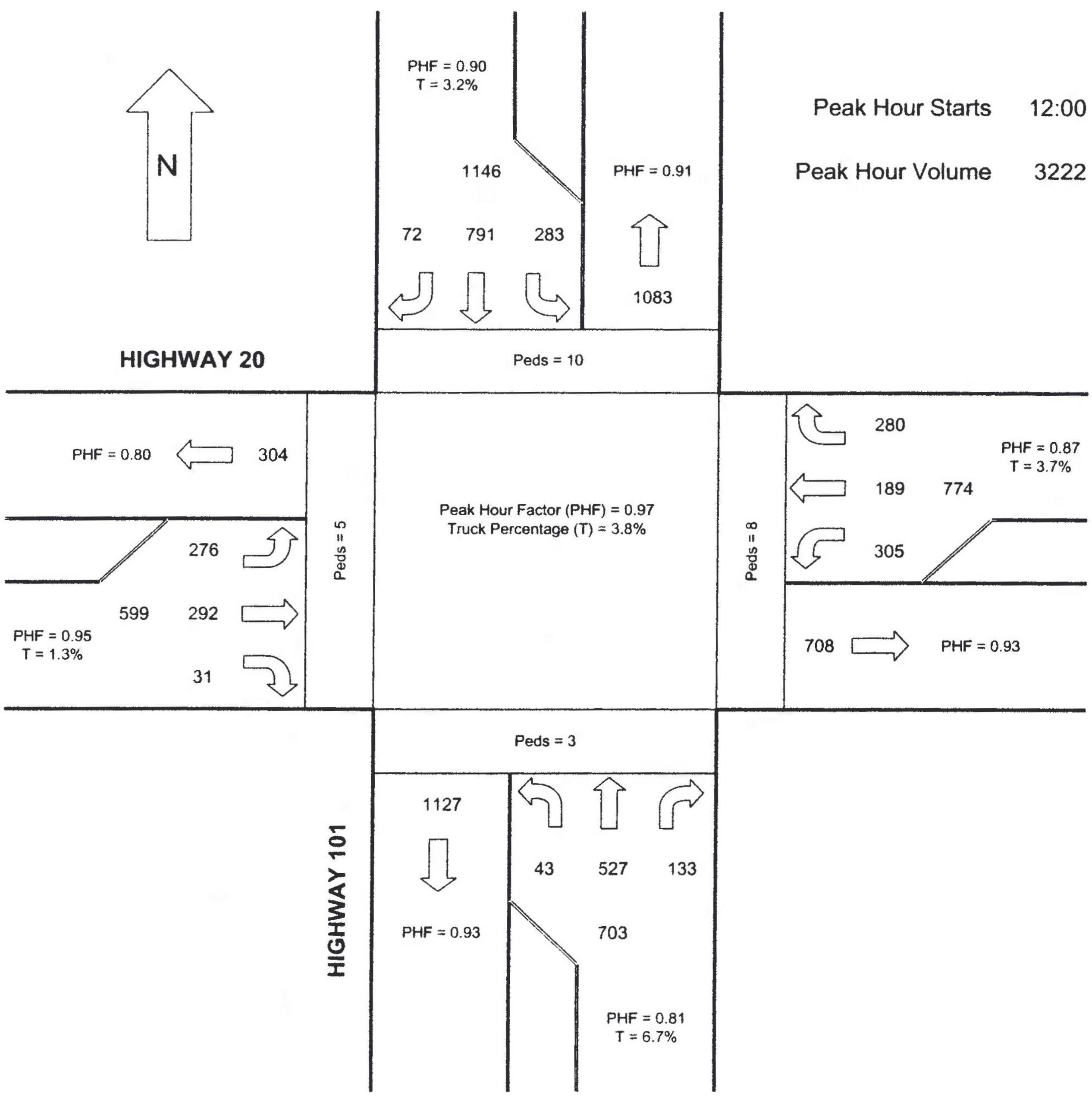
Exit Totals	708	1127	1083	304
Peak Hour Factor	0.96	0.93	0.91	0.80

Light Trucks	0	5	0	10	2	11	5	20	0	0	21	5	79
Medium Trucks	0	0	2	1	0	0	3	3	0	1	2	1	13
Heavy Trucks	0	0	1	2	0	3	6	10	0	0	4	3	29
% Trucks	0.0%	1.7%	1.1%	4.6%	1.1%	4.6%	10.5%	6.3%	0.0%	1.4%	3.4%	3.2%	3.8%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	3	5	8	10	26

Intersection Turning Movement
Peak Hour Diagram

Location HIGHWAY 20 AT HIGHWAY 101
Date 9/7/2006
Day of Week Thursday
Time Begin 11:00
Reviewed By: DH



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Intersection Turning Movement
Summary Report

Location HIGHWAY 20 AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: DH

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
16:00 - 16:15	16	73	59	53	58	98	43	140	8	19	175	88	830
16:15 - 16:30	7	72	44	55	62	86	48	159	8	31	200	95	867
16:30 - 16:45	3	69	31	66	75	78	53	155	21	26	203	124	904
16:45 - 17:00	2	79	55	57	42	95	73	159	10	28	196	115	911
17:00 - 17:15	7	98	36	42	55	80	56	168	17	24	188	101	872
17:15 - 17:30	2	80	44	43	30	67	52	135	9	14	162	93	731
17:30 - 17:45	4	39	42	45	38	62	50	109	8	20	161	87	665
17:45 - 18:00	5	36	30	56	43	71	28	128	7	11	144	94	653
Movement Totals	46	546	341	417	403	637	403	1153	88	173	1429	797	6433
Enter Totals	933			1457			1644			2399			
Exit Totals	1746			664			1911			2112			

Two-Hour Totals

Light Trucks	0	3	0	4	4	9	21	26	0	1	22	11	101
Medium Trucks	1	0	0	0	1	5	3	0	0	0	3	0	13
Heavy Trucks	0	1	1	4	0	10	10	2	0	0	3	10	41
% Trucks	2.2%	0.7%	0.3%	1.9%	1.2%	3.8%	8.4%	2.4%	0.0%	0.6%	2.0%	2.6%	2.4%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	1	0	0	0	0	0	0	0	0	1

	South	West	East	North	
Pedestrians	3	5	33	4	45

Peak Hour Information

Peak Hour 16:15 17:15

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	19	318	166	220	234	339	230	641	56	109	787	435	3554
Peak Hour Factor	0.68	0.81	0.75	0.83	0.78	0.89	0.79	0.95	0.67	0.88	0.97	0.88	0.98

Enter Totals	503	1331	927	793
Peak Hour Factor	0.89	0.94	0.96	0.91

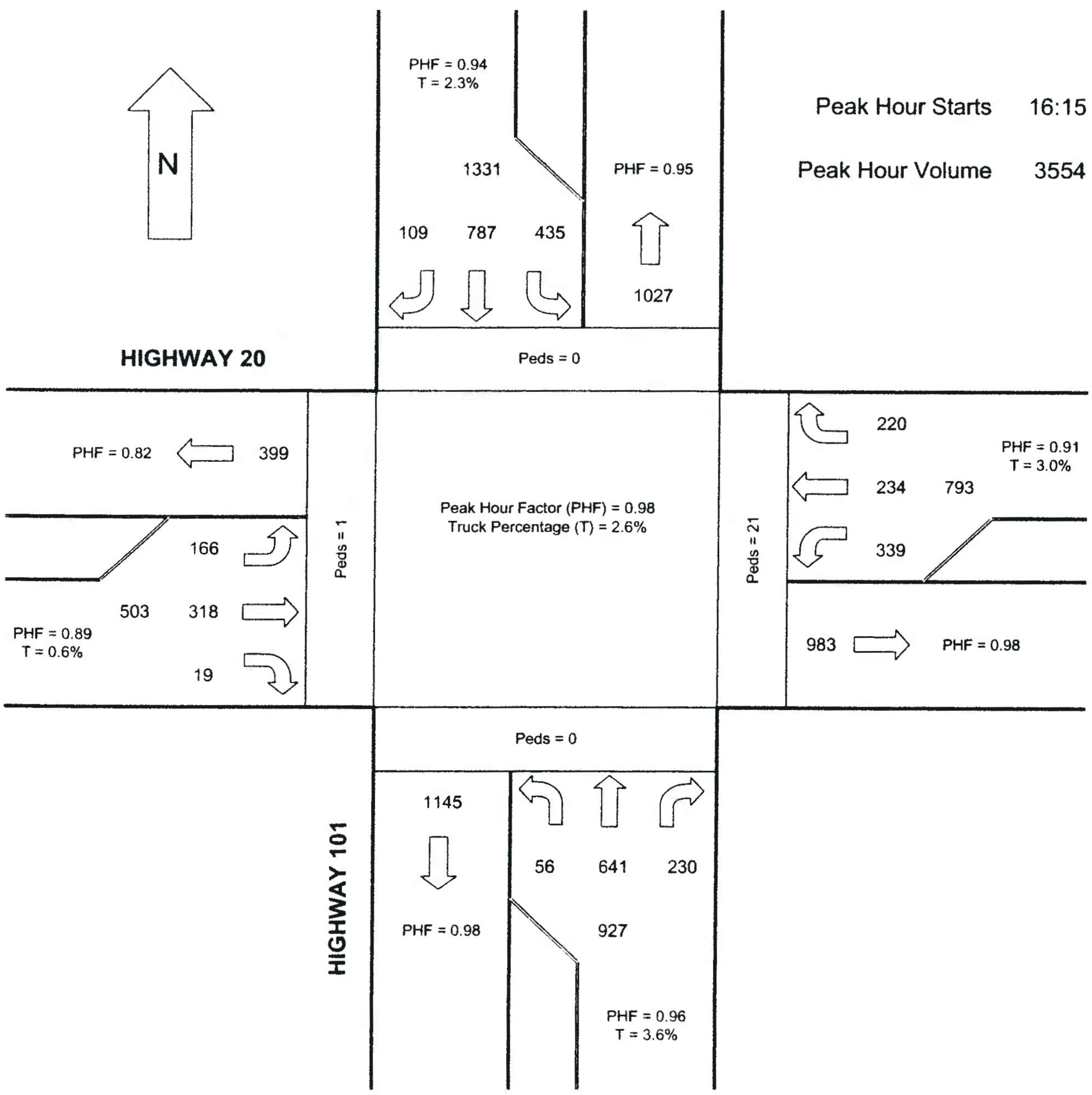
Exit Totals	983	1145	1027	399
Peak Hour Factor	0.92	0.98	0.95	0.82

Light Trucks	0	2	0	4	2	6	14	11	0	0	17	6	62
Medium Trucks	0	0	0	0	1	1	3	0	0	0	2	0	7
Heavy Trucks	0	1	0	1	0	9	3	2	0	0	2	4	22
% Trucks	0.0%	0.9%	0.0%	2.3%	1.3%	4.7%	8.7%	2.0%	0.0%	0.0%	2.7%	2.3%	2.6%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	0	1	21	0	22

Intersection Turning Movement
Peak Hour Diagram

Location HIGHWAY 20 AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: DH



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Intersection Turning Movement
Summary Report

Location SW FALL STREET AT HIGHWAY 101
Date 9/9/2006
Day of Week Saturday
Time Begin 7:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
7:00 - 7:15	0	1	4	0	0	0	0	115	0	1	67	2	190
7:15 - 7:30	2	0	0	1	0	0	0	120	1	0	134	0	258
7:30 - 7:45	4	0	4	0	0	1	2	146	2	4	159	3	325
7:45 - 8:00	4	1	5	0	0	1	1	193	0	3	148	4	360
8:00 - 8:15	6	1	7	0	0	1	3	159	1	5	141	3	327
8:15 - 8:30	1	1	3	1	0	1	2	180	1	3	162	3	358
8:30 - 8:45	0	0	8	1	0	0	2	158	1	2	142	0	314
8:45 - 9:00	5	0	1	0	0	0	0	144	0	4	143	3	300
Movement Totals	22	4	32	3	0	4	10	1215	6	22	1096	18	2432
Enter Totals	58			7			1231			1136			
Exit Totals	32			28			1250			1122			

Two-Hour Totals

Light Trucks	0	0	0	0	0	0	0	28	0	0	60	0	88
Medium Trucks	0	0	0	0	0	0	0	13	0	0	20	0	33
Heavy Trucks	0	0	0	0	0	1	1	25	0	0	12	0	39
% Trucks	0.0%	0.0%	0.0%	0.0%	NA	25.0%	10.0%	5.4%	0.0%	0.0%	8.4%	0.0%	6.6%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	2	0	0	1	0	3

	South	West	East	North	
Pedestrians	0	4	2	0	6

Peak Hour Information

Peak Hour 7:30 8:30

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	15	3	19	1	0	4	8	678	4	15	610	13	1370
Peak Hour Factor	0.63	0.75	0.68	0.25	NA	1.00	0.67	0.88	0.50	0.75	0.94	0.81	0.95

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	37	638	690	5
Peak Hour Factor	0.66	0.95	0.89	0.63
Exit Totals	24	629	698	19
Peak Hour Factor	0.86	0.96	0.88	0.79

Light Trucks	0	0	0	0	0	0	0	14	0	0	32	0	46
Medium Trucks	0	0	0	0	0	0	0	5	0	0	13	0	18
Heavy Trucks	0	0	0	0	0	1	1	11	0	0	2	0	15
% Trucks	0.0%	0.0%	0.0%	0.0%	NA	25.0%	12.5%	4.4%	0.0%	0.0%	7.7%	0.0%	5.8%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	2	0	0	0	0	2

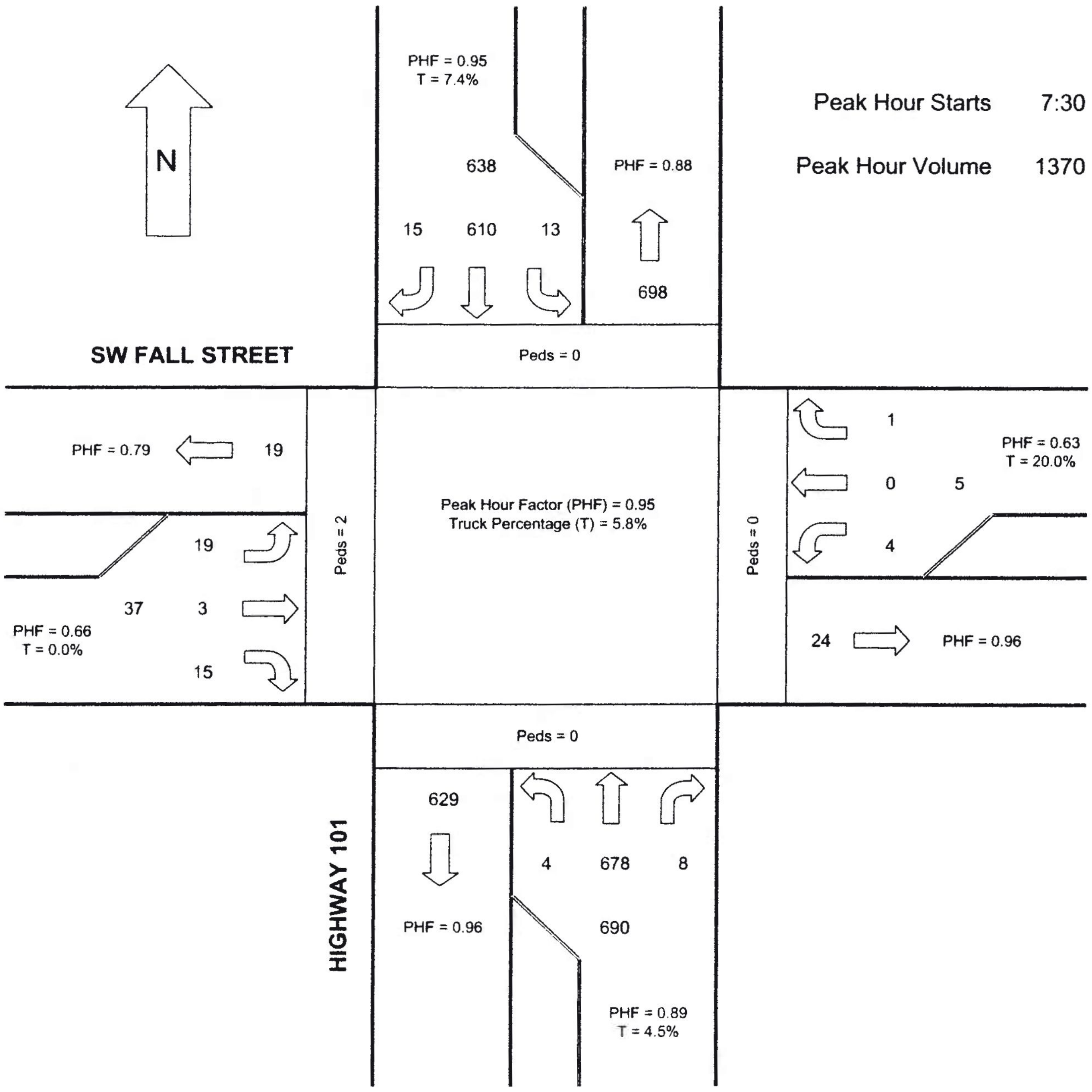
	South	West	East	North	
Pedestrians	0	2	0	0	2

TRAFSTATS

Intersection Turning Movement

Peak Hour Diagram

Location SW FALL STREET AT HIGHWAY 101
Date 9/9/2006
Day of Week Saturday
Time Begin 7:00
Reviewed By: BV



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Intersection Turning Movement
Summary Report

Location SW FALL STREET AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: BV

Time Period	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
11:00 - 11:15	7	0	1	4	0	0	4	193	3	4	170	1	387
11:15 - 11:30	2	0	2	4	0	1	2	179	2	7	203	4	406
11:30 - 11:45	1	1	8	2	1	1	2	196	3	8	185	3	411
11:45 - 12:00	3	0	3	2	1	1	1	201	1	3	212	1	429
12:00 - 12:15	2	0	2	3	0	0	4	225	0	6	219	0	461
12:15 - 12:30	4	0	7	4	1	0	2	210	4	10	213	3	458
12:30 - 12:45	1	1	5	4	0	1	2	224	1	4	220	2	465
12:45 - 13:00	4	1	8	3	0	2	1	225	3	9	211	1	468
Movement Totals	24	3	36	26	3	6	18	1653	17	51	1633	15	3485
Enter Totals	63			35			1688			1699			
Exit Totals	36			71			1715			1663			

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	1	0	0	3	0	0	1	47	0	4	61	0	117
Medium Trucks	0	0	0	0	0	0	0	11	0	0	13	0	24
Heavy Trucks	0	0	0	0	0	0	0	24	0	0	27	0	51
% Trucks	4.2%	0.0%	0.0%	11.5%	0.0%	0.0%	5.6%	5.0%	0.0%	7.8%	6.2%	0.0%	5.5%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	1	0	0	0	0	1

	South	West	East	North	
Pedestrians	1	8	3	2	14

Peak Hour Information

Peak Hour 12:00 13:00

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Movement Total	11	2	22	14	1	3	9	884	8	29	863	6	1852
Peak Hour Factor	0.69	0.50	0.69	0.88	0.25	0.38	0.56	0.98	0.50	0.73	0.98	0.50	0.99

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	35	898	901	18
Peak Hour Factor	0.67	0.99	0.98	0.90
Exit Totals	17	877	920	38
Peak Hour Factor	0.85	0.99	0.97	0.63

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	1	0	0	0	0	0	0	25	0	2	30	0	58
Medium Trucks	0	0	0	0	0	0	0	8	0	0	5	0	13
Heavy Trucks	0	0	0	0	0	0	0	15	0	0	10	0	25
% Trucks	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.4%	0.0%	6.9%	5.2%	0.0%	5.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	1	0	0	0	0	1

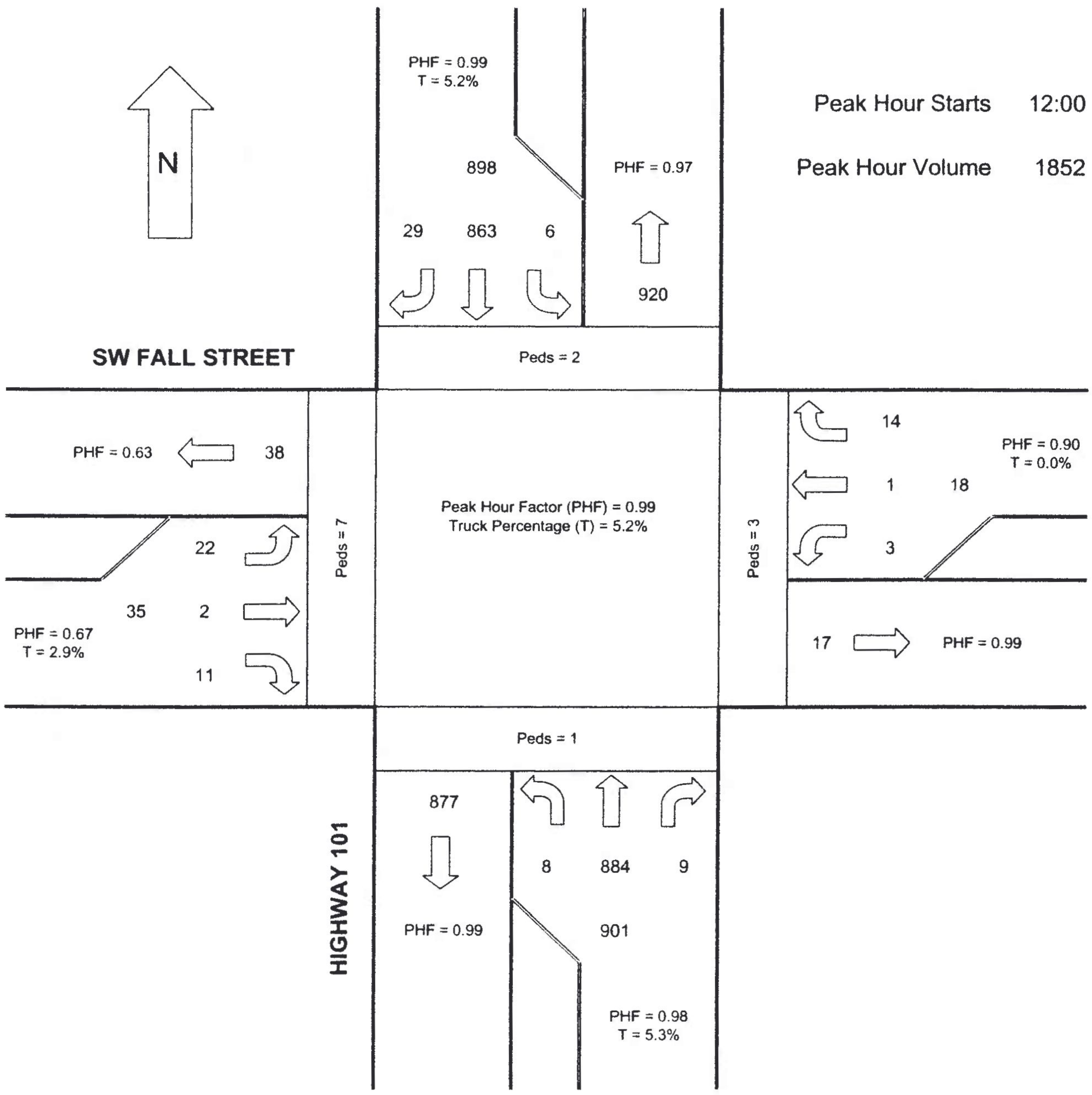
	South	West	East	North	
Pedestrians	1	7	3	2	13

TrafStats

Intersection Turning Movement

Peak Hour Diagram

Location SW FALL STREET AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: BV



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Intersection Turning Movement
Summary Report

Location SW FALL STREET AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: BV

Time Period	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
16:00 - 16:15	3	1	10	3	0	0	6	220	1	7	226	2	479
16:15 - 16:30	2	0	3	3	0	1	1	257	6	7	237	3	520
16:30 - 16:45	3	1	2	0	0	1	0	203	5	13	220	1	449
16:45 - 17:00	0	0	4	1	0	2	3	249	6	8	259	0	532
17:00 - 17:15	2	0	2	4	0	2	1	190	2	13	231	3	450
17:15 - 17:30	2	0	3	1	0	1	0	182	4	7	204	0	404
17:30 - 17:45	3	0	2	1	0	0	0	126	4	7	163	1	307
17:45 - 18:00	0	2	7	2	0	0	1	134	1	16	175	4	342
Movement Totals	15	4	33	15	0	7	12	1561	29	78	1715	14	3483
Enter Totals	52			22			1602			1807			
Exit Totals	30			107			1609			1737			

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	0	1	0	0	0	0	44	1	3	45	0	94
Medium Trucks	0	0	0	0	0	0	0	8	0	0	11	0	19
Heavy Trucks	0	0	0	0	0	0	0	11	0	0	12	0	23
% Trucks	0.0%	0.0%	3.0%	0.0%	NA	0.0%	0.0%	4.0%	3.4%	3.8%	4.0%	0.0%	3.9%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	1	0	0	14	0	15

	South	West	East	North	
Pedestrians	2	4	3	2	11

Peak Hour Information

Peak Hour 16:00 17:00

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Movement Total	8	2	19	7	0	4	10	929	18	35	942	6	1980
Peak Hour Factor	0.67	0.50	0.48	0.58	NA	0.50	0.42	0.90	0.75	0.67	0.91	0.50	0.93

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	29	983	957	11
Peak Hour Factor	0.52	0.92	0.91	0.69
Exit Totals	18	954	955	53
Peak Hour Factor	0.50	0.91	0.91	0.74

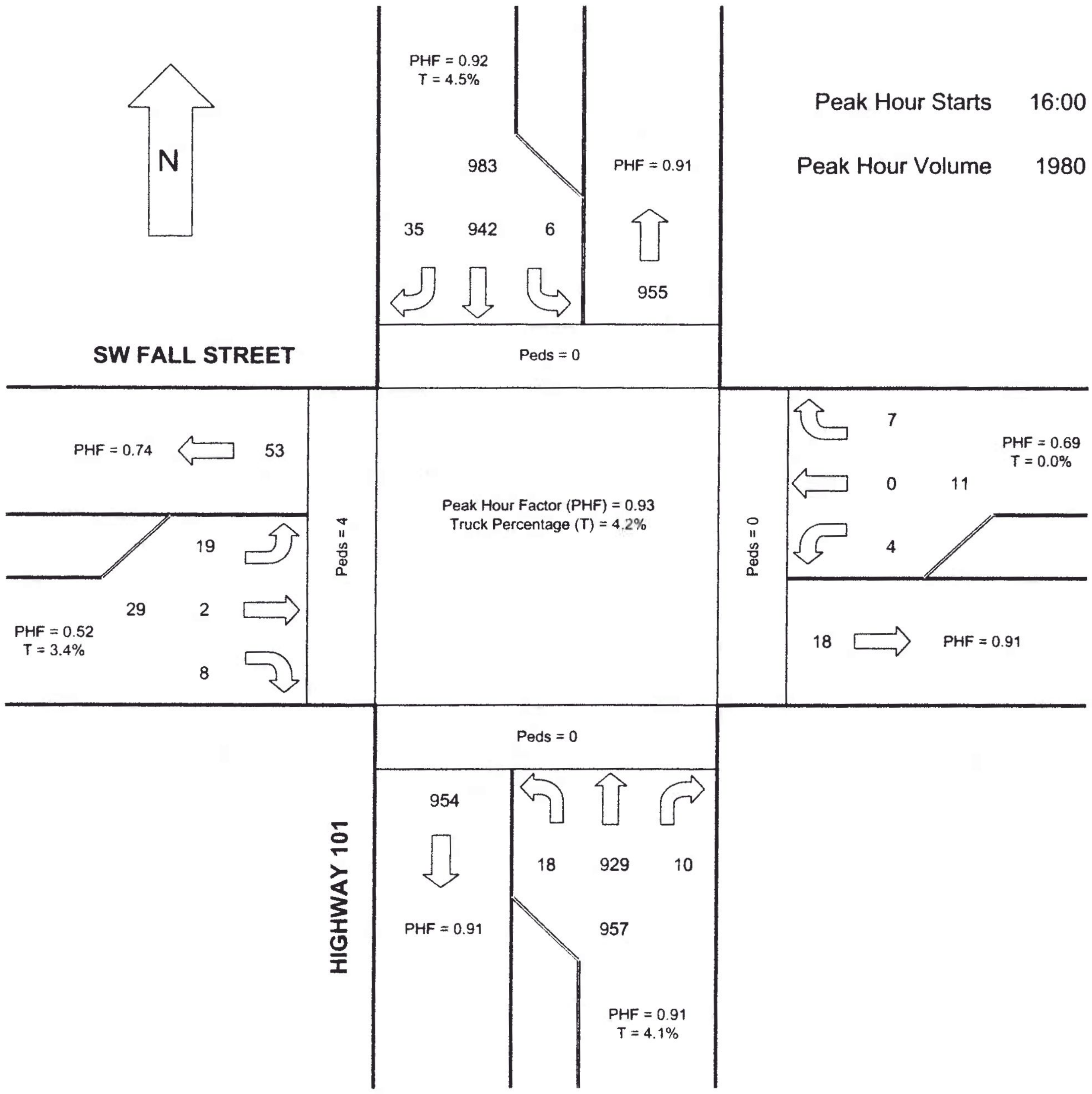
	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	0	1	0	0	0	0	28	1	2	27	0	59
Medium Trucks	0	0	0	0	0	0	0	4	0	0	5	0	9
Heavy Trucks	0	0	0	0	0	0	0	6	0	0	10	0	16
% Trucks	0.0%	0.0%	5.3%	0.0%	NA	0.0%	0.0%	4.1%	5.6%	5.7%	4.5%	0.0%	4.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	1	0	0	9	0	10

	South	West	East	North	
Pedestrians	0	4	0	0	4

TrafStats

Intersection Turning Movement
Peak Hour Diagram

Location SW FALL STREET AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: BV



TRAF STATS
PO Box 13699
Salem, OR 97309
Tel: (503) 646-2942
Fax: (503) 526-0628

Intersection Turning Movement
Summary Report

Location SW HURBERT STREET AT HIGHWAY 101
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
7:00 - 7:15	2	4	2	6	1	2	0	117	3	1	63	5	206
7:15 - 7:30	1	0	0	3	1	4	1	99	1	2	114	7	233
7:30 - 7:45	5	2	0	4	1	5	0	117	4	3	146	4	291
7:45 - 8:00	7	3	2	3	3	6	4	170	3	3	118	9	331
8:00 - 8:15	3	5	5	3	3	7	1	131	5	7	135	3	308
8:15 - 8:30	3	5	2	2	2	4	3	166	4	5	132	4	332
8:30 - 8:45	4	4	6	6	5	5	3	127	2	4	138	7	311
8:45 - 9:00	6	5	2	4	5	5	3	139	5	3	122	8	307
Movement Totals	31	28	19	31	21	38	15	1066	27	28	968	47	2319
Enter Totals	78			90			1108			1043			
Exit Totals	90			76			1116			1037			

Two-Hour Totals

	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Totals
Light Trucks	0	1	3	1	1	3	0	25	1	0	37	1	73
Medium Trucks	0	1	0	0	0	0	0	17	0	0	20	0	38
Heavy Trucks	0	0	0	0	0	0	0	22	0	0	12	0	34
% Trucks	0.0%	7.1%	15.8%	3.2%	4.8%	7.9%	0.0%	6.0%	3.7%	0.0%	7.1%	2.1%	6.3%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	2	0	2

	South	West	East	North	
Pedestrians	3	9	2	1	15

Peak Hour Information

Peak Hour 7:45 8:45

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	17	17	15	14	13	22	11	594	14	19	523	23	1282
Peak Hour Factor	0.61	0.85	0.63	0.58	0.65	0.79	0.69	0.87	0.70	0.68	0.95	0.64	0.97

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	49	565	619	49
Peak Hour Factor	0.88	0.95	0.87	0.77

	Eastbound	Westbound	Northbound	Southbound
Exit Totals	51	562	623	46
Peak Hour Factor	0.80	0.96	0.89	0.77

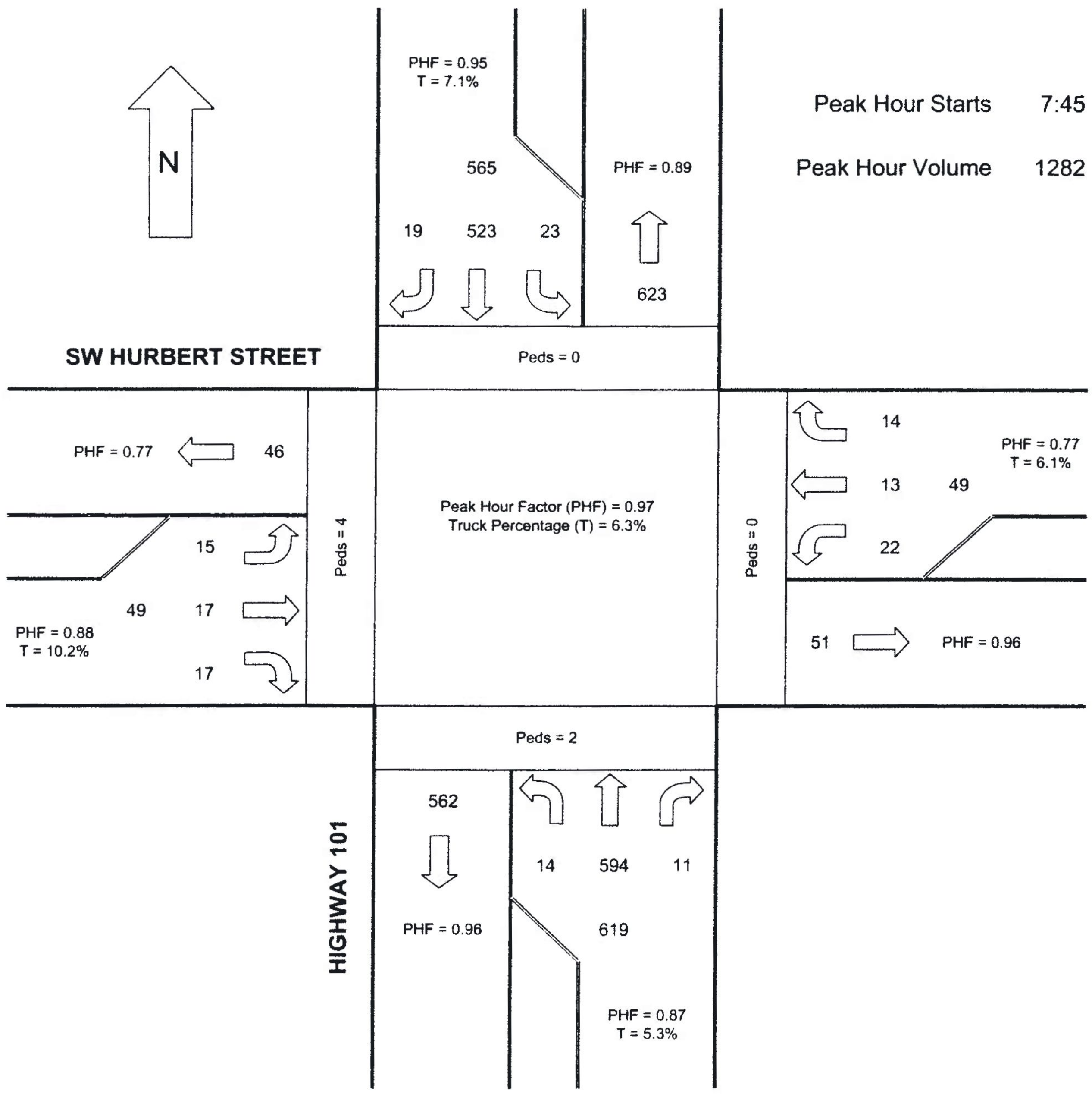
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Totals
Light Trucks	0	1	3	1	0	2	0	15	0	0	23	1	46
Medium Trucks	0	1	0	0	0	0	0	7	0	0	14	0	22
Heavy Trucks	0	0	0	0	0	0	0	11	0	0	2	0	13
% Trucks	0.0%	11.8%	20.0%	7.1%	0.0%	9.1%	0.0%	5.6%	0.0%	0.0%	7.5%	4.3%	6.3%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	1	0	1

	South	West	East	North	
Pedestrians	2	4	0	0	6

TRAFSTATS

Intersection Turning Movement
Peak Hour Diagram

Location SW HURBERT STREET AT HIGHWAY 101
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV



TRAF STATS
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Salem, OR 97309
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Fax: (503) 526-0628

Intersection Turning Movement
Summary Report

Location SW HURBERT STREET AT HIGHWAY 101
Date 8/6/2006
Day of Week Sunday
Time Begin 11:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	7	11	7	17	4	10	6	177	2	6	136	10	393
11:15 - 11:30	7	5	12	13	3	17	6	142	8	6	146	15	380
11:30 - 11:45	5	15	6	10	9	4	2	158	6	5	214	14	448
11:45 - 12:00	6	13	11	16	8	10	6	186	8	5	174	7	450
12:00 - 12:15	6	6	12	6	7	11	3	194	8	14	208	10	485
12:15 - 12:30	11	13	11	12	11	15	5	177	4	10	186	17	472
12:30 - 12:45	7	11	9	12	11	14	5	172	8	6	207	24	486
12:45 - 13:00	9	13	8	14	14	18	9	194	8	9	189	19	504
Movement Totals	58	87	76	100	67	99	42	1400	52	61	1460	116	3618
Enter Totals		221			266			1494			1637		
Exit Totals		245			180			1576			1617		

Two-Hour Totals

	EB Right	EB Thru	EB Left	WB Right	WB Thru	WB Left	NB Right	NB Thru	NB Left	SB Right	SB Thru	SB Left	Totals
Light Trucks	0	3	2	2	2	5	2	54	2	2	56	2	132
Medium Trucks	0	1	0	0	0	0	0	14	0	0	10	0	25
Heavy Trucks	0	0	0	0	0	0	0	22	0	0	20	0	42
% Trucks	0.0%	4.6%	2.6%	2.0%	3.0%	5.1%	4.8%	6.4%	3.8%	3.3%	5.9%	1.7%	5.5%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	2	0	2

	South	West	East	North	
Pedestrians	5	19	16	6	46

Peak Hour Information

Peak Hour 12:00 13:00

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	33	43	40	44	43	58	22	737	28	39	790	70	1947
Peak Hour Factor	0.75	0.83	0.83	0.79	0.77	0.81	0.61	0.95	0.88	0.70	0.95	0.73	0.97

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	116	899	787	145
Peak Hour Factor	0.83	0.95	0.93	0.79
Exit Totals	135	881	821	110
Peak Hour Factor	0.82	0.97	0.95	0.89

	EB Right	EB Thru	EB Left	WB Right	WB Thru	WB Left	NB Right	NB Thru	NB Left	SB Right	SB Thru	SB Left	Totals
Light Trucks	0	1	1	2	1	3	0	30	0	1	28	1	68
Medium Trucks	0	0	0	0	0	0	0	8	0	0	5	0	13
Heavy Trucks	0	0	0	0	0	0	0	15	0	0	13	0	28
% Trucks	0.0%	2.3%	2.5%	4.5%	2.3%	5.2%	0.0%	7.2%	0.0%	2.6%	5.8%	1.4%	5.6%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	2	0	2

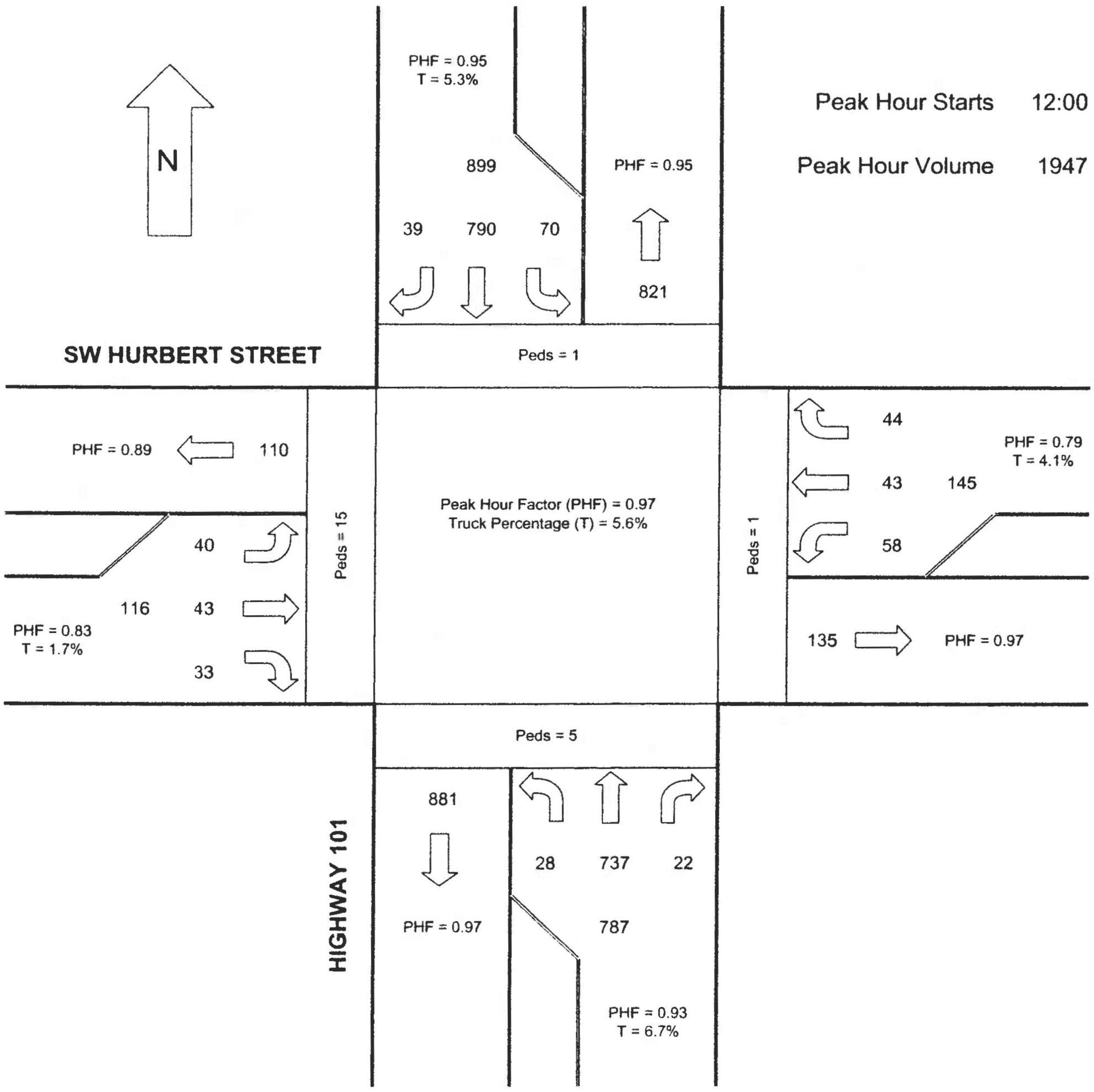
	South	West	East	North	
Pedestrians	5	15	1	1	22

TrafStats

Intersection Turning Movement

Peak Hour Diagram

Location SW HURBERT STREET AT HIGHWAY 101
Date 8/6/2006
Day of Week Sunday
Time Begin 11:00
Reviewed By: BV



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Fax: (503) 526-0628

Intersection Turning Movement
Summary Report

Location SW HURBERT STREET AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: DH

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
16:00 - 16:15	3	10	9	15	8	13	3	184	10	9	189	8	461
16:15 - 16:30	5	15	8	17	12	13	8	194	10	5	200	10	497
16:30 - 16:45	6	14	8	26	7	18	8	174	6	6	210	7	490
16:45 - 17:00	10	17	16	18	18	20	6	184	1	3	209	9	511
17:00 - 17:15	3	5	14	12	15	18	5	203	5	6	191	6	483
17:15 - 17:30	6	6	8	11	10	14	2	157	2	13	182	7	418
17:30 - 17:45	8	3	11	13	7	7	3	120	5	11	131	10	329
17:45 - 18:00	5	7	8	8	4	6	2	113	5	9	171	9	347
Movement Totals	46	77	82	120	81	109	37	1329	44	62	1483	66	3536
Enter Totals	205			310			1410			1611			
Exit Totals	180			187			1531			1638			

Two-Hour Totals

Light Trucks	0	0	1	1	3	4	0	46	0	0	30	0	85
Medium Trucks	0	0	0	0	0	0	0	6	0	0	12	0	18
Heavy Trucks	0	0	0	0	0	0	0	9	0	0	11	0	20
% Trucks	0.0%	0.0%	1.2%	0.8%	3.7%	3.7%	0.0%	4.6%	0.0%	0.0%	3.6%	0.0%	3.5%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	2	0	0	5	0	7

	South	West	East	North	
Pedestrians	12	25	16	16	69

Peak Hour Information

Peak Hour 16:15 17:15

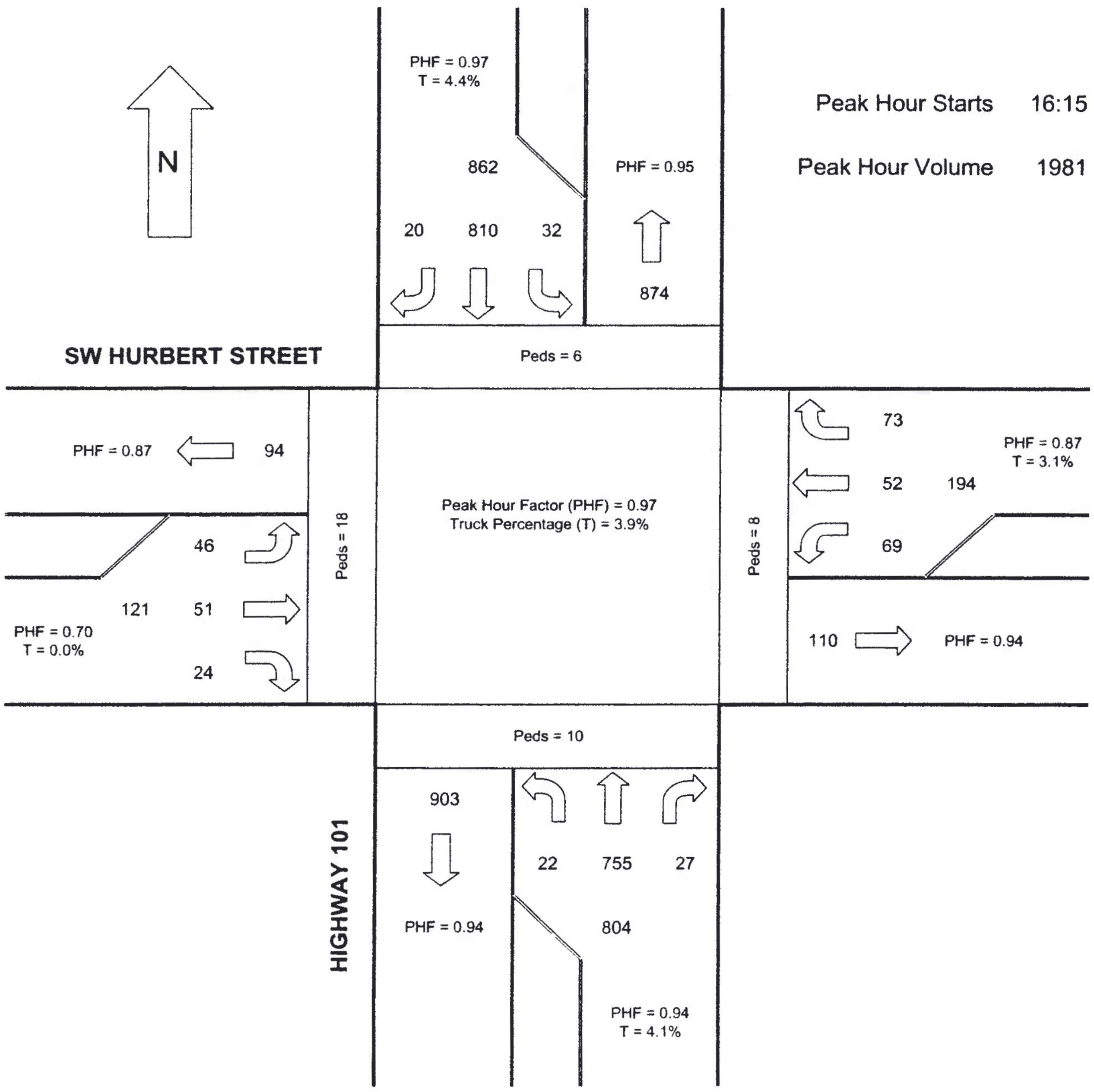
	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	24	51	46	73	52	69	27	755	22	20	810	32	1981
Peak Hour Factor	0.60	0.75	0.72	0.70	0.72	0.86	0.84	0.93	0.55	0.83	0.96	0.80	0.97
Enter Totals	121			862			804			194			
Peak Hour Factor	0.70			0.97			0.94			0.87			
Exit Totals	110			903			874			94			
Peak Hour Factor	0.83			0.94			0.95			0.87			
Light Trucks	0	0	0	1	3	2	0	26	0	0	22	0	54
Medium Trucks	0	0	0	0	0	0	0	4	0	0	6	0	10
Heavy Trucks	0	0	0	0	0	0	0	3	0	0	10	0	13
% Trucks	0.0%	0.0%	0.0%	1.4%	5.8%	2.9%	0.0%	4.4%	0.0%	0.0%	4.7%	0.0%	3.9%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	3	0	3

	South	West	East	North	
Pedestrians	10	18	8	6	42

Intersection Turning Movement

Peak Hour Diagram

Location SW HURBERT STREET AT HIGHWAY 101
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: DH



TRAF STATS
PO Box 13699
Salem, OR 97309
Tel: (503) 646-2942
Fax: (503) 526-0628

Intersection Turning Movement

Summary Report

Location NW 11TH STREET AT NW NYE STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
7:00 - 7:15	0	7	0	0	4	2	4	4	0	0	6	1	28
7:15 - 7:30	1	5	0	1	1	3	2	4	2	0	2	1	22
7:30 - 7:45	0	1	0	0	1	4	9	7	0	0	4	1	27
7:45 - 8:00	3	9	0	0	3	2	5	4	1	0	12	4	43
8:00 - 8:15	0	12	0	0	5	4	7	5	0	2	4	2	41
8:15 - 8:30	0	8	0	1	10	6	8	5	1	0	13	3	55
8:30 - 8:45	3	3	0	1	3	2	8	7	1	1	8	0	37
8:45 - 9:00	1	4	0	0	1	1	8	8	0	1	4	1	29
Movement Totals	8	49	0	3	28	24	51	44	5	4	53	13	282
Enter Totals	57			55			100			70			
Exit Totals	113			37			47			85			

Two-Hour Totals

Light Trucks	1	1	0	0	0	0	0	1	0	0	3	0	6
Medium Trucks	0	0	0	0	2	0	0	0	0	0	0	0	2
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	12.5%	2.0%	NA	0.0%	7.1%	0.0%	0.0%	2.3%	0.0%	0.0%	5.7%	0.0%	2.8%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	2	0	0	0	0	0	0	0	0	0	0	2

	South	West	East	North	
Pedestrians	0	1	4	3	8

Peak Hour Information

Peak Hour 7:45 8:45

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	6	32	0	2	21	14	28	21	3	3	37	9	176
Peak Hour Factor	0.50	0.67	NA	0.50	0.53	0.58	0.88	0.75	0.75	0.38	0.71	0.56	0.80
Enter Totals	38			49			52			37			
Peak Hour Factor	0.79			0.77			0.81			0.54			
Exit Totals	69			57			23			27			
Peak Hour Factor	0.82			0.75			0.72			0.61			
Light Trucks	0	1	0	0	0	0	0	0	0	0	3	0	4
Medium Trucks	0	0	0	0	2	0	0	0	0	0	0	0	2
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	3.1%	NA	0.0%	9.5%	0.0%	0.0%	0.0%	0.0%	0.0%	8.1%	0.0%	3.4%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

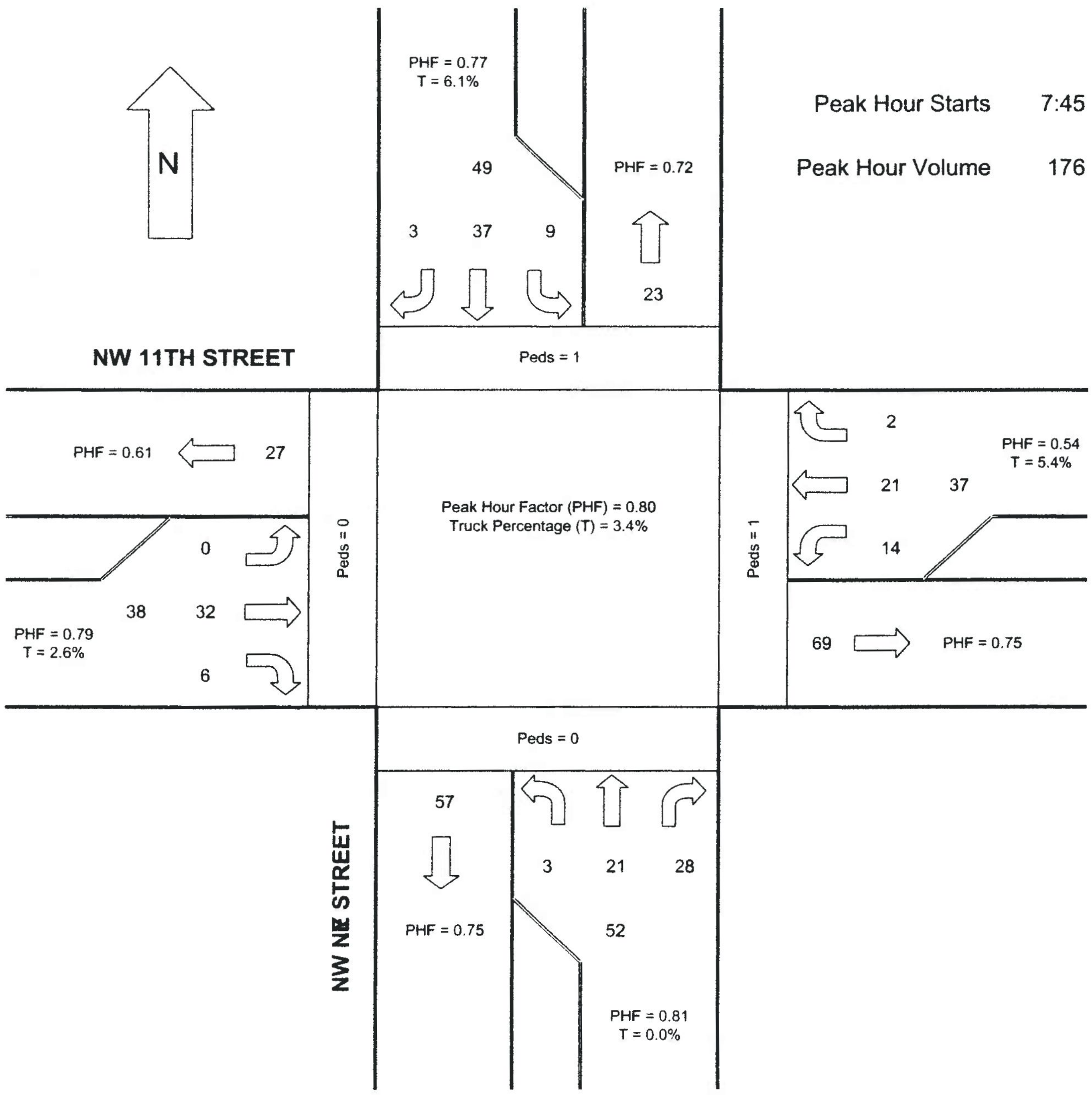
	South	West	East	North	
Pedestrians	0	0	1	1	2

TrafStats

Intersection Turning Movement

Peak Hour Diagram

Location NW 11TH STREET AT NW NYE STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV



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Intersection Turning Movement

Summary Report

Location NW 11TH STREET AT NW NYE STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: BV

Time Period	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
11:00 - 11:15	1	6	0	0	4	5	6	9	3	1	11	0	46
11:15 - 11:30	1	10	2	2	3	0	12	13	2	0	17	4	66
11:30 - 11:45	0	8	1	2	3	3	16	12	1	0	4	4	54
11:45 - 12:00	1	17	0	0	11	7	26	19	4	0	7	2	94
12:00 - 12:15	1	8	1	1	8	5	14	17	2	0	22	3	82
12:15 - 12:30	0	10	1	1	9	3	14	16	1	4	19	2	80
12:30 - 12:45	3	8	2	2	6	12	15	24	4	2	29	1	108
12:45 - 13:00	3	5	0	1	4	6	10	13	3	3	11	2	61
Movement Totals	10	72	7	9	48	41	113	123	20	10	120	18	591
Enter Totals		89			98			256			148		
Exit Totals		203			78			139			171		

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	1	1	0	0	2	1	1	6	0	0	4	0	16
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	1	1
% Trucks	10.0%	1.4%	0.0%	0.0%	4.2%	2.4%	0.9%	4.9%	0.0%	0.0%	3.3%	5.6%	2.9%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	3	0	0	0	0	1	0	2	1	0	7

	South	West	East	North	
Pedestrians	2	4	0	2	8

Peak Hour Information

Peak Hour 11:45 12:45

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Movement Total	5	43	4	4	34	27	69	76	11	6	77	8	364
Peak Hour Factor	0.42	0.63	0.50	0.50	0.77	0.56	0.66	0.79	0.69	0.38	0.66	0.67	0.84

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	52	91	156	65
Peak Hour Factor	0.72	0.71	0.80	0.81
Exit Totals	120	109	84	51
Peak Hour Factor	0.67	0.62	0.75	0.85

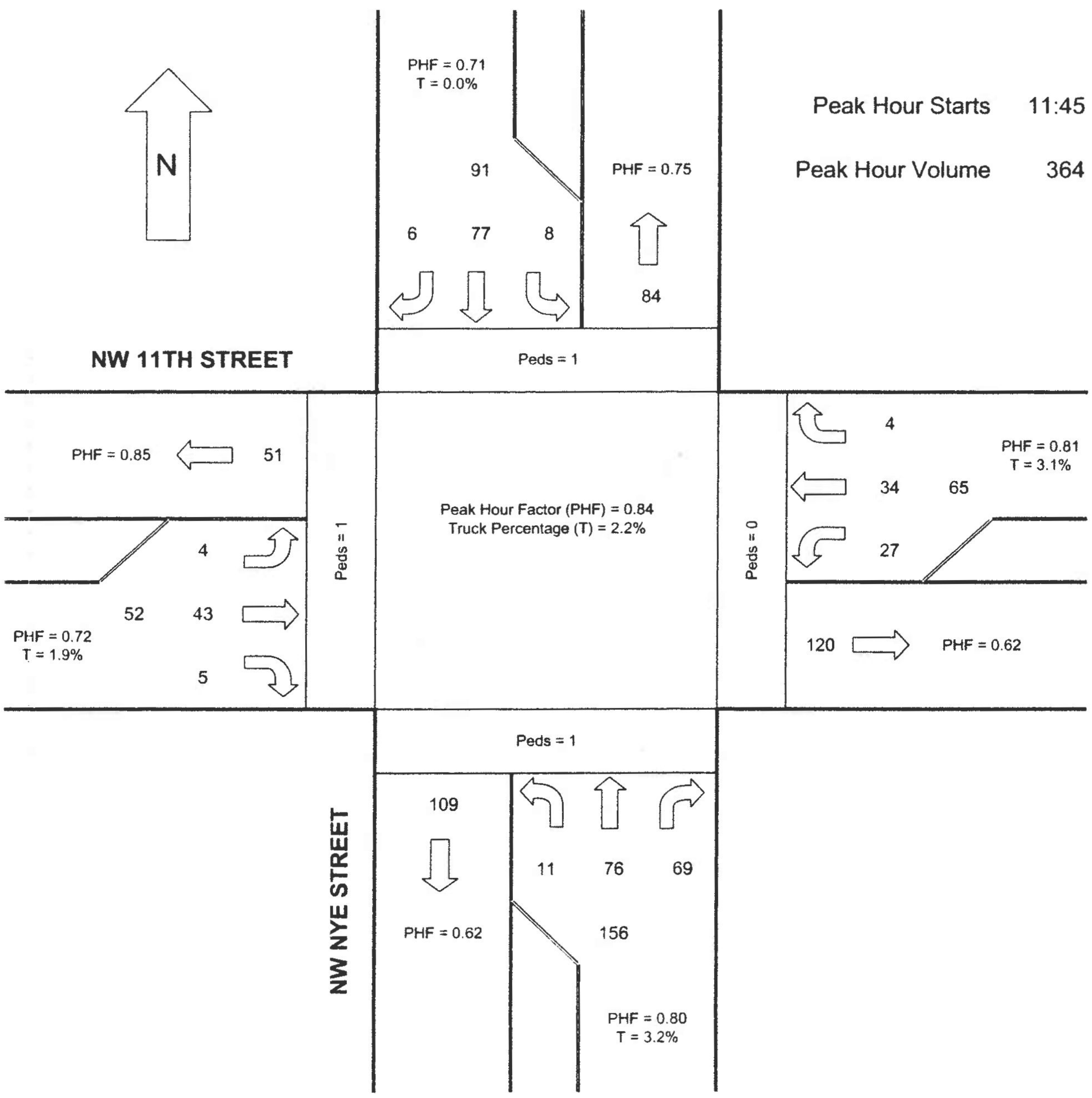
	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	1	0	0	1	1	1	4	0	0	0	0	8
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	2.3%	0.0%	0.0%	2.9%	3.7%	1.4%	5.3%	0.0%	0.0%	0.0%	0.0%	2.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	2	0	0	0	0	1	0	0	0	0	3

	South	West	East	North	
Pedestrians	1	1	0	1	3

Intersection Turning Movement

Peak Hour Diagram

Location NW 11TH STREET AT NW NYE STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: BV



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Intersection Turning Movement

Summary Report

Location NW 11TH STREET AT NW NYE STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: BV

Time Period	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
16:00 - 16:15	2	8	0	1	8	6	11	18	2	1	10	3	70
16:15 - 16:30	2	6	0	0	7	4	15	12	1	2	17	4	70
16:30 - 16:45	3	6	2	6	4	4	16	13	3	2	20	4	83
16:45 - 17:00	1	13	1	2	7	6	30	20	4	3	14	0	101
17:00 - 17:15	0	9	1	7	10	7	27	13	2	2	16	2	96
17:15 - 17:30	2	3	2	0	11	1	16	7	4	2	5	2	55
17:30 - 17:45	1	8	0	1	4	3	9	5	2	0	10	0	43
17:45 - 18:00	0	4	0	0	4	0	8	9	0	2	14	1	42
Movement Totals	11	57	6	17	55	31	132	97	18	14	106	16	560
Enter Totals	74			103			247			136			
Exit Totals	205			87			120			148			

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	0	1	0	0	1	1	0	0	0	1	0	4
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	0.0%	16.7%	0.0%	0.0%	3.2%	0.8%	0.0%	0.0%	0.0%	0.9%	0.0%	0.7%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	1	2	0	0	0	0	1	1	0	2	0	0	7

	South	West	East	North	
Pedestrians	3	0	3	0	6

Peak Hour Information

Peak Hour 16:15 17:15

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Movement Total	6	34	4	15	28	21	88	58	10	9	67	10	350
Peak Hour Factor	0.50	0.65	0.50	0.54	0.70	0.75	0.73	0.73	0.63	0.75	0.84	0.63	0.87

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	44	86	156	64
Peak Hour Factor	0.73	0.83	0.72	0.67
Exit Totals	132	94	77	47
Peak Hour Factor	0.77	0.87	0.84	0.84

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	0	1	0	0	1	1	0	0	0	1	0	4
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	0.0%	25.0%	0.0%	0.0%	4.8%	1.1%	0.0%	0.0%	0.0%	1.5%	0.0%	1.1%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	1	1	0	0	0	0	0	1	0	2	0	0	5

	South	West	East	North	
Pedestrians	3	0	3	0	6

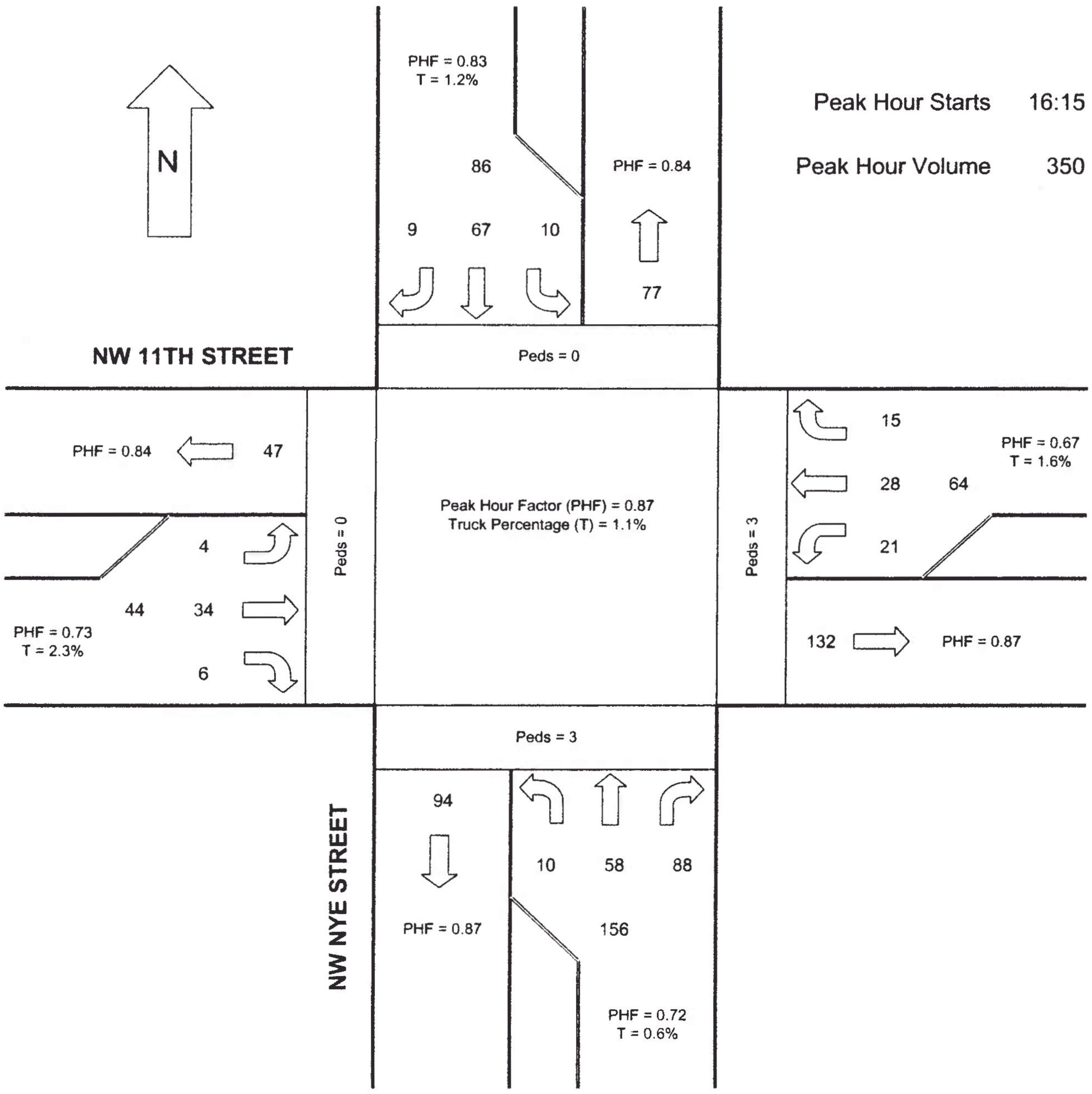
TrafStats

Intersection Turning Movement
Peak Hour Diagram

Location NW 11TH STREET AT NW NYE STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: BV

Peak Hour Starts 16:15

Peak Hour Volume 350



TRAFSTATS
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Salem, OR 97309
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Fax: (503) 526-0628

Intersection Turning Movement

Summary Report

Location SW FALL STREET AT SW BAY BOULEVARD
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: VB

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
7:00 - 7:15	0	0	0	0	0	0	4	0	14	13	1	1	33
7:15 - 7:30	0	0	0	0	0	0	4	0	11	10	0	0	25
7:30 - 7:45	0	0	0	0	0	0	4	0	15	17	0	0	36
7:45 - 8:00	0	0	0	0	0	0	9	0	19	27	1	1	57
8:00 - 8:15	1	1	2	0	0	0	0	30	0	9	21	0	64
8:15 - 8:30	2	0	1	0	0	0	0	19	0	6	25	0	53
8:30 - 8:45	7	0	2	0	0	0	0	17	2	4	18	0	50
8:45 - 9:00	6	0	7	0	0	0	0	23	1	2	29	0	68
Movement Totals	16	1	12	0	0	0	21	89	62	88	95	2	386
Enter Totals	29			0			172			185			
Exit Totals	24			150			101			111			

Two-Hour Totals

Light Trucks	0	0	0	0	0	0	0	4	2	3	1	0	10
Medium Trucks	0	0	0	0	0	0	0	3	1	1	0	0	5
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	0.0%	0.0%	NA	NA	NA	0.0%	7.9%	4.8%	4.5%	1.1%	0.0%	3.9%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	1	0	1	1	3

	South	West	East	North	
Pedestrians	5	2	3	8	18

Peak Hour Information

Peak Hour 8:00 9:00

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	16	1	12	0	0	0	0	89	3	21	93	0	235
Peak Hour Factor	0.57	0.25	0.43	NA	NA	NA	NA	0.74	0.38	0.58	0.80	NA	0.86

Enter Totals	29	114	92	0
Peak Hour Factor	0.56	0.92	0.77	NA

Exit Totals	1	109	101	24
Peak Hour Factor	0.25	0.78	0.79	0.67

Light Trucks	0	0	0	0	0	0	0	4	0	1	1	0	6
Medium Trucks	0	0	0	0	0	0	0	3	0	0	0	0	3
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	0.0%	0.0%	NA	NA	NA	NA	7.9%	0.0%	4.8%	1.1%	NA	3.8%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	1	0	1

	South	West	East	North	
Pedestrians	5	0	3	5	13

TrafStats

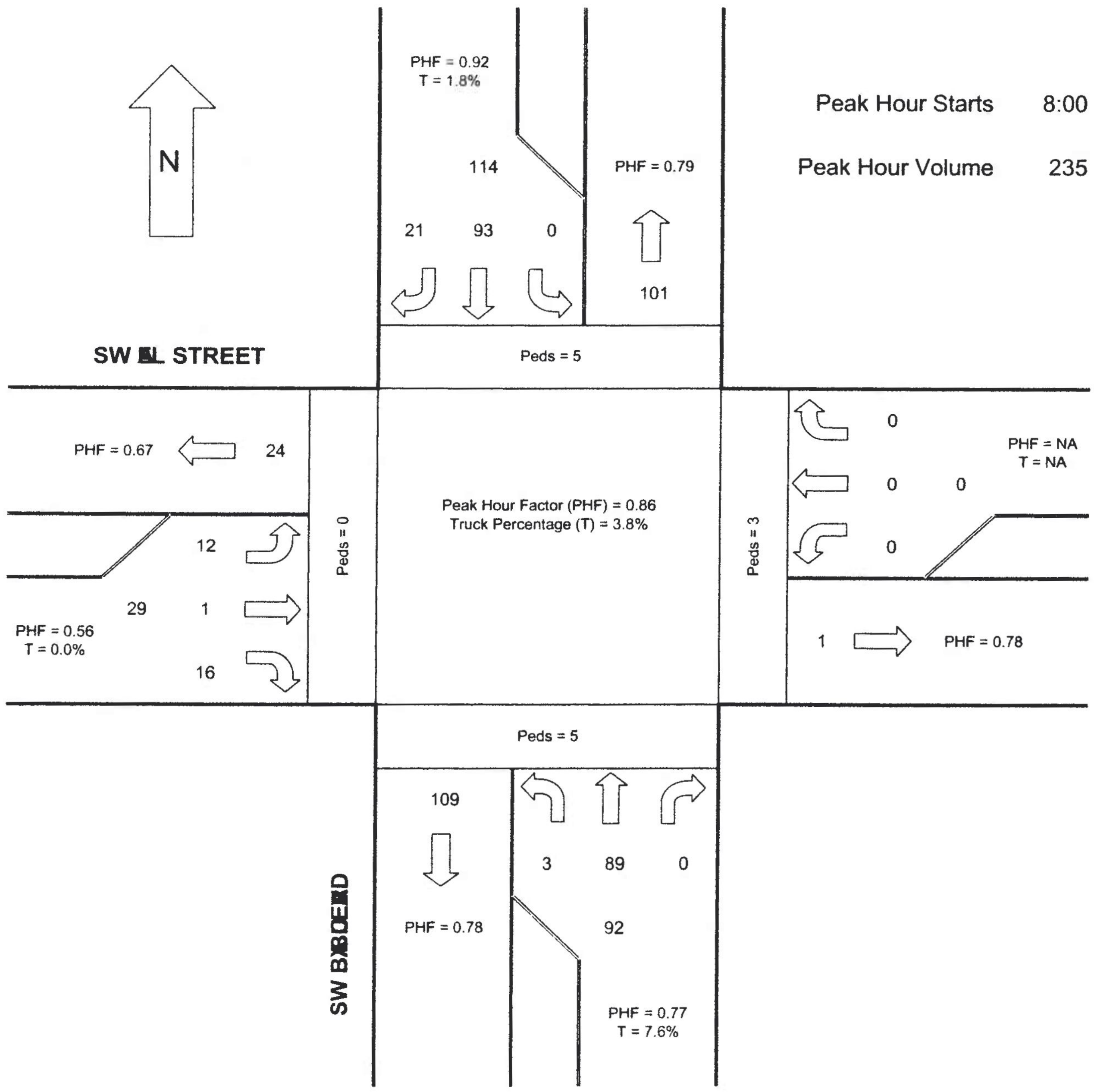
Intersection Turning Movement

Peak Hour Diagram

Location SW FALL STREET AT SW BAY BOULEVARD
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: VB

Peak Hour Starts 8:00

Peak Hour Volume 235



TRAFSTATS
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Intersection Turning Movement
Summary Report

Location SW FALL STREET AT SW BAY BOULEVARD
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: VB

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	12	0	10	0	0	0	0	42	2	11	29	0	106
11:15 - 11:30	13	0	13	0	0	0	0	39	4	13	32	1	115
11:30 - 11:45	9	0	15	0	0	0	0	39	5	11	36	4	119
11:45 - 12:00	17	0	8	0	0	0	0	35	5	7	38	1	111
12:00 - 12:15	7	0	6	0	0	0	0	47	1	11	33	3	108
12:15 - 12:30	16	0	10	0	0	0	0	41	5	17	36	2	127
12:30 - 12:45	21	0	24	0	0	0	0	67	8	14	26	0	160
12:45 - 13:00	15	0	9	0	0	0	0	38	5	13	24	2	106
Movement Totals	110	0	95	0	0	0	0	348	35	97	254	13	952
Enter Totals	205			0			383			364			
Exit Totals	13			132			443			364			
Two-Hour Totals													
Light Trucks	1	0	5	0	0	0	0	8	4	5	4	1	28
Medium Trucks	1	0	0	0	0	0	0	1	0	0	3	0	5
Heavy Trucks	0	0	0	0	0	0	0	2	0	0	0	0	2
% Trucks	1.8%	NA	5.3%	NA	NA	NA	NA	3.2%	11.4%	5.2%	2.8%	7.7%	3.7%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	2	0	0	0	0	0	0	0	1	0	3

	South	West	East	North	
Pedestrians	31	65	29	99	224

Peak Hour Information

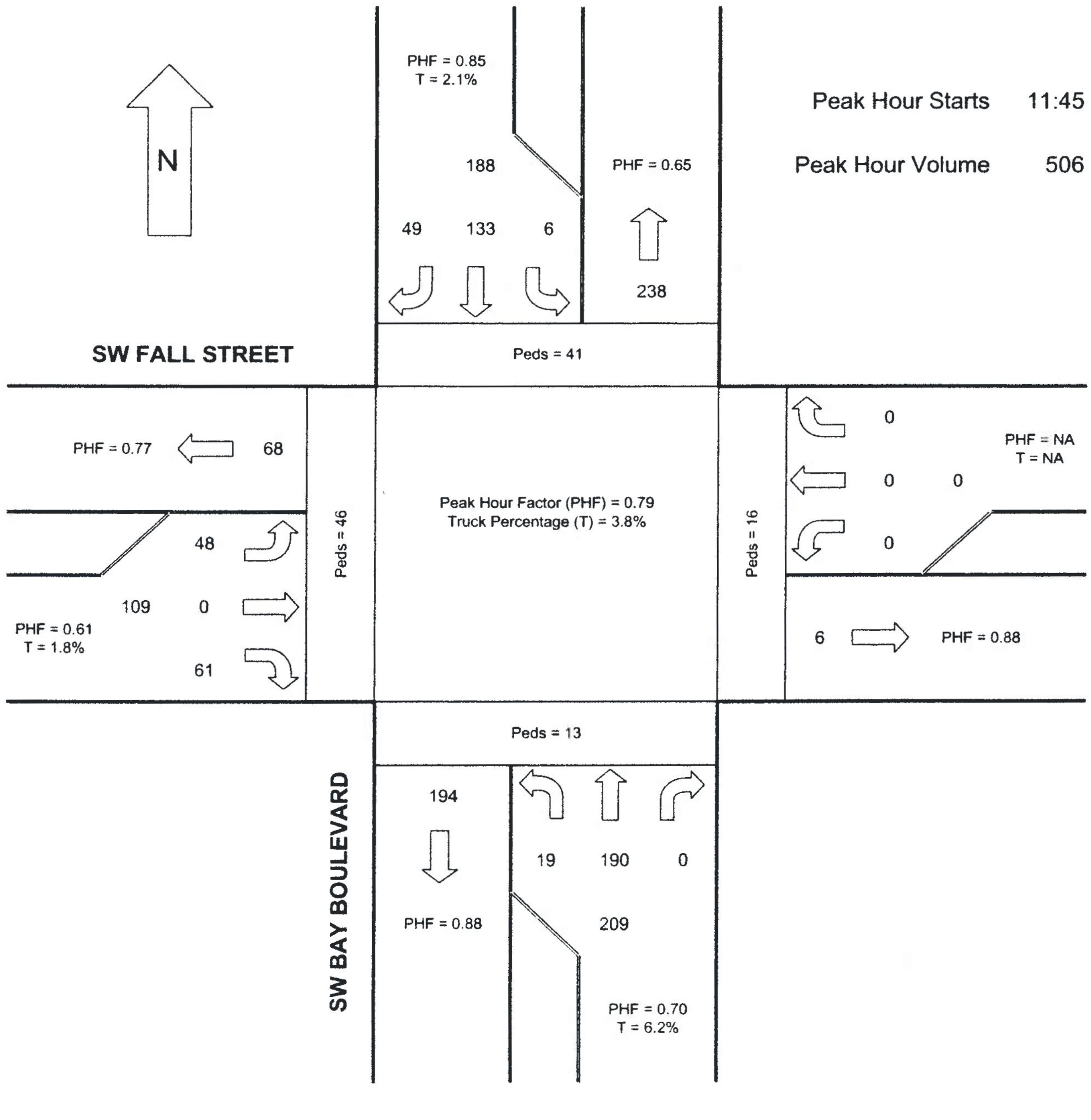
Peak Hour 11:45 12:45

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	61	0	48	0	0	0	0	190	19	49	133	6	506
Peak Hour Factor	0.73	NA	0.50	NA	NA	NA	NA	0.71	0.59	0.72	0.88	0.50	0.79
Enter Totals	109			188			209			0			
Peak Hour Factor	0.61			0.85			0.70			NA			
Exit Totals	6			194			238			68			
Peak Hour Factor	0.50			0.88			0.65			0.77			
Light Trucks	0	0	2	0	0	0	0	7	4	1	3	0	17
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	2	0	0	0	0	2
% Trucks	0.0%	NA	4.2%	NA	NA	NA	NA	4.7%	21.1%	2.0%	2.3%	0.0%	3.8%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	2	0	0	0	0	0	0	0	0	0	2

	South	West	East	North	
Pedestrians	13	46	16	41	116

Intersection Turning Movement
Peak Hour Diagram

Location SW FALL STREET AT SW BAY BOULEVARD
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: VB



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Intersection Turning Movement
Summary Report

Location SW FALL STREET AT SW BAY BOULEVARD
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: VB

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
16:00 - 16:15	8	0	5	0	0	0	0	36	3	11	27	0	90
16:15 - 16:30	13	0	3	0	0	0	0	35	9	11	21	0	92
16:30 - 16:45	9	0	9	0	0	0	0	35	3	11	34	0	101
16:45 - 17:00	10	0	19	0	0	0	0	40	11	12	28	0	120
17:00 - 17:15	8	0	7	0	0	0	0	45	5	8	19	0	92
17:15 - 17:30	4	0	3	0	0	0	0	24	3	6	19	0	59
17:30 - 17:45	8	0	6	0	0	0	0	23	3	6	25	0	71
17:45 - 18:00	7	0	7	0	0	0	0	21	7	13	25	0	80
Movement Totals	67	0	59	0	0	0	0	259	44	78	198	0	705
Enter Totals	126			0			303			276			
Exit Totals	0			122			318			265			

Two-Hour Totals

Light Trucks	1	0	1	0	0	0	0	2	1	3	2	0	10
Medium Trucks	0	0	0	0	0	0	0	1	0	0	1	0	2
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	1.5%	NA	1.7%	NA	NA	NA	NA	1.2%	2.3%	3.8%	1.5%	NA	1.7%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	1	0	1

	South	West	East	North	
Pedestrians	8	40	41	50	139

Peak Hour Information

Peak Hour 16:15 17:15

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	40	0	38	0	0	0	0	155	28	42	102	0	405
Peak Hour Factor	0.77	NA	0.50	NA	NA	NA	NA	0.86	0.64	0.88	0.75	NA	0.84

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	78	144	183	0
Peak Hour Factor	0.67	0.80	0.90	NA
Exit Totals	0	142	193	70
Peak Hour Factor	NA	0.83	0.82	0.76

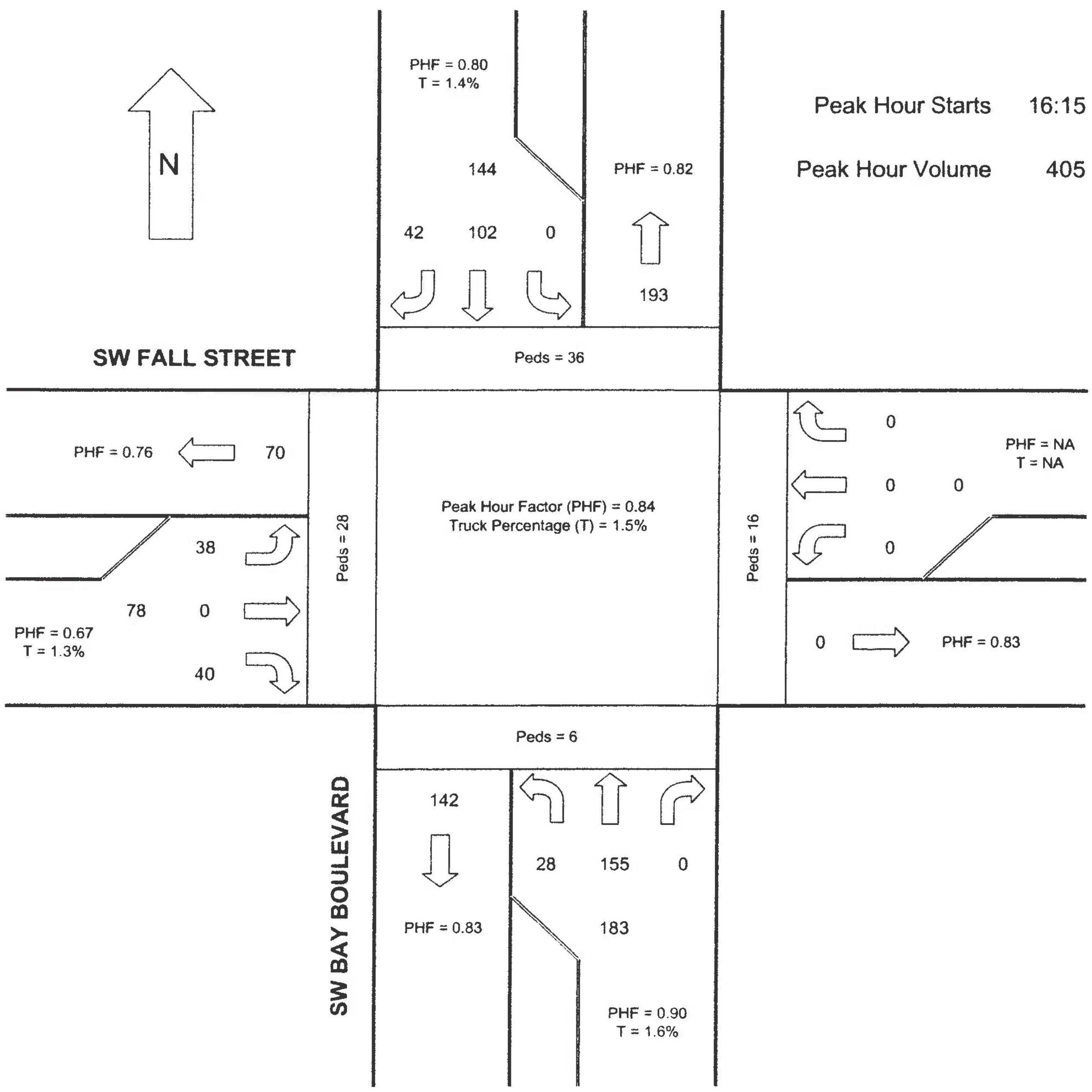
Light Trucks	0	0	1	0	0	0	0	1	1	1	1	0	5
Medium Trucks	0	0	0	0	0	0	0	1	0	0	0	0	1
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	NA	2.6%	NA	NA	NA	NA	1.3%	3.6%	2.4%	1.0%	NA	1.5%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

	South	West	East	North	
Pedestrians	6	28	16	36	86

Intersection Turning Movement

Peak Hour Diagram

Location SW FALL STREET AT SW BAY BOULEVARD
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: VB



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Intersection Turning Movement
Summary Report

Location SW HURBERT STREET AT SW 9TH STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV

Time Period	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
7:00 - 7:15	3	2	2	0	9	1	0	18	1	0	12	1	49
7:15 - 7:30	4	4	1	0	4	1	1	17	1	3	9	3	48
7:30 - 7:45	1	4	1	0	7	0	3	15	2	1	18	4	56
7:45 - 8:00	3	12	1	2	10	1	4	18	1	5	26	4	87
8:00 - 8:15	2	5	2	3	4	1	1	13	1	5	23	0	60
8:15 - 8:30	3	8	1	0	4	1	2	13	3	7	23	2	67
8:30 - 8:45	3	6	4	1	9	1	2	13	3	4	14	3	63
8:45 - 9:00	3	10	3	1	8	1	2	16	1	7	26	3	81
Movement Totals	22	51	15	7	55	7	15	123	13	32	151	20	511
Enter Totals		88			69			151			203		
Exit Totals		86			100			145			180		

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	1	1	0	0	2	0	4	6	0	2	3	0	19
Medium Trucks	1	0	0	0	0	0	1	0	0	0	0	0	2
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	9.1%	2.0%	0.0%	0.0%	3.6%	0.0%	33.3%	4.9%	0.0%	6.3%	2.0%	0.0%	4.1%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	2	0	0	0	0	2

	South	West	East	North	
Pedestrians	5	4	7	3	19

Peak Hour Information

Peak Hour 7:45 8:45

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Movement Total	11	31	8	6	27	4	9	57	8	21	86	9	277
Peak Hour Factor	0.92	0.65	0.50	0.50	0.68	1.00	0.56	0.79	0.67	0.75	0.83	0.56	0.80

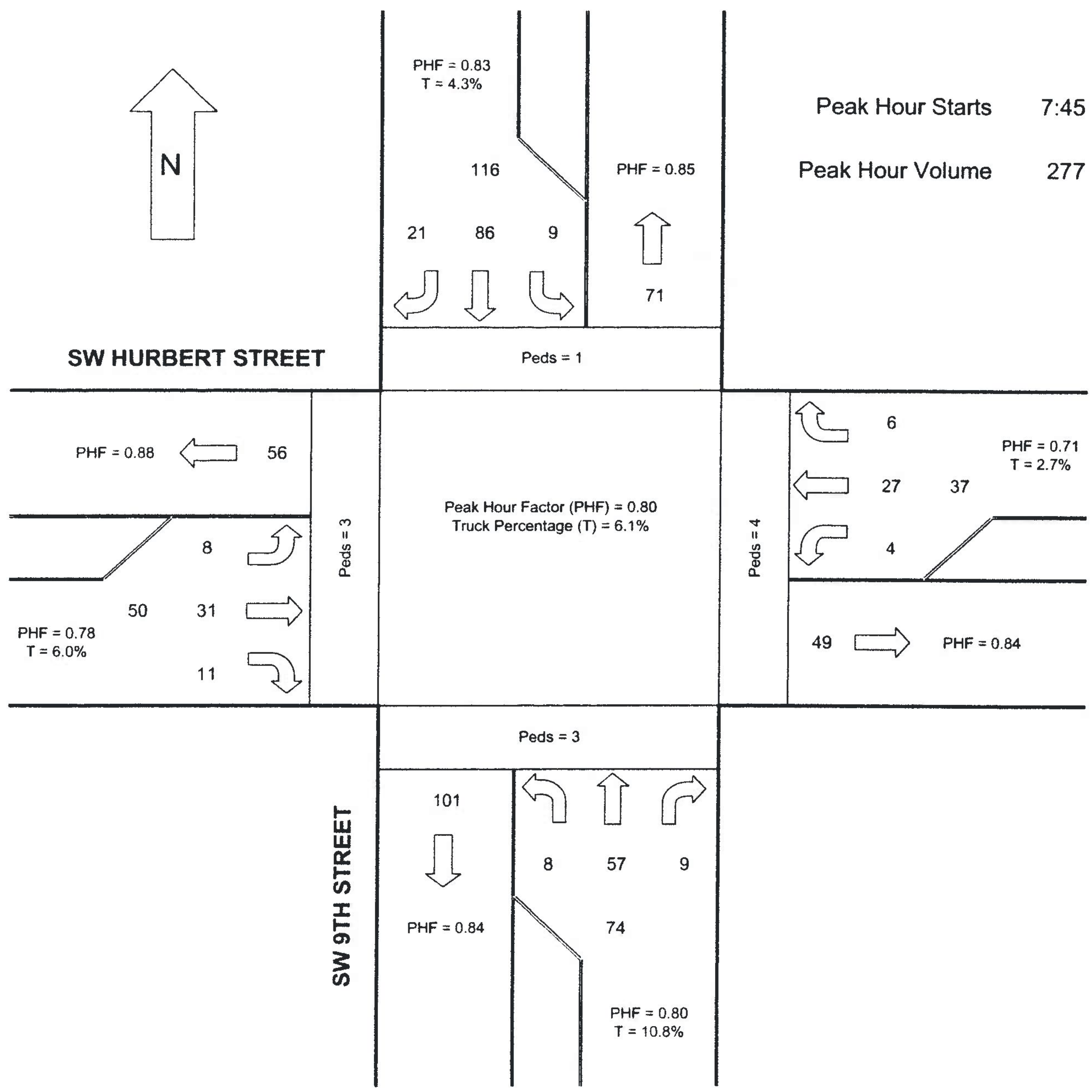
	Eastbound	Westbound	Northbound	Southbound
Enter Totals	50	116	74	37
Peak Hour Factor	0.78	0.83	0.80	0.71
Exit Totals	49	101	71	56
Peak Hour Factor	0.61	0.84	0.85	0.88

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	1	1	0	0	1	0	2	5	0	2	3	0	15
Medium Trucks	1	0	0	0	0	0	1	0	0	0	0	0	2
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	18.2%	3.2%	0.0%	0.0%	3.7%	0.0%	33.3%	8.8%	0.0%	9.5%	3.5%	0.0%	6.1%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	2	0	0	0	0	2

	South	West	East	North	
Pedestrians	3	3	4	1	11

Intersection Turning Movement
Peak Hour Diagram

Location SW HURBERT STREET AT SW 9TH STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV



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Intersection Turning Movement
Summary Report

Location SW HURBERT STREET AT SW 9TH STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
11:00 - 11:15	3	24	4	3	22	0	3	15	1	13	20	6	114
11:15 - 11:30	7	21	3	5	17	2	8	21	5	9	21	11	130
11:30 - 11:45	2	23	7	2	11	1	6	25	5	10	22	12	126
11:45 - 12:00	2	18	5	2	16	5	2	34	3	12	23	9	131
12:00 - 12:15	2	14	7	8	15	1	6	24	7	13	23	7	127
12:15 - 12:30	3	27	6	4	20	2	4	20	6	14	18	5	129
12:30 - 12:45	3	36	9	3	26	2	6	29	4	18	20	10	166
12:45 - 13:00	5	24	7	5	17	4	7	24	9	20	21	3	146
Movement Totals	27	187	48	32	144	17	42	192	40	109	168	63	1069
Enter Totals	262			193			274			340			
Exit Totals	292			293			272			212			

Two-Hour Totals

Light Trucks	5	4	0	3	6	3	3	7	1	3	4	3	42
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	2	2
Heavy Trucks	0	0	0	0	0	0	0	1	0	0	0	0	1
% Trucks	18.5%	2.1%	0.0%	9.4%	4.2%	17.6%	7.1%	4.2%	2.5%	2.8%	2.4%	7.9%	4.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	1	0	1	0	0	0	0	2

	South	West	East	North	
Pedestrians	6	7	2	5	20

Peak Hour Information

Peak Hour 12:00 13:00

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	13	101	29	20	78	9	23	97	26	65	82	25	568
Peak Hour Factor	0.65	0.70	0.81	0.63	0.75	0.56	0.82	0.84	0.72	0.81	0.89	0.63	0.86
Enter Totals	143			172			146			107			
Peak Hour Factor	0.74			0.90			0.91			0.86			
Exit Totals	149			104			146			169			
Peak Hour Factor	0.72			0.87			0.89			0.88			
Light Trucks	1	1	0	1	3	0	1	3	0	2	1	1	14
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	1	1
Heavy Trucks	0	0	0	0	0	0	0	1	0	0	0	0	1
% Trucks	7.7%	1.0%	0.0%	5.0%	3.8%	0.0%	4.3%	4.1%	0.0%	3.1%	1.2%	8.0%	2.8%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	1	0	0	0	0	1

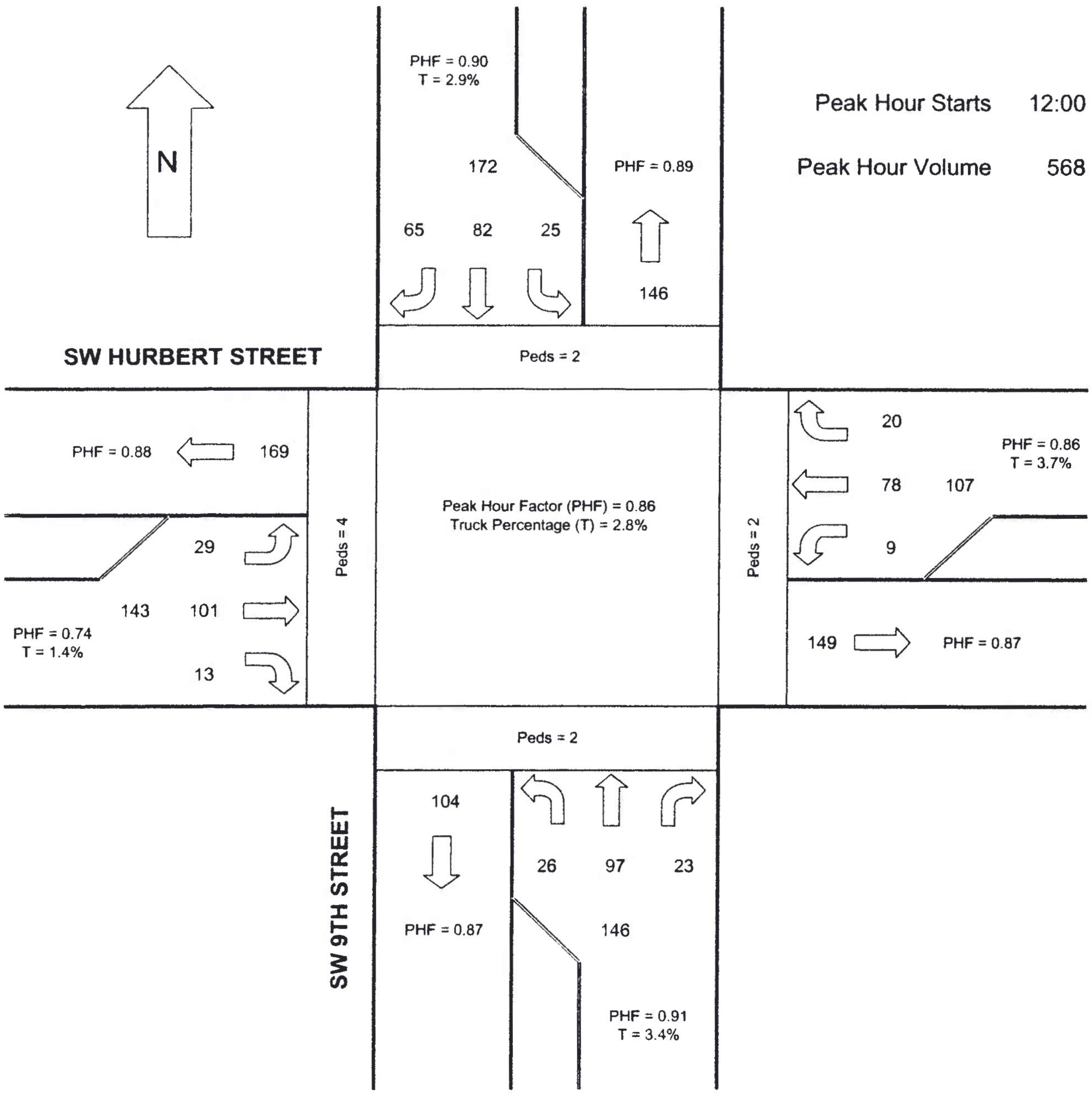
	South	West	East	North	
Pedestrians	2	4	2	2	10

TrafStats

Intersection Turning Movement

Peak Hour Diagram

Location SW HURBERT STREET AT SW 9TH STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 11:00
Reviewed By: BV



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Intersection Turning Movement
Summary Report

Location SW HURBERT STREET AT SW 9TH STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
16:00 - 16:15	2	15	7	5	20	1	4	30	1	11	18	2	116
16:15 - 16:30	6	14	3	4	26	3	0	43	5	12	16	3	135
16:30 - 16:45	4	17	7	3	23	1	3	39	4	12	14	6	133
16:45 - 17:00	4	14	8	2	29	2	8	58	6	30	20	3	184
17:00 - 17:15	1	12	3	2	14	1	2	25	3	18	17	3	101
17:15 - 17:30	2	10	2	2	14	1	1	23	2	13	11	6	87
17:30 - 17:45	6	10	2	2	10	0	1	17	7	7	6	0	68
17:45 - 18:00	2	12	5	3	14	1	0	19	2	2	13	3	76
Movement Totals	27	104	37	23	150	10	19	254	30	105	115	26	900
Enter Totals	168			183			303			246			
Exit Totals	149			285			314			152			

Two-Hour Totals

Light Trucks	0	0	0	0	5	0	0	6	0	2	1	0	14
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	0.0%	0.0%	0.0%	3.3%	0.0%	0.0%	2.4%	0.0%	1.9%	0.9%	0.0%	1.6%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	1	0	0	0	0	0	5	0	0	5	0	11

	South	West	East	North	
Pedestrians	3	11	1	17	32

Peak Hour Information

Peak Hour 16:00 17:00

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	16	60	25	14	98	7	15	170	16	65	68	14	568
Peak Hour Factor	0.67	0.88	0.78	0.70	0.84	0.58	0.47	0.73	0.67	0.54	0.85	0.58	0.77

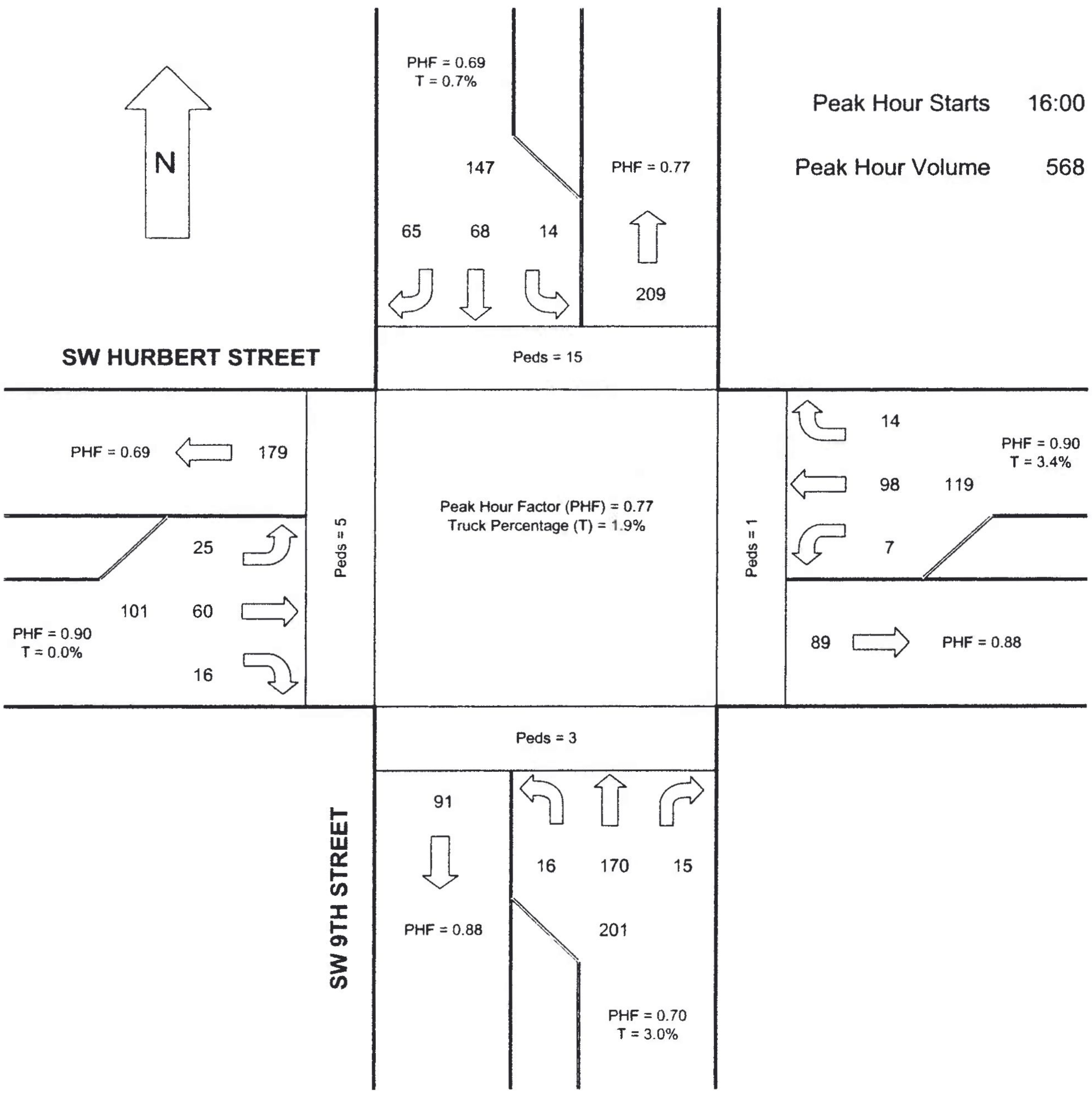
	Eastbound	Westbound	Northbound	Southbound
Enter Totals	101	147	201	119
Peak Hour Factor	0.90	0.69	0.70	0.90
Exit Totals	89	91	209	179
Peak Hour Factor	0.86	0.88	0.77	0.69

Light Trucks	0	0	0	0	4	0	0	6	0	1	0	0	11
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	0.0%	0.0%	0.0%	4.1%	0.0%	0.0%	3.5%	0.0%	1.5%	0.0%	0.0%	1.9%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	2	0	0	3	0	5

	South	West	East	North	
Pedestrians	3	5	1	15	24

Intersection Turning Movement
Peak Hour Diagram

Location SW HURBERT STREET AT SW 9TH STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: BV



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Intersection Turning Movement

Summary Report

Location W OLIVE STREET AT NW NYE STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV

	Eastbound			Westbound			Northbound			Southbound			
Time Period	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
7:00 - 7:15	0	14	0	1	10	6	4	4	0	1	1	1	42
7:15 - 7:30	2	13	2	0	16	9	5	7	0	0	1	4	59
7:30 - 7:45	2	23	7	2	19	6	10	5	0	2	16	1	93
7:45 - 8:00	1	28	3	4	25	24	8	7	0	2	13	2	117
8:00 - 8:15	3	22	3	10	19	15	14	7	0	4	8	4	109
8:15 - 8:30	4	24	5	9	22	13	11	5	1	2	13	11	120
8:30 - 8:45	1	32	3	12	11	8	8	14	0	3	10	10	112
8:45 - 9:00	1	25	2	9	25	14	10	8	1	3	9	11	118
Movement Totals	14	181	25	47	147	95	70	57	2	17	71	44	770
Enter Totals	220			289			129			132			
Exit Totals	295			166			129			180			

Two-Hour Totals

Light Trucks	0	7	0	1	0	1	1	1	0	0	2	5	18
Medium Trucks	0	0	0	2	0	0	0	0	0	0	1	0	3
Heavy Trucks	0	0	0	1	0	0	2	1	0	0	0	0	4
% Trucks	0.0%	3.9%	0.0%	8.5%	0.0%	1.1%	4.3%	3.5%	0.0%	0.0%	4.2%	11.4%	3.2%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	1	0	0	0	0	0	1	0	2

	South	West	East	North	
Pedestrians	6	4	0	13	23

Peak Hour Information

Peak Hour **8:00** **9:00**

	Eastbound			Westbound			Northbound			Southbound			
	Right	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Right**	**Thru**	**Left**	**Totals**
Movement Total	9	103	13	40	77	50	43	34	2	12	40	36	459
Peak Hour Factor	0.56	0.80	0.65	0.83	0.77	0.83	0.77	0.61	0.50	0.75	0.77	0.82	0.96

Enter Totals	125	88	79	167
Peak Hour Factor	0.87	0.85	0.90	0.87

Exit Totals	182	99	87	91
Peak Hour Factor	0.91	0.83	0.75	0.78

Light Trucks	0	3	0	1	0	1	1	1	0	0	2	4	13
Medium Trucks	0	0	0	2	0	0	0	0	0	0	1	0	3
Heavy Trucks	0	0	0	0	0	0	1	0	0	0	0	0	1
% Trucks	0.0%	2.9%	0.0%	7.5%	0.0%	2.0%	4.7%	2.9%	0.0%	0.0%	7.5%	11.1%	3.7%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0

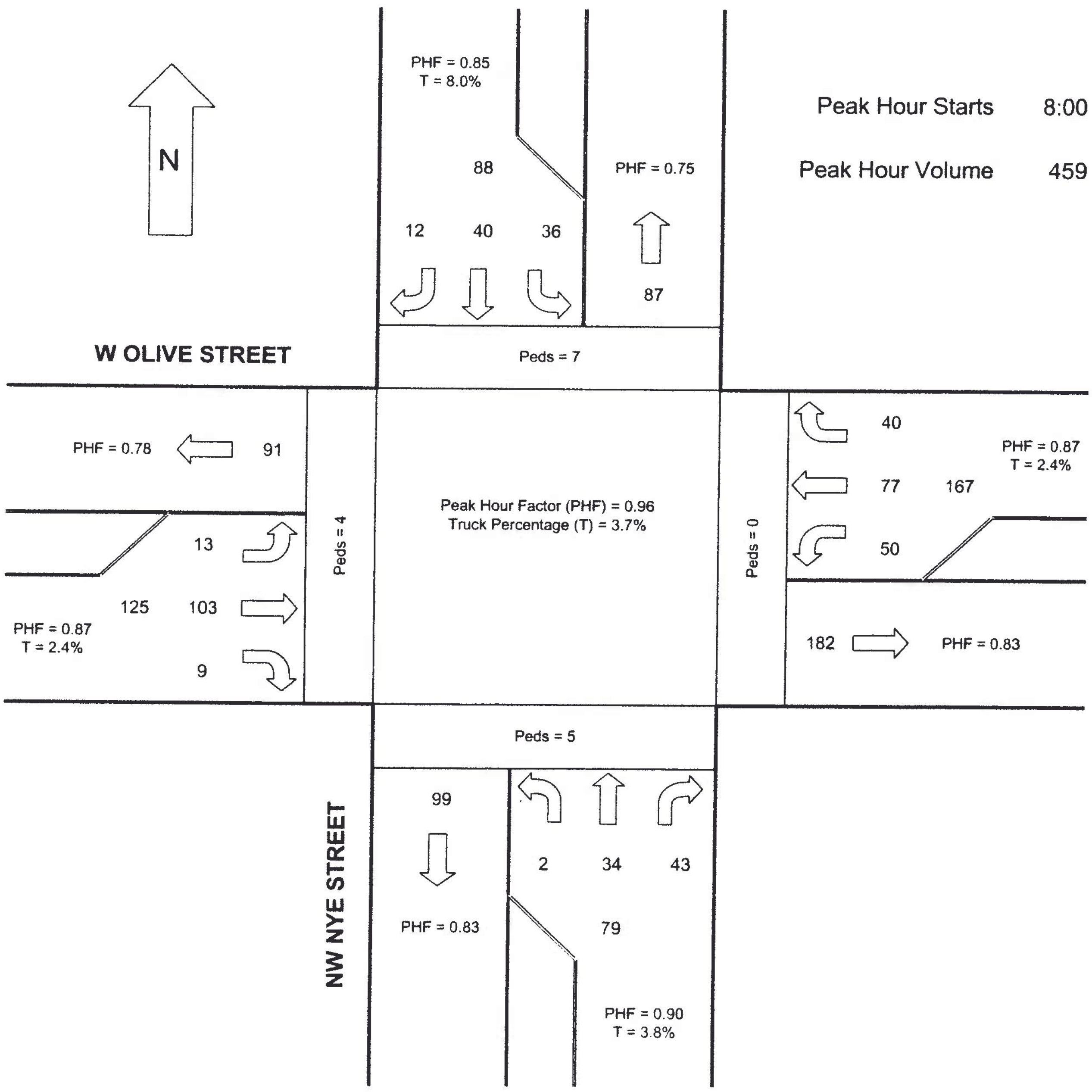
	South	West	East	North	
Pedestrians	5	4	0	7	16

TRAFSTATS

Intersection Turning Movement

Peak Hour Diagram

Location W OLIVE STREET AT NW NYE STREET
Date 9/7/2006
Day of Week Thursday
Time Begin 7:00
Reviewed By: BV



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Intersection Turning Movement
Summary Report

Location W OLIVE STREET AT NW NYE STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: BV

Time Period	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
16:00 - 16:15	3	33	11	13	30	30	24	24	4	9	21	14	216
16:15 - 16:30	3	39	9	17	37	22	21	18	3	7	17	14	207
16:30 - 16:45	4	43	11	18	52	17	20	25	2	5	24	16	237
16:45 - 17:00	3	53	22	18	34	15	25	40	3	9	23	3	248
17:00 - 17:15	1	44	9	13	43	15	30	29	2	11	19	12	228
17:15 - 17:30	2	37	7	9	30	15	22	13	1	6	9	12	163
17:30 - 17:45	0	30	9	14	38	10	10	15	1	6	7	7	147
17:45 - 18:00	1	25	3	11	27	15	12	8	0	4	15	11	132
Movement Totals	17	304	81	113	291	139	164	172	16	57	135	89	1578
Enter Totals		402			543			352			281		
Exit Totals		557			364			366			291		

Two-Hour Totals

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	1	0	1	2	1	1	0	2	0	4	2	1	15
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	1	0	0	0	0	0	1
% Trucks	5.9%	0.0%	1.2%	1.8%	0.3%	0.7%	0.6%	1.2%	0.0%	7.0%	1.5%	1.1%	1.0%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	2	0	0	0	0	0	2	0	1	1	0	6

	South	West	East	North	
Pedestrians	6	21	1	8	36

Peak Hour Information

Peak Hour 16:15 17:15

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Movement Total	11	179	51	66	166	69	96	112	10	32	83	45	920
Peak Hour Factor	0.69	0.84	0.58	0.92	0.80	0.78	0.80	0.70	0.83	0.73	0.86	0.70	0.93

	Eastbound	Westbound	Northbound	Southbound
Enter Totals	241	160	218	301
Peak Hour Factor	0.77	0.89	0.80	0.86
Exit Totals	320	163	229	208
Peak Hour Factor	0.93	0.91	0.72	0.88

	Eastbound Right	Eastbound Thru	Eastbound Left	Westbound Right	Westbound Thru	Westbound Left	Northbound Right	Northbound Thru	Northbound Left	Southbound Right	Southbound Thru	Southbound Left	Totals
Light Trucks	0	0	1	1	1	0	0	0	0	0	2	0	5
Medium Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0.0%	0.0%	2.0%	1.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	0.5%
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles	0	1	0	0	0	0	0	1	0	0	0	0	2

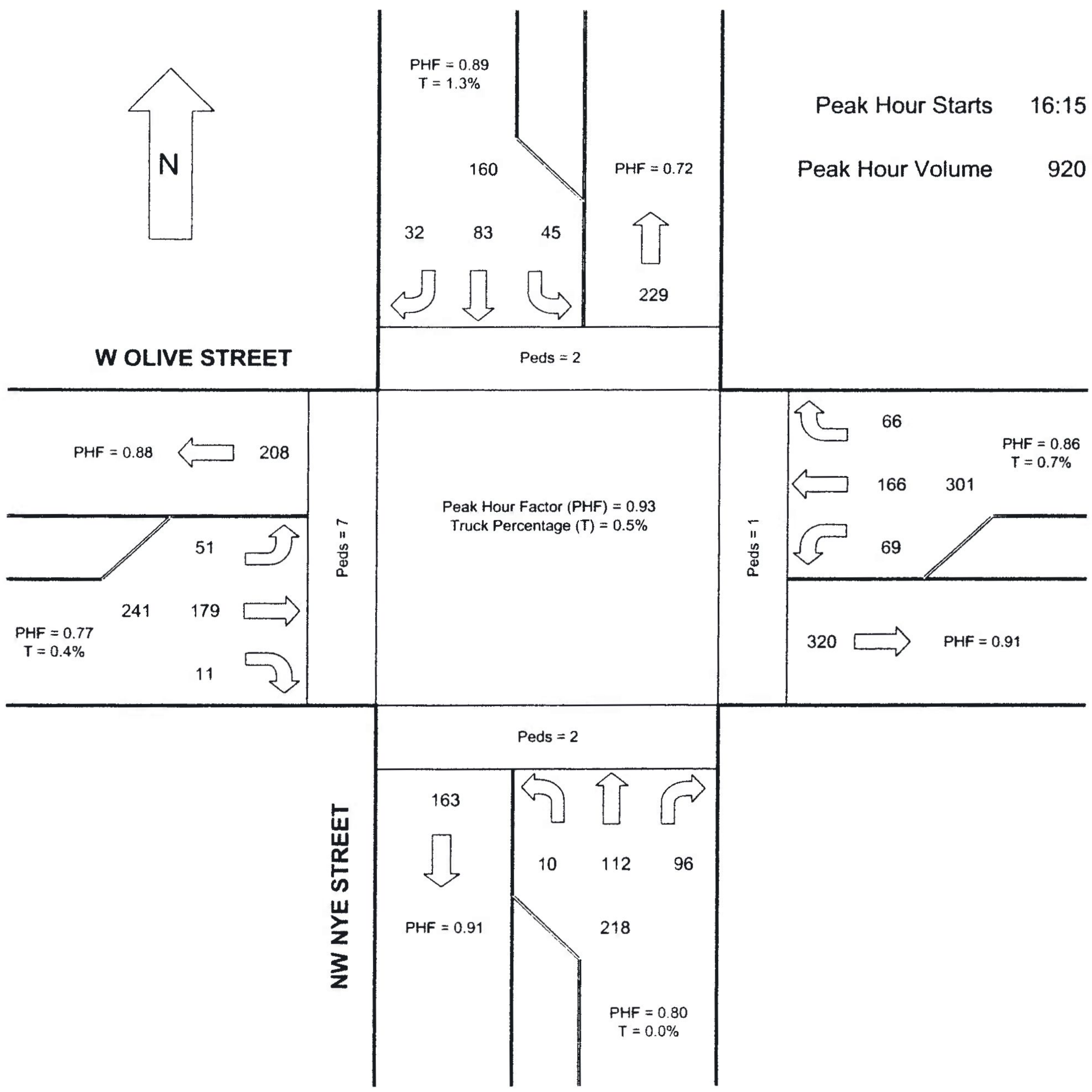
	South	West	East	North	
Pedestrians	2	7	1	2	12

TrafStats

Intersection Turning Movement

Peak Hour Diagram

Location W OLIVE STREET AT NW NYE STREET
Date 9/6/2006
Day of Week Wednesday
Time Begin 16:00
Reviewed By: BV



APPENDIX B

Methodologies for Adjustment and Analysis of Traffic Volumes

Traffic Analysis Methodology

Traffic Counts
AM, PM and Midday traffic counts were collected in September 2006 at 11 intersections. These counts were supplemented with a 14 -hour count, provided by ODOT, for the 11th Street/US 101.

PHF and Truck Percentages
The intersection PHF was determined from the count data. The default PHF of 0.92 for urban areas was used for the 11th Street/US 101 intersection. For future conditions analysis the following default values were used, 0.85 for minor street, 0.90 for minor arterials, and 0.92 for major streets. Truck percentages entered for the individual approaches. These truck values were used in both the existing and future year scenarios.

Saturation Flow Rate
A saturation flow rate of 1800 pcphgl was used for both the existing and future year scenarios.

Signal Timing
ODOT provided signal timing for intersections on US 101 via a Synchro Model, the phasing and timing plans were uploaded into the model set up for the North Newport study area intersections. A signal timing plan was reviewed to determine signal timing for OR 20/John Moore Drive intersection. ODOT staff noted that the signal timing will be reviewed for US 101 again shortly and optimized due to signal updates at two intersections. For future conditions at signalized intersections, an optimal system cycle length was determined for the US 101 intersections, while OR20/John Moore Drive was individually optimized.

Seasonal Adjustment
ATR table was reviewed for the nearest ATR locations.

2005 ATR Characteristics

SEASONAL TRAFFIC TREND	AREA TYPE	# OF LANES	WEEKLY TRAFFIC TREND	2005 AADT	OHP CLASSIFICATION	ATR	COUNTY	HIGHWAY ROUTE, NAME, & LOCATION	MP	STATE HIGHWAY NUMBER
COASTAL DESTINATION	SMALL URBAN	5	WEEKDAY	19200	STATEWIDE HIGHWAY - SCENIC BYWAY	21-009	LINCOLN	US 101, OREGON COAST HWY, NORTH OF NEWPORT	139.11	9

Conclusion: Newport –Small urban–Coastal Destination–weekday

From the Seasonal Trend Table

Peak Period Seasonal Factor	0.8472	
Count Date Factor		Adjustment Factor
Dec 15	1.1159	1.3644
Sept 1-Sept 15	(0.9112+0.9688)/2	1.1095

Seasonal Adjustment Factor =Count Date Factor/ Peak Period Seasonal Factor

Forecasting

The future analysis year is 2027. ODOT Future Volume Table for Hwy 101 was reviewed to calculate annual growth rate for US 101 intersections. These rates ranged from 1.1% to 1.5%. For local intersection a growth rate the average growth rate experienced at the US 101 intersections was averaged and halved resulting in a 0.7% annual growth rate. (see attached table for details)

The traffic count data for the 11th Street/US 101 intersection required growth adjustment to yield 2006 volumes.

Crash Analysis

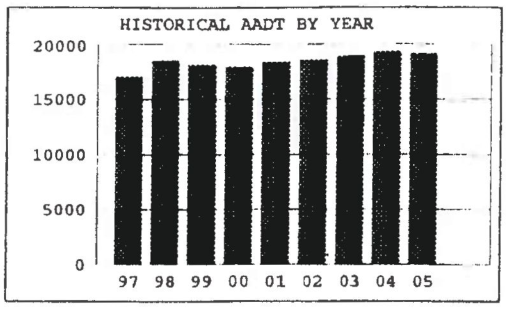
Crash data was supplied by ODOT for the years of 2002-2005. The 2005 ATR Trend Summary for ATR 21-009 was reviewed to determine that the 30th hour represents 10.5% of the ADT. The 2006 30th HV were adjusted to ADT using this percentage. This ADT was used in the calculation of crash rates for this report.

Location: US101 MP 139.11, OREGON COAST HIGHWAY, NO. 9 at the intersection of 25th street, in Newport

Recorder: NORTH NEWPORT, 21-009
Installed: October, 1996

HISTORICAL TRAFFIC DATA

Year	Average Daily Traffic	Percent of ADT: Max Day	Max Hour	10TH Hour	20TH Hour	30TH Hour
1997	17061	152	12.9	12.4	12.2	12.1
1998	18541	190	18.5	12.7	12.0	11.8
1999	18146	135	11.9	11.3	11.1	11.0
2000	17951	141	12.4	11.7	11.5	11.3
2001	18375	***	****	****	****	****
2002	18598	149	12.9	11.9	11.6	11.5
2003	18930	141	12.1	11.6	11.4	11.3
2004	19294	142	12.1	11.4	11.2	11.1
2005	19153	132	11.1	10.8	10.6	10.5



2005 TRAFFIC DATA

	Average Weekday Traffic	Percent of ADT	Average Daily Traffic	Percent of ADT
January	16148	84	15869	83
February	17000	89	17800	93
March	18200	95	18400	96
April	18441	96	18394	96
May	19066	100	19610	102
June	21236	111	21095	110
July	23514	123	23473	123
August	23600	123	24000	125
September	19900	104	20200	105
October	17800	93	18000	94
November	16300	85	16600	87
December	17500	91	16400	86

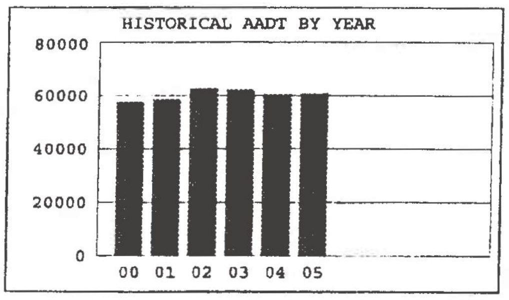
Classification Breakdown	Percent of ADT
Passenger Cars	48.9
Other 2 axle 4 tire vehicles	45.5
Single Unit 2 axle 6 tire	2.7
Single Unit 3 axle	0.7
Single Unit 4 axle or more	0.0
Single Trailer Truck 4 axle or less	0.2
Single Trailer Truck 5 axle	0.9
Single Trailer Truck 6 axle or more	0.6
Dbl-Trailer Truck 5 axle or less	0.0
Dbl-Trailer Truck 6 axle	0.0
Dbl-Trailer Truck 7 axle or more	0.0
Triple Trailer Trucks	0.0
Buses	0.5
Motorcycles & Scooters	0.0

Location: I-5 MP 234.80, PACIFIC HIGHWAY, NO. 1 0.61 miles north of Albany

Recorder: NORTH ALBANY, 22-005
Installed: October, 1999

HISTORICAL TRAFFIC DATA

Year	Average Daily Traffic	Percent of ADT: Max Day	Max Hour	10TH Hour	20TH Hour	30TH Hour
2000	57383	135	10.7	10.1	9.8	9.7
2001	58634	144	10.9	9.9	9.8	9.7
2002	62615	139	10.3	10.0	9.7	9.5
2003	62259	134	11.0	9.7	9.6	9.5
2004	60486	134	10.1	9.8	9.7	9.5
2005	60632	137	10.6	9.7	9.5	9.3



2005 TRAFFIC DATA

	Average Weekday Traffic	Percent of ADT	Average Daily Traffic	Percent of ADT
January	53156	88	52755	87
February	56197	93	56919	94
March	59293	98	60215	99
April	57893	95	58425	96
May	59250	98	60339	100
June	63600	105	65100	107
July	65900	109	66900	110
August	66200	109	67800	112
September	60300	99	63100	104
October	56500	93	59000	97
November	60509	100	61084	101
December	58150	96	55943	92

Classification Breakdown	Percent of ADT
Passenger Cars	55.6
Other 2 axle 4 tire vehicles	17.3
Single Unit 2 axle 6 tire	5.7
Single Unit 3 axle	1.4
Single Unit 4 axle or more	0.0
Single Trailer Truck 4 axle or less	1.0
Single Trailer Truck 5 axle	13.0
Single Trailer Truck 6 axle or more	2.8
Dbl-Trailer Truck 5 axle or less	0.0
Dbl-Trailer Truck 6 axle	0.1
Dbl-Trailer Truck 7 axle or more	2.3
Triple Trailer Trucks	0.1
Buses	0.3
Motorcycles & Scooters	0.4

INTID	INTNAME	Signal Timing	Count Source	Count Date	FVT MP	2003	2025	Annual Growth Rate	Base Year Adjustment	2027 Adjustment
1	Olive Street & Hwy 101	ODOT Synchro	New Field Counts	9/6/2006	140.36	26400	30900	0.0077	1.1095	1.1627
2	Hwy 20 & John Moore Dri	Observation	New Field Counts	9/6/2006	0.76	14200	18900	0.0150	1.1095	1.3159
3	Hwy 20 & Eads Street	Stop controlled	New Field Counts	9/6/2006	0.31	17300	21700	0.0116	1.1095	1.2428
10	11th Street & Hwy 101	ODOT Synchro	ODOT	12/15/2004	139.55	28300	36000	0.0124	1.3981	1.2845
12	Hwy 101 & Hurbert Street	ODOT Synchro	New Field Counts	9/6/2006	140.65	18600	21500	0.0071	1.1095	1.1488
14	9th Street & Hurbert Stree	Stop controlled	New Field Counts	9/7/2006				0.0070	1.1095	1.1470
16	Fall Street & Bay Blvd.	Stop controlled	New Field Counts	9/8/2006				0.0070	1.1095	1.1470
20	11th Street & Nye Street	Stop controlled	New Field Counts	9/9/2006				0.0070	1.1095	1.1470
23	6th Street & Hwy 101	ODOT Synchro	New Field Counts	9/10/2006	140.08	26200	34000	0.0135	1.1095	1.2842
26	Olive Street & Nye Street	Stop controlled	New Field Counts	9/11/2006				0.0070	1.1095	1.1470
29	Fall Street & Hwy 101	Stop controlled	New Field Counts	9/12/2006	140.92	19100	24600	0.0131	1.1095	1.2749
US Hwy 20	**Corvallis-Newport**	Hwy 33								
	Coastal Destination	Weekday								
US Hwy 101	**Oregon Coast**	Hwy 9								
ATR 21-009	Coastal Destination	Weekday								
Seasonal Factor Peak Period		0.8472								
Count Date Factor			Adjustment Factor =Count Date Factor/ Seasonal Peak Period Factor							
15-Dec	1.1559	1.1559	1.3644							
Sept 1/Sept 15	(0.9112+0.9688)/2	0.94	1.1095							

Raw Counts - AM	DATE	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Olive Street & Hwy 101	9/6/2006	27	469	196	232	486	83	117	111	10	347	217	297
Hwy 20 & John Moore Drive	9/6/2006	129	83	14	56	83	92	57	239	84	52	623	37
Hwy 20 & Eads Street	9/6/2006	0	0	0	21	0	83	51	424	0	0	808	42
11th Street & Hwy 101	12/15/2004	6	476	14	4	625	7	27	5	22	29	8	39
Hwy 101 & Hurbert Street	9/6/2006	14	594	11	23	523	19	15	17	17	22	13	14
9th Street & Hurbert Street	9/7/2006	8	57	9	9	86	21	8	31	11	4	27	6
Fall Street & Bay Blvd.	9/8/2006	0	0	0	16	0	12	3	89	0	0	93	21
11th Street & Nye Street	9/9/2006	3	21	28	9	37	3	0	32	6	14	21	2
6th Street & Hwy 101	9/10/2006	31	723	20	15	767	13	51	21	52	68	20	21
Olive Street & Nye Street	9/11/2006	1	34	43	36	40	12	13	103	9	50	77	40
Fall Street & Hwy 101	9/12/2006	4	678	8	13	610	15	19	3	15	4	0	1

Adjusted 2006- AM		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Adj. Factor
Olive Street & Hwy 101	9/6/2006	30	520	215	255	540	90	130	125	10	385	240	330	1.1095
Hwy 20 & John Moore Drive	9/6/2006	145	90	15	60	90	100	65	265	95	60	690	40	1.1095
Hwy 20 & Eads Street	9/6/2006	0	0	0	25	0	90	55	470	0	0	895	45	1.1095
11th Street & Hwy 101	12/15/2004	10	665	20	5	875	10	40	5	30	40	10	55	1.3981
Hwy 101 & Hurbert Street	9/6/2006	15	660	10	25	580	20	15	20	20	25	15	15	1.1095
9th Street & Hurbert Street	9/7/2006	10	65	10	10	95	25	10	35	10	5	30	5	1.1095
Fall Street & Bay Blvd.	9/8/2006	0	0	0	20	0	15	5	100	0	0	105	25	1.1095
11th Street & Nye Street	9/9/2006	5	25	30	10	40	5	0	35	5	15	25	0	1.1095
6th Street & Hwy 101	9/10/2006	35	800	20	15	850	15	55	25	60	75	20	25	1.1095
Olive Street & Nye Street	9/11/2006	0	40	50	40	45	15	15	115	10	55	85	45	1.1095
Fall Street & Hwy 101	9/12/2006	5	750	10	15	675	15	20	5	15	5	0	0	1.1095

Balanced 2006- AM		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Olive Street & Hwy 101	9/6/2006	30	520	215	255	540	90	130	125	10	385	240	330
Hwy 20 & John Moore Drive	9/6/2006	145	90	15	60	90	100	65	265	95	60	690	40
Hwy 20 & Eads Street	9/6/2006				25		90	55	470			895	45
11th Street & Hwy 101	12/15/2004	10	665	20	5	875	10	40	5	30	40	10	55
Hwy 101 & Hurbert Street	9/6/2006	15	660	10	25	580	20	15	20	20	25	15	15
9th Street & Hurbert Street	9/7/2006	10	65	10	10	95	25	10	35	10	5	30	5
Fall Street & Bay Blvd.	9/8/2006				20		15	5	100			105	25
11th Street & Nye Street	9/9/2006	5	25	30	10	40	5	5	35	5	15	25	5
6th Street & Hwy 101	9/10/2006	35	800	20	15	850	15	55	25	60	75	20	25
Olive Street & Nye Street	9/11/2006		40	50	40	45	15	15	115	10	55	85	45
Fall Street & Hwy 101	9/12/2006	5	750	10	15	675	15	20	5	15	5	5	5

Balanced 2027-AM		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Adj. Factor
Olive Street & Hwy 101	9/6/2006	35	605	250	295	630	105	150	145	10	450	280	385	1.16271
Hwy 20 & John Moore Drive	9/6/2006	190	120	20	80	120	130	85	350	125	80	910	55	1.31594
Hwy 20 & Eads Street	9/6/2006	0	0	0	30	0	110	70	585	0	0	1110	55	1.24277
11th Street & Hwy 101	12/15/2004	15	855	25	5	1125	15	50	5	40	50	15	70	1.28445
Hwy 101 & Hurbert Street	9/6/2006	15	760	10	30	665	25	15	25	25	30	15	15	1.14883
9th Street & Hurbert Street	9/7/2006	10	75	10	10	110	30	10	40	10	5	35	5	1.147
Fall Street & Bay Blvd.	9/8/2006	0	0	0	25	0	15	5	115	0	0	120	30	1.147
11th Street & Nye Street	9/9/2006	5	30	35	10	45	5	5	40	5	15	30	5	1.147
6th Street & Hwy 101	9/10/2006	45	1025	25	20	1090	20	70	30	75	95	25	30	1.28418
Olive Street & Nye Street	9/11/2006	0	45	55	45	50	15	15	130	10	65	95	50	1.147
Fall Street & Hwy 101	9/12/2006	5	955	15	20	860	20	25	5	20	5	5	5	1.27487

Raw Counts Midday

	DATE	INTID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Olive Street & Hwy 101	9/6/2006	1	43	527	133	283	791	72	276	292	31	305	189	280
Hwy 20 & John Moore Drive	9/6/2006	2	133	61	25	60	57	52	51	344	100	33	394	30
Hwy 20 & Eads Street	9/6/2006	3	0	0	0	27	0	58	53	535	0	0	574	22
11th Street & Hwy 101	12/15/2004	10	25	1130	13	7	1125	24	103	27	38	38	30	44
Hwy 101 & Hurbert Street	9/6/2006	12	28	737	22	70	790	39	40	43	33	58	43	44
9th Street & Hurbert Street	9/6/2006	14	26	97	23	25	82	65	29	101	13	9	78	20
Fall Street & Bay Blvd.	9/6/2006	16	0	0	0	48	0	61	19	190	0	0	133	49
11th Street & Nye Street	9/6/2006	20	11	76	69	8	77	6	4	43	5	27	34	4
6th Street & Hwy 101	9/6/2006	23	38	1288	19	22	1576	25	87	24	46	76	23	39
Olive Street & Nye Street	9/6/2006	26	11	87	95	51	112	34	53	203	23	69	148	50
Fall Street & Hwy 101	9/6/2006	29	8	884	9	6	863	29	22	2	11	3	1	14

Adjusted 2006

	DATE	INTID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Adj. Factor
Olive Street & Hwy 101	9/6/2006	1	50	585	150	315	880	80	305	325	35	340	210	310	1.1095
Hwy 20 & John Moore Drive	9/6/2006	2	150	70	30	65	65	60	55	380	110	35	435	35	1.1095
Hwy 20 & Eads Street	9/6/2006	3	0	0	0	30	0	65	60	595	0	0	635	25	1.1095
11th Street & Hwy 101	12/15/2004	10	35	1580	20	10	1575	35	145	40	55	55	40	60	1.3981
Hwy 101 & Hurbert Street	9/6/2006	12	30	820	25	80	875	45	45	50	35	65	50	50	1.1095
9th Street & Hurbert Street	9/6/2006	14	30	110	25	30	90	70	30	110	15	10	85	20	1.1095
Fall Street & Bay Blvd.	9/6/2006	16	0	0	0	55	0	70	20	210	0	0	150	55	1.1095
11th Street & Nye Street	9/6/2006	20	10	85	75	10	85	5	5	50	5	30	40	5	1.1095
6th Street & Hwy 101	9/6/2006	23	40	1430	20	25	1750	30	95	25	50	85	25	45	1.1095
Olive Street & Nye Street	9/6/2006	26	10	95	105	55	125	40	60	225	25	75	165	55	1.1095
Fall Street & Hwy 101	9/6/2006	29	10	980	10	5	960	30	25	0	10	5	0	15	1.1095

Balanced 2006

	DATE	INTID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Olive Street & Hwy 101	9/6/2006	1	50	585	150	315	880	80	305	325	35	340	210	310
Hwy 20 & John Moore Drive	9/6/2006	2	150	70	30	65	65	60	55	380	110	35	435	35
Hwy 20 & Eads Street	9/6/2006	3				30		65	60	595			635	25
11th Street & Hwy 101	12/15/2004	10	25	1580	20	10	1575	25	100	40	55	55	35	60
Hwy 101 & Hurbert Street	9/6/2006	12	30	820	25	80	875	45	45	50	35	65	50	50
9th Street & Hurbert Street	9/6/2006	14	30	110	25	30	90	70	30	110	15	10	85	20
Fall Street & Bay Blvd.	9/6/2006	16				55		70	20	210			150	55
11th Street & Nye Street	9/6/2006	20	10	85	75	10	85	5	5	50	5	30	40	5
6th Street & Hwy 101	9/6/2006	23	40	1430	20	25	1750	30	95	25	50	85	25	45
Olive Street & Nye Street	9/6/2006	26	10	95	105	55	125	40	60	225	25	75	165	55
Fall Street & Hwy 101	9/6/2006	29	10	980	10	5	960	30	25		10	5		15

Balanced 2027

	DATE	INTID	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Adj. Factor
Olive Street & Hwy 101	9/6/2006	1	60	680	175	365	1025	95	355	380	40	395	245	360	1.16270661
Hwy 20 & John Moore Drive	9/6/2006	2	195	90	40	85	85	80	70	500	145	45	570	45	1.3159411
Hwy 20 & Eads Street	9/6/2006	3	0	0	0	35	0	80	75	740	0	0	790	30	1.24277457
11th Street & Hwy 101	12/15/2004	10	30	2030	25	15	2025	30	130	50	70	70	45	75	1.2844523
Hwy 101 & Hurbert Street	9/6/2006	12	35	940	30	90	1005	50	50	55	40	75	55	55	1.14882698
9th Street & Hurbert Street	9/6/2006	14	35	125	30	35	105	80	35	125	15	10	95	25	1.147
Fall Street & Bay Blvd.	9/6/2006	16	0	0	0	65	0	80	25	240	0	0	170	65	1.147
11th Street & Nye Street	9/6/2006	20	10	95	85	10	95	5	5	55	5	35	45	5	1.147
6th Street & Hwy 101	9/6/2006	23	50	1835	25	30	2245	40	120	30	65	110	30	60	1.28417765
Olive Street & Nye Street	9/6/2006	26	10	110	120	65	145	45	70	260	30	85	190	65	1.147
Fall Street & Hwy 101	9/6/2006	29	15	1250	15	5	1225	40	30	0	15	5	0	20	1.27486911

Raw Counts PM

	DATE	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Olive Street & Hwy 101	9/6/2006	166	318	19	339	234	220	56	641	230	435	787	109
Hwy 20 & John Moore Drive	9/6/2006	61	634	99	39	405	54	120	46	35	143	56	55
Hwy 20 & Eads Street	9/6/2006	58	809	0		590	28	0	0	0	57	0	40
11th Street & Hwy 101	12/15/2004	74	23	26	39	16	41	22	1067	12	17	1066	23
Hwy 101 & Hurbert Street	9/6/2006	46	51	24	69	52	73	22	755	27	32	810	20
9th Street & Hurbert Street	9/7/2006	25	60	16	7	98	14	16	170	15	14	68	65
Fall Street & Bay Blvd.	9/8/2006	28	155	0	0	102	42	0	0	0	38	0	40
11th Street & Nye Street	9/9/2006	4	34	6	21	28	15	10	58	11	10	67	9
6th Street & Hwy 101	9/10/2006	69	22	48	76	23	34	24	1154	3	14	1253	20
Olive Street & Nye Street	9/11/2006	51	179	11	69	166	66	10	112	96	45	83	32
Fall Street & Hwy 101	9/12/2006	19	2	8	4	0	7	18	929	10	6	942	35

2006 Adjusted-PM

	DATE	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Adj. Factor
Olive Street & Hwy 101	9/6/2006	185	355	20	375	260	245	60	710	255	485	875	120	1.1095
Hwy 20 & John Moore Drive	9/6/2006	70	705	110	45	450	60	135	50	40	160	60	60	1.1095
Hwy 20 & Eads Street	9/6/2006	65	900	0	0	655	30	0	0	0	65	0	45	1.1095
11th Street & Hwy 101	12/15/2004	105	30	35	55	20	55	30	1490	15	25	1490	30	1.3981
Hwy 101 & Hurbert Street	9/6/2006	50	55	25	75	60	80	25	840	30	35	900	20	1.1095
9th Street & Hurbert Street	9/7/2006	30	65	20	10	110	15	20	190	15	15	75	70	1.1095
Fall Street & Bay Blvd.	9/8/2006	30	170	0	0	115	45	0	0	0	40	0	45	1.1095
11th Street & Nye Street	9/9/2006	5	40	5	25	30	15	10	65	10	10	75	10	1.1095
6th Street & Hwy 101	9/10/2006	75	25	55	85	25	40	25	1280	5	15	1390	20	1.1095
Olive Street & Nye Street	9/11/2006	55	200	10	75	185	75	10	125	105	50	90	35	1.1095
Fall Street & Hwy 101	9/12/2006	20	0	10	5	0	10	20	1030	10	5	1045	40	1.1095

2006 Balanced-PM

	DATE	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Olive Street & Hwy 101	9/6/2006	60	710	255	485	875	120	185	355	20	375	260	245
Hwy 20 & John Moore Drive	9/6/2006	135	50	40	160	60	60	70	705	110	45	450	60
Hwy 20 & Eads Street	9/6/2006				65		45	65	900			655	30
11th Street & Hwy 101	12/15/2004	30	1490	15	25	1490	30	105	30	35	55	20	55
Hwy 101 & Hurbert Street	9/6/2006	25	840	30	35	900	20	50	55	25	75	60	80
9th Street & Hurbert Street	9/7/2006	20	190	15	15	75	70	30	65	20	10	110	15
Fall Street & Bay Blvd.	9/8/2006				40		45	30	170			115	45
11th Street & Nye Street	9/9/2006	10	65	10	10	75	10	5	40	5	25	30	15
6th Street & Hwy 101	9/10/2006	25	1280	5	15	1390	20	75	25	55	85	25	40
Olive Street & Nye Street	9/11/2006	10	125	105	50	90	35	55	200	10	75	185	75
Fall Street & Hwy 101	9/12/2006	20	950	10	5	1045	40	20	5	10	5	5	10

2027 Balanced

	DATE	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Adj. Factor
Olive Street & Hwy 101	9/6/2006	70	825	295	565	1015	140	215	415	25	435	300	285	1.1627
Hwy 20 & John Moore Drive	9/6/2006	180	65	55	210	80	80	90	930	145	60	590	80	1.3159
Hwy 20 & Eads Street	9/6/2006	0	0	0	80	0	55	80	1120	0	0	815	35	1.2428
11th Street & Hwy 101	12/15/2004	40	1915	20	30	1915	40	135	40	45	70	25	70	1.2845
Hwy 101 & Hurbert Street	9/6/2006	30	965	35	40	1035	25	55	65	30	85	70	90	1.1488
9th Street & Hurbert Street	9/7/2006	25	220	15	15	85	80	35	75	25	10	125	15	1.1470
Fall Street & Bay Blvd.	9/8/2006	0	0	0	45	0	50	35	195	0	0	130	50	1.1470
11th Street & Nye Street	9/9/2006	10	75	10	10	85	10	5	45	5	30	35	15	1.1470
6th Street & Hwy 101	9/10/2006	30	1645	5	20	1785	25	95	30	70	110	30	50	1.2842
Olive Street & Nye Street	9/11/2006	10	145	120	55	105	40	65	230	10	85	210	85	1.1470
Fall Street & Hwy 101	9/12/2006	25	1210	15	5	1330	50	25	5	15	5	5	15	1.2749

APPENDIX C

2006 Intersection Analysis Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1629	1695		1644	1731	1471	1613	3226	1443	1629	3187	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1629	1695		1644	1731	1471	1613	3226	1443	1629	3187	
Volume (vph)	130	125	10	385	240	330	30	520	215	255	540	90
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	140	134	11	414	258	355	32	559	231	274	581	97
RTOR Reduction (vph)	0	3	0	0	0	229	0	0	104	0	11	0
Lane Group Flow (vph)	140	142	0	414	258	126	32	559	127	274	667	0
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	6%	6%	6%	5%	5%	5%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	17.0	11.9		19.1	14.0	14.0	5.0	36.4	36.4	11.6	43.0	
Effective Green, g (s)	17.0	11.9		19.1	14.0	14.0	5.0	36.4	36.4	11.6	43.0	
Actuated g/C Ratio	0.18	0.13		0.20	0.15	0.15	0.05	0.38	0.38	0.12	0.45	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	292	212		331	255	217	85	1236	553	199	1443	
v/s Ratio Prot	0.09	0.09		c0.25	0.15		0.02	c0.17		c0.17	c0.21	
v/s Ratio Perm						0.24			0.16			
v/c Ratio	0.48	0.67		1.25	1.01	0.58	0.38	0.45	0.23	1.38	0.46	
Uniform Delay, d1	35.0	39.7		38.0	40.5	37.8	43.5	21.9	19.8	41.7	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.13	1.13	
Incremental Delay, d2	1.2	7.7		135.4	59.4	3.7	2.8	1.2	1.0	194.0	0.9	
Delay (s)	36.3	47.4		173.4	99.9	41.5	46.3	23.1	20.8	241.3	21.2	
Level of Service	D	D		F	F	D	D	C	C	F	C	
Approach Delay (s)		41.9			109.3			23.3			84.6	
Approach LOS		D			F			C			F	

Intersection Summary

HCM Average Control Delay	72.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	0.96		1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00		0.99	
Satd. Flow (prot)	1598	3070		1660	1748	1485		1679	1471		1587	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.60	1.00		0.86	
Satd. Flow (perm)	1598	3070		1660	1748	1485		1043	1471		1388	
Volume (vph)	65	265	95	60	690	40	145	90	15	60	90	100
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	71	291	104	66	758	44	159	99	16	66	99	110
RTOR Reduction (vph)	0	57	0	0	0	24	0	0	11	0	40	0
Lane Group Flow (vph)	71	338	0	66	758	20	0	258	5	0	235	0
Heavy Vehicles (%)	7%	7%	7%	3%	3%	3%	4%	4%	4%	6%	6%	6%
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)	3.1	26.5		3.4	26.8	26.8		17.2	17.2		17.2	
Effective Green, g (s)	3.1	26.5		3.4	26.8	26.8		17.2	17.2		17.2	
Actuated g/C Ratio	0.05	0.45		0.06	0.45	0.45		0.29	0.29		0.29	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	84	1377		95	793	673		304	428		404	
v/s Ratio Prot	c0.04	0.13		0.04	c0.43							
v/s Ratio Perm						0.03		c0.25	0.01		0.20	
v/c Ratio	0.85	0.25		0.69	0.96	0.03		0.85	0.01		0.58	
Uniform Delay, d1	27.8	10.1		27.3	15.6	8.9		19.7	14.9		17.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	50.5	0.1		19.8	21.6	0.0		24.4	0.0		6.0	
Delay (s)	78.2	10.2		47.1	37.2	9.0		44.2	14.9		23.9	
Level of Service	E	B		D	D	A		D	B		C	
Approach Delay (s)		20.6			36.5			42.5			23.9	
Approach LOS		C			D			D			C	

Intersection Summary

HCM Average Control Delay	31.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	59.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.94			0.93		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1625			1609		1629	3257	1457	1629	3252	
Flt Permitted		0.67			0.85		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1117			1386		1629	3257	1457	1629	3252	
Volume (vph)	40	5	30	40	10	55	10	665	20	5	875	10
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	5	33	43	11	60	11	723	22	5	951	11
RTOR Reduction (vph)	0	30	0	0	51	0	0	0	5	0	0	0
Lane Group Flow (vph)	0	51	0	0	63	0	11	723	17	5	962	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			
Actuated Green, G (s)		8.3			8.3		1.8	73.4	73.4	1.3	72.9	
Effective Green, g (s)		8.3			8.3		1.8	73.4	73.4	1.3	72.9	
Actuated g/C Ratio		0.09			0.09		0.02	0.77	0.77	0.01	0.77	
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		98			121		31	2516	1126	22	2495	
v/s Ratio Prot							0.01	c0.22		0.00	c0.30	
v/s Ratio Perm		0.07			c0.08				0.02			
v/c Ratio		0.52			0.52		0.35	0.29	0.02	0.23	0.39	
Uniform Delay, d1		41.4			41.4		46.0	3.2	2.5	46.4	3.7	
Progression Factor		1.00			1.00		1.26	1.86	0.85	1.00	1.00	
Incremental Delay, d2		4.6			3.7		6.1	0.3	0.0	5.2	0.5	
Delay (s)		46.0			45.2		64.1	6.1	2.1	51.6	4.1	
Level of Service		D			D		E	A	A	D	A	
Approach Delay (s)		46.0			45.2			6.9			4.3	
Approach LOS		D			D			A			A	

Intersection Summary

HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱			↰↑↑↱			↰↓↓↱	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.95			0.96			1.00			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1535			1600			3247			3174	
Flt Permitted		0.93			0.86			1.00			1.00	
Satd. Flow (perm)		1444			1411			3247			3174	
Volume (vph)	15	20	20	25	15	15	15	660	10	25	580	20
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	15	21	21	26	15	15	15	680	10	26	598	21
RTOR Reduction (vph)	0	19	0	0	14	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	38	0	0	42	0	0	704	0	0	642	0
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	5%	5%	5%	7%	7%	7%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)		7.2			7.2			51.2			24.1	
Effective Green, g (s)		7.7			7.7			51.7			24.6	
Actuated g/C Ratio		0.08			0.08			0.54			0.26	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		116			113			1749			813	
v/s Ratio Prot								c0.22			c0.20	
v/s Ratio Perm		0.04			c0.04							
v/c Ratio		0.32			0.37			0.40			0.79	
Uniform Delay, d1		41.7			41.9			13.1			33.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.6			2.1			0.7			5.1	
Delay (s)		43.3			43.9			13.7			38.4	
Level of Service		D			D			B			D	
Approach Delay (s)		43.3			43.9			13.7			38.4	
Approach LOS		D			D			B			D	

Intersection Summary

HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.94			0.97		1.00	1.00		1.00	1.00	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1569			1616		1629	3245		1629	3249	
Flt Permitted		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1569			1616		1629	3245		1629	3249	
Volume (vph)	55	25	60	75	20	25	35	800	20	15	850	15
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	27	65	82	22	27	38	870	22	16	924	16
RTOR Reduction (vph)	0	29	0	0	10	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	123	0	0	121	0	38	891	0	16	939	0
Heavy Vehicles (%)	6%	6%	6%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		11.6			11.6		5.1	49.2		1.6	45.7	
Effective Green, g (s)		13.1			13.1		5.1	51.2		1.6	47.7	
Actuated g/C Ratio		0.14			0.14		0.05	0.54		0.02	0.50	
Clearance Time (s)		5.5			5.5		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		216			223		87	1749		27	1631	
v/s Ratio Prot		c0.10			c0.08		c0.02	c0.27		0.01	c0.29	
v/s Ratio Perm												
v/c Ratio		0.57			0.54		0.44	0.51		0.59	0.58	
Uniform Delay, d1		38.3			38.1		43.6	13.9		46.4	16.6	
Progression Factor		1.00			1.00		0.73	1.28		0.84	0.98	
Incremental Delay, d2		3.4			2.7		2.9	0.9		29.0	1.4	
Delay (s)		41.7			40.8		34.8	18.6		68.0	17.6	
Level of Service		D			D		C	B		E	B	
Approach Delay (s)		41.7			40.8			19.3			18.5	
Approach LOS		D			D			B			B	

Intersection Summary

HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	55	470	895	45	25	90
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	60	516	984	49	27	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1026			
pX, platoon unblocked						
vC, conflicting volume	1033				1646	1008
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1033				1646	1008
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	91				72	66
cM capacity (veh/h)	646				100	293

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	60	516	1033	27	99
Volume Left	60	0	0	27	0
Volume Right	0	0	49	0	99
cSH	646	1700	1700	100	293
Volume to Capacity	0.09	0.30	0.61	0.28	0.34
Queue Length (ft)	8	0	0	26	36
Control Delay (s)	11.1	0.0	0.0	54.3	23.4
Lane LOS	B			F	C
Approach Delay (s)	1.2		0.0	30.1	
Approach LOS				D	

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	35	10	5	30	5	10	65	10	10	95	25
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	12	44	12	6	38	6	12	81	12	12	119	31
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		726										
pX, platoon unblocked												
vC, conflicting volume	44			56			219	131	50	181	134	41
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	44			56			219	131	50	181	134	41
tC, single (s)	4.2			4.1			7.2	6.6	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	99			100			98	89	99	98	84	97
cM capacity (veh/h)	1539			1542			606	734	993	695	744	1025

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	69	50	106	162
Volume Left	12	6	12	12
Volume Right	12	6	12	31
cSH	1539	1542	738	781
Volume to Capacity	0.01	0.00	0.14	0.21
Queue Length (ft)	1	0	13	20
Control Delay (s)	1.4	0.9	10.7	10.8
Lane LOS	A	A	B	B
Approach Delay (s)	1.4	0.9	10.7	10.8
Approach LOS			B	B

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	5	100	105	25	20	15
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	6	116	122	29	23	17

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	122	151	41
Volume Left (vph)	6	0	23
Volume Right (vph)	0	29	17
Hadj (s)	0.1	-0.1	-0.1
Departure Headway (s)	4.3	4.3	4.4
Degree Utilization, x	0.15	0.18	0.05
Capacity (veh/h)	825	622	795
Control Delay (s)	7.5	7.5	7.4
Approach Delay (s)	7.5	7.5	7.4
Approach LOS	A	A	A

Intersection Summary			
Delay	7.5		
HCM Level of Service	A		
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		

20: 11th Street & Nye Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	35	5	15	25	5	5	25	30	10	40	5
Peak Hour Factor	0.80	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	6	38	5	16	27	5	5	27	33	11	43	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	50	49	65	60
Volume Left (vph)	6	16	5	11
Volume Right (vph)	5	5	33	5
Hadj (s)	0.0	0.1	-0.3	0.1
Departure Headway (s)	4.2	4.3	3.9	4.3
Degree Utilization, x	0.06	0.06	0.07	0.07
Capacity (veh/h)	827	603	890	831
Control Delay (s)	7.3	7.3	7.0	7.3
Approach Delay (s)	7.3	7.3	7.0	7.3
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.2		
HCM Level of Service	A		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

26: Olive Street & Nye Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	15	115	10	55	85	45	0	40	50	40	45	15
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	16	120	10	57	89	47	0	42	52	42	47	16

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	146	193	94	104
Volume Left (vph)	16	57	0	42
Volume Right (vph)	10	47	52	16
Hadj (s)	0.0	-0.1	-0.3	0.1
Departure Headway (s)	4.6	4.7	4.5	4.9
Degree Utilization, x	0.19	0.25	0.12	0.14
Capacity (veh/h)	738	594	737	700
Control Delay (s)	7.9	8.1	7.7	8.1
Approach Delay (s)	7.9	8.1	7.7	8.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
HCM Level of Service	A			
Intersection Capacity Utilization	41.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	20	5	15	5	5	5	5	750	10	15	675	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	5	16	5	5	5	5	789	11	16	711	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)											906	
pX, platoon unblocked												
vC, conflicting volume	1163	1561	363	1211	1563	400	726			800		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1163	1561	363	1211	1563	400	726			800		
tC, single (s)	7.5	6.5	6.9	7.9	6.9	7.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.2	3.5	2.2			2.3		
p0 queue free %	85	95	98	95	94	99	99			98		
cM capacity (veh/h)	139	108	634	110	91	552	859			787		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	42	16	5	526	274	16	474	253
Volume Left	21	5	5	0	0	16	0	0
Volume Right	16	5	0	0	11	0	0	16
cSH	187	137	859	1700	1700	787	1700	1700
Volume to Capacity	0.23	0.12	0.01	0.31	0.16	0.02	0.28	0.15
Queue Length (ft)	21	10	0	0	0	2	0	0
Control Delay (s)	29.7	34.7	9.2	0.0	0.0	9.7	0.0	0.0
Lane LOS	D	D	A			A		
Approach Delay (s)	29.7	34.7	0.1			0.2		
Approach LOS	D	D						

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		

1: Olive Street & Hwy 101

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1693	1756		1644	1731	1471	1598	3196	1430	1660	3279	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1693	1756		1644	1731	1471	1598	3196	1430	1660	3279	
Volume (vph)	305	325	35	340	210	310	50	585	150	315	880	80
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	314	335	36	351	216	320	52	603	155	325	907	82
RTOR Reduction (vph)	0	4	0	0	0	241	0	0	63	0	6	0
Lane Group Flow (vph)	314	367	0	351	216	79	52	603	92	325	983	0
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	7%	7%	7%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	18.3	16.5		17.0	15.2	15.2	6.0	36.4	36.4	11.6	42.0	
Effective Green, g (s)	18.3	16.5		17.0	15.2	15.2	6.0	36.4	36.4	11.6	42.0	
Actuated g/C Ratio	0.19	0.17		0.17	0.16	0.16	0.06	0.37	0.37	0.12	0.43	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	318	297		287	270	229	98	1193	534	197	1412	
v/s Ratio Prot	0.19	0.21		c0.21	0.12		0.03	c0.19		c0.20	c0.30	
v/s Ratio Perm						0.22			0.11			
v/c Ratio	0.99	1.24		1.22	0.80	0.34	0.53	0.51	0.17	1.65	0.70	
Uniform Delay, d1	39.5	40.5		40.2	39.7	36.7	44.4	23.6	20.5	43.0	22.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	46.6	131.5		127.4	15.5	0.9	5.4	1.5	0.7	314.0	2.9	
Delay (s)	86.1	172.0		167.7	55.2	37.6	49.8	25.1	21.2	356.9	25.4	
Level of Service	F	F		F	E	D	D	C	C	F	C	
Approach Delay (s)		132.6			93.4			26.0			107.4	
Approach LOS		F			F			C			F	

Intersection Summary

HCM Average Control Delay	90.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	0.97		1.00	1.00	0.85		1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00		0.98	
Satd. Flow (prot)	1598	3088		1644	1731	1471		1690	1485		1629	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.72	1.00		0.84	
Satd. Flow (perm)	1598	3088		1644	1731	1471		1263	1485		1395	
Volume (vph)	55	380	110	35	435	35	150	70	30	65	65	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	58	400	116	37	458	37	158	74	32	68	68	63
RTOR Reduction (vph)	0	47	0	0	0	25	0	0	20	0	26	0
Lane Group Flow (vph)	58	469	0	37	458	12	0	232	12	0	173	0
Heavy Vehicles (%)	7%	7%	7%	4%	4%	4%	3%	3%	3%	4%	4%	4%
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)	2.6	18.9		1.7	18.0	18.0		20.8	20.8		20.8	
Effective Green, g (s)	2.6	18.9		1.7	18.0	18.0		20.8	20.8		20.8	
Actuated g/C Ratio	0.05	0.35		0.03	0.34	0.34		0.39	0.39		0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	78	1093		52	583	496		492	578		543	
v/s Ratio Prot	c0.04	0.17		0.02	c0.26							
v/s Ratio Perm						0.03		c0.18	0.02		0.14	
v/c Ratio	0.74	0.43		0.71	0.79	0.03		0.47	0.02		0.32	
Uniform Delay, d1	25.1	13.1		25.6	16.0	11.8		12.2	10.0		11.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	31.4	0.3		36.8	6.9	0.0		3.2	0.1		1.5	
Delay (s)	56.4	13.4		62.5	22.8	11.9		15.4	10.1		12.9	
Level of Service	E	B		E	C	B		B	B		B	
Approach Delay (s)		17.8			24.8			14.8			12.9	
Approach LOS		B			C			B			B	

Intersection Summary

HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.96			0.95		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1655			1640		1644	3288	1471	1644	3281	
Flt Permitted		0.69			0.80		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1173			1334		1644	3288	1471	1644	3281	
Volume (vph)	100	40	55	55	35	60	25	1580	20	10	1575	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	43	60	60	38	65	27	1717	22	11	1712	27
RTOR Reduction (vph)	0	16	0	0	27	0	0	0	7	0	1	0
Lane Group Flow (vph)	0	196	0	0	136	0	27	1717	15	11	1738	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			
Actuated Green, G (s)		18.8			18.8		7.0	62.7	62.7	1.5	57.2	
Effective Green, g (s)		18.8			18.8		7.0	62.7	62.7	1.5	57.2	
Actuated g/C Ratio		0.20			0.20		0.07	0.66	0.66	0.02	0.60	
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		232			264		121	2170	971	26	1976	
v/s Ratio Prot							0.02	c0.52		0.01	c0.53	
v/s Ratio Perm		c0.18			0.12				0.01			
v/c Ratio		0.84			0.51		0.22	0.79	0.02	0.42	0.88	
Uniform Delay, d1		36.7			34.0		41.4	11.5	5.5	46.3	16.0	
Progression Factor		1.00			1.00		1.14	1.61	0.76	1.00	1.00	
Incremental Delay, d2		23.5			1.7		0.5	1.6	0.0	10.7	6.0	
Delay (s)		60.2			35.7		47.6	20.1	4.2	57.0	22.0	
Level of Service		E			D		D	C	A	E	C	
Approach Delay (s)		60.2			35.7			20.3			22.2	
Approach LOS		E			D			C			C	

Intersection Summary

HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.96			0.96			1.00			0.99	
Flt Protected		0.98			0.98			1.00			1.00	
Satd. Flow (prot)		1672			1628			3177			3222	
Flt Permitted		0.79			0.76			1.00			1.00	
Satd. Flow (perm)		1335			1261			3177			3222	
Volume (vph)	45	50	35	65	50	50	30	820	25	80	875	45
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	52	36	67	52	52	31	845	26	82	902	46
RTOR Reduction (vph)	0	14	0	0	17	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	120	0	0	154	0	0	900	0	0	1027	0
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	7%	7%	7%	5%	5%	5%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)		14.7			14.7			36.3			31.5	
Effective Green, g (s)		15.2			15.2			36.8			32.0	
Actuated g/C Ratio		0.16			0.16			0.38			0.33	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		211			200			1218			1074	
v/s Ratio Prot								c0.28			c0.32	
v/s Ratio Perm		0.10			c0.14							
v/c Ratio		0.57			0.77			0.74			0.96	
Uniform Delay, d1		37.4			38.7			25.5			31.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.5			16.6			4.0			17.7	
Delay (s)		40.8			55.4			29.5			49.0	
Level of Service		D			E			C			D	
Approach Delay (s)		40.8			55.4			29.5			49.0	
Approach LOS		D			E			C			D	

Intersection Summary

HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

23: 6th Street & Hwy 101

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.96			0.96		1.00	1.00		1.00	1.00	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1601			1651		1644	3282		1660	3312	
Flt Permitted		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1601			1651		1644	3282		1660	3312	
Volume (vph)	95	25	50	85	25	45	40	1430	20	25	1750	30
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	102	27	54	91	27	48	43	1538	22	27	1882	32
RTOR Reduction (vph)	0	16	0	0	16	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	167	0	0	150	0	43	1559	0	27	1913	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	3%	3%	3%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		12.9			12.4		5.2	45.4		3.3	43.5	
Effective Green, g (s)		14.4			13.9		5.2	47.4		3.3	45.5	
Actuated g/C Ratio		0.15			0.15		0.05	0.50		0.03	0.48	
Clearance Time (s)		5.5			5.5		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		243			242		90	1638		58	1586	
v/s Ratio Prot		c0.11			c0.10		c0.03	0.48		0.02	c0.58	
v/s Ratio Perm												
v/c Ratio		0.69			0.62		0.48	0.95		0.47	1.21	
Uniform Delay, d1		38.2			38.1		43.6	22.7		45.0	24.8	
Progression Factor		1.00			1.00		1.00	1.00		1.14	0.72	
Incremental Delay, d2		7.8			4.7		4.0	13.4		3.6	96.7	
Delay (s)		46.0			42.7		47.5	36.1		54.8	114.4	
Level of Service		D			D		D	D		D	F	
Approach Delay (s)		46.0			42.7			36.4			113.6	
Approach LOS		D			D			D			F	

Intersection Summary

HCM Average Control Delay	75.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	60	595	635	25	30	65
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	61	607	648	26	31	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1026			
pX, platoon unblocked						
vC, conflicting volume	673				1390	661
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	673				1390	661
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	93				79	86
cM capacity (veh/h)	894				147	464

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	61	607	673	31	66
Volume Left	61	0	0	31	0
Volume Right	0	0	26	0	66
cSH	894	1700	1700	147	464
Volume to Capacity	0.07	0.36	0.40	0.21	0.14
Queue Length (ft)	5	0	0	19	12
Control Delay (s)	9.3	0.0	0.0	35.9	14.0
Lane LOS	A			E	B
Approach Delay (s)	0.9		0.0	20.9	
Approach LOS				C	

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

14: Hurbert St & 9th Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	30	110	15	10	85	20	30	110	25	30	90	70
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	35	128	17	12	99	23	35	128	29	35	105	81
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		726										
pX, platoon unblocked												
vC, conflicting volume	122			145			474	352	137	433	349	110
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	122			145			474	352	137	433	349	110
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			91	77	97	92	81	91
cM capacity (veh/h)	1471			1425			381	553	909	413	555	940

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	180	134	192	221
Volume Left	35	12	35	35
Volume Right	17	23	29	81
cSH	1471	1425	541	614
Volume to Capacity	0.02	0.01	0.35	0.36
Queue Length (ft)	2	1	40	41
Control Delay (s)	1.6	0.7	15.3	14.1
Lane LOS	A	A	C	B
Approach Delay (s)	1.6	0.7	15.3	14.1
Approach LOS			C	B

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	20	210	150	55	55	70
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	25	262	188	69	69	88

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	288	256	156
Volume Left (vph)	25	0	69
Volume Right (vph)	0	69	88
Hadj (s)	0.1	-0.1	-0.2
Departure Headway (s)	4.7	4.7	4.9
Degree Utilization, x	0.37	0.34	0.21
Capacity (veh/h)	735	598	700
Control Delay (s)	8.4	8.3	8.2
Approach Delay (s)	8.4	8.3	8.2
Approach LOS	A	A	A

Intersection Summary			
Delay	8.3		
HCM Level of Service	A		
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	50	5	30	40	5	10	85	75	10	85	5
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	6	60	6	36	48	6	12	101	89	12	101	6

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	71	89	202	119
Volume Left (vph)	6	36	12	12
Volume Right (vph)	6	6	89	6
Hadj (s)	0.0	0.1	-0.2	0.0
Departure Headway (s)	4.7	4.7	4.2	4.5
Degree Utilization, x	0.09	0.12	0.24	0.15
Capacity (veh/h)	711	571	822	771
Control Delay (s)	7.8	7.9	7.5	7.7
Approach Delay (s)	7.8	7.9	7.5	7.7
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.7		
HCM Level of Service	A		
Intersection Capacity Utilization	29.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	60	225	25	75	165	55	10	95	105	55	125	40
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	245	27	82	179	60	11	103	114	60	136	43

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	337	321	228	239
Volume Left (vph)	65	82	11	60
Volume Right (vph)	27	60	114	43
Hadj (s)	0.0	0.0	-0.2	0.0
Departure Headway (s)	5.9	6.1	6.0	6.2
Degree Utilization, x	0.55	0.54	0.38	0.41
Capacity (veh/h)	577	506	540	548
Control Delay (s)	10.7	10.9	9.9	10.3
Approach Delay (s)	10.7	10.9	9.9	10.3
Approach LOS	B	B	A	B

Intersection Summary			
Delay	10.5		
HCM Level of Service	B		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

29: Fall Street & Hwy 101

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	25	0	10	5	0	15	10	980	10	5	960	30
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Hourly flow rate (vph)	25	0	10	5	0	15	10	990	10	5	970	30
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)											906	
pX, platoon unblocked												
vC, conflicting volume	1525	2015	500	1520	2025	500	1000			1000		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1525	2015	500	1520	2025	500	1000			1000		
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	67	100	98	94	100	97	98			99		
cM capacity (veh/h)	76	56	514	79	56	519	670			670		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	35	20	10	660	340	5	646	354
Volume Left	25	5	10	0	0	5	0	0
Volume Right	10	15	0	0	10	0	0	30
cSH	101	217	670	1700	1700	670	1700	1700
Volume to Capacity	0.35	0.09	0.02	0.39	0.20	0.01	0.38	0.21
Queue Length (ft)	35	8	1	0	0	1	0	0
Control Delay (s)	58.9	23.3	10.5	0.0	0.0	10.4	0.0	0.0
Lane LOS	F	C	B			B		
Approach Delay (s)	58.9	23.3	0.1			0.1		
Approach LOS	F	C						

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1693	1768		1660	1748	1485	1644	3288	1471	1676	3292	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1693	1768		1660	1748	1485	1644	3288	1471	1676	3292	
Volume (vph)	185	355	20	375	260	245	60	710	255	485	875	120
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	189	362	20	383	265	250	61	724	260	495	893	122
RTOR Reduction (vph)	0	2	0	0	0	153	0	0	87	0	9	0
Lane Group Flow (vph)	189	380	0	383	265	97	61	724	173	495	1006	0
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	17.3	16.5		17.0	16.2	16.2	7.7	37.2	37.2	10.8	40.3	
Effective Green, g (s)	17.3	16.5		17.0	16.2	16.2	7.7	37.2	37.2	10.8	40.3	
Actuated g/C Ratio	0.18	0.17		0.17	0.17	0.17	0.08	0.38	0.38	0.11	0.41	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	300	299		289	290	247	130	1254	561	186	1361	
v/s Ratio Prot	0.11	c0.22		c0.23	0.15		0.04	c0.22		c0.30	c0.31	
v/s Ratio Perm						0.17			0.18			
v/c Ratio	0.63	1.27		1.33	0.91	0.39	0.47	0.58	0.31	2.66	0.74	
Uniform Delay, d1	37.1	40.5		40.2	40.0	36.3	42.9	23.9	21.1	43.4	24.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	146.0		168.4	31.2	1.0	2.7	1.9	1.4	762.8	3.6	
Delay (s)	41.4	186.5		208.7	71.2	37.3	45.6	25.9	22.6	806.1	27.8	
Level of Service	D	F		F	E	D	D	C	C	F	C	
Approach Delay (s)		138.5			120.4			26.2			282.9	
Approach LOS		F			F			C			F	

Intersection Summary

HCM Average Control Delay	159.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	105.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00		0.97	
Satd. Flow (prot)	1660	3253		1613	1698	1443		1719	1515		1650	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.65	1.00		0.72	
Satd. Flow (perm)	1660	3253		1613	1698	1443		1160	1515		1214	
Volume (vph)	70	705	110	45	450	60	135	50	40	160	60	60
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	77	775	121	49	495	66	148	55	44	176	66	66
RTOR Reduction (vph)	0	21	0	0	0	43	0	0	27	0	16	0
Lane Group Flow (vph)	77	875	0	49	495	23	0	203	17	0	292	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	1%	1%	1%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)	3.0	20.6		2.2	19.8	19.8		22.5	22.5		22.5	
Effective Green, g (s)	3.0	20.6		2.2	19.8	19.8		22.5	22.5		22.5	
Actuated g/C Ratio	0.05	0.36		0.04	0.35	0.35		0.39	0.39		0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	87	1169		62	587	499		455	595		477	
v/s Ratio Prot	c0.05	0.28		0.03	c0.29							
v/s Ratio Perm						0.05		0.17	0.03		c0.25	
v/c Ratio	0.89	0.75		0.79	0.84	0.05		0.45	0.03		0.61	
Uniform Delay, d1	27.0	16.1		27.3	17.3	12.5		12.8	10.7		13.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	59.7	2.7		48.2	10.7	0.0		3.1	0.1		5.8	
Delay (s)	86.7	18.7		75.5	28.0	12.5		16.0	10.8		19.7	
Level of Service	F	B		E	C	B		B	B		B	
Approach Delay (s)		24.1			30.1			15.0			19.7	
Approach LOS		C			C			B			B	

Intersection Summary

HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.97			0.94		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1664			1630		1676	3353	1500	1676	3343	
Flt Permitted		0.69			0.81		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1177			1346		1676	3353	1500	1676	3343	
Volume (vph)	105	30	35	55	20	55	30	1490	15	25	1490	30
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	33	38	60	22	60	33	1620	16	27	1620	33
RTOR Reduction (vph)	0	11	0	0	30	0	0	0	6	0	1	0
Lane Group Flow (vph)	0	174	0	0	112	0	33	1620	10	27	1652	0
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			
Actuated Green, G (s)		17.6			17.6		6.2	62.0	62.0	3.4	59.2	
Effective Green, g (s)		17.6			17.6		6.2	62.0	62.0	3.4	59.2	
Actuated g/C Ratio		0.19			0.19		0.07	0.65	0.65	0.04	0.62	
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		218			249		109	2188	979	60	2083	
v/s Ratio Prot							0.02	c0.48		0.02	c0.49	
v/s Ratio Perm		c0.16			0.11				0.01			
v/c Ratio		0.80			0.45		0.30	0.74	0.01	0.45	0.79	
Uniform Delay, d1		37.0			34.4		42.3	11.1	5.8	44.9	13.3	
Progression Factor		1.00			1.00		1.22	1.69	1.14	1.00	1.00	
Incremental Delay, d2		18.6			1.3		1.1	1.7	0.0	5.3	3.2	
Delay (s)		55.6			35.7		52.9	20.4	6.6	50.2	16.5	
Level of Service		E			D		D	C	A	D	B	
Approach Delay (s)		55.6			35.7			20.9			17.1	
Approach LOS		E			D			C			B	

Intersection Summary

HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			↰↑↱			↰↑↱	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.97			0.95			0.99			1.00	
Flt Protected		0.98			0.98			1.00			1.00	
Satd. Flow (prot)		1703			1632			3267			3272	
Flt Permitted		0.71			0.79			1.00			1.00	
Satd. Flow (perm)		1241			1320			3267			3272	
Volume (vph)	50	55	25	75	60	80	25	840	30	35	900	20
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	57	26	77	62	82	26	866	31	36	928	21
RTOR Reduction (vph)	0	9	0	0	22	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	126	0	0	199	0	0	920	0	0	984	0
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	4%	4%	4%	4%	4%	4%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)		16.4			16.4			35.4			30.7	
Effective Green, g (s)		16.9			16.9			35.9			31.2	
Actuated g/C Ratio		0.18			0.18			0.37			0.32	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		218			232			1222			1063	
v/s Ratio Prot								c0.28			c0.30	
v/s Ratio Perm		0.11			c0.17							
v/c Ratio		0.58			0.86			0.75			0.93	
Uniform Delay, d1		36.3			38.4			26.2			31.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.7			25.3			4.3			13.2	
Delay (s)		40.0			63.7			30.5			44.4	
Level of Service		D			E			C			D	
Approach Delay (s)		40.0			63.7			30.5			44.4	
Approach LOS		D			E			C			D	

Intersection Summary

HCM Average Control Delay	40.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.95			0.96		1.00	1.00		1.00	1.00	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1657			1670		1660	3319		1676	3346	
Flt Permitted		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1657			1670		1660	3319		1676	3346	
Volume (vph)	75	25	55	85	25	40	25	1280	5	15	1390	20
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	82	27	60	93	27	44	27	1407	5	16	1527	22
RTOR Reduction (vph)	0	21	0	0	15	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	148	0	0	149	0	27	1412	0	16	1548	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		12.2			12.3		3.4	47.9		1.6	46.1	
Effective Green, g (s)		13.7			13.8		3.4	49.9		1.6	48.1	
Actuated g/C Ratio		0.14			0.15		0.04	0.53		0.02	0.51	
Clearance Time (s)		5.5			5.5		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		239			243		59	1743		28	1694	
v/s Ratio Prot		c0.10			c0.10		c0.02	0.43		0.01	c0.46	
v/s Ratio Perm												
v/c Ratio		0.62			0.62		0.46	0.81		0.57	0.91	
Uniform Delay, d1		38.2			38.1		44.9	18.6		46.4	21.5	
Progression Factor		1.00			1.00		1.00	1.00		1.14	0.67	
Incremental Delay, d2		4.7			4.6		5.5	4.2		16.9	6.3	
Delay (s)		42.9			42.7		50.4	22.8		69.7	20.6	
Level of Service		D			D		D	C		E	C	
Approach Delay (s)		42.9			42.7			23.4			21.1	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	65	900	655	30	65	45
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	67	928	675	31	67	46
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1026			
pX, platoon unblocked						
vC, conflicting volume	706				1753	691
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	706				1753	691
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				23	90
cM capacity (veh/h)	883				87	446

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	67	928	706	67	46
Volume Left	67	0	0	67	0
Volume Right	0	0	31	0	46
cSH	883	1700	1700	87	446
Volume to Capacity	0.08	0.55	0.42	0.77	0.10
Queue Length (ft)	6	0	0	98	9
Control Delay (s)	9.4	0.0	0.0	124.3	14.0
Lane LOS	A			F	B
Approach Delay (s)	0.6		0.0	79.2	
Approach LOS				F	

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	30	65	20	10	110	15	20	190	15	15	75	70
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	38	81	25	12	138	19	25	238	19	19	94	88
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		726										
pX, platoon unblocked												
vC, conflicting volume	156			106			475	350	94	478	353	147
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	156			106			475	350	94	478	353	147
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			93	57	98	94	83	90
cM capacity (veh/h)	1430			1479			381	553	960	317	554	903

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	144	169	281	200
Volume Left	38	12	25	19
Volume Right	25	19	19	88
cSH	1430	1479	547	615
Volume to Capacity	0.03	0.01	0.51	0.33
Queue Length (ft)	2	1	73	35
Control Delay (s)	2.1	0.6	18.4	13.7
Lane LOS	A	A	C	B
Approach Delay (s)	2.1	0.6	18.4	13.7
Approach LOS			C	B

Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

16: Bay Blvd. & Fall Street

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	30	170	115	45	40	45
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	35	198	134	52	47	52

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	233	186	99
Volume Left (vph)	35	0	47
Volume Right (vph)	0	52	52
Hadj (s)	0.1	-0.2	-0.2
Departure Headway (s)	4.4	4.4	4.6
Degree Utilization, x	0.28	0.23	0.13
Capacity (veh/h)	801	611	747
Control Delay (s)	7.8	7.7	7.8
Approach Delay (s)	7.8	7.7	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
HCM Level of Service	A		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	40	5	25	30	15	10	65	10	10	75	10
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	6	46	6	29	34	17	11	75	11	11	86	11

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	57	80	98	109
Volume Left (vph)	6	29	11	11
Volume Right (vph)	6	17	11	11
Hadj (s)	0.0	0.0	0.0	0.0
Departure Headway (s)	4.4	4.3	4.3	4.3
Degree Utilization, x	0.07	0.10	0.12	0.13
Capacity (veh/h)	776	606	806	826
Control Delay (s)	7.5	7.4	7.4	7.4
Approach Delay (s)	7.5	7.4	7.4	7.4
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.4		
HCM Level of Service	A		
Intersection Capacity Utilization	23.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	55	200	10	75	185	75	10	125	105	50	90	35
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	59	215	11	81	199	81	11	134	113	54	97	38

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	285	360	258	188
Volume Left (vph)	59	81	11	54
Volume Right (vph)	11	81	113	38
Hadj (s)	0.0	-0.1	-0.2	0.0
Departure Headway (s)	5.9	6.2	5.9	6.2
Degree Utilization, x	0.47	0.62	0.42	0.32
Capacity (veh/h)	570	518	559	543
Control Delay (s)	10.2	11.5	9.9	9.9
Approach Delay (s)	10.2	11.5	9.9	9.9
Approach LOS	B	B	A	A

Intersection Summary			
Delay	10.5		
HCM Level of Service	B		
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥		↰	↑↱		↰	↑↱	
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	20	5	10	5	5	10	20	950	10	5	1045	40
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	22	5	11	5	5	11	22	1022	11	5	1124	43
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)											906	
pX, platoon unblocked												
vC, conflicting volume	1723	2231	583	1656	2247	516	1167			1032		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1723	2231	583	1656	2247	516	1167			1032		
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	55	87	98	90	87	98	96			99		
cM capacity (veh/h)	48	40	453	55	40	507	583			657		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	38	22	22	681	351	5	749	418
Volume Left	22	5	22	0	0	5	0	0
Volume Right	11	11	0	0	11	0	0	43
cSH	62	85	583	1700	1700	657	1700	1700
Volume to Capacity	0.61	0.25	0.04	0.40	0.21	0.01	0.44	0.25
Queue Length (ft)	63	23	3	0	0	1	0	0
Control Delay (s)	128.1	61.3	11.4	0.0	0.0	10.5	0.0	0.0
Lane LOS	F	F	B			B		
Approach Delay (s)	128.1	61.3	0.2			0.0		
Approach LOS	F	F						

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX D

2027 Intersection Analysis Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1693	1767		1660	1748	1485	1644	3288	1471	1676	3292	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1693	1767		1660	1748	1485	1644	3288	1471	1676	3292	
Volume (vph)	215	415	25	435	300	285	70	825	295	565	1015	140
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	451	27	473	326	310	76	897	321	614	1103	152
RTOR Reduction (vph)	0	2	0	0	0	155	0	0	87	0	10	0
Lane Group Flow (vph)	234	476	0	473	326	155	76	897	234	614	1245	0
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	17.0	16.5		17.0	16.5	16.5	8.5	37.2	37.2	10.8	39.5	
Effective Green, g (s)	17.0	16.5		17.0	16.5	16.5	8.5	37.2	37.2	10.8	39.5	
Actuated g/C Ratio	0.17	0.17		0.17	0.17	0.17	0.09	0.38	0.38	0.11	0.41	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	295	299		289	296	251	143	1254	561	186	1334	
v/s Ratio Prot	0.14	c0.27		c0.28	0.19		0.05	c0.27		c0.37	c0.38	
v/s Ratio Perm						0.21			0.22			
v/c Ratio	0.79	1.59		1.64	1.10	0.62	0.53	0.72	0.42	3.30	0.93	
Uniform Delay, d1	38.6	40.5		40.2	40.5	37.6	42.6	25.6	22.2	43.4	27.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	13.6	281.0		301.7	82.3	4.5	3.8	3.5	2.3	1049.2	13.2	
Delay (s)	52.2	321.5		342.0	122.8	42.1	46.4	29.2	24.5	1092.5	40.9	
Level of Service	D	F		F	F	D	D	C	C	F	D	
Approach Delay (s)		233.0			193.7			29.0			386.4	
Approach LOS		F			F			C			F	

Intersection Summary

HCM Average Control Delay	228.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.57		
Actuated Cycle Length (s)	97.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	0.98		1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00		0.97	
Satd. Flow (prot)	1660	3253		1613	1698	1443		1719	1515		1650	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.60	1.00		0.59	
Satd. Flow (perm)	1660	3253		1613	1698	1443		1064	1515		1006	
Volume (vph)	90	930	145	60	590	80	180	65	55	210	80	80
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	1011	158	65	641	87	196	71	60	228	87	87
RTOR Reduction (vph)	0	20	0	0	0	54	0	0	39	0	17	0
Lane Group Flow (vph)	98	1150	0	65	641	33	0	267	21	0	385	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	1%	1%	1%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Perm		Perm	Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2		2	6		
Actuated Green, G (s)	4.0	25.2		2.4	23.6	23.6		22.0	22.0		22.0	
Effective Green, g (s)	4.0	25.2		2.4	23.6	23.6		22.0	22.0		22.0	
Actuated g/C Ratio	0.06	0.41		0.04	0.38	0.38		0.36	0.36		0.36	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	108	1331		63	651	553		380	541		359	
v/s Ratio Prot	c0.06	0.36		0.04	c0.38							
v/s Ratio Perm						0.06		0.25	0.04		c0.40	
v/c Ratio	0.91	0.86		1.03	0.98	0.06		0.70	0.04		1.07	
Uniform Delay, d1	28.6	16.6		29.6	18.8	12.0		17.0	12.9		19.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	57.6	6.0		122.5	31.2	0.0		10.4	0.1		68.4	
Delay (s)	86.2	22.7		152.1	50.0	12.0		27.4	13.0		88.2	
Level of Service	F	C		F	D	B		C	B		F	
Approach Delay (s)		27.6			54.2			24.7			88.2	
Approach LOS		C			D			C			F	

Intersection Summary

HCM Average Control Delay	43.6	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.97			0.94		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1665			1629		1676	3353	1500	1676	3343	
Flt Permitted		0.66			0.79		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1141			1316		1676	3353	1500	1676	3343	
Volume (vph)	135	40	45	70	25	70	40	1915	20	30	1915	40
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	43	49	76	27	76	43	2082	22	33	2082	43
RTOR Reduction (vph)	0	10	0	0	29	0	0	0	7	0	1	0
Lane Group Flow (vph)	0	229	0	0	150	0	43	2082	15	33	2124	0
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			
Actuated Green, G (s)		21.4			21.4		5.4	56.7	56.7	4.9	56.2	
Effective Green, g (s)		21.4			21.4		5.4	56.7	56.7	4.9	56.2	
Actuated g/C Ratio		0.23			0.23		0.06	0.60	0.60	0.05	0.59	
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		257			296		95	2001	895	86	1978	
v/s Ratio Prot							0.03	c0.62		0.02	c0.64	
v/s Ratio Perm		c0.21			0.14				0.01			
v/c Ratio		0.89			0.51		0.45	1.04	0.02	0.38	1.07	
Uniform Delay, d1		35.7			32.2		43.4	19.1	7.8	43.6	19.4	
Progression Factor		1.00			1.00		1.13	1.49	0.93	1.00	1.00	
Incremental Delay, d2		29.4			1.4		1.2	24.3	0.0	2.8	43.3	
Delay (s)		65.1			33.6		50.3	52.9	7.3	46.4	62.7	
Level of Service		E			C		D	D	A	D	E	
Approach Delay (s)		65.1			33.6			52.4			62.5	
Approach LOS		E			C			D			E	

Intersection Summary

HCM Average Control Delay	56.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.97			0.95			0.99			1.00	
Flt Protected		0.98			0.98			1.00			1.00	
Satd. Flow (prot)		1703			1632			3267			3271	
Flt Permitted		0.69			0.76			1.00			1.00	
Satd. Flow (perm)		1194			1261			3267			3271	
Volume (vph)	55	65	30	85	70	90	30	965	35	40	1035	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	71	33	92	76	98	33	1049	38	43	1125	27
RTOR Reduction (vph)	0	10	0	0	22	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	154	0	0	244	0	0	1117	0	0	1193	0
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	4%	4%	4%	4%	4%	4%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)		17.5			17.5			33.5			31.5	
Effective Green, g (s)		18.0			18.0			34.0			32.0	
Actuated g/C Ratio		0.19			0.19			0.35			0.33	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		224			236			1157			1090	
v/s Ratio Prot								c0.34			c0.37	
v/s Ratio Perm		0.14			c0.21							
v/c Ratio		0.69			1.03			0.97			1.09	
Uniform Delay, d1		36.4			39.0			30.4			32.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		8.5			67.8			19.4			56.8	
Delay (s)		44.9			106.8			49.8			88.8	
Level of Service		D			F			D			F	
Approach Delay (s)		44.9			106.8			49.8			88.8	
Approach LOS		D			F			D			F	

Intersection Summary

HCM Average Control Delay	72.0	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.95			0.96		1.00	1.00		1.00	1.00	
Flt Protected		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1656			1671		1660	3319		1676	3346	
Flt Permitted		0.98			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1656			1671		1660	3319		1676	3346	
Volume (vph)	95	30	70	110	30	50	30	1645	5	20	1785	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	33	76	120	33	54	33	1788	5	22	1940	27
RTOR Reduction (vph)	0	21	0	0	13	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	191	0	0	194	0	33	1793	0	22	1966	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		13.4			13.5		4.9	43.9		3.2	42.2	
Effective Green, g (s)		14.9			15.0		4.9	45.9		3.2	44.2	
Actuated g/C Ratio		0.16			0.16		0.05	0.48		0.03	0.47	
Clearance Time (s)		5.5			5.5		4.0	6.0		4.0	6.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		260			264		86	1604		56	1557	
v/s Ratio Prot		c0.13			c0.12		c0.02	0.54		0.01	c0.59	
v/s Ratio Perm												
v/c Ratio		0.73			0.73		0.38	1.12		0.39	1.26	
Uniform Delay, d1		38.2			38.1		43.6	24.6		44.9	25.4	
Progression Factor		1.00			1.00		1.00	1.00		1.17	0.61	
Incremental Delay, d2		10.3			10.1		2.8	62.1		0.4	118.7	
Delay (s)		48.4			48.1		46.4	86.7		52.9	134.1	
Level of Service		D			D		D	F		D	F	
Approach Delay (s)		48.4			48.1			85.9			133.2	
Approach LOS		D			D			F			F	

Intersection Summary

HCM Average Control Delay	104.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	80	1120	815	35	80	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	1217	886	38	87	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1026			
pX, platoon unblocked						
vC, conflicting volume	924				2296	905
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	924				2296	905
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				0	82
cM capacity (veh/h)	731				38	336

Direction, Lane #	EB 1	EB 2	WB 1	SB 1	SB 2
Volume Total	87	1217	924	87	60
Volume Left	87	0	0	87	0
Volume Right	0	0	38	0	60
cSH	731	1700	1700	38	336
Volume to Capacity	0.12	0.72	0.54	2.29	0.18
Queue Length (ft)	10	0	0	239	16
Control Delay (s)	10.6	0.0	0.0	816.8	18.0
Lane LOS	B			F	C
Approach Delay (s)	0.7		0.0	491.4	
Approach LOS				F	

Intersection Summary			
Average Delay	30.7		
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	35	75	25	10	125	15	25	220	15	15	85	80
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	41	88	29	12	147	18	29	259	18	18	100	94
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		726										
pX, platoon unblocked												
vC, conflicting volume	165			118			509	374	103	512	379	156
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	165			118			509	374	103	512	379	156
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			92	52	98	94	81	89
cM capacity (veh/h)	1420			1464			352	535	949	281	534	892

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	159	176	306	212
Volume Left	41	12	29	18
Volume Right	29	18	18	94
cSH	1420	1464	522	596
Volume to Capacity	0.03	0.01	0.59	0.36
Queue Length (ft)	2	1	93	40
Control Delay (s)	2.1	0.6	21.2	14.3
Lane LOS	A	A	C	B
Approach Delay (s)	2.1	0.6	21.2	14.3
Approach LOS			C	B

Intersection Summary			
Average Delay	11.7		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

16: Bay Blvd. & Fall Street

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	35	195	130	50	45	50
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	41	229	153	59	53	59

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	271	212	112
Volume Left (vph)	41	0	53
Volume Right (vph)	0	59	59
Hadj (s)	0.1	-0.1	-0.2
Departure Headway (s)	4.5	4.5	4.7
Degree Utilization, x	0.33	0.27	0.15
Capacity (veh/h)	788	604	721
Control Delay (s)	8.0	7.9	7.9
Approach Delay (s)	8.0	7.9	7.9
Approach LOS	A	A	A

Intersection Summary			
Delay	8.0		
HCM Level of Service	A		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	5	45	5	30	35	15	10	75	10	10	85	10
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	6	53	6	35	41	18	12	88	12	12	100	12

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	65	94	112	124
Volume Left (vph)	6	35	12	12
Volume Right (vph)	6	18	12	12
Hadj (s)	0.0	0.0	0.0	0.0
Departure Headway (s)	4.5	4.4	4.4	4.4
Degree Utilization, x	0.08	0.12	0.14	0.15
Capacity (veh/h)	757	599	790	811
Control Delay (s)	7.6	7.6	7.5	7.5
Approach Delay (s)	7.6	7.6	7.5	7.5
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.6		
HCM Level of Service	A		
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	65	230	10	85	210	85	10	145	120	55	105	40
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	76	271	12	100	247	100	12	171	141	65	124	47

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	359	447	324	235
Volume Left (vph)	76	100	12	65
Volume Right (vph)	12	100	141	47
Hadj (s)	0.0	-0.1	-0.2	0.0
Departure Headway (s)	7.0	7.4	7.0	7.4
Degree Utilization, x	0.70	0.92	0.63	0.49
Capacity (veh/h)	483	447	481	443
Control Delay (s)	13.6	20.4	12.8	12.1
Approach Delay (s)	13.6	20.4	12.8	12.1
Approach LOS	B	C	B	B

Intersection Summary			
Delay	15.4		
HCM Level of Service	C		
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	25	5	15	5	5	15	25	1210	15	5	1330	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	5	16	5	5	16	27	1315	16	5	1446	54
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)											906	
pX, platoon unblocked												
vC, conflicting volume	2215	2870	750	2130	2889	666	1500			1332		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2215	2870	750	2130	2889	666	1500			1332		
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	63	95	70	64	96	94			99		
cM capacity (veh/h)	16	15	352	18	15	404	433			504		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	49	27	27	877	455	5	964	536
Volume Left	27	5	27	0	0	5	0	0
Volume Right	16	16	0	0	16	0	0	54
cSH	23	39	433	1700	1700	504	1700	1700
Volume to Capacity	2.16	0.70	0.06	0.52	0.27	0.01	0.57	0.32
Queue Length (ft)	156	64	5	0	0	1	0	0
Control Delay (s)	895.3	214.1	13.9	0.0	0.0	12.2	0.0	0.0
Lane LOS	F	F	B			B		
Approach Delay (s)	895.3	214.1	0.3			0.0		
Approach LOS	F	F						

Intersection Summary			
Average Delay	17.0		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX E

Transit Systems Data

FREE SHUTTLE

NEWPORT, OREGON

BAY & BEACH

Saturdays and Sundays
10AM to 5PM
Through June 30, 2007

Stops at Beaches, Major Attractions, Museums, Galleries, Shops, Hotels, Restaurants, and so much more!

NYE BEACH
BAY FRONT
SOUTH BEACH
CITY CENTER
All in Newport, Oregon

SAT-SUN 10-5 • BAY & BEACH

	AM	AM	AM	PM	PM	PM	PM	PM	PM	PM	PM
1 9th & Canyon Way RV CC	10:20	11:01	11:42	1:02	1:43	2:24	3:29	4:10			
2 Post Office 2nd & Nye CC	10:23	11:04	11:45	1:05	1:46	2:27	3:32	4:13			
3 Library - JC Market CC	10:24	11:05	11:46	1:06	1:47	2:28	3:33	4:14			
4 3rd & Coast - Nye Beach NB	10:26	11:07	11:48	1:08	1:49	2:30	3:35	4:16			
5 Don Davis Pk/PAC P OF	10:27	11:08	11:49	1:09	1:50	2:31	3:36	4:17			
6 Eliz. St. Inn/Shilo Inn OF	10:28	11:09	11:50	1:10	1:51	2:32	3:37	4:18			
7 Hallmark/Georgies RV OF	10:29	11:10	11:51	1:11	1:52	2:33	3:38	4:19			
8 Yaquina Bay State Pk OF	10:31	11:12	11:53	1:13	1:54	2:35	3:40	4:21			
9 Aquarium Village SB	10:35	11:16	11:57	1:17	1:58	2:39	3:44	4:25			
10 Aquarium SB	10:37	11:18	11:59	1:19	2:00	2:41	3:46	4:27			
11 Marine Science Ctr SB	10:39	11:20	12:01	1:21	2:02	2:43	3:48	4:29			
12 Port RV Park SB	10:42	11:23	12:04	1:24	2:05	2:46	3:51	4:32			
13 Rogue Ales Lot RV SB	10:43	11:24	12:05	1:25	2:06	2:47	3:52	4:33			
14 Bay Street Pier BF	10:47	11:28	12:09	1:29	2:10	2:51	3:56	4:36			
15 Abbey Street Pier BF	10:49	11:30	12:11	1:31	2:12	2:53	3:58	4:38			
16 Undersea Gardens. BF	10:51	11:32	12:13	1:33	2:14	2:55	4:00	4:40			
17 Port Dock 5 BF	10:52	11:33	12:14	1:34	2:15	2:56	4:01	4:41			
18 Yaquina Yacht Club BF	10:54	11:35	* 12:16	1:36	2:17	* 2:58	4:03	4:42			
19 Bay Blvd. & Fall St. BF	10:58	11:39	12:59	1:40	2:21	3:26	4:07				

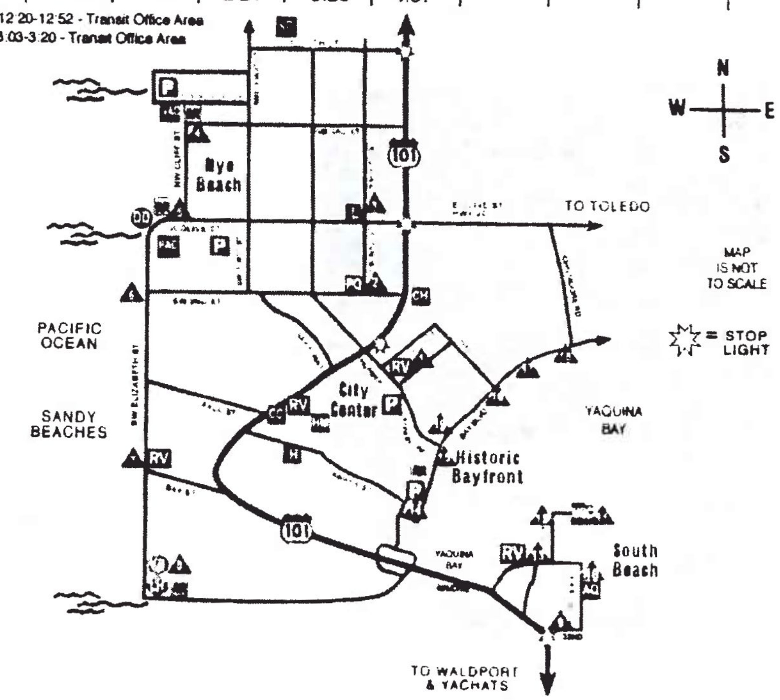
Bay Front = BF
City Center = CC
Nye Beach = NB

Ocean Front = OF
South Beach = SB
*Mandatory break. Riders are not permitted to stay on the bus during break period.

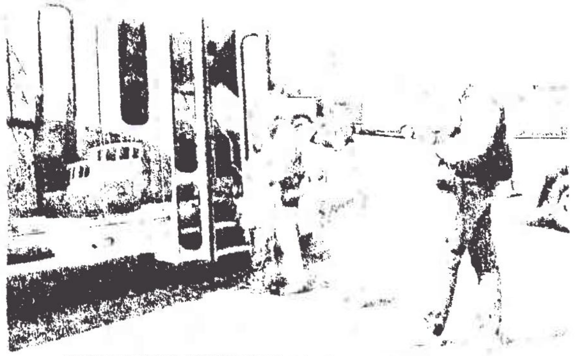
Lunch 12:20-12:52 - Transit Office Area
Break 3:03-3:20 - Transit Office Area

LEGEND & KEY

- SHUTTLE STOPS
- AQ Aquarium
- YB Bay Lighthouse
- Beach Access
- CC Chamber of Commerce
- CH City Hall
- DD Don Davis Park
- HM Historical Museum
- H Hospital
- L Library
- MSC Marine Science Ctr
- P Park & Ride - vehicles
- PAC Performing Arts Center
- PO Post Office
- RR Restrooms
- RV RV and Vehicle Park & Ride
- SP Skate Park
- VAC Visual Arts Center
- YB Yaquina Bay Park



Riding the bus is as easy as 1 • 2 • 3



1. If you have questions, call Lincoln County Transit at 265-4900 to schedule your trip. We will identify the most convenient bus stop for you.

2. Carry your coupons or the correct change. Drivers cannot make change for you. Fares are low and you can save even more by purchasing ride coupon booklets at the Lincoln County Transit Office or through the bus driver.

3. Remember to get to the bus stop in plenty of time and to allow for minor variations in the schedule. From Newport, you may connect with another route or carrier to continue your trip.

FARE SCHEDULE

Each zone you travel in is $1.00. *For example: Yachats to Wal-Mart is $4.00. Newport to the Tanger Outlet Center is $3.00. Yachats to Rose Lodge is $7.00.*

North-South		East-West	
Zone 1	Yachats to Bayshore Drive	Zone 8	Newport City Hall to Toledo
Zone 2	Bayshore Drive to Ona Beach	Zone 9	Toledo to Siletz
Zone 3	Ona Beach to Newport City Hall		
Zone 4	Newport City Hall to Otter Rock		
Zone 5	Otter Rock to 101 & Willow (Lincoln Beach)		
Zone 6	101 & Willow to Price & Pride		
Zone 7	Price & Pride to Rose Lodge		

Ride coupons may be purchased at the Lincoln County Transit Office. 410 NE Harney in Newport or through the Driver.

LINCOLN COUNTY TRANSIT

BUS SCHEDULE

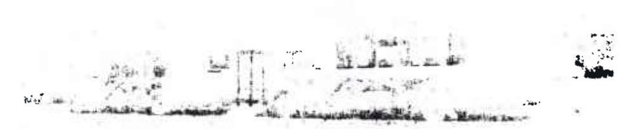
CENTRAL COAST CONNECTIONS

410 NE Harney
Newport, OR 97365
(541) 265-4900

A Coordinated Transportation Service for Lincoln County

Effective Date March 1, 2006

[redacted]



[redacted]

Newport - Lincoln City

Northbound	Express A.M.	A.M.	P.M.	P.M.
Newport City Hall	5:50	9:00	2:00	6:25
Avery Building	5:51	9:02	2:01	6:26
State Offices-NE 4th		9:05	2:03	6:28
Fred Meyer		9:10	2:11	6:31
Safeway		9:12	2:14	6:33
Wal*Mart		9:15	2:16	6:35
NE 36th & 101		9:18	2:20	6:38
Agate Beach RV Pk		9:20	2:22	6:40
Beverly Beach Store*		9:25	2:27	6:45
Otter Rock Fire Dept*		9:28	2:30	6:48
D Bay Whistle Stop	6:10	9:35	2:38	6:53
D Bay Union 76		9:38	2:40	6:55
Lincoln Beach Sentry		9:42	2:45	7:00
Gleneden Beach P.O.		9:46	2:48	7:05
Salishan & 101		9:48	2:51	7:07
Street Car Village		9:53	2:55	7:10
Ace Hardware-Taft	6:23	9:55	3:02	7:14
SE Fleet & Spyglass		9:59	3:05	***
Fast Cash		10:01	3:06	7:17
Tanger Outlet Center		10:05	3:11	7:21
Price & Pride		10:10	3:15	7:24
L. C. Community Ctr		10:15	3:21	7:30
N Lincoln Hospital		10:20	3:26	7:34
Starbuck's & 101		10:25	3:30	7:37
BiMart		10:28	3:34	7:40
Chinook Winds Casino		10:30	3:36	7:43
Safeway		10:33	3:37	7:45
DMV ***		10:35	3:41	
Neotsu P.O.***		10:36	3:42	
Otis P.O.	6:40	10:40	3:45	
Panther Creek/Hillside	6:45	10:45	3:52	
Rose Lodge	6:50	10:50	4:05	

*on call or as needed

Monday through Saturday Service Only

No Sunday Service

There will be bus service on all holidays *except*:

- Thanksgiving Day
- Christmas Day

AIRPORT CONNECTION

We provide connecting service with the Caravan Airport Transportation shuttle service to the Portland Airport.

Schedule Subject to Change Without Notice

Dial-A-Ride Service is available in some areas.

We will take passengers to and from the Valley Retriever bus station on request.

Lincoln City - Newport

Southbound	A.M.	A.M.	P.M.	Express P.M.
Rose Lodge	6:55	10:51	4:12	
Rose Lodge Park Store	6:57	10:53	4:15	
Salmon River Mobile P.	6:59	10:55	4:17	
Otis Post Office***	7:01	10:57	4:20	
Neotsu Post Office *	7:05	11:01	4:22	
DMV	7:06	11:02	4:24	
BiMart	7:08	11:04	4:27	
Chinook Winds Casino	7:10	11:44	4:28	8:00
Safeway	7:12	11:46	4:31	8:02
Circle K North	7:16	11:49	4:34	
N Lincoln Hospital	7:21	11:54	4:40	
		P.M.		
L. C. Community Center	7:24	12:00	4:44	
NW 17th & 101	7:26	12:02	4:46	
Price & Pride	7:29	12:06	4:49	
Tanger Outlet Center	7:33	12:11	4:53	8:15
Nelscott Strip	7:37	12:17	4:56	
Taft IGA on Hwy 101	7:39	12:20	5:03	
SW 62nd & 101	7:41	12:23	5:05	
Salishan & 101	7:44	12:26	5:08	
Gleneden Beach P.O.	7:46	12:28	5:10	
Willow & 101 ***	7:49	12:33	5:11	
Depoe Bay Mall 101	7:54	12:37	5:18	3:35
Depoe Bay Fire Dept	7:56	12:39	5:19	
Otter Rock Fire Dept	8:04	12:47	***	
Beverly Beach Store	8:08	12:51	5:28	
Pacific Shores RV Pk	8:14	12:57	5:30	
Wal*Mart	8:19	1:02	5:33	
Fred Meyer	8:24	1:06	5:37	
Courthouse	8:28	1:10	5:43	
Newport City Hall	8:31	1:14	5:47	9:00
Avery Building	8:34	1:16	***	

*on call or as needed

Yachats – Newport

Northbound	A.M.	A.M.	P.M.	P.M.
Yachats Post Office	7.00	9:35	1.00	4.00
Holiday Market	7.04	9:39	1:04	4.04
Wakeetum Street & 101	7 07	9.42	1.07	4 07
Range Drive & 101	7.09	9:44	1.09	4 09
Crestline Golf Course	7:11	9:46	1:11	4:11
Espresso 101	7.12	9.47	1:12	4.12
Waldport Post Office	7:15	9.50	1.15	4:15
Lakeside Market ***	7:20	9:55	1.20	4.20
Ray's Market	7:24	9.59	1:24	4 24
Waldport Library	7:26	10.01	1:26	4.26
Bayshore Drive & 101	7:28	10.03	1:28	4.28
Driftwood Mobile & 101	7 29	10.04	1:29	4:29
Seal Rock Store	7.34	10.09	1:34	4:34
SE 123rd & 101	7:39	10.14	1.39	4.39
Espresso-South Beach	7:45	10.20	1:45	4.45
South Beach Marina**	7:47	10.22	1.47	4.47
Newport City Hall	7:49	10.24	1.49	4.49

Newport – Yachats

Southbound	A.M.	A.M.	P.M.	P.M.
Newport City Hall	8:40	10.45	2.30	5:50
South Beach Marina **	8:43	10.48	2:33	5:53
South Beach Mkt	8:45	10:50	2:35	5:55
Seal Rock Park & 101	8.53	10:58	2:43	6:03
Bayshore Drive & 101	9.05	11:10	2:55	6:15
Waldport Post Office	9:09	11.14	2:59	6:19
Lakeside Market ***	9.13	11:18	3.03	6:23
Ray's Market	9:17	11:22	3:07	6:27
Waldport Library	9:18	11:23	3:08	6:28
Waldport Clark's Mkt & 101	9:19	11:24	3:09	6:29
Crestline Golf Course***	9:21	11:26	3:11	6:31
Holiday Market	9:25	11.30	3:15	6:35
Yachats Post Office	9.30	11:35	3:20	6:40

*on call or as needed

[redacted]

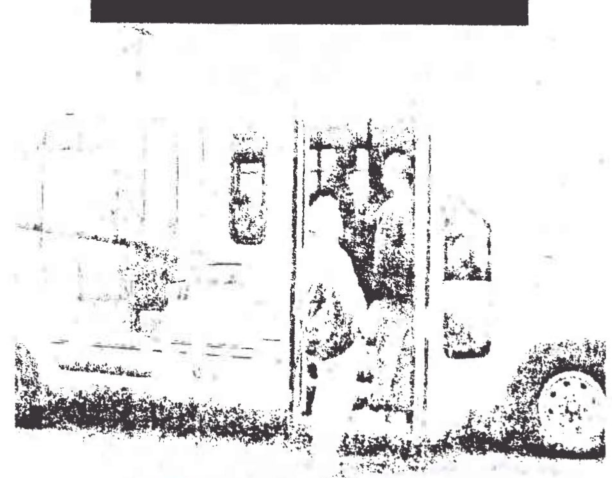
[redacted]

Stay dry and comfortable in our covered shelters.

Bike racks are on a first come, first served basis.

Look for our colorful busses with scenic murals depicting our communities!

[redacted]



[redacted]

Siletz/Toledo – Newport

Westbound	A.M.	A.M.	P.M.	P.M.
Tribal Housing***	7.00	9.35	1.00	4.00
Tribal Administration	7.04	9 39	1:04	4.04
Siletz Post Office	7.08	9.41	1.08	4.08
Hwy 20 at East Exit***	7 17	9:52	1:17	4 17
Olalla Store	7.21	9:50	1 21	4:21
Toledo JC Thriftway	7.25	10.00	1:25	4:25
SE 2nd & Main Street	7:27	10:02	1:27	4.27
Yaquina Bay Hotel	7.28	10:03	1:28	4:28
Food Fair	7:30	10.05	1:30	4.30
Oregon Coast Bank*	7:38	10:13	1:38	4:38
Abbey Street Pier	7 42	10.17	1.42	4 42
Pacific Comm Hospital	7:45	10.20	1 45	4:45
Newport City Hall	7:49	10:24	1.49	4 49
Fred Meyer	...	10.30		**
Wal•Mart	...	10.33		...

* on call or as needed

Newport – Siletz/Toledo

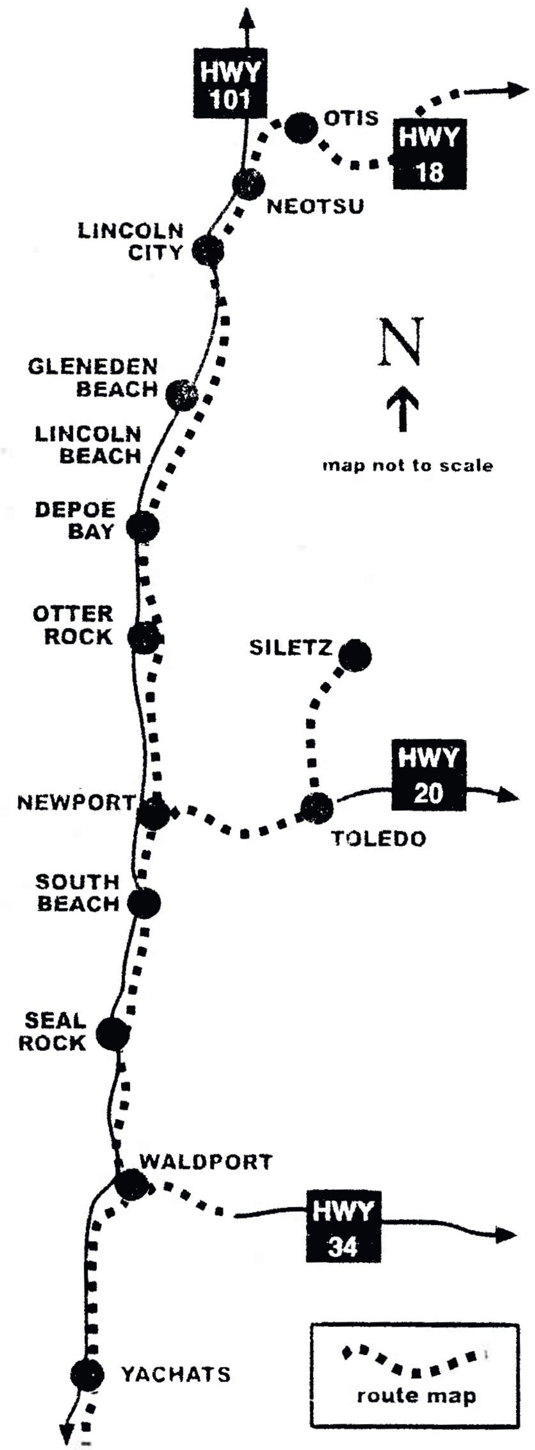
Eastbound	A.M.	A.M.	P.M.	P.M.
Newport City Hall	8 40	10.45	2:30	5:50
Pacific Comm Hospital	8.44	10 49	2.34	5:54
• Abbey Street Pier	8.45	10.50	2.35	5.55
Oregon Coast Bank*	8:50	10 55	2.40	6 00
Food Fair	8:59	11.04	2.49	6.09
Yaquina Bay Hotel	9.00	11.05	2.50	6:10
Toledo JC Thriftway	9.02	11.07	2:52	6 12
Olalla Store	9.07	11 12	2:57	
Hwy 20 at East Exit***	9 11	11 16	3.01	**
Siletz Post Office	9 22	11.27	3:12	6.27
Tribal Administration	9.23	11.28	3 13	...
Tribal Housing	9.29	11.34	3.19	...

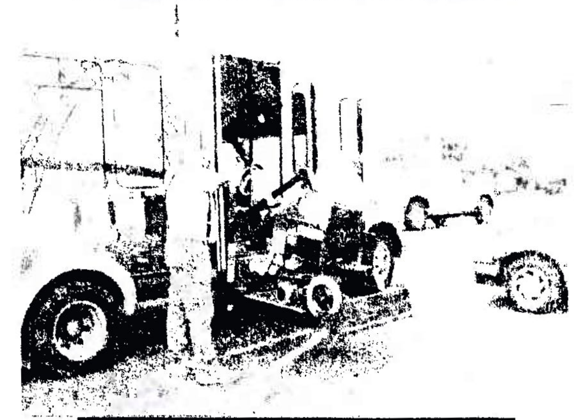
* on call or as needed

BUS ETIQUETTE
Please...

- Extinguish cigarettes well before boarding the bus.
- Practice good personal hygiene.
- Remember, hazardous objects or weapons of any kind are prohibited.
- For safety reasons, we cannot transport flammable, caustic or poisonous materials.
- Finish food and beverage before boarding or keep them in a closed container.
- Limit radio or tape player use to headphones that cannot be heard by the driver or other passengers.
- As a courtesy, turn off cell phones or turn down ringer and talk quietly.
- Acknowledge "front of the bus" courtesy seating for the elderly and disabled.
- Remember that fighting, boisterous or other behavior that disturbs passengers can result in removal from the bus.
- Be courteous to the driver and other passengers; verbal abuse or physically threatening behavior will not be tolerated.
- Do not bring open containers of alcohol or possess any illegal or controlled substance.
- Do not interfere in the movement of any transit vehicle.
- No unnecessary conversation with the driver while the bus is moving.
- Use designated crosswalks *after* the bus pulls away.
- Always remain seated while the bus is in motion, if possible.
- Shoes and shirts must be worn; please keep your feet on the floor.
- Remember, litter and vandalism are not allowed on the bus.
- We allow a maximum of four grocery size bags per person on the bus at one time.

Thank you for your assistance!





Passenger Assistance:

Drivers may leave the bus to provide minimal passenger assistance in boarding and deboarding.

Off Route Stops:

All off route stops must be scheduled through the dispatcher. Drivers can refuse a stop if they feel the stop is unsafe or could cause damage to the bus.

ALL PASSENGERS MUST PAY A FARE OR PRESENT A COUPON UPON BOARDING.

Children five and under and seniors 90 plus ride for *FREE*.

Ride coupons may be purchased at the Lincoln County Transit Office, 410 NE Harney in Newport or through the Driver.

ORDINANCE NO. 1963

EXHIBIT "D"

Newport Transportation System Plan Technical Memorandum #2 - North Side Local Street Plan

Prepared for

City of Newport
169 SW Coast Highway
Newport, Oregon 97365

Prepared by

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July 2008 | 274-2395-051 (04/02)

CITATION

This project 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 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), local government, and State of Oregon funds.

Parametrix. 2008. Newport Transportation System Plan Technical Memorandum #2 - North Side Local Street Plan. Prepared by Parametrix, Portland, Oregon. July 2008.

CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

____

Prepared by Shelley Oylear, E.I.T.

____

Checked by Anne Sylvester, P.T.E.

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Approved by Anne Sylvester, P.T.E.

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ACRONYMS

ITS	Intelligent Transportation Systems
MEV	Million Entering Vehicles
MVMT	Million Vehicle Miles of Travel
OAR	Oregon Administrative Rules
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
SOVs	Single-Occupant Vehicles
TDM	Transportation Demand Management
TPAU	Transportation Planning Analysis Unit (of ODOT)
TSM	Transportation System Management
TSP	Transportation System Plan
V/C	Volume-to-Capacity (ratio)

1. INTRODUCTION

1.1 REPORT PURPOSE AND CONTEXT

Newport is the second largest city on the Oregon Coast, with nearly 10,000 residents and a summertime population of many thousands more. The heart of the community is along the working waterfront on Yaquina Bay, where fishing fleets and fresh seafood markets mingle with galleries, gift shops, and restaurants. The historic Nye Beach area is another major tourist attraction, along with the Oregon Coast Aquarium and the Hatfield Marine Science Center. Traffic congestion during peak summer months along US 101, US 20 and other major streets within the city results in long delays at many intersections, and a high crash rate along major highway segments.

This report is one of several that have been prepared to update the City of Newport Transportation System Plan (TSP). It addresses the North Side study area and focuses on the identification and prioritization of transportation infrastructure needs to support economic development within the area north of the Yaquina Bay Bridge. The North Side study area includes the area bounded by Yaquina Bay to the south, the Pacific Ocean to the west, NE/NW 12th Street to the north, and SE John Moore Drive/Harney Street to the east. Major portions of the Yaquina Bay waterfront and the Nye Beach area are situated within the North Side study area.

An update of the Economic Section of the Newport Comprehensive Plan identifies the need for approximately 135 acres of commercial land north of the Yaquina Bay Bridge (primarily related to increases in visitor activity). It is proposed that this need be met through redevelopment and potential expansion of the commercial areas within the core area of Newport, which includes portions of Highway 101 and Highway 20. Thus, a key focus of the Transportation System Plan Update is on the evaluation of transportation facilities, access, and high operating conditions for commercial properties in the North Side study area.

1.2 ORGANIZATION AND CONTENT OF REPORT

This report includes a discussion of various roadway system improvements that are intended to address the existing and potential long-term future transportation system deficiencies as presented in Technical Memorandum #1. A particular focus or this report on needs associated with economic and tourism-related development within the North Side study area.

Included in this report are the following:

- Identification of a range of improvement projects to address existing and future system deficiencies including local street extensions or improvements, changes to on-street parking, changes to signalization and/or traffic control, transit service improvements, transportation demand management activities, and transportation system management strategies.
- Discussion of the methodology used to evaluate these improvements and to determine relative priorities for implementation
- A summary of improvement recommendations with planning level cost estimates.

Chapter 1 of this report is this introduction. Chapter 2 provides an overview of existing and future transportation system challenges, North Side planning objectives, road and street improvement options, and transportation system management (TSM) options.

Chapter 3 highlights the methodology, criteria and conclusions with respect to the evaluation of project options and the development of implementation priorities.

Chapter 4 includes a summary of recommended road, street and TSM improvements including priorities and implementation timing and planning level cost estimates. The chapter also provides a discussion of on-street parking issues, public transit and transportation demand management.

2. IDENTIFICATION OF TRANSPORTATION SYSTEM IMPROVEMENTS

This chapter focuses on the identification of a range of potential transportation improvements to address the community and economic development needs of the North Side study area. These improvements were identified based on several factors including:

- An assessment of existing and/or anticipated future traffic operational and safety problems, and potential solutions.
- An assessment of local street connectivity needs.
- An evaluation of the relationship of local street improvement needs to bicycle and pedestrian system needs (as more fully addressed in Technical Memoranda #3 and #4).
- Identification of issues related to existing on-street parking needs and supply, and local property accessibility.
- Input from technical steering committee members and the general public through a public open house on needs and deficiencies.

Included in this chapter is a brief overview of the key existing and likely future transportation challenges to be addressed (from Technical Memorandum #1), discussion of primary objectives to be satisfied through the development, evaluation and prioritization of transportation system improvements in the North Side study area, a summary of proposed roadway improvement projects, and a discussion of on-street parking needs, transit infrastructure, travel demand management and transportation system management.

2.1 SUMMARY OF EXISTING AND FUTURE TRANSPORTATION CHALLENGES

Existing Transportation Challenges

Currently, most of the signalized intersections in the North Side study area exceed or come close to exceeding ODOT standards for traffic operational performance during at least one peak period on a typical high season weekday. The intersection of US 101 and US 20 operates below standards for AM, midday and PM peak hourly periods. The intersection of US 101 with NW 6th Street exceeds ODOT standards during both the midday and PM peak. The intersections of US 101 with NW 11th Street and with SW Hurbert Street exceed ODOT standards during one peak period each (midday at NW 11th Street and PM at SW Hurbert Street). Planned updates to two signals on US 101 will trigger a review of system signal timing for better optimization.

Out of the six unsignalized intersections evaluated in the North Side study area, three experience long delays for side street movements during some or all of the peak analysis periods. These include the southbound left turn at US 20/NE Eads Street, and the combined eastbound and westbound movements at US 101/SW Fall Street. However, these intersections do not exceed ODOT standards.

Table 2-1 summarizes existing (2006) traffic operations for the AM, Midday and PM peak hours at the 11 intersections in North Side study area. Data in these tables includes overall intersection V/C ratios, average intersection delay, and intersection levels of service. V/C ratios above 1.0 are useful indicators of potential concerns such as sub-optimal signal timing or inadequate turn lane storage. Intersection analysis worksheets are included in Appendix C of Technical Memorandum #1.

Table 2-1. 2006 Peak Hour Traffic Operations

	AM			Midday			PM		
Signalized Intersections	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Delay (sec/veh)**	**LOS**
US 101 @ W Olive Street/US 20	**0.99**	**72.6**	**E**	**>1.00**	**>80**	**F**	**>1.00**	**>80**	**F**
US 101 @ NW 11th Street	0.43	9.5	A	**0.86**	**24.0**	C	0.79	21.5	C
US 101 @ NW 6th Street	0.62	21.8	C	**0.98**	**75.6**	E	**0.82**	**24.2**	**C**
US 101 @ SW Hurbert Street	0.53	26.9	C	0.84	41.1	D	**0.86**	**40.4**	**D**
US 20 @ SE John Moore Drive	0.84	31.6	C	0.63	19	B	0.75	24.1	C
Unsignalized Intersections Critical Movement/Control									
US 20 @ NE Eads Street									
Southbound Left	0.28	54.3	F	0.21	35.9	E	0.77	>80	F
SW 9th Street @ SW Hurbert Street									
Northbound	0.14	10.7	B	0.35	15.3	C	0.51	18.4	C
US 101 @ SW Fall Street									
Eastbound	0.23	29.7	D	0.35	58.9	F	0.61	>80	F
Westbound	0.12	34.7	D	0.09	23.3	C	0.25	61.3	F
W Olive Street & NW Nye Street									
All-Way Stop	--	8	A	--	10.5	B	--	10.5	B
NW 11th Street & NW Nye Street									
All-Way Stop	--	7.2	A	--	7.7	A	--	7.4	A
SW Fall Street & SW Bay Blvd									
All-Way Stop	--	7.5	A	--	8.3	A	--	7.8	A

Locations and time periods where applicable performance standards are exceeded is indicated in **bold.**
Note 1: V/C ratio is a ratio between traffic volumes and the roadway or intersection's capacity.
Note 2: LOS means intersection level of service.
Note 3: "Critical Delay" and "Critical LOS" refers to the delay or LOS experienced for the specific intersection traffic movement listed.

In addition to existing traffic congestion problems, analysis of recent crash data indicates that both US 101 and US 20 in the North Side study area currently experience crash rates greater than 1.0 per MVMT (million vehicle miles of travel). Analysis of US 101 through the study area was initially conducted for the entire segment between NW 11th Street and SW Fall Street a distance of 1.09 miles. The crash rate calculated for this segment was 2.28 crashes per MVMT. To provide greater clarity with respect to crash experience, this highway segment was split into two shorter segments: from NW 11th Street to US 20 (a distance of 0.58 miles) and from US 20 to SW Fall Street (a distance of 0.51 miles). Results of this analysis are presented in Table 2-2.

With a crash rate of 2.49 per MVMT, one highway segment (US 101 from US 20 to 11th Street) currently exceeds the average crash rate for all peer group highways throughout the State of Oregon (e.g., urban principal arterial highways) of 2.05. A review of the data for this highway segment indicates that many of the collisions are rear end or turning movement crashes at public and private access points.

The crash rate for the highway segment south of US 20 to SW Fall Street and along US 20 fell below the average for similar state highways. Data south of SW Fall Street was not included in this assessment of crash experience since this data is largely influenced by the Yaquina Bay Bridge and was included in the discussion of crash experience in the South Beach area as documented in Technical Memorandum #5.

Table 2-2. 2003-2005 North Side Study Area Street Segment Crash History

	Crash Type					Crash Severity			Total	
Intersection	**Rear-end**	**Turn**	**Angle**	**Side-swipe**	**Other**	**PDO**	**Injury**	**Fatal**	**Reported Crashes**	**Crash Rate (per MVMT)**
Along US 101										
• 11th Street to US 20	13	17	1	4	6	29	12	0	41	**2.46**
• US 20 to Fall Street	7	5	2	7	2	15	8	0	23	1.93
Along US 20										
• US 101 to John Moore Drive	7	2	4	1	2	12	4	0	16	1.69

Source: ODOT 2006.
Note: PDO means Property Damage Only and MVMT means Million Vehicle Miles of Travel.
"Other" crashes include backing, pedestrian collisions, and hitting fixed objects.

The number of crashes per million entering vehicles is used to calculate an intersection's "crash rate." A rate greater than 1.0 crashes per million entering vehicles (MEV) is commonly used as a threshold to identify locations that warrant further analysis, potentially leading to implementation of measures to improve safety. Analysis indicates that none of the study intersections exceed the 1.0 MEV rate (see data presented in Table 2-3).

Table 2-3. 2003-2005 North Side Study Area Intersection Crash History

	Crash Type					Crash Severity			Total	
Intersection	**Rear-end**	**Turn**	**Angle**	**Side-swipe**	**Other**	**PDO**	**Injury**	**Fatal**	**Reported Crashes**	**Crash Rate (per MEV)**
US 101 @ NW 11th Street	9	5	6	1	1	17	5	0	22	0.68
US 101 @ NW 6th Street	4	0	0	0	0	3	1	0	4	0.12
US 101 @ US 20/W Olive Street	6	1	0	2	0	6	3	0	9	0.20
US 20 @ SE John Moore Drive	1	4	2	1	0	7	1	0	8	0.38
US 101 @ SW Hurbert Street	6	0	0	3	0	7	2	0	9	0.37
US 101 @ SW Fall Street	1	1	0	0	1	3	0	0	3	0.14

Source: ODOT, 2006
Note: PDO means Property Damage Only and MEV means Million Entering Vehicles
Other crashes include sideswipes and head-on collisions

A review of the data in Table 2-3 indicates that about 42 percent of the intersection collisions are rear end. The high rear end and turning movement crash experience at the intersections is likely related to the level of congestion along the two highways and to the frequent driveways. 17 percent of collisions involve turning movements at or in the immediate vicinity of the intersection. With respect to crash severity, 71 percent of the intersection collisions involved only property damage, while 19 percent resulted in an injury. The number of injury crashes at intersections is lower than for roadway segments as a whole, indicating that some of the injury collisions are occurring at roadway access points between the intersections. There were no fatal collisions at study area intersections during the 2002 to 2005 analysis time period.

The high rear end and turning movement crash experience at the intersections is likely related to the level of congestion along the two highways and to the frequent driveways.

Future Transportation Challenges

Future baseline traffic volumes for 2027 were developed using procedures identified by the Oregon Department of Transportation's Transportation Planning Analysis Unit (TPAU). These volumes represent 30th highest hourly traffic conditions which may occur either during a weekday evening peak or on a weekend afternoon peak. Based on analysis of these projections, if no improvements are made to the street and highway system, all signalized intersections in the North Side study area are expected to exceed ODOT volume-to-capacity ratio standards (see values show in **bold** in Table 2-4) by 2027. In addition, critical side street turning movements at the intersections of US 101 with SW Fall Street and US 20 with NE Eads Street will also exceed ODOT's V/C standards for a Statewide Highway of this type.

Table 2-4. 2027 Peak Hour Signalized Traffic Operations (No-Build)

Signalized Intersections	V/C Ratio	Critical Delay (sec/vehicles)	Critical LOS
US 101 @ W Olive Street/US 20	**1.57**	**>100**	**F**
US 101 @ NW 11th Street	**1.02**	**56.9**	**E**
US 101 @ NW 6th Street	**1.03**	**104.4**	**F**
US 101 @ SW Hurbert Street	**1.05**	**72.0**	**E**
US 20 @ SE John Moore Drive	**1.04**	**43.6**	**D**
Unsignalized Intersections Critical Movement/Control			
US 20 @ NE Eads Street			
Southbound Left	**2.29**	**>100**	**F**
9th Street @ SW Hurbert Street			
Northbound	0.59	21.2	C
US 101 @ SW Fall Street			
Eastbound	**2.16**	**>100**	**F**
Westbound	0.70	>100	F
W Olive Street & NW Nye Street			
All-Way Stop	--	15.4	C
NW 11th Street & NW Nye Street			
All-Way Stop	--	7.6	A
SW Fall Street & SW Bay Blvd			
All-Way Stop	--	8.0	A

Locations and time periods where applicable performance standards are expected to be exceeded is indicated in **bold.**

Note 1. V/C ratio is a ratio between traffic volumes and the roadway or intersection's capacity.

Notes 2: LOS means intersection level of service.

Note 3: "Critical Delay" and "Critical LOS" refers to the delay or LOS experienced for the specific intersection traffic movement listed

2.2 NORTH SIDE STUDY AREA OBJECTIVES

The development and evaluation of transportation system improvement projects for the North Side study area was based on five fundamental objectives which supplement the goals and policies of the existing TSP. These objectives have governed the identification of improvement options as well as their specific evaluation and prioritization as discussed later in this report. North Side study area transportation system objectives include:

- Projects should support the tourism economy of the city with particular emphasis on the Yaquina Bay frontage and Pacific Ocean access in the general Nye Beach area.
- As feasible and appropriate, projects should include all modes of travel.
- Projects should enhance local street system connectivity.
- Projects should preserve the function of US 101 as the major state highway connecting the entire Oregon Coast and linking the Coast with the States of Washington and California.
- Projects should seek to enhance local traffic circulation within the core area of the City.
- Projects would be in addition to those already identified in the 1997 TSP (and updated in 1998) but not yet implemented.

2.3 IDENTIFICATION OF ROADWAY SYSTEM IMPROVEMENT PROJECTS

Building on the analysis of existing and future transportation system needs and deficiencies and on input from stakeholders, advisory committees, the general public and review of prior transportation analysis and community planning efforts, a series of specific improvement project options were identified for study. These projects are presented in Tables 2-5 and 2-6 for the North Side study area.

Table 2-5 includes a range of potential project options that would provide general street system improvements such as added connectivity and accessibility. Table 2-6 includes a variety of potential Transportation System Management (TSM) projects intended to improve the operating efficiency of the existing transportation system. Both tables include the following descriptive information: project name, project limits, nature of the improvement, and an indication of the primary objective of the project relative to key transportation objectives.

It should also be noted that some of these projects include elements related to bicycle and pedestrian system enhancements which are discussed in greater detail in Technical Memorandum #4 – Bicycle and Pedestrian Plan.

Street and Highway Improvement Projects

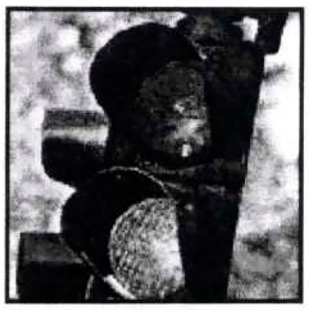
A wide range of potential street and roadway improvement projects was identified to address the existing and likely future traffic operational deficiencies and safety problems discussed earlier in this chapter. Additionally, options identified for consideration included several improvements that would enhance local circulation and connectivity by providing alternative routes to travel on the state highway system and preserving the functionality of US 101 and US 20 by diverting traffic onto other streets where appropriate. Project options also built upon prior analysis that had been conducted for the 1997 Transportation System Plan. Project options that were identified for evaluation and consideration in developing the North Side Local Street Plan are presented in Table 2-5.

Table 2-5. North Side Proposed Street and Highway Improvement Projects for Evaluation

Street	Project Limits	Description of Proposed Project	Source of Project	Project Purpose/Objectives
NE Benton Street	NE 7th Street to NE 10th Street	Improve to 2-lane urban standard with sidewalks and bike lanes to add system connectivity.	Open House Suggestion	• Provide added local connectivity for all travel modes
US 101/SW 9th Street	SW Bayley Street to NE 1st Street	Short Couplet Option - Consider development of one-way couplet to accommodate traffic volume growth, improve operations at key intersections and accommodate on-street parking.	Open House Suggestion	• Provide congestion relief for US 101 through study area, particularly in the vicinity of the US 101/US 20 intersection.
US 101/SW 9th Street	SW Bayley Street to NE 11th Street	Long Couplet Option - Consider development of one-way couplet to accommodate traffic volume growth, improve operations at key intersections and accommodate on-street parking.	Open House Suggestion	• Provide congestion relief for US 101 through study area, particularly in the vicinity of the US 101/US 20 intersection.
NW Hurbert Street	SW 2nd Street to NW 6th Street	Improve to 2-lane urban standard with sidewalks and bike lanes to add system connectivity.	Open House Suggestion	• Provide added local connectivity for all travel modes
NE Douglas Street	NE 1st Street to NE 4th Street	Improve to 2-lane urban standard with sidewalks and bike lanes to add system connectivity.	Open House Suggestion	• Provide added local connectivity for all travel modes
NE 1st Street	US 101 to location west of SE John Moore Drive	Improve to 3-lane urban standard with sidewalks and bike lanes to provide westbound-to-northbound bypass of intersection of US 101 with US 20. Raised median at intersection of 1st with US 101 to permit right-in/right-out only.	Existing/ Future Conditions Analysis	• Provide congestion relief for intersection of US 101 at US 20 by diverting away traffic destined to northbound US 101.
SW Neff Street	US 101 to SW 2nd Street	Improve to 2-lane urban standard with sidewalks and bike lanes to add system connectivity.	Open House Suggestion	• Provide added local connectivity for all travel modes
Alternative Port Access Road Improve-ments		Evaluate improvements to SE Benson Road and/or SE John Moore Drive to improve access to waterfront area	Open House Suggestion	• Provides general enhancement to mobility and safety by better accommodating and/or diverting truck traffic away from visitor traffic to the Bay Front.
SW 7th Street	SW 2nd Street to SW Elizabeth Street	Improve to 2-lane urban standard with sidewalks and bike lanes to add system connectivity.	Open House Suggestion	• Provide added local connectivity for all travel modes • Provides alternative for non-highway north/south travel on west side of US 101

Transportation System Management (TSM) Projects

Transportation System Management (or TSM) improvements include actions designed to maximize efficient use of the existing transportation system. TSM strategies include actions such as traffic signalization, signal synchronization to improve traffic progression (particularly along major arterial streets), signal retiming, channelization improvements, one-way streets, parking prohibitions, turn prohibitions, and other actions.



Few of the intersections in Newport are currently signalized which limits the effectiveness of traffic signal progression and/or signal retiming strategies to achieve optimal traffic flow through the community. However, opportunities do exist in the following areas:

- Intersection improvements including channelization and/or signalization where signals are not currently provided.
- Access management.
- Intelligent Transportation System (ITS) improvements.
- On-going traffic monitoring to determine both what types of improvements to implement and when to do so.

Intersection Improvements/Signalization

As described above, there are several signalized intersections in the North Side study area that will likely experience significant delays as the community continues to grow. These include the intersections of US 101 with W Olive Street/US 20, NW 11th Street, NW 6th Street and SW Hurbert Street, along with the intersection of US 20 with SE John Moore Drive. Table 2-6 identifies TSM-related improvements (e.g., modified lane channelization and/or signal modifications) for several of these intersections, while others would likely require more significant roadway infrastructure enhancements.

There are also a number of unsignalized intersections that are expected to experience significant delays for the stop-controlled, side street traffic by the 2027 planning horizon year. Of particular concern are the intersections of US 20 with NE Eads Street and US 101 with SW Fall Street. Signalization or other roadway improvement projects that provide addition turn lane channelization and/or various management strategies could be considered at both locations.

Table 2-6. North Side Proposed Transportation System Management (TSM) Improvement Projects

Street	Project Limits	Description of Proposed Project	Source of Project	Project Purpose/Objectives
US 101	At NW 11th Street	Realign intersection to eliminate slight curb line off-set. Consider need for additional east/west turning lanes and/or signalization improvements.	Existing/ Future Conditions Analysis	• Provides for improved safety and congestion relief.
US 101	At NW 6th Street	Realign intersection to eliminate off-set. Consider need for additional east/west turning lanes and/or signalization improvements to address congestion problem.	Existing/ Future Conditions Analysis	• Provides for relief of existing and future intersection congestion.

Table 2-6. North Side Proposed Transportation System Management (TSM) Improvement Projects Continued

Street	Project Limits	Description of Proposed Project	Source of Project	Project Purpose/Objectives
US 101	US 20 north to NW 12th Street	Evaluate raised and/or painted median for access control. Evaluate opportunities for driveway and/or minor street closures or consolidation. Coordinate with proposed pedestrian crossings of US 101	Existing/ Future Conditions Analysis	• Provides for improved safety by reducing number of conflict points along the highway. • Provides for increased pedestrian crossing opportunities. • Consider improvement needs in context of access management policy previously adopted for US 101 in Newport.
US 20	At SE John Moore Drive	Intersection improvements to add north/south left turn lanes and adapt signal phase. Combine northbound right/through lanes.	Existing/ Future Conditions Analysis	• Provides for relief of existing and future intersection congestion.
US 20	At NE Eads Street	Intersection improvements to address congestion problem. Consider signalization.	Existing/ Future Conditions Analysis	• Provides for relief of existing and future intersection congestion.
SW 2nd Street	SW Coast Street to SW Lee Street	Realign intersections of SW Lee Street, SW Hurbert Street, SW High Street and SW Coast Street to eliminate off-sets.	Open House Suggestion	• Provide added local connectivity for all travel modes
16	SW Hatfield Drive at SW Bay Boulevard	Intersection improvements clarify lanes and enhance pedestrian safety.	Open House Suggestion	• Provides enhanced pedestrian and vehicle safety

Access Management

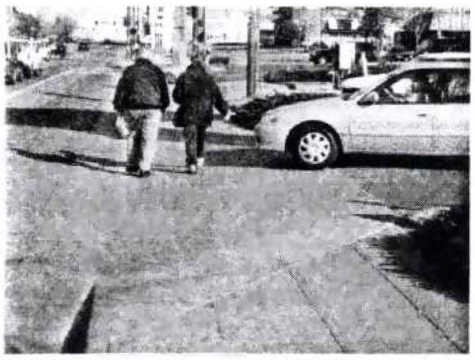
As discussed more fully in Technical Memorandum #1, the term access management refers to the process of balancing the need for access to parcels of land adjacent to roadways with the need for safe and efficient through movement of vehicular traffic on the roadway. Along state highways, access is commonly managed by ODOT through the purchase of access rights. New access to/from a state highway is provided consistent with the standards adopted in the OHP for each highway classification, its location within an urban or rural area, and its posted speed. Access management guidelines for state highways are published in OAR 734-051. Standards along US 101 within the Newport area are shown in Table 2-7.

Table 2-7. Access Management Spacing Standards for Approaches on US 101

Posted Speed (mph)	Public and Private Approach Spacing[a]
≥ 55	1,320 feet
50	1,100 feet
40 & 45	990 feet
30 & 35	720 feet
≤ 25	520 feet

Source: OAR 734-051-00115 Table 2.
[a] Measurement of the approach road spacing is from center to center on the same side of road.

In Newport, US 101 is bordered by strip development with frequent driveway access and intersecting streets. As documented in Technical Memorandum #1, there are currently 22 public and/or private unsignalized access points along US 101 in the North Side study area between NW 11th Street and US 20, and 40 access points between US 20 and the approach to the Yaquina Bay Bridge. Along US 20 from US 101 to SE John Moore Drive there are currently 23 unsignalized access points. This lack of access control is often inhospitable to pedestrians and bicyclists, and dispersed uses make efficient transit service difficult. Many segments of US 101 do not currently meet ODOT's access spacing standards and the area between 11th Street and US 20 experiences a crash rate that is significantly higher than similar urban highway facilities elsewhere in Oregon. Consideration should be given to increased access management in this area.



The 1997 Newport TSP includes an access management plan for US 101 through the entire Newport urban area. It establishes a goal for principal arterials (e.g., US 101 and US 20) to:

> *"Develop an access management strategy for established and developing areas of the City of Newport along Highway 101 and Highway 20 that supports the City's Transportation Goal, and ensures that Highway 101 and Highway 20 can accommodate traffic in a safe and efficient manner as traffic increases."*

Supporting goals were developed for these two types of access management areas that were identified in the City: established areas and developing areas. Along US 101, the entire North Side study area has been identified as an established area. US 20 from US 101 to SE John Moore Drive has also been identified as an established area. The TSP goal identified for established areas is:

> *"Encourage consolidation or reduction of accesses as possible during property redevelopment and/or frontage improvements."*

To this end, a wide range of access management tools were identified that are appropriate for consideration in established areas. These include:

- Optimize traffic signal spacing and coordination.
- Install physical barriers along frontage properties, e.g., curbs, fences, landscaping.
- Regulate maximum width of driveways
- Regulate minimum spacing of driveways
- Consolidate access for adjacent properties
- Regulate number of driveways per frontage property
- Require access on adjacent cross-street (when available) in lieu of driveways on US 101 or US 20.
- Require adequate internal design and circulation plans
- Encourage connections between adjacent properties include cross-over easements where appropriate.
- Install traffic signals at high volume intersections or driveways.

- Install physical barriers in the highway, e.g., raised or painted medians to preclude left turns into and out of adjacent property.

Spacing goals for established areas were identified at 500 feet for driveways, 1/4 mile for public roads and 1/2 mile for signals. It is recommended that, as redevelopment activity occurs, these spacing standards and other access management tools be evaluated and applied as appropriate to the specific needs of the project.

Intelligent Transportation System (ITS) Improvements

The development and implementation of Intelligent Transportation Systems (or ITS) is a strategic approach to better manage demands placed on the street and highway system and, thus, maximize the value of transportation capital investment. According to the *Oregon ITS Strategic Plan: 1997-2017*, ITS *"involves the application of advanced technology to solve transportation problems, to provide services to travelers, and to assist transportation system operators in implementing the most effective traffic management strategies to meet actual highway conditions"*. More specifically, ITS can help to address existing and projected future transportation system needs by:

- *"Allowing for better management of transportation supply and demand" (by allowing transportation managers to respond immediately to operational needs).*
- *"Promoting the use of alternative modes and connectivity across the different modes".*
- *"Increasing travel efficiency and mobility without increasing the physical size of the transportation facility" (in other words, getting more use out of each dollar invested in the highway and transit system).*
- *"Enabling travelers to choose (their) travel time, mode and route efficiently based on real-time roadway and transit status information."*
- *"Reducing the cost of operating and maintaining transportation facilities and services (through the use of newer technology with better reliability)".*
- *"Providing increased safety and security to travelers" (through the reduction in time to respond and clear incidents).*

For coastal and/or tourist communities such as Newport, the ODOT ITS Strategic Plan has identified a specific approach to utilizing the attributes of an ITS. This approach would provide a regional traveler information database that complies traffic, incident, weather, roadway and other traveler information for dissemination to the motoring public. Along the Coast, this database and information dissemination system would largely focus on the summer travel season.

On-Going Traffic Monitoring

It is recommended that on-going traffic monitoring be conducted by the city and/or ODOT to provide the data necessary for effective management of the existing transportation system. Data collection should be citywide, focusing on major intersections, and should include as many common locations with each count as possible to facilitate evaluation of traffic shifts and growth patterns. Data collection should also emphasize portions of the street system where traffic is rapidly growing to facilitate periodic updating of traffic signal timing plans, traffic signal installation, and other transportation system management activities. The installation of automatic traffic counters should be considered at major intersections to track roadway segment traffic activity.

3. EVALUATION OF TRANSPORTATION SYSTEM IMPROVEMENTS

This chapter presents a discussion of the methods and criteria used to evaluate the proposed projects as identified in Chapter 2 for purposes of identifying implementation priorities.

3.1 METHODOLOGY

As noted in the preceding chapter, the intersection and roadway improvements identified for the North Side study area were developed in response to existing/future congestion and safety problems and to accommodate the expected growth in economic development and tourism-related activities in the community. Accordingly, the evaluation of these improvements has focused on the degree to which they satisfy the objectives of: congestion relief, mobility and safety enhancement, and additions to local multi-modal system connectivity.

The primary focus of this chapter is to present the analysis process that lead to the prioritization of the various improvement options that were identified and discussed in Chapter 2. This prioritization process followed a multi-step process that included the following:

- Identify projects
- Develop evaluation criteria to determine the degree to which the projects would meet the basic objectives of the TSP Update as described above.
- Apply these criteria to the various project options to determine the degree to which the criteria are met and the relative priority of each project.
- Establish improvement priorities by target period for implementation (e.g., short-term or high priority project (0-5 years), medium term or priority (6-10 years), and long-term or low priority (11-20 years).

3.2 EVALUATION CRITERIA

The evaluation criteria used to assess the benefits and general priorities of the various improvement projects identified in Tables 2-5 and 2-6 are described below.

- **Reducing Congestion** – does the proposed improvement:
    - Meet applicable traffic operational standards
    - Minimize traffic queuing spillbacks from intersections
    - Enhance safety including reduction of conflicts between mainline traffic and driveway access points
    - Provide alternatives to the use of US 101 and/or US 20
    - Address an existing or future problem
- **Local Connectivity** – does the project provide an enhancement to connectivity for local streets to provide travel routes within the community that do not involve use of the state highways. Specific factors that might be considered include:
    - Potential reduction of congestion on the state highways
    - Improvements to the multi-modal network and connections
    - More access to the Nye Beach area
    - Improvement to safety near Westside schools

- Enhanced circulation at a subarea level without encouraging longer-distance trips
- Available to provide additional north/south or east/west capacity during peak travel periods.

- **Enhance Destination Access** – how well does the proposed improvement provide:
  - Service to primary tourism destinations such as the Bay Front, downtown core and/or Nye Beach areas
  - Service to the Port
  - Enhancement of the "feel" of the waterfront from a tourism perspective (e.g., perceived safety, mobility, walkability, bicycle circulation, aesthetics, noise and congestion).
- **Preserving functionality of US 101 and US 20** – extent to which the project
  - Provides circulation alternatives for local traffic
  - Accommodates expected growth in travel demand
  - Enhances access management consistent with state standards
  - Provides multi-modal connections to businesses by offering alternatives to travel using Single-Occupant Vehicles (SOVs)
  - Addresses year-round travel needs in preference to summertime seasonal peaks

3.3 EVALUATION OF PROPOSED PROJECTS

By application of the various evaluation criteria identified above, individual projects were assessed to determine their relative degree of effectiveness and their appropriate priorities for implementation. Each project was assessed as follows.

Street and Highway Improvement Projects

NE Benton Street from NE 8th Street to NE 10th Street

This potential project would involve paving along with the installation of curb, gutter and sidewalks for a two block street segment that presently has a gravel surface. This project would provide an improved north/south connection east of and parallel to US 101. This project does not provide any significant congestion relief, nor does it access major community destinations. However, it does enhance local traffic circulation and provide a minor reliever for the state highway. No change in functional classification for this street is proposed.

US 101/SW 9th Street from SW Bayley Street to NE 1st Street (Short Couplet)

This potential project would involve development of a one-way couplet system through the heart of downtown and extending north to NE 1st Street at the intersection with NE Benton Street to the east of the new City Hall building. Such a project was conceived and considered as a means of providing relief to existing and anticipated future congestion problems at most major intersections along US 101 by reducing conflicting movements and providing added roadway capacity. The reduction in conflicting movements would also enhance traffic operational safety. This project could improve access to major destinations within the city including downtown and the Beach area, and could provide opportunities to enhance the streetscape appearance of this city. Bicycle lanes could be provided, along with sidewalk improvements. On-street parking options would need to be addressed through further design and study. The project could also provide major benefits to preserve the functionality of US 101 as a through route along the Oregon Coast. Preliminary assessment of the short couplet option identified potential impacts associated with a significant change in the functional usage of SW 9th Street and potential long-term traffic queuing issues at intersections along US 20. Potential queuing issues and operational challenges were identified through prior analysis that had been conducted in the 1997 TSP for a potential one-way couplet system along US 20 using either NE 1st or NE 2nd Streets. It was determined through consultation with City and ODOT staff that the short couplet option should not be carried further at this time.

US 101/SW 9th Street from SW Bayley Street to NE 11th Street (Long Couplet)

This potential project would involve development of a one-way couplet system through the heart of downtown and extending north to NE 11th Street. As with the short couplet option, such a project could provide relief to existing and anticipated future congestion problems at most major intersections along US 101 by reducing conflicting movements and providing added roadway capacity. The reduction in conflicting movements could also enhance traffic operational safety. This project could improve access to major destinations within the city including downtown and the Beach area, and would provide opportunities to enhance the streetscape appearance of this city. Bicycle lanes could be provided, along with sidewalk improvements. On-street parking options would need to be addressed through further design and study. The project could also provide major benefits to preserve the functionality of US 101 as a through route along the Oregon Coast. Preliminary assessment of the long couplet option was conducted in conjunction with the short-couplet option. Potential queuing issues and operational challenges were identified through prior analysis of a couplet system involving US 20 as documented in the 1997 TSP, and potentially significant land use and community impacts were identified along Benton and/or Avery Streets north of US 20. Accordingly, it was determined through consultation with City and ODOT staff that the long couplet option should not be carried further at this time.

NW Hurbert Street from SW 2nd Street to NW 6th Street

The project would involve improvement of this existing local street to a two-lane urban standard with sidewalks and bike lanes to add system connectivity. Included in the project would be an extension of the existing street from north of W Olive Street to NW 3rd Street. This extension would involve addressing a steep change in elevation from the existing street termini to where the street extension would intersect with NW 3rd Street. This elevation change would likely be addressed through the installation of retaining walls, some property acquisition and/or a minor raising of the existing elevation of NW 3rd Street near the new intersection with NW Hurbert Street. The project would provide a new north/south travel route west of and parallel to US 101, and could help to preserve the functionality of the state highway by relieving existing congested intersections of US 101 with US 20 and NW 6th Street. The project could also help to provide increased access to the beach area. Its primary benefit would be to enhance connectivity. A change in functional classification from local street to collector street would be appropriate. Based on discussions with City staff, it was determined that sufficient local north/south connectivity was provided by NW Nye Street which runs parallel to and approximately three blocks east of NW Hurbert Street. The benefits associated with a NW Hurbert Street extension would not be sufficient to warrant the cost involved in construction.

NE Douglas Street from NE 1st Street to NE 4th Street

This potential project would involve improvement to an existing two-lane street to provide an urban section with sidewalks and bike lanes. The project would be located between and existing school and a school playing field requiring that students cross a street to travel between these two facilities. The project could enhance north/south connectivity east of and parallel to US 101. Its impact would likely be very localized but it could provide some relief to the existing congested intersection of US 20 at US 101. Based on discussions with City staff, it was determined that this project would disrupt connections between the school and playing field and would expose children to increased risk. Therefore, it is recommended that the project not be further pursued.

NE 1st Street from US 101 to West of SE John Moore Drive

This proposed project would involve development of an improved connection between westbound US 20 and NE 1st Street including signage to offer a diversion or bypass for traffic destined to northbound US 101. Modifications to the existing intersection of US 101 at NE 1st Street would include restricting westbound traffic to right turns only by installation of a center median on US 101 between W Olive Street/US 20 and NE 1st Street. It is anticipated that by 2027, approximately 200 to 250 vehicles during the peak analysis hour could be diverted away from the intersection of US 101/US 20 by means of this modest bypass. Improvements to NE 1st Street would include development of a three-lane urban standard section with sidewalks and bike lanes. Further conceptual design analysis would be needed to determine the appropriate location for a connection to US 20 on the east. It is not recommended that the existing local street functional classification be changed as existing land uses along this portion of NE 1st Street are largely industrial and commercial.

The improvement would offer benefits to address existing and future traffic operations at a highly congested intersection (US 101/US 20) and to preserve the functionality of both US 101 and US 20 by providing a second westbound route for traffic entering the city from the east and wishing to go north on US 101. This project could also enhance east/west pedestrian and bicycle facilities providing improved multi-modal transportation access into the north downtown area.

SW Neff Street from US 101 to SW 2nd Street

This proposed project would include improvements to the existing street to provide a two-land urban standard facility with sidewalks and bike lanes. This project would offer improved local system connectivity for all travel modes.

Alternative Port Access

This proposed project would involve provision of an alternative access route to the Port from US 20 that would help to segregate tourism-related traffic destined for the Waterfront from the working portion of Yaquina Bayside. This alternative access could help to reduce congestion at the intersection of US 101 and US 20, divert port-related truck traffic from the Bay front, and provided improved access to a major waterfront destination of local economic importance. The feasibility of providing alternative port access via a road facility east of (or potentially including) SE John Moore Drive should be further investigated. Consideration should also be give to providing a 3-way stop at the intersection of John Moore Drive with Bay Boulevard to better accommodate side street movements, improve lane channelization and enhance pedestrian safety.

SW 7th Street from SW 2nd Street to SW Elizabeth Street

This project would provide a continuous north/south connection west of and parallel to US 101 south of SW 2nd Street. The proposed project would include improving the existing street to a two-lane urban standard for it's entire length including sidewalks and bike lanes. The project would include a connection across the existing gap at SW Neff Street. Construction of a bridge at this location was considered in the 1997 TSP. This bridge was proposed to include a 39-foot cross-section (with two vehicle travel lanes, sidewalks on both sides and a bicycle facility on one side) for an estimated length of 800 feet. Further review of limited topographic information currently available indicates that such as structure would likely be shorter in length; however, the 800-foot length has been assumed for purposes of cost estimation for this project. Consideration should also be given to raising the existing grade of SW Neff Street between the bank parking lot entrance and the next driveway to the west, and meeting a SW 7th Street Extension at-grade, although this option was not costed for purposes of the TSP Update.

The completion of a connection along SW Neff Street could have significant benefits in relieving local traffic volumes along the state highway, providing improved access to the downtown core and Nye Beach areas, and enhancing local street connectivity. It would also help to preserve the long-term functionality of US 101 through the heart of the city. The project should be considered for implementation late in the planning period, at such time as both US 101 and the parallel coastal route on SW Elizabeth Street become sufficiently congested to warrant development of a new north/south route. Development of the SW 7th Street project could also be considered for implementation in conjunction with significant scale development in its vicinity to preserve right-of-way and a variety of options for the SW Neff Street crossing. This project will require further conceptual design to determine the most appropriate and cost-effective treatment of the SW Neff Street crossing.

Transportation System Management Projects

US 101 at NW 11th Street

This proposed project would involve a minor realignment of the east/west legs of this intersection to eliminate a slight curb offset and to install east/west left turn lanes. This project would address existing and projected congestion problems at this major US 101 intersection, help to preserve the functionality of US 101 and enhance east/west connectivity in the northern portion of the study area. An intersection traffic operations analysis worksheet for these improvements is included in Appendix A. As the intersection currently experiences midday failure to meet relevant ODOT standards, it is recommended that this be a high priority project.

US 101 at NW 6th Street

This proposed project involves realigning the existing east/west off-set legs at this intersection including the addition of east/west left turn lanes. This improvement would be similar to the recent realignment of Olive Street at US 101 and would enhance the functionality of the intersection by addressing existing and projected intersection congestion problems. This project would help to preserve the functionality of US 101 and enhance east/west connectivity in the northern portion of the study area. An intersection traffic operations analysis worksheet for these improvements is included in Appendix A. As the intersection currently experiences midday and PM peak hourly failure to meet relevant ODOT standards, it is recommended that this be a high priority project.

US 101 from US 20 north to NW 12th Street

This proposed project would have two major elements. The first would include the installation of median barriers (e.g., raised curbs) at selected locations to provide enhanced safety for motorists and non-motorized travelers. The second element would involve implementation of recommendations incorporated into the 1997 TSP which have been briefly discussed in Chapter 2. These recommendations pertain to the application of various access management strategies over time as land development and/or roadway system improvements occur. These two project elements are further discussed below:

- Technical Memorandum #4 (the recommended Newport Bicycle and Pedestrian Plan) includes a discussion of the need for and appropriate location of pedestrian crossing points along US 101 in the developed portions of the City. Within or near to the North Side study area, this Plan has recommended that pedestrian crossing improvements be made at the following unsignalized locations:
    - Mid-block between NW 16th and NW 17th Streets
    - At NW 13th Street
    - At NW 10th Street
    - At NW 8th Street
    - On the south side of NW 4th Street
    - At SW 2nd Street (outside of City Hall)
    - At SW Neff Street
    - Mid-block between SW Bayley Street and SW Minnie Street

  These proposed crossing enhancements would include a protected median, raised stop bars, appropriate signage and a striped continental crosswalk. The mid-block crossing between SW Bayley Street and SW Minnie Street would also include curb extensions.

- The second element of an access management approach would involve implementation of a variety of strategies design to reduce the number of driveway locations along US 101 and US 20 through the North Side study area. US 101 north of US 20 currently experiences significant crash problems, attributable in large part to frequent driveway and intersection access points. Other than at the intersection of US 101 with NE 1st Street (as described above), no specific locations have been proposed for access management treatments within the established study area. As recommended in the 1997 TSP, opportunities to apply the various techniques discussed in Chapter 2 will occur when specific areas are being redeveloped. New access points that violate the spacing standards would not be allowed but each case would be reviewed to identify a solution that balances the mobility needs of US 101 and US 20 with the access, circulation and economic viability needs of abutting properties. It is recommended that access for redeveloping properties be required to use and apply the various identified access management tools including but not limited to consolidation of driveways, minimum driveway spacing requirements, optimum internal circulation design, connections with adjacent properties, and access to cross-streets in lieu of the highway.

US 20 at SE John Moore Drive

This proposed project would involve the addition of north and southbound left turn lanes and the consolidation of the northbound through and right movements into a single lane. Traffic signal phasing would be adapted appropriates. This project would address anticipated future congestion problems at this intersection and would enhance access to the Bay frontage and Port facilities. Development of this project could be conducted in conjunction with the alternative port access study (project #14) as described above. An intersection traffic operations analysis worksheet for these improvements is included in Appendix A.

US 20 at NE Eads Street

The proposed project add a traffic signal to this currently unsignalized intersection on US 20 to address existing and anticipated future congestion problems. The improvement would also help to preserve the long-term functionality of US 20 and would enhance north/south connectivity by providing improved access from the northerly neighborhood to the state highway corridor. Based on discussions with project advisory committees and City staff, it was determined that signalization of the NE Eads Street intersection may cause traffic volumes along this street to grow, possibly leading to increased conflicts with school-related traffic a few blocks north of the intersection. For that reason, traffic signal installation was considered for the intersection of US 20 at NE Coos Street to accommodate north/south traffic movement in this portion of the city. This project would functionally connect with the NE Benton Street improvement project providing a continuous improved travel route from south of US 20 to NE 12th Street. As NE Eads and NE Avery Streets have already been designated as collector streets in this portion of the city (and serve both commercial and school destination), redesignation of NE Coos Street as a collector is not recommended.

SW 2nd Street from SW Coast Street to SW Lee Street

This proposed project would involve realignment of existing intersections along SW 2nd Street at SW Lee Street, SW Hurbert Street, SW High Street and SW Coast Street to eliminate off-sets. This project would improve north/south local connectivity on these streets as they cross SW 2nd Street and help to improvement local access and circulation in the vicinity of the Beach.

SW Hatfield Drive at SW Bay Boulevard

This proposed project would include several minor improvements to enhance motor vehicle and pedestrian safety. Suggested improvements would include: delineation of right and left turn lanes, improved signing and curb marking for a "No Parking" zone along SW Hatfield Drive for at least 200 feet back from SW Bay Boulevard, installation of a crosswalk on the SW Hatfield le curb extensions onto SW Bay Boulevard to narrow the pedestrian crossing distance (consideration will need to be given to vehicle turning radii to/from Bay), and ADA compliant ramps for all potential pedestrian crossing movements. This project would enhance access to the Bay frontage and help to reduce localized congestion.

4. LOCAL STREET PLAN RECOMMENDATIONS

Roadway system improvement recommendations for the North Side Local Street Plan (TSP Update) include a variety of actions that focus on enhanced access and local connectivity, and on addressing key safety and congestion-related problems. Since adoption of the 1997 TSP, many recommended improvements have been constructed and are successfully in operation. However, there remain a number of recommendations from that earlier document that continue to have relevance for the study area street system. Additionally, as a result of the technical analysis and public process connected with the TSP Update, several other roadway and intersection improvement projects have been identified. Projects remaining to be implemented from the 1997 TSP are presented and described in Section 4.1. New projects or modifications to projects in the 1997 TSP are presented and described in Sections 4.2 and 4.3. This chapter also presents recommendations related to on-street parking, transit and Travel Demand Management (TDM) strategies.

4.1 1997 TSP PROJECTS NOT YET CONSTRUCTED TO BE INCLUDED IN TSP UPDATE

Table 4-1 presents a summary of the roadway and intersection improvement projects originally identified in the 1997 TSP which are included in the North Side Local Street Plan as they continue to remain relevant. It should be noted that the timing associated with each of these projects has not been revised from the original document to reflect the needs and priorities identified at that time. Additionally, project descriptions remain consistent with those in the original document although the current intent to implement some of these improvements has modified over time. Of particular significance are recommendations related to:

- The removal of on-street parking along US 101 from US 20 to the Yaquina Bay Bridge – this recommendation is modified by the TSP Update (see projects #15 and #16 in Section 4.2) to focus on providing left turn lanes at two key intersections.
- The widening of US 20 to a five-lane cross-section – it is anticipated that this improvement would not likely occur within the 20-year planning horizon but may be needed in the future.

Projects from the 1997 TSP that remain to be implemented are also illustrated in Figure 4-1.

Table 4-1. North Newport – Uncompleted Projects from 1997 Transportation System Plan

No.	Location/Limits	Project Description	1997 TSP Priority
New Roadway Improvement Projects			
2	North-South Arterial-from NE 7th St to NE 32nd St	Construct to arterial standard and provide bypass of US 101. Would include bike and pedestrian improvements on Big Creek Road (this project would be a continuation of the existing sections of Harney Street).	6-10 years
3	SE 1st St from SE Douglas St to SE Fogarty St	Improve to 2-lane urban standard with sidewalks and one bike lane to add system connectivity.	1-5 years
4	SW Abbey St to SW Elizabeth St	Extend street with sidewalks.	11-15 years

Table 4-1. North Newport – Uncompleted Projects from 1997 Transportation System Plan Continued

No.	Location/Limits	Project Description	1997 TSP Priority
Existing Street Improvement Projects			
1	North-South Arterial from US 20 to NE 7th St	Improve to 2-lane urban standard with sidewalks and bike lanes to add system connectivity.	1-5 years
5	NE 3rd St from NE Eads St to NE Harney Rd	Reconstruct to local standard with sidewalks to add system connectivity.	1-5 years
6	US 20 from SE John Moore Rd to US 101	Improve to 5-lane urban standard with sidewalks and bike lanes to improve congestion problem.	6-10 years
Transportation Management System (TSM) Improvement Projects			
7	US 101 from US 20 to Yaquina Bay Bridge	Highway revisions including the removal of on-street parking, no bike lanes and construct left-turn pockets at SW Hurbert St and SW Angle St.	1-5 years
8	SW Naterlin Dr at Yaquina Bay Bridge	Realign intersection and provide channelization.	1-5 years
9	Surface Parking Lots for 101 Business	Construct surface parking lots to supplement parking removed from US 101 with restriping.	6-10 years
10	SW Abbey St Parking Lot	Construct new 4 level top open parking structure with bike racks. Restripe SW Bay Blvd to add parallel parking south of SW Fall St to SW Naterlin Dr.	16-20 years
11	US 101 at SW Hurbert St	Signal improvements to provide for left turns.	1-5 years
12	US 101 at SW Abbey St	Construct and coordinate new traffic signal. Close SW 2nd St between US 101 and SW Angle St.	1-5 years
13	US 101 at SW Angle St	Construct and coordinate new traffic signal with left-turn lanes on US 101.	11-15 years

4.2 PRIORITIES AND TIMING OF STREET AND ROADWAY IMPROVEMENT PROJECTS

Table 4-2 highlights the recommended road and street improvement projects for the North Side study area. It should be noted that these projects are additions to or modifications of those included in the 1997 Transportation System Plan and not yet built.

Included in Table 4-2 is pertinent information about each improvement projects including a unique identifier number (which can be viewed graphically in Figure 4-2), project location and description, project purpose, priority for implementation, and a planning level cost estimate that segregates engineering and construction work elements. Note that engineering work includes both design and construction services. Projects that will likely require right-of-way acquisition are also noted. Details concerning the development of the cost estimates are included in Appendix B.

As noted in Table 4-2, recommended top priority street and roadway projects include the actions listed below. It is recommended that these projects be addressed in the short-range planning period (e.g., within 5 years).

- **Project #2 – NE Benton Street between NE 8th and NE 10th Streets**: as described in the evaluation documented in Chapter 3, this project would involve paving and improvement of this street to a two-lane urban section with sidewalks.
- **Project #7 – SW 9th Street/NE Benton Street**: this project was identified as a substitute for the short couplet option that was rejected during the evaluation process documented in Chapter 3. Improvements to SW 9th Avenue would begin at SW Abbey Street continuing north to the intersection of US 20 with NE Coos Street. At that point the project would become a part of Project #6 (signalization at US 20/NE Coos Street) and a part of project #2 (paving of a portion of NE Benton Street). The entire length of the project would provide a good local connection for north/south traffic parallel to and east of US 101.

  Recommended improvements would include pedestrian crossing enhancements such as curb extensions and enhanced signage to direct motorists traveling between US 20 and the Bay Front. Consideration should also be given to installing an all-way stop at the intersection of SW 9th Street and SW Hurbert Street if warrants can be met.
- **Project #8 – NE 1st Street from vicinity of SE John Moore Drive to US 101**: this project would provide an alternative, parallel route to using US 20 to enter the city (e.g. for traffic traveling westbound on US 20 to northbound US 101). Modifications to the existing intersection of US 101 at NE 1st Street would include restricting westbound traffic to right turns only by installation of a center median on US 101 between W Olive Street/US 20 and NE 1st Street. Improvements to NE 1st Street would include development of a three-lane urban standard section with sidewalks and bike lanes. Further conceptual design analysis would be needed to determine the appropriate location for a connection to US 20 on the east. This improvement will provide relief to the congestion along US 20 east of US 101 and at the intersection of these two state highways.
- **Project #12 – SW Neff Street between 2nd Street and US 101**: this project would involve street improvement to a two-lane urban section with sidewalks and bike lanes to enhance local connectivity and beach access.

It is recommended that medium to low priority projects be developed for implementation within the five to twenty year planning horizon. Projects include:

- **Project #14: Alternative Port Access**: this project would involve further study of potential roadway improvements and/or new road alignments to provide improved access between US 20 and the Port area. Options to consider could be either SE Benson Road and/or SE John Moore Drive.
- **Project #13: SW 7th Street from SW 2nd Street to SW Elizabeth Street**: this project would involve improvements to provide a two-lane urban street section with sidewalks and bike lanes. Options for the crossing of SW Neff Road need further evaluation. Cost estimate in Table 4-2 assumes an 800-foot by 39-foot bridge structure.

Table 4-2. North Side Street and Roadway Projects and Priorities

No.	Location/Limits	Project Description	Purpose	Priority	Cost
2	NE Benton Street from NE 8th Street to NE 10th Street	Improve to 2-lane urban standard with sidewalks to add system connectivity.	▫ Provides and alternate North/South route to reduce traffic on US 101 ▫ Completes street grid ▫ Improves local connectivity	High	Engr - $54,000 Con - $216,000
7	SW 9th Street/ NE Benton St Connectivity Enhancement	Pedestrian crossing and signage improvements from Abbey to NE 11th Street to facilitate corridor as a local parallel route to US 101 and access between US 20 and the bay front area. Consider all way stop at 9th/Hurbert.	▫ Improves Downtown tourism by improving access to commercial center ▫ Can improve pedestrian environment and safety ▫ Reduces congestion along US 101 by avoiding the highway	High	Engr - $6,000 Con - $23,000
8	NE 1st Street from US 101 to US 20	Improve to 3-lane urban standard with sidewalks and bike lanes to provide westbound-to-northbound bypass of intersection of US 101 with US 20.	▫ Preserves US 101 functionality ▫ Local economic development benefits	High	Engr - $95,000 Con - $381,000 ROW needed
12	SW Neff Street from US 101 to SW 2nd Street	Improve to 2-lane urban standard with sidewalks and bike lanes to add system connectivity.	▫ Enhances Downtown and Beach access ▫ Improves local connectivity	High	Engr - $88,000 Con - $350,000
13	SW 7th Street from SW 2nd Street to SW Elizabeth Street	Improve to 2-lane urban standard with sidewalks and bike lanes to add system connectivity.	▫ Enhances beach access ▫ Enhances Downtown access ▫ Preserves US 101 functionality	Low	Engr - $3,280,000 Con - $13,126,000
14	Alternative Port Access Road Improvements	Evaluate improvements to SE Benson Road and/or SE John Moore Drive to improve access to waterfront area	▫ Improves Port access ▫ Reduces congestion at US 101 and US 20 • Reduces Bay Front truck traffic • Joint City and County project	Medium/ Low	Planning study needed to determine alignment and cost

Note: Costs include engineering and construction elements only, right-of-way acquisition and permitting not included. Engineering includes both design and construction services.

4.3 PRIORITIES AND TIMING OF TRANSPORTATION SYSTEM MANAGEMENT IMPROVEMENT PROJECTS

As noted in Chapter 2, Transportation System Management (or TSM) improvements include actions designed to maximize efficient use of the existing transportation system. TSM strategies include actions such as traffic signalization, signal synchronization to improve traffic progression (particularly along major arterial streets), signal retiming, channelization improvements, one-way streets, parking prohibitions, turn prohibitions, and other actions.

Intersection Improvements/Signalization Recommendations

Table 4-3 highlights the recommended TSM improvement projects for the North Side study area. It should be noted that these projects are in addition to and/or modifications of those included in the 1997 Transportation System Plan and not yet built.

Included in Table 4-3 is pertinent information about each improvement projects including a unique identifier number (which can be viewed graphically in Figure 4-1), project location and description, project purpose, priority for implementation, and a planning level cost estimate that segregates engineering and construction work elements. Note that engineering work includes both design and construction services. Projects that will likely require right-of-way acquisition are also noted. Details concerning the development of the cost estimates are included in Appendix B.

As noted in the table, recommended top priority TSM projects focus on addressing anticipated future (long-term) congestion problems and include the actions listed below. It is recommended that these projects be addressed in the short-range planning period (e.g., within 5 years).

- **Project #1 – US 101 at NW 11th Street**: Intersection improvements and signal retiming.
- **Project #3 – US 101 at NW 6th Street**: Intersection improvements and signal retiming.

- **Project #5 – US 101 at US 20**: Intersection improvements and signal retiming to add second southbound left on US 101 at US 20. Add second eastbound through lane on US 20 with transition to one lane east of US 101.
- **Project #6 – US 20 at NE Coos Street**: Intersection improvements on US 20 at NE Coos Street to add signal.
- **Project #10 – SW Hatfield Drive at SW Bay Boulevard**: Intersection improvements in the Waterfront area to include striping separate right and left turn lanes, adding crosswalk and no parking designation on Hatfield Drive in the vicinity of the intersection and adding curb extensions on Bay Blvd. to facilitate pedestrian crossing.
- **Project #16 – US 101 at SW Hurbert Street**: Add left turn lanes on US 01 at SW Hurbert Street, restrict on-street parking in vicinity. As an alternative, in order to preserve on-street parking on US 101 in the City Center, the City should consider elimination of the left hand turns from US 101 at Hurbert Street through a further refinement plan that also further evaluates connectivity with the Bay Front and Nye Beach following the installation of the proposed signal at US 101 and SW Abbey Street.
- **Project #17 – SE Bay Boulevard at SE John Moore Drive**: Intersection improvements on Bay Boulevard at John Moore Drive to add right turn channelization, east and westbound left turn lanes and pedestrian crossing.
- **Project #18 – Various Locations**: Improved signage at various locations to reduce usage of US 101.

It is recommended that medium priority projects be developed for implementation within the five to ten year planning horizon. Projects include:

- **Project #9 – US 20 at SE John Moore Drive**: Intersection improvements and signal retiming on US 20 at SE John Moore Drive.
- **Project #11 – Various intersections along SW 2nd Street**: Realign offset intersections along 2nd Street at Coast Street, High Street, Hurbert Street and Lee Street to provide improved connectivity and enhance safety for north/south circulation.

- **Project #15 – US 101 at SW Angle Street**: Add left turn lanes on US 101 at Angle Street, restrict on-street parking in vicinity. As an alternative, in order to preserve on-street parking on US 101 in the City Center, the City should consider elimination of the left hand turns from US 101 at SW Angle Street through a further refinement plan that also further evaluates connectivity with the Bay Front and Nye Beach following the installation of the proposed signal at US 101 and SW Abbey Street identified in project #16.

No low priority TSM projects were identified.

Table 4-3. North Side Transportation System Management Projects and Priorities

No.	Location/Limits	Project Description	Purpose	Priority	Cost
1	US 101 at NW 11th Street	Realign intersection to eliminate slight off-set. Consider need for additional east/west turning lanes and/or signalization improvements.	▫ Preserves US 101 functionality ▫ Improves local connectivity and enhances beach access	High	Engr - $97,000 Con - $387,000 ROW needed
3	US 101 at NW 6th Street	Realign intersection to eliminate off-set. Consider need for added east/west turning lanes and/or improved signal to address congestion problem.	▫ Preserves US 101 functionality ▫ Improves local connectivity and enhances beach access	High	Engr - $125,000 Con- $499,000 ROW needed
4	US 101, US 20 north to NW 12th Street	Evaluate opportunities for driveway and/or minor street closures or consolidation.	▫ Preserves US 101 functionality and safety	High	As redevelopment occurs.
5	US 101 at US 20	Add 2nd southbound left turn lane. Widen eastbound US 20 to receive 2 lanes of traffic, transition to one lane east of US 101.	▫ Preserves US 101 functionality and safety ▫ Reduced congestion at US 101 and US 20	High	Engr - $151,000 Con- $604,000 ROW needed
6	US 20 at NE Coos Street	Add signal and improve intersection to encourage north/ south local street alternative to US 101. Signal could help relieve congestion at NE Eads.	▫ Improves local North/South connectivity ▫ Reduced congestion on US 20 at NE Eads and US 101	High	Engr - $103,000 Con - $413,700
9	US 20 at SE John Moore Drive	Add north/south left turn lanes and adapt signal phase. Combine northbound right/through lanes.	▫ Improves access to the Bay Front	Medium	Engr - $37,000 Con - $150,000
10	SW Hatfield Drive at SW Bay Boulevard	Stripe separate right and left turn lanes, add crosswalk and no parking designation on Hatfield Dr. in the vicinity of the intersection. Add curb extensions on Bay Blvd. to facilitate pedestrian crossing.	▫ Improves access to the Bay Front	High	Engr - $9,000 Con - $35,000
11	SW 2nd Street, SW Coast Street to SW Lee Street	Realign intersections of SW Lee Street, SW Hurbert Street, SW High Street and SW Coast Street to eliminate off-sets.	➢ Enhances Beach access ➢ Improves local North/South connectivity	Medium	Engr - $137,000 Con - $549,000 ROW needed
15	US 101 at Angle Street	Modify 1997 TSP project #7 to install traffic signal and left turn lanes on US 101. Remove on-street parking in vicinity of intersection to accommodate added lanes. Consider alternative to retain on-street parking by eliminating lefts on US 101 at Angle and evaluating local connectivity thru refinement plan after installation of signal at US 101/Abbey.	▫ Improves access to the Bay Front ▫ Enhances Beach access ▫ Preserves US 101 functionality	Medium	Engr - $102,000 Con - $408,000

Table 4-3. North Side Transportation System Management Projects and Priorities Continued

No.	Location/Limits	Project Description	Purpose	Priority	Cost
16	US 101 at Hurbert Street	Modify 1997 TSP project #7 to install left turn lanes on US 101. Remove on-street parking in area of intersection for added lanes. Consider alternative to retain on-street parking by eliminating lefts on US 101 at Hurbert and evaluating local connectivity thru refinement plan after installation of signal at US 101/Abbey.	▫ Improves access to the Bay Front ▫ Enhances Beach access ▫ Preserves US 101 functionality	High	Engr - $17,000 Con - $67,000
17	John Moore Drive at Bay Blvd.	Stripe John Moore for separate left and right turns. Modify curb radii to enhance right turns from John Moore onto Bay. Add eastbound left turn lane and pedestrian crossing.	▫ Improves access to the Bay Front	High	Engr - $68,000 Con – $273,000
18	Various Locations	Signage Improvements: ▫ Directional signs from US 20 to both John Moore and 9th for Bay Front visitors ▫ Directional signs from Bay Front parking lots and along Bay Blvd to Naterlin for Ocean access ▫ Improve signage to parking on Bay.	▫ Enhances Beach access ▫ Improves access to the Bay Front ▫ Reduces congestion along US 101 by avoiding the highway	High	Engr - $3,500 Con - $14,500

Note: Costs include engineering and construction elements only, right-of-way acquisition and permitting not included. Engineering includes both design and construction services.

Traffic Operations Analysis of Intersection Recommendations

Table 4-4 presents a summary comparison of intersection operations during 2027 peak hours with and without the recommended intersection improvements. Included in the table is data related to volume/capacity (V/C) ratios, average delay per vehicle entering the intersection and intersection level of service. It should be noted that ODOT uses V/C as the basis for determining whether an intersection is in compliance with adopted operational standards for a typical facility of it's type. The current standard for US 101 in the study area is a v/c ratio of 0.85. The current standard along US 20 is 0.80.

Table 4-4. Operations Analysis Summary for Recommended Intersection Improvements

	2027 Baseline			2027 with Improvements			
Intersection	V/C Ratio	Average Delay (Sec/Veh.)	LOS	V/C Ratio	Average Delay (Sec/Veh.)	LOS	Season
US 101 at US 20/W Olive Street	1.57	>100	F	1.07	77.9	E	Summer
				0.82	37.8	D	Average
US 101 at NW 11th Street	1.02	56.9	E	0.89	26.3	C	Summer
US 101 at NW 6th Street	1.03	104.4	F	0.85	33.3	C	Summer
US 101 at SW Hurbert Street	1.05	72.0	E	1.02	60.8	E	Summer
				0.79	29.0	C	Average
US 20 at SE John Moore Drive	1.04	43.6	D	0.80	26.0	C	Summer
US 20 at SE Eads Street	2.29	>100	F	0.84	12.9	B	Summer

As indicated in the table, some of the recommended improvements would not meet the ODOT standard for the 30th highest or summertime peak hour. However, in all instances the improvement recommendations would meet the applicable standard during an average peak hour outside of summertime (referred to as "average season" which represents a level of traffic that is about 70 to 75 percent of the summertime peak[1]

Based on this analysis and similar findings in the South Beach portion of the City, it is important to note that not all peak seasonal traffic congestion problems can be resolved to meet ODOT mobility standards without major highway widening and its attendant detrimental impact on the community and its business vitality. This is a broad issue affecting most of the larger Coastal communities (e.g., Seaside, Lincoln City, Newport, Florence, Coos Bay, Brookings, etc) that needs to be addressed at a state highway policy level. Consideration should be given to development of alternative mobility standards for peak seasons. Some potential standards could include focusing on average seasonal performance and acceptance of delays during the summer period, travel time measures for coastal highway segments rather tan specific intersection v/c or other measures of effectiveness.

Access Management Recommendations

Along state highways, access is commonly managed by the Oregon Department of Transportation (ODOT). New access to/from a state highway is provided consistent with the standards adopted in the Oregon Highway Plan (OHP) for each highway classification, its location within an urban or rural area, and its posted speed. Access management guidelines for the state highways within the City of Newport are presented in Table 2-3 in Chapter 2.

It is recommended that all future development within the City observe access management spacing standards and, wherever possible encourage parcel access from side streets rather than along the state highways.

Additionally, it is recommended that a variety of access management tools be used to address the goal of reducing access points along US 101 and US 20 as adjacent properties redevelop.

Intelligent Transportation System (ITS) Recommendations

As noted in Chapter 2, for coastal and/or tourist communities such as Newport, the ODOT ITS Strategic Plan has identified a specific approach to utilizing the attributes of an ITS. This approach would provide a regional traveler information database that compiles traffic, incident, weather, roadway and other traveler information for dissemination to the motoring public. Along the Coast, this database and information dissemination system would largely focus on the summer travel season. It is recommended that the City of Newport work closely with ODOT to identify specific ITS applications that would better help to manage peak seasonal traffic congestion. This may include better destination signage for off-street parking and local non-vehicular circulation options such as the community shuttle service.

On-Going Traffic Monitoring

It is recommended that on-going traffic monitoring be conducted by the city and/or ODOT to provide the data necessary for effective management of the existing transportation system.

4.4 ON-STREET PARKING

Generally north of SW Angle Street, US 101 has two travel lanes in each direction with a two-way left turn lane and no on-street parking. From SW Angle Street to just south of SW Hurbert Street, the center turn lane is eliminated and parallel on-street parking is provided

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[1] Based on historical data collected at the Automatic Traffic Recorder immediately north of the study area which ODOT has identified as representative of urban conditions within the City.

Figure 4-1. North Newport Projects from 1997 TSP Not Yet Constructed

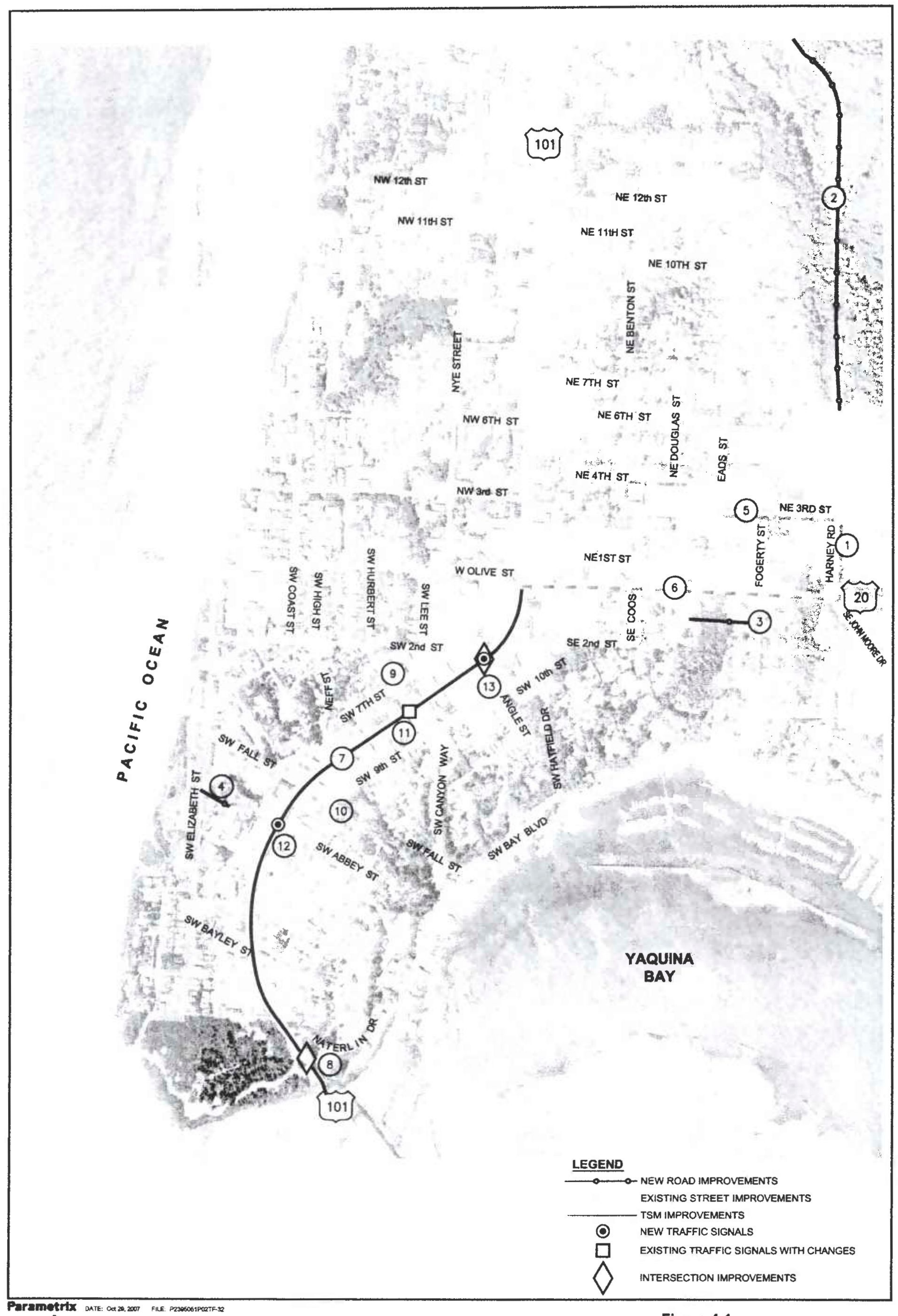

Figure 4-1
North Newport Projects From 1997 TSP Not Yet Constructed

Figure 4-2. North Newport Local Street Plan Projects

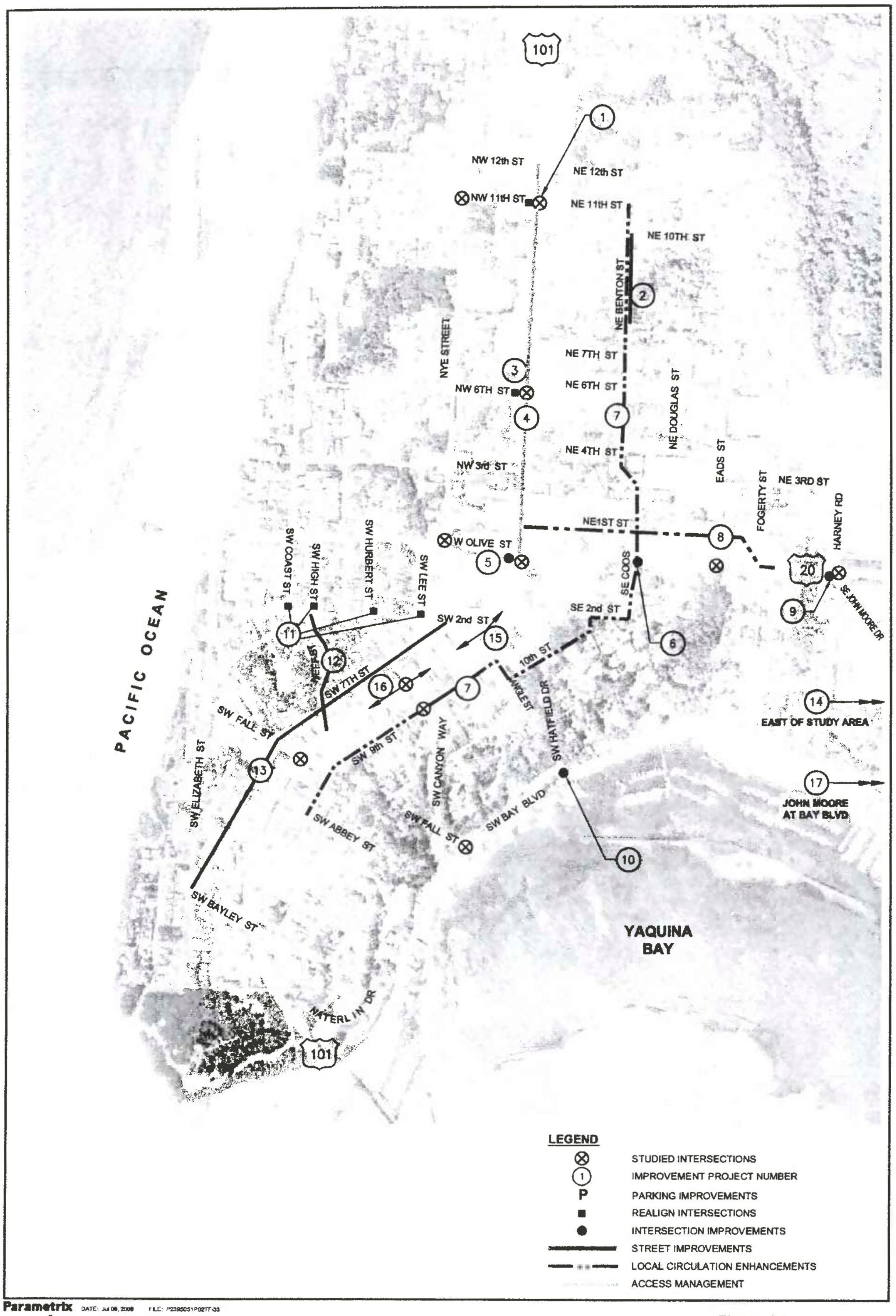

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Figure 4-2
North Newport Local Street Plan Projects

primarily to service adjacent businesses. On-street parking is discontinued south of SW Hurbert Street.

One of the key issues that was identified and discussed during the community stakeholder interviews conducted for the TSP Update in October of 2006, dealt with the issue of on-street parking in the downtown core area. Additional input was received during the public Open House held in November of 2006. Concerns were raised about the effects of on-street parking on through traffic movement, congestion and safety. It was noted that there appears to be adequate off-street parking to accommodate most needs, but that this parking is often hard to find.

In summary, recommended actions related to on-street parking include the following:

- Evaluate removal of on-street parking along US 101 in the downtown business area with a particular focus on accommodating the provision of left turn lanes at SW Hurbert Street and SW Angle Street. As an alternative, in order to preserve on-street parking on US 101 in the City Center, the City should consider other options to providing left turn channelization along US 101 through a further refinement plan. This refinement plan should also further evaluate connectivity with the Bay Front and Nye Beach.
- Increase on-street parking supply along the side streets in the vicinity of US 101.
- Provide clear signage to off-street parking facilities

4.5 TRANSIT

As noted in Technical Memorandum #1, there are currently two public transit systems operating in the North Side study area. Lincoln County provides a Free Shuttle and runs three bus services linking Newport with Yachats, Siletz / Toledo, and Lincoln City. Lincoln County's bus service operates year round, from Monday through Saturday. All services begin at the Newport City Hall. The cost of this service is based on the number of zones traveled.

The Free Bay & Beach Shuttle currently operates year round, linking major business areas and tourist attractions in the city. During the summer months (July, August and September), the Shuttle operates between 9 am and 9 pm. The rest of the year the Shuttle runs on weekends (Saturday and Sunday) only, from 10 am to 5 pm. The Shuttle began operating in 2006 and is widely used by both local residents and visitors. The Shuttle currently makes fourteen stops in the North Side study area. Originating at 9th & Canyon Way, the Shuttle stops at the first eight locations listed below before crossing the Yaquina Bay Bridge; the route returns from the south and continues with the last six stop along Bay Boulevard:

Several issues with respect to existing transit service were raised during both the October 2006 stakeholder interviews and the November 2006 public Open House. Generally the service was widely recognized as an important component of the local transportation system, but the need for service expansion was frequently identified. Specific recommendations included the following:

- Expand routes of current bus services including free shuttle

- Keep bus route plans flexible as the city continues to develop
- Provide unique signage for bus route stops
- Provide bus service to the Newport airport
- Provide service both for locals and for visitors. Over the long run, the service that is provided for these two market groups may need to differ, particularly in consideration of the growing need for service in the South Beach area (e.g., to/from the South Beach State Park, new proposed mixed use development in the South Beach area, the community college and the expanding demand for transportation services at the Hatfield Marine Science Center.
- Consider development of a water taxi system to link Bay Front and South Beach attractions.

It should also be noted that concerns have been raised about the local of the current shuttle service transfer location at the Newport City Hall and the impacts this service has on City Hall parking. It is recommended that consideration be given to locating a transit transfer site where there is a great supply of off-street parking and/or to provide service to peripheral locations where parking is available (e.g., campground parking, particularly for RVs).

4.6 TRANSPORTATION DEMAND MANAGEMENT (TDM)

Transportation Demand Management (TDM) is a general term used to describe any action that removes single occupant vehicle trips from the roadway network during peak travel demand periods. As community growth occurs the number of vehicle trips and travel demand in the area will also increase. The ability to change travel behavior by visitors and residents alike and to provide mode choice alternatives to the single occupant automobile will help to accommodate this growth.

Generally TDM strategies focus on reducing vehicle miles of travel and promoting alternative modes of travel with the objective of maximizing the efficiency of the existing transportation system and reducing the need for additional roadway capacity. In Oregon, much of this focus has been on major employers due to the requirements of the Employee Commute Options (ECO) rules that were adopted by the Oregon Legislature in 1993. A primary goal of the ECO program has been to improve air quality in the major metropolitan areas of the state ensuring that the federal National Ambient Air Quality Standards are met.

There is a considerable body of literature related to TDM strategies that has been developed over the past 30 years, to help achieve air quality standards, to reduce energy consumption, and to improve overall roadway system performance. Research indicates that a comprehensive set of policies and programs implemented on an areawide basis can be effective in reducing vehicle miles of travel[2]. However, it is important to note that for many of these measures to be effective, they should consist of more than just low cost, non-controversial measures such as ridesharing, priority parking, flexible work hours and/or a compressed work week, telecommuting, etc. More effective TDM measures include such activities as parking and/or congestion pricing, vanpooling, improved transit service, provision of extensive and interconnected walking and bicycling networks, and a variety of employer-based "market" strategies. TDM measures can also include land use actions such as higher density or mixed use development and growth management (Smart Growth)

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[2] *"The Potential for Land Use Demand Management Policies to Reduce Automobile Trips"*, ODOT, by ECO Northwest, June 1992.

strategies. Most importantly, an effective TDM program needs to be tailored to the area it serves. Table 4-5 highlights some of the potential TDM strategies that could be considered in the Newport area.

Table 4-5. Transportation Demand Management Strategies

Strategy	Description	Potential Trip Reduction
Transit-Supportive Strategies		
Parking Supply and Management	Monitor and management parking supply to emphasis short-term, tourism-based demand	20-30% increase in transit ridership
Bus Service Improvements	Provide additional service, clarify use of system for visitors	4-30% increase in transit ridership
Park-and-Ride Facilities	Provide commuter parking at urban-fringe transit stops	N/A
Employer-Based Strategies		
Provide Vanpools	Employees that live near each other are organized into a vanpool for their trip to work. The employer may subsidize the cost of operation and maintaining the van. Most effective for longer distance trips (e.g., > 10-15 miles)	15-25% (company provided van with fee) 30-40% (company subsidized van)
Rideshare	Shared trip to/from work by persons with close trip origin and destination locations and similar start/finish work times.	2-7% of commute trips
Alternate Work Schedule/ Telecommute	Employees perform regular work duties at home or at a work center closer to home rather than commuting to a work site. May be full time or part-time. Would likely require home computer.	7-10% of commute trips
Compressed Work Week	Schedule where employees work their regularly scheduled number of hours in fewer days per week.	7-8% (9 day/80 hr) 16-18% (4 day/40 hr) 32-36% (3 day/36 hr)
Bicycle/Pedestrian Supportive Strategies		
Bicycle System Improvements	Development of increased system connectivity with support facilities (parking, etc.)	1-4% reduction in SOVs
Encouragement, Promotional, and Individualized Marketing Programs	To provide information about the benefits of trip reductions and encourage access to and use of programs.	6% reduction in SOVs
Safe Routes to Schools	Focus on providing improved bicycle and pedestrian access between residential areas and schools.	13% reduction in SOVs
Walking Program	Provide support services at work for those who walk to work. This could including buying walking shoes or providing lockers and showers.	0-3% reduction in SOVs

Table 4-5. Transportation Demand Management Strategies Continued

Strategy	Description	Potential Trip Reduction
Land Use Strategies		
"Smart Growth" Projects	Higher density, mixed use, growth management, neo-traditional planning (with neighborhoods that encourage walking, bicycling and transit use)	N/A
Jobs/Housing Balance	Includes providing a balance between jobs and housing within sub-sectors of a community to reduce longer-distance commuting. May also embrace affordable housing strategies near employment and/or universities.	N/A
Street Connectivity	Provide a well-connected street and multi-modal transportation system to allow for a wider dispersion of trips and increased use of alternative modes.	N/A
Transit/Pedestrian Friendly Urban Design	Enhance safety, accessibility, amenities and aesthetics of the pedestrian environment and transit facilities to encourage use. Specific measures could include: prominent crosswalks, complete sidewalk networks, traffic calming devices like curb extensions, streetscape enhancements/landscaping, proximity of buildings to sidewalks vs. setbacks that require walking through parking lots, skinny streets, etc.	N/A

Sources of trip reduction estimates: "Guidance for Estimating Trip Reductions from Commute Options", Oregon Department of Environmental Quality, August 1996, and "Evaluation of Potential Measures for Achieving Modal Targets, Final Report", Metro, June 2005.

APPENDIX A

Intersection Traffic Operations Worksheets for Improvement Options

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1693	1767		1660	1748	1485	1644	3288	1471	3252	3292	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1693	1767		1660	1748	1485	1644	3288	1471	3252	3292	
Volume (vph)	215	415	25	285	300	55	70	825	295	565	1015	140
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	451	27	310	326	60	76	897	321	614	1103	152
RTOR Reduction (vph)	0	2	0	0	0	27	0	0	76	0	10	0
Lane Group Flow (vph)	234	476	0	310	326	33	76	897	245	614	1245	0
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	22.2	27.0		19.0	23.8	23.8	5.6	29.0	29.0	19.0	42.4	
Effective Green, g (s)	22.2	27.0		19.0	23.8	23.8	5.6	29.0	29.0	19.0	42.4	
Actuated g/C Ratio	0.20	0.25		0.17	0.22	0.22	0.05	0.26	0.26	0.17	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	342	434		287	378	321	84	867	388	562	1269	
v/s Ratio Prot	c0.14	c0.27		c0.19	0.19		0.05	c0.27		0.19	c0.38	
v/s Ratio Perm						0.04			0.22			
v/c Ratio	0.68	1.10		1.08	0.86	0.10	0.90	1.03	0.63	1.09	0.98	
Uniform Delay, d1	40.7	41.5		45.5	41.5	34.5	51.9	40.5	35.8	45.5	33.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.6	71.8		76.1	18.0	0.1	66.8	39.8	7.6	65.6	21.2	
Delay (s)	46.2	113.3		121.6	59.5	34.7	118.8	80.3	43.4	111.1	54.6	
Level of Service	D	F		F	E	C	F	F	D	F	D	
Approach Delay (s)		91.2			85.0			73.4			73.1	
Approach LOS		F			F			E			E	

Intersection Summary

HCM Average Control Delay	77.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1693	1767		1660	1748	1485	1644	3288	1471	3252	3292	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1693	1767		1660	1748	1485	1644	3288	1471	3252	3292	
Volume (vph)	215	415	25	285	300	55	70	825	295	565	1015	140
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Adj. Flow (vph)	175	338	20	232	245	45	57	673	240	461	827	114
RTOR Reduction (vph)	0	2	0	0	0	36	0	0	104	0	13	0
Lane Group Flow (vph)	175	356	0	232	245	9	57	673	136	461	928	0
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	15.0	17.6		12.8	15.4	15.4	3.6	19.8	19.8	13.8	30.0	
Effective Green, g (s)	15.0	17.6		12.8	15.4	15.4	3.6	19.8	19.8	13.8	30.0	
Actuated g/C Ratio	0.19	0.22		0.16	0.19	0.19	0.05	0.25	0.25	0.17	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	317	389		266	336	286	74	814	364	561	1235	
v/s Ratio Prot	0.10	c0.20		c0.14	0.14		0.03	c0.20		0.14	c0.29	
v/s Ratio Perm						0.03			0.16			
v/c Ratio	0.55	0.91		0.87	0.73	0.03	0.77	0.83	0.37	0.82	0.75	
Uniform Delay, d1	29.5	30.5		32.8	30.3	26.2	37.8	28.5	25.0	31.9	21.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	25.5		25.4	7.7	0.0	38.0	9.4	2.9	9.4	4.2	
Delay (s)	31.5	55.9		58.2	38.0	26.3	75.8	37.9	27.9	41.3	26.0	
Level of Service	C	E		E	D	C	E	D	C	D	C	
Approach Delay (s)		47.9			46.0			37.6			31.0	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	37.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↑↑	↱	↰	↑↑↱	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.92		1.00	0.89		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1676	1631		1676	1573		1676	3353	1500	1676	3343	
Flt Permitted	0.65	1.00		0.68	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1148	1631		1205	1573		1676	3353	1500	1676	3343	
Volume (vph)	135	40	45	70	25	70	40	1915	20	30	1915	40
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	43	49	76	27	76	43	2082	22	33	2082	43
RTOR Reduction (vph)	0	41	0	0	64	0	0	0	7	0	1	0
Lane Group Flow (vph)	147	51	0	76	39	0	43	2082	15	33	2124	0
Heavy Vehicles (%)	2%	1%	2%	2%	1%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Prot		Perm	Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			
Actuated Green, G (s)	14.9	14.9		14.9	14.9		2.7	65.4	65.4	2.7	65.4	
Effective Green, g (s)	14.9	14.9		14.9	14.9		2.7	65.4	65.4	2.7	65.4	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.03	0.69	0.69	0.03	0.69	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	180	256		189	247		48	2308	1033	48	2301	
v/s Ratio Prot		0.06			0.07		0.03	c0.62		0.02	c0.64	
v/s Ratio Perm	c0.13			0.06					0.01			
v/c Ratio	0.82	0.20		0.40	0.16		0.90	0.90	0.01	0.69	0.92	
Uniform Delay, d1	38.7	34.9		36.0	34.6		46.0	12.2	4.7	45.7	12.6	
Progression Factor	1.00	1.00		1.00	1.00		1.29	1.96	3.51	1.00	1.00	
Incremental Delay, d2	24.0	0.4		1.4	0.3		46.5	2.4	0.0	33.8	7.7	
Delay (s)	62.7	35.2		37.4	34.9		105.7	26.2	16.4	79.5	20.3	
Level of Service	E	D		D	C		F	C	B	E	C	
Approach Delay (s)		52.2			36.0			27.7			21.2	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.90		1.00	0.91		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1693	1596		1693	1616		1660	3319		1676	3346	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1693	1596		1693	1616		1660	3319		1676	3346	
Volume (vph)	95	30	70	110	30	50	30	1645	5	20	1785	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	33	76	120	33	54	33	1788	5	22	1940	27
RTOR Reduction (vph)	0	66	0	0	46	0	0	0	0	0	1	0
Lane Group Flow (vph)	103	43	0	120	41	0	33	1793	0	22	1966	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	2%	2%	2%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.6	12.6		13.6	13.6		4.9	79.6		3.2	77.9	
Effective Green, g (s)	14.1	14.1		15.1	15.1		4.9	81.6		3.2	79.9	
Actuated g/C Ratio	0.11	0.11		0.12	0.12		0.04	0.63		0.02	0.61	
Clearance Time (s)	5.5	5.5		5.5	5.5		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	184	173		197	188		63	2083		41	2057	
v/s Ratio Prot	0.06	c0.07		c0.07	0.05		c0.02	0.54		0.01	c0.59	
v/s Ratio Perm												
v/c Ratio	0.56	0.25		0.61	0.22		0.52	0.86		0.54	0.96	
Uniform Delay, d1	55.0	53.1		54.6	52.1		61.4	19.6		62.7	23.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.7	0.8		5.3	0.6		7.6	5.0		12.8	11.9	
Delay (s)	58.7	53.9		59.9	52.7		69.1	24.6		75.5	35.3	
Level of Service	E	D		E	D		E	C		E	D	
Approach Delay (s)		56.2			56.9			25.4			35.7	
Approach LOS		E			E			C			D	

Intersection Summary

HCM Average Control Delay	33.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			0.95		1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1703			1632		1644	3271		1644	3277	
Flt Permitted		0.70			0.76		0.12	1.00		0.26	1.00	
Satd. Flow (perm)		1206			1263		206	3271		455	3277	
Volume (vph)	55	65	30	85	70	90	30	965	35	40	1035	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	71	33	92	76	98	33	1049	38	43	1125	27
RTOR Reduction (vph)	0	9	0	0	21	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	155	0	0	245	0	33	1084	0	43	1150	0
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	4%	4%	4%	4%	4%	4%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.9			18.9		33.1	33.1		34.5	34.5	
Effective Green, g (s)		19.4			19.4		33.6	33.6		35.0	35.0	
Actuated g/C Ratio		0.19			0.19		0.34	0.34		0.35	0.35	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		234			245		69	1099		159	1147	
v/s Ratio Prot								c0.33			c0.35	
v/s Ratio Perm		0.14			c0.21		0.16			0.09		
v/c Ratio		0.66			1.00		0.48	0.99		0.27	1.00	
Uniform Delay, d1		37.3			40.3		26.3	33.0		23.3	32.5	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		6.9			57.5		21.9	24.1		0.9	27.2	
Delay (s)		44.2			97.8		48.1	57.1		24.3	59.7	
Level of Service		D			F		D	E		C	E	
Approach Delay (s)		44.2			97.8			56.8			58.4	
Approach LOS		D			F			E			E	

Intersection Summary

HCM Average Control Delay	60.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.97			0.95		1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1703			1633		1644	3271		1644	3277	
Flt Permitted		0.79			0.85		0.16	1.00		0.34	1.00	
Satd. Flow (perm)		1373			1409		280	3271		595	3277	
Volume (vph)	55	65	30	85	70	90	30	965	35	40	1035	25
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Adj. Flow (vph)	45	53	24	69	57	73	24	787	29	33	844	20
RTOR Reduction (vph)	0	13	0	0	32	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	109	0	0	167	0	24	813	0	33	862	0
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	4%	4%	4%	4%	4%	4%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.3			12.3		24.2	24.2		20.0	20.0	
Effective Green, g (s)		12.8			12.8		24.7	24.7		20.5	20.5	
Actuated g/C Ratio		0.18			0.18		0.35	0.35		0.29	0.29	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		251			258		99	1154		174	960	
v/s Ratio Prot								c0.25			c0.26	
v/s Ratio Perm		0.09			c0.14		0.09			0.06		
v/c Ratio		0.43			0.65		0.24	0.70		0.19	0.90	
Uniform Delay, d1		25.4			26.5		16.0	19.5		18.5	23.7	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.2			5.5		5.7	3.6		0.5	11.0	
Delay (s)		26.6			32.0		21.8	23.1		19.1	34.7	
Level of Service		C			C		C	C		B	C	
Approach Delay (s)		26.6			32.0			23.1			34.1	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

2: Hwy 20 & John Moore Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.93		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1660	3253		1613	1698	1443	1693	1660		1660	1617	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.64	1.00		0.67	1.00	
Satd. Flow (perm)	1660	3253		1613	1698	1443	1136	1660		1176	1617	
Volume (vph)	90	930	145	60	590	80	180	65	55	210	80	80
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	1011	158	65	641	87	196	71	60	228	87	87
RTOR Reduction (vph)	0	21	0	0	0	50	0	42	0	0	58	0
Lane Group Flow (vph)	98	1148	0	65	641	37	196	89	0	228	116	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	1%	1%	1%	3%	3%	3%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	3.7	25.7		2.2	24.2	24.2	17.5	17.5		17.5	17.5	
Effective Green, g (s)	3.7	25.7		2.2	24.2	24.2	17.5	17.5		17.5	17.5	
Actuated g/C Ratio	0.06	0.45		0.04	0.42	0.42	0.30	0.30		0.30	0.30	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	107	1456		62	716	608	346	506		359	493	
v/s Ratio Prot	c0.06	0.36		0.04	c0.38			0.08			0.11	
v/s Ratio Perm						0.06	0.17			c0.19		
v/c Ratio	0.92	0.79		1.05	0.90	0.06	0.57	0.18		0.64	0.23	
Uniform Delay, d1	26.7	13.5		27.6	15.4	9.9	16.8	14.7		17.2	14.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	60.4	2.9		128.4	13.7	0.0	6.6	0.8		8.3	1.1	
Delay (s)	87.1	16.4		156.0	29.1	9.9	23.3	15.4		25.5	16.1	
Level of Service	F	B		F	C	A	C	B		C	B	
Approach Delay (s)		21.9			37.4			20.2			21.4	
Approach LOS		C			D			C			C	

Intersection Summary

HCM Average Control Delay	26.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1644	1731	1705		1693	1515
Flt Permitted	0.24	1.00	1.00		0.95	1.00
Satd. Flow (perm)	421	1731	1705		1693	1515
Volume (vph)	80	1120	815	35	80	55
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1217	886	38	87	60
RTOR Reduction (vph)	0	0	1	0	0	52
Lane Group Flow (vph)	87	1217	923	0	87	8
Heavy Vehicles (%)	4%	4%	5%	5%	1%	1%
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	57.7	57.7	57.7		9.4	9.4
Effective Green, g (s)	57.7	57.7	57.7		9.4	9.4
Actuated g/C Ratio	0.77	0.77	0.77		0.13	0.13
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	323	1330	1310		212	190
v/s Ratio Prot		c0.70	0.54		c0.05	
v/s Ratio Perm	0.21					0.04
v/c Ratio	0.27	0.92	0.70		0.41	0.04
Uniform Delay, d1	2.5	6.8	4.4		30.3	28.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	9.9	1.7		1.3	0.1
Delay (s)	3.0	16.7	6.1		31.6	29.0
Level of Service	A	B	A		C	C
Approach Delay (s)		15.8	6.1		30.5	
Approach LOS		B	A		C	

Intersection Summary

HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX B

Cost Estimates

US 20 and Coos				Engineer's Planning Estimate	
ITEM NO	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (5%)	1	LS	10.00%	$27,603
2	HMAC	215	TON	$ 80.00	$17,200
3	AGGREGATE BASE	300	TON	$ 18.00	$5,400
4	CONCRETE CURB AND SIDEWALK	500	LF	$ 40.00	$20,000
5	CONCRETE INLET	2	EACH	$ 1,800.00	$3,600
6	12 INCH DRAIN PIPE, 5 FT DEPTH	100	LF	$ 45.00	$4,500
7	SIGNAL	1	LS	$ 200,000.00	$200,000
8	LANDSCAPING	1	LS	$ 2,000.00	$2,000
9	SIGNING(1.0%)	1	LS	1.00%	$2,527
10	TRAFFIC CONTROL (5%)	1	LS	5.00%	$12,761
11	SURVEYING (5%)	1	LS	3.00%	$8,040
	ROADWAY CONSTRUCTION SUBTOTAL				**$295,500**
	CONTINGENCY(40%				**$118,200**
	PRELIMINARY ENGINEERING (10%				**$41,370**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$62,055**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$517,125**

US 20 and John Moore Drive				Engineer's Planning Estimate	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (5%)	1	LS	10.00%	$9,966
2	HMAC	230	TON	$ 80.00	$18,400
3	AGGREGATE BASE	300	TON	$ 18.00	$5,400
4	CONCRETE CURB AND SIDEWALK	500	LF	$ 40.00	$20,000
5	CONCRETE INLET	3	EACH	$ 1,800.00	$5,400
6	12 INCH DRAIN PIPE, 5 FT DEPTH	100	LF	$ 45.00	$4,500
7	SIGNAL MODIFCATION	1	LS	$ 25,000.00	$25,000
8	LANDSCAPING	1	LS	$ 5,000.00	$5,000
9	SIGNING(1.0%)	1	LS	5.00%	$4,185
10	TRAFFIC CONTROL (5%)	1	LS	8.00%	$7,031
11	SURVEYING (5%)	1	LS	5.00%	$4,746
	ROADWAY CONSTRUCTION SUBTOTAL				**$105,000**
	CONTINGENCY(25%				**$42,000**
	PRELIMINARY ENGINEERING (10%				**$14,700**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$22,050**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$183,750**

Hatfield at Bay Blvd				Engineer's Planning Estimate	
ITEM NO	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$2,069
2	HMAC	85	TON	$ 80.00	$6,800
3	AGGREGATE BASE	35	TON	$ 18.00	$630
4	12 INCH DRAIN PIPE, 5 FT DEPTH	25	LF	$ 45.00	$1,125
5	CONCRETE INLET	1	EACH	$ 1,800.00	$1,800
6	CONCRETE CURB AND SIDEWALK	100	LF	$ 40.00	$4,000
7	LANDSCAPING	1	LS	$ 2,000.00	$2,000
8	SIGNING (%)	1	LS	15.00%	$2,453
9	TRAFFIC CONTROL (%)	1	LS	10.00%	$1,881
10	SURVEYING (%)	1	LS	10.00%	$2,069
	ROADWAY CONSTRUCTION SUBTOTAL				**$24,827**
	CONTINGENCY(40%				**$9,931**
	PRELIMINARY ENGINEERING (10%				**$3,476**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$5,214**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$43,447**

Benton (8th to 10th St)				Engineer's Planning Estimate	
ITEM NO	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$12,844
2	HMAC	400	TON	$ 80.00	$32,000
3	AGGREGATE BASE	180	TON	$ 18.00	$3,240
4	CONCRETE CURB AND SIDEWALK	1100	LF	$ 40.00	$44,000
5	12 INCH DRAIN PIPE, 5 FT DEPTH	600	LF	$ 45.00	$27,000
6	CONCRETE MANHOLE	1	EACH	$ 3,000.00	$3,000
7	CONCRETE INLET	4	EACH	$ 1,800.00	$7,200
8	LANDSCAPING	1	LS	$ 12,000.00	$12,000
9	SIGNING (%)	1	LS	5.00%	$4,822
10	TRAFFIC CONTROL (%)	1	LS	4.00%	$4,050
11	SURVEYING (%)	1	LS	4.00%	$4,212
	ROADWAY CONSTRUCTION SUBTOTAL				**$154,369**
	CONTINGENCY(40%				**$61,748**
	PRELIMINARY ENGINEERING (10%				**$21,612**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$32,417**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$270,146**

Signage Improvements				Engineer's Planning Estimate	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	2.00%	$1,424
2	HMAC	12	TON	$ 80.00	$960
3	AGGREGATE BASE	20	TON	$ 18.00	$360
4	SIGNING	12	EACH	$ 400.00	$4,800
5	LANDSCAPING	1	LS	$ 1,000.00	$1,000
6	TRAFFIC CONTROL (%)	1	LS	25.00%	$1,540
	ROADWAY CONSTRUCTION SUBTOTAL				**$10,084**
	CONTINGENCY(40%				**$4,034**
	PRELIMINARY ENGINEERING (10%				**$1,412**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$2,118**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$17,647**

7th Street				Engineer's Planning Estimate	
ITEM NO	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$852,338
2	HMAC	4300	TON	$ 80.00	$344,000
3	AGGREGATE BASE	2350	TON	$ 18.00	$42,300
4	CONCRETE CURB AND SIDEWALK	6500	LF	$ 40.00	$260,000
5	CONCRETE MANHOLE	4	EACH	$ 3,000.00	$12,000
6	CONCRETE INLET	6	EACH	$ 1,800.00	$10,800
7	12 INCH DRAIN PIPE, 5 FT DEPTH	1800	LF	$ 45.00	$81,000
8	EARTHWORK-	20000	CY	$ 20.00	$400,000
9	BRIDGE STRUCTURE (800')	33000	SF	$ 200.00	$6,600,000
10	LANDSCAPING	1	LS	$ 50,000.00	$50,000
11	SIGNING (%)	1	LS	3.00%	$234,003
12	TRAFFIC CONTROL (%)	1	LS	3.00%	$241,023
13	SURVEYING (%)	1	LS	3.00%	$248,254
	Right-of-Way needed but not included in Estimate				
	ROADWAY CONSTRUCTION SUBTOTAL				**$9,375,718**
	CONTINGENCY(40%				**$3,750,287**
	PRELIMINARY ENGINEERING (10%				**$1,312,601**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$1,968,901**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$16,407,506**

Neff Street (US 101 to 2nd)				Engineer's Planning Estimate	
ITEM NO	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$20,953
2	HMAC	1025	TON	$ 80.00	$82,000
3	AGGREGATE BASE	1325	TON	$ 18.00	$23,850
4	CONCRETE CURB AND SIDEWALK	1500	LF	$ 40.00	$60,000
5	12 INCH DRAIN PIPE, 5 FT DEPTH	300	LF	$ 45.00	$13,500
6	CONCRETE MANHOLE	1	EACH	$ 3,000.00	$3,000
7	CONCRETE INLET	4	EACH	$ 1,800.00	$7,200
8	LANDSCAPING	1	LS	$ 10,000.00	$10,000
9	CLEARING AND GRUBBING (%)	1	LS	5.00%	$9,978
10	SIGNING (%)	1	LS	3.00%	$6,286
11	TRAFFIC CONTROL (%)	1	LS	3.00%	$6,474
12	SURVEYING (%)	1	LS	3.00%	$6,669
	ROADWAY CONSTRUCTION SUBTOTAL				$249,909
	CONTINGENCY(40%				$99,964
	PRELIMINARY ENGINEERING (10%				$34,987
	ROADWAY CONSTRUCTION ENGINEERING (15%				$52,481
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				$437,341

SW 9th Street/NE Benton St. Connectivity				Engineer's Planning Estimate	
ITEM NO	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$1,235
2	HMAC	25	TON	$ 80.00	$2,000
3	AGGREGATE BASE	75	TON	$ 18.00	$1,350
4	CONCRETE ISLAND/EXTENSION	300	SF	$9.00	$2,700
5	LANDSCAPING	1	LS	$ 1,500.00	$1,500
6	SIGNING	12	EACH	$ 400.00	$4,800
7	TRAFFIC CONTROL (%)	1	LS	25.00%	$3,088
	ROADWAY CONSTRUCTION SUBTOTAL				$16,673
	CONTINGENCY(40%				$6,669
	PRELIMINARY ENGINEERING (10%				$2,334
	ROADWAY CONSTRUCTION ENGINEERING (15%				$3,501
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				$29,177

John Moore Drive at Bay Blvd				Engineer's Planning Estimate	
ITEM NO	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$16,940
2	HMAC	1300	TON	$ 80.00	$104,000
3	AGGREGATE BASE	725	TON	$ 18.00	$13,050
4	12 INCH DRAIN PIPE, 5 FT DEPTH	300	LF	$ 45.00	$13,500
5	CONCRETE INLET	3	EACH	$ 1,800.00	$5,400
6	CONCRETE DRIVEWAY	3	EACH	$ 2,000.00	$6,000
7	CONCRETE CURB AND SIDEWALK	100	LF	$ 40.00	$4,000
4	CONCRETE ISLAND/EXTENSION	300	SF	$9.00	$2,700
8	LANDSCAPING	1	LS	$ 5,000.00	$5,000
9	SIGNING (%)	1	LS	5.00%	$7,683
10	TRAFFIC CONTROL (%)	1	LS	5.00%	$8,067
11	SURVEYING (%)	1	LS	5.00%	$8,470
	ROADWAY CONSTRUCTION SUBTOTAL				**$194,809**
	CONTINGENCY(40%				**$77,924**
	PRELIMINARY ENGINEERING (10%				**$27,273**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$40,910**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$340,916**

US 101 at 6th Street				Engineer's Planning Estimate	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$33,885
2	HMAC	600	TON	$ 80.00	$48,000
3	AGGREGATE BASE	400	TON	$ 18.00	$7,200
4	CONCRETE CURB AND SIDEWALK	1000	LF	$ 40.00	$40,000
5	CONCRETE INLET	2	EACH	$ 1,800.00	$3,600
6	12 INCH DRAIN PIPE, 5 FT DEPTH	100	LF	$ 45.00	$4,500
7	SIGNAL	1	LS	$ 200,000.00	$200,000
8	LANDSCAPING	1	LS	$ 1,000.00	$1,000
9	SIGNING(1.0%)	1	LS	1.00%	$3,043
10	TRAFFIC CONTROL (%)	1	LS	5.00%	$15,367
11	SURVEYING (%)	1	LS	5.00%	$16,136
	Right-of-Way needed but not included in Estimate				
	ROADWAY CONSTRUCTION SUBTOTAL				**$356,500**
	CONTINGENCY(40%				**$142,600**
	PRELIMINARY ENGINEERING (10%				**$49,910**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$74,865**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$623,875**

US 101 at 11th St				Engineer's Planning Estimate	
ITEM NO	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$26,931
2	HMAC	1200	TON	$ 80.00	$96,000
3	AGGREGATE BASE	800	TON	$ 18.00	$14,400
4	CONCRETE CURB AND SIDEWALK	1600	LF	$ 40.00	$64,000
5	CONCRETE INLET	4	EACH	$ 1,800.00	$7,200
6	12 INCH DRAIN PIPE, 5 FT DEPTH	200	LF	$ 45.00	$9,000
7	SIGNAL MODIFICATION	1	LS	$ 30,000.00	$30,000
8	LANDSCAPING	1	LS	$ 8,000.00	$8,000
9	SIGNING(1.0%)	1	LS	1.00%	$2,286
10	TRAFFIC CONTROL (%)	1	LS	8.00%	$18,471
11	SURVEYING (%)	1	LS	8.00%	$19,949
	Right-of-Way needed but not included in Estimate				
	ROADWAY CONSTRUCTION SUBTOTAL				**$276,500**
	CONTINGENCY(40%				**$110,600**
	PRELIMINARY ENGINEERING (10%				**$38,710**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$58,065**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$483,875**

2nd Street Intersections				Engineer's Planning Estimate	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$34,395
2	HMAC	1600	TON	$ 80.00	$128,000
3	AGGREGATE BASE	2200	TON	$ 18.00	$39,600
4	12 INCH DRAIN PIPE, 5 FT DEPTH	800	LF	$ 45.00	$36,000
5	CONCRETE INLET	8	EACH	$ 1,800.00	$14,400
6	CONCRETE CURB AND SIDEWALK	2000	LF	$ 40.00	$80,000
7	LANDSCAPING	1	LS	$ 20,000.00	$20,000
8	SIGNING (%)	1	LS	4.00%	$12,720
9	TRAFFIC CONTROL (%)	1	LS	4.00%	$13,229
10	SURVEYING (%)	1	LS	4.00%	$13,758
	Right-of-Way needed but not included in Estimate				
	ROADWAY CONSTRUCTION SUBTOTAL				**$392,102**
	CONTINGENCY(40%				**$156,841**
	PRELIMINARY ENGINEERING (10%				**$54,894**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$82,341**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$686,178**

US 101 at Hurbert Street				Engineer's Planning Estimate	
ITEM NO	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$4,532
2	HMAC	100	TON	$ 80.00	$8,000
3	AGGREGATE BASE	200	TON	$ 18.00	$3,600
4	CONCRETE CURB AND SIDEWALK	500	LF	$ 40.00	$20,000
5	CONCRETE INLET	2	EACH	$ 1,800.00	$3,600
6	12 INCH DRAIN PIPE, 5 FT DEPTH	100	LF	$ 45.00	$4,500
7	LANDSCAPING	1	LS	$ 1,000.00	$1,000
8	SIGNING(1.0%)	1	LS	1.00%	$407
9	TRAFFIC CONTROL (%)	1	LS	5.00%	$2,055
10	SURVEYING (%)	1	LS	5.00%	$2,158
	ROADWAY CONSTRUCTION SUBTOTAL				**$47,500**
	CONTINGENCY(40%				**$19,000**
	PRELIMINARY ENGINEERING (10%				**$6,650**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$9,975**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$83,125**

US 101 at Angle Street				Engineer's Planning Estimate	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$27,693
2	HMAC	200	TON	$ 80.00	$16,000
3	AGGREGATE BASE	200	TON	$ 18.00	$3,600
4	CONCRETE CURB AND SIDEWALK	500	LF	$ 40.00	$20,000
5	CONCRETE INLET	2	EACH	$ 1,800.00	$3,600
6	12 INCH DRAIN PIPE, 5 FT DEPTH	100	LF	$ 45.00	$4,500
7	SIGNAL	1	LS	$ 200,000.00	$200,000
8	LANDSCAPING	1	LS	$ 1,000.00	$1,000
9	SIGNING(1.0%)	1	LS	1.00%	$2,487
10	TRAFFIC CONTROL (%)	1	LS	5.00%	$12,559
11	SURVEYING (%)	1	LS	5.00%	$13,187
	ROADWAY CONSTRUCTION SUBTOTAL				**$291,500**
	CONTINGENCY(40%				**$116,600**
	PRELIMINARY ENGINEERING (10%				**$40,810**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$61,215**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$510,125**

US 101 at US 20				Engineer's Planning Estimate	
ITEM NO	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$41,022
2	HMAC	1300	TON	$ 80.00	$104,000
3	AGGREGATE BASE	1500	TON	$ 18.00	$27,000
4	CONCRETE CURB AND SIDEWALK	2000	LF	$ 40.00	$80,000
5	CONCRETE INLET	8	EACH	$ 1,800.00	$14,400
6	12 INCH DRAIN PIPE, 5 FT DEPTH	1000	LF	$ 45.00	$45,000
7	SIGNAL MODIFICATION	1	LS	$ 80,000.00	$80,000
8	LANDSCAPING	1	LS	$ 18,000.00	$18,000
9	SIGNING(3.0%)	1	LS	5.00%	$3,684
10	TRAFFIC CONTROL (%)	1	LS	5.00%	$18,604
11	SURVEYING (%)	1	LS	5.00%	$19,534
	Right-of-Way needed but not included in Estimate				
	ROADWAY CONSTRUCTION SUBTOTAL				**$431,500**
	CONTINGENCY(40%				**$172,600**
	PRELIMINARY ENGINEERING (10%				**$60,410**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$90,615**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$755,125**

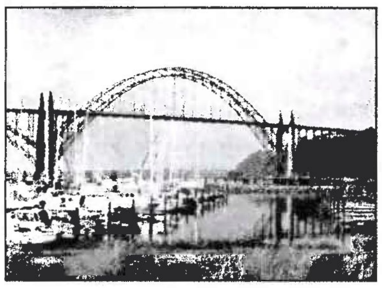
NE 1st (US 101 to US 20)				Engineer's Planning Estimate	
ITEM NO.	BID ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	MOBILIZATION (%)	1	LS	10.00%	$22,848
2	HMAC	800	TON	$ 80.00	$64,000
3	AGGREGATE BASE	800	TON	$ 18.00	$14,400
4	CONCRETE CURB AND SIDEWALK	2000	LF	$ 40.00	$80,000
5	12 INCH DRAIN PIPE, 5 FT DEPTH	800	LF	$ 45.00	$36,000
6	CONCRETE MANHOLE	2	EACH	$ 3,000.00	$6,000
7	CONCRETE INLET	4	EACH	$ 1,800.00	$7,200
8	LANDSCAPING	1	LS	$ 10,000.00	$10,000
9	CLEARING/SITE PREPARATION (%)	1	LS	5.00%	$10,880
10	SIGNING (%)	1	LS	3.00%	$6,854
11	TRAFFIC CONTROL (%)	1	LS	3.00%	$7,060
12	SURVEYING (%)	1	LS	3.00%	$7,272
	Right-of-Way needed but not included in Estimate				
	ROADWAY CONSTRUCTION SUBTOTAL				**$272,514**
	CONTINGENCY(40%				**$109,006**
	PRELIMINARY ENGINEERING (10%				**$38,152**
	ROADWAY CONSTRUCTION ENGINEERING (15%				**$57,228**
	ROADWAY CONSTRUCTION & CONSTRUCTION ENGINEERING TOTAL				**$476,900**

ORDINANCE NO. 1963

EXHIBIT "E"

Draft Technical Memo #3

To:	John Evans, Parametrix Lee Ritzman, City of Newport James Bassingthwaite, City of Newport John deTar, Senior Regional Planner, ODOT
From:	Mike Tresidder, Jessica Roberts, Mia Birk, Alta Planning + Design
Date:	October 31, 2006
Re:	City of Newport Existing Bicycle and Pedestrian Conditions



Introduction

Transportation planning has changed significantly over the years as cities, counties, and states have adopted policies to encourage planning and design for all transportation modes. Non-motorized travel has emerged as an important part of a multi-modal transportation system as it offers people alternative ways of traveling. Bicycling and walking also provides a transportation alternative for people who do not or chose not to own vehicles and increases the catchment area for local transit systems.

The purpose of this memo is to identify the relevant existing bicycle and pedestrian conditions within the City of Newport's Urban Growth Boundary (UGB). This information will then be used to select and prioritize the bicycle and facility needs.

This memo includes:

- A review of related plans and background documents
- Facility standards and guidelines
- Definitions and review of existing pedestrian and bicycle facilities
- An identification of major destinations for bicyclists and pedestrians
- An identification of major deficiencies in the bicycle and pedestrian system

Related Plans and Background Documents

Newport, Oregon Vision 2020 and Strategic Action Plan (2005)

This plan serves as an update to the City's vision and action plans to identify community strengths and needs in the areas of infrastructure, image/identity, and jobs. (An Economic Opportunity Assessment was performed simultaneously, so the scope of the plan in question did not include economic development.)

Much of this plan is not related to transportation, dealing instead with subjects such as housing, drug abuse treatment and prevention, youth recreation facilities, and schools. However, there are portions of the plan relevant to bicycling and pedestrian conditions.

Initial surveys identified US 101 as a particular concern to the community: "Many believe that Newport's immense natural beauty is undermined by the negative features of Hwy 101—heavy traffic, strip mall developments, utility poles, poor signage and empty stores—all contributing to a negative image of the community as well as posing danger and inconvenience to bikers and pedestrians."

Strategies are also discussed to beautify and improve the US 101 corridor and the South Beach Corridor, including the need to incorporate pedestrian and cyclist perspective, establish trail systems and provide separated facilities for bicyclists and pedestrians.

Likewise, a major goal of the *Newport Vision 2020* plan is to "improve transportation access and safety for all appropriate modes," including bicycling (through improvements to the Oregon Coast Bike Route) and walking (through creating trails and sidewalk infill).

Finally, the plan calls for a revision and update to the *Park System Master Plan for Bike and Pedestrian Improvements.*

South Beach State Park Master Plan (2003)

This plan lays out the Oregon Parks and Recreation Department's (OPRD) plans for future development and management of South Beach State Park. Central to the plan is the demonstrated public demand for improved and increased biking and hiking opportunities in the state park.

To that end, the plan includes relocation of the current hiker/biker campground and expansion of the paved bike trail and unpaved hiking trail systems in the park in loop configurations (specific planned facilities are listed in the table on page 51). In addition, an ADA-accessible boardwalk trail and viewing platform is planned.

The South Beach State Park is perceived as an important recreation destination for Newport residents as well as for visitors. Consequently, an important secondary goal is connecting existing and planned trails outside the park in Newport to the existing and planned trails within the park.

Draft Highway 101 Corridor Plan (2002)

The vision statement for this corridor plan includes the desire to optimize all transportation modes, including pedestrians and bicyclists. This plan acknowledges that the primary transportation mode in Newport will continue to be the private automobile, but states as a major goal of the plan to "accommodate other forms of transportation, such as bicycles, and mix the various forms of transport more effectively, safely and efficiently."

More specifically, the plan addresses major unmet pedestrian and bicyclist safety needs for pedestrians and bicyclists interacting with US 101. The plan mentions the desire to create a complete parallel system for pedestrians and bicyclists traveling parallel to Highway 101. It also mentions the need to improve pedestrian crossings of Highway 101.

City of Newport Transportation System Plan (1997)

The *City of Newport Transportation System Plan* (TSP) presents recommended project improvements and goals and policies towards establishing a coordinated multi-modal transportation network for the City of Newport. The TSP brings the City of Newport into compliance with the statewide Transportation Planning Rule.

The TSP sets forth goals and policies to guide decisionmakers and developers in applying the TSP. The overall goal is:

"Goal 1: To provide a safe and efficient multi-modal transportation system consistent with the Transportation System Plan."

Subsidiary to Goal 1 are four policies specific to pedestrian and bicycling issues:

- The City shall provide a continuous pedestrian network consistent with the TSP, to the greatest extent possible considering funding limitations, topographic constraints and existing development patterns.
- The City shall provide a safe walking environment.
- The City shall provide a pedestrian-oriented urban design especially on the Bay Front, in the City Center and in Nye Beach.
- The City shall provide a safe and efficient bicycle network consistent with the TSP, considering funding limitations, topographic constraints and existing development patterns

The TSP lists recommended new projects for roadways (many of which include sidewalks and bicycle lanes), as well as stand-alone pedestrian and bicycle projects.

The Pedestrian System Plan component of the TSP acknowledges the importance of walking to every resident of Newport, and sets forth these goals related to the pedestrian environment:

- Provide a continuous network
- Provide a safe walking environment
- Ensure pedestrian-oriented urban design

The criteria used to select stand-alone pedestrian improvement projects include connection to schools, connections to transit, and the importance of good sidewalks to tourism foot traffic; most of the projects are sidewalk projects, but crossings are also emphasized.

The Bicycle System Plan component of the TSP sets forth as a goal "to provide bicycle routes that enable safe and efficient travel for through bicycle traffic traveling along the Oregon Coast, as well as to provide a system for traveling within the city. The system of bicycle facilities has been designed to connect both north-south and east-west bicycle traffic.

It has also been designed to connect all major generators of bicycle traffic with residential neighborhoods and tourist facilities."

The plan acknowledges the importance of bicycle tourism traffic north-south through the city, taking either US 101 or the Oregon Coast Bike Route starting at Ocean View Drive.

Recommended bicycle projects include bike lane striping, signage, bicycle parking at the major bus stops and bus stations, and bicycle racks for all dial-a-ride vehicles. It also recognizes the need for improved maintenance of existing bikeways and recommends the establishment of a routine maintenance program. Finally, it calls for emphasizing bicycle safety as part of law enforcement.

City of Newport Access Management Plan (1997)

The purpose of the *City of Newport Access Management Plan* is to maximize the efficiency and safety of existing roadways while preserving the flow of traffic and limiting the number of traffic conflicts; an Access Management Plan is required by the state Transportation Planning Rule.

Proper access management results in fewer turning conflicts, which generally improves pedestrian and bicycle conditions. Additionally, many of the tools of access management (such as signalization and median islands) can assist pedestrians and bicyclists more directly by facilitating clear, safe crossings.

However, there is no direct discussion in the *Access Management Plan* of bicycle or pedestrian safety, known bicycle and/or pedestrian crash statistics, or conflicts between pedestrian, bicycling and auto movements.

City of Newport Transportation System Plan Development (1997)

The *Transportation System Plan Development* document provides the necessary analysis and background information for the development of the *Transportation System Plan*. It includes the following:

- project evaluation tools
- assessment of existing conditions
- inventory of the existing transportation system
- list of related transportation issues
- transportation system alternatives development, funding sources and selection

This document emphasizes the unique challenges of Newport's linear development along US 101, including the lack of other north-south routes for local circulation, as well as the challenge of heavy seasonal traffic volume increases. The plan also acknowledges that "there are both pedestrian and bicycle facilities within Newport; however, there are many missing links in these systems that result in the lack of a viable alternative transportation choice for users."

Among the specific goals and objectives listed for the project are the following relating to bicycling and walking:

- Identify how intermodal services and facilities will be provided in the community

- Identify bicycle and pedestrian facilities for local and recreational users

Under evaluation criteria, the document includes qualitative evaluation of the levels of pedestrian, bike, auto, and transit access to both neighborhoods and to community.

Under existing conditions, the plan notes that bicycle travel in Newport increases in the summer months, and that the Oregon Coast Bike Route is routed from US 101 to city streets between 25th Street and the Yaquina Bay Bridge. It is also noted that most bikeways are signed shared roadways with no other improvements. The plan also notes that "there are numerous gaps in the sidewalk network, and continuous north-south or east-west facilities are lacking."

In the alternatives analysis portion, the plan considers four options; no-build, low, middle, and high (corresponding to an increasing number of projects). Many projects for bicycles and pedestrians were considered in the high alternative but were not included in the final preferred alternative (the middle alternative).

Newport Peninsula Urban Design Plan (1994)

This document summarizes the first three years of work on the *Newport Peninsula Urban Design Study*. Participants identified one of Newport's two major problems to be solved as the lack of pedestrian orientation.

The plan details the desire for improved cross-peninsula connector streets to benefit all modes, including pedestrians and bicyclists. US 101 through the city center is also listed as a major barrier and opportunity for bicycles and pedestrians:

"Pedestrian circulation should be improved along the highway as well as off the highway on parallel streets and cross streets. It should be physically and visually separated from the noise and danger of automobiles. Signalized intersections must be located which support the functional requirements of the City and that provide safe, convenient and logical pedestrian and vehicular crossings. Bicycle circulation may (best) be located off Highway 101 on the proposed parallel local circulation routes. The existing 80 foot public ROW is too narrow to accommodate a combination of large travel lanes, center median/left turn lane, bike lanes and an adequate pedestrian area."

Specific recommendations for key areas are also detailed, all of which include pedestrian improvements.

Park System Master Plan (1993)

The *Park System Master Plan* contains an inventory and analysis of existing parks, open space, and trails facilities in the City and a plan for future facilities. The plan shows 17,272 linear feet of trails/bikeways in the parks system and shows strong community demand for more trails facilities. It also lays out a number of policies for pathways and trails, including:

- The primary purpose of recreation trails is to provide a recreation experience. However, they can also serve as a means of transportation within the community.
- Whenever possible, recreation trails should not be part of a street roadway.
- The trail system should be designed to link various parts of the community as well as existing park sites.

In the Recommendations section, it lists four recommended trails (Ocean to Bay Trail Loop, South Beach Trail Loop, Agate Beach Trail Loop, and Newport Reservoir Trail), and the following assessment:

"The needs assessment revealed a strong desire to have a trail system for walking and bicycling. Unfortunately many of the opportunities have been lost due to extensive development of the City. However, by using ravines and stream corridors, several trail systems are possible. The recommended trails systems essentially consist of three loop trails and a connector route."

City of Newport Comprehensive Plan (1991)

The Comprehensive Plan identifies the historic peninsula as the heart of the city, and lists among its goals "improve the vehicular and pedestrian networks in order to improve safety, efficiency, continuity, and relationships connecting the peninsula neighborhoods." It also recommends the development, in coordination with ODOT, of the coast parkway, and emphasizes compliance with the statewide Transportation Planning Rule in "improved traffic flow and safety for cars, pedestrians, bicyclists and—where appropriate—transit throughout the peninsula."

The Comprehensive Plan includes a Transportation System Plan (subsequently updated by the 1997 TSP) and a Parks Master Plan (subsequently updated by the 1994 Parks Master Plan). A summary has been included above of bicycle and pedestrian aspects of the current, updated plans.

The Comprehensive Plan also includes a Public Facilities Plan with guiding principles for the different types of public facilities. That plan includes a policy stating that "the city shall include bicycle and pedestrian routes in its transportation system."

The plan concludes with several neighborhood plans. In the Agate Beach Neighborhood Plan (adopted 1998), the vision is articulated that "transportation systems will benefit from traffic management and will offer alternative mobility based on public transit, bicycling and walking." Under *Transportation*, this neighborhood plan states that, "the transportation system in Agate Beach is generally not up to City standards....most of the streets are either gravel or paved without curb, gutters and sidewalks. Except for Hwy. 101, bicycle facilities are virtually non-existent in Agate Beach." This plan lists a preferred bicycle system improvement of a separated bicycle/pedestrian path on the west side of Hwy. 101. It also lists 8 specific recommended improvements, including bike lanes, sidewalks, and signage.

The final plan appendix is the Bay Front Plan (1999). It states that "alternative modes of transportation such as transit, bicycling and walking should be explored as alternatives to other, more expensive transportation systems such as streets and parking lots." According to the plan, sidewalks are present but "many are in need of repair or improvement." Several specific projects are proposed to enhance pedestrian conditions. The plan notes that there are no dedicated bicycling facilities but rates the right-of-way limitations as prohibiting the creation of bike lanes.

Nye Beach Study (1989)

In 1989, as a response to a proposed RV park on beachfront property, the City of Newport initiated this study and produced a seventh amendment to the City of Newport Urban Renewal Plan. Public input and the City's existing policies and goals resulted in a desire to prohibit undesirable development on the Nye Beach site and resulted in a plan to purchase the properties in question for public land.

One of the issues identified in the study was a need for improved pedestrian facilities and improved and new hiking trails on the Nye Beach site. Additionally, the site was deemed of particular importance to bicyclists because of its proximity to the Oregon Coast Bike Route.

South Beach Urban Renewal Plan (1983)

This plan does not explicitly mention pedestrian and bicycle issues, though the vision for compact urban form and planned open spaces has benefit for non-motorized modes.

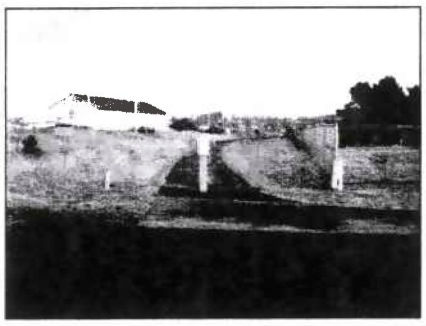
Pedestrian Facilities

Pedestrian facilities that are accessible and comfortable to use are an essential 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 and therefore benefit from accessible facilities. Pedestrians include children walking to and from school, people using wheelchairs or other forms of mobility assistance, people walking to lunch, and people walking to and from their vehicles. In addition, walking meets the commuting, recreational, and social transportation needs for a significant portion of the population that do not or choose not to drive. The community's pedestrian system also offers recreational opportunities for both local and out-of-town users, potentially stimulating economic growth and tourism.

According to the OBPP, pedestrian facilities are defined as any facilities utilized by a pedestrian. These types of facilities include walkways, traffic signals, crosswalks, curb ramps, and other amenities such as illumination or benches. The City of Newport has several different 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 Newport are present along most major roadways.

- ***Shared Use Paths:*** Shared use paths are used by a variety of non-motorized users, including pedestrians, cyclists, skaters, and runners. Shared use paths may be paved or unpaved, and are often wider than the average sidewalk (i.e. 10' – 12'). An example of a shared use path in Newport is the short segment of the OSU HMSC Trail Loop that connects the Oregon Coast Aquarium to the Hatfield Marine Science Center.



- ***Roadway shoulders:*** Roadway shoulders often serve as pedestrian routes in many rural Oregon communities. On roadways with low traffic volumes (i.e., less than 3,000 vehicles per day), roadway shoulders are often adequate for pedestrian travel. Many of the roads leading into Newport rely on roadway shoulders to accommodate pedestrian travel.

State / Regional Pedestrian Facility Standards

The Oregon Department of Transportation has developed standards and guidelines for appropriate facilities placement and design. The standards and guidelines summarized below are based on Chapter 11 of the 2003 Highway Design Manual and the Oregon Bicycle and Pedestrian Plan and apply to any roadway where pedestrian use is allowed. The City of Newport adheres to the standards described below.

Table 1: ODOT Recommended Pedestrian Facility Types and Standards

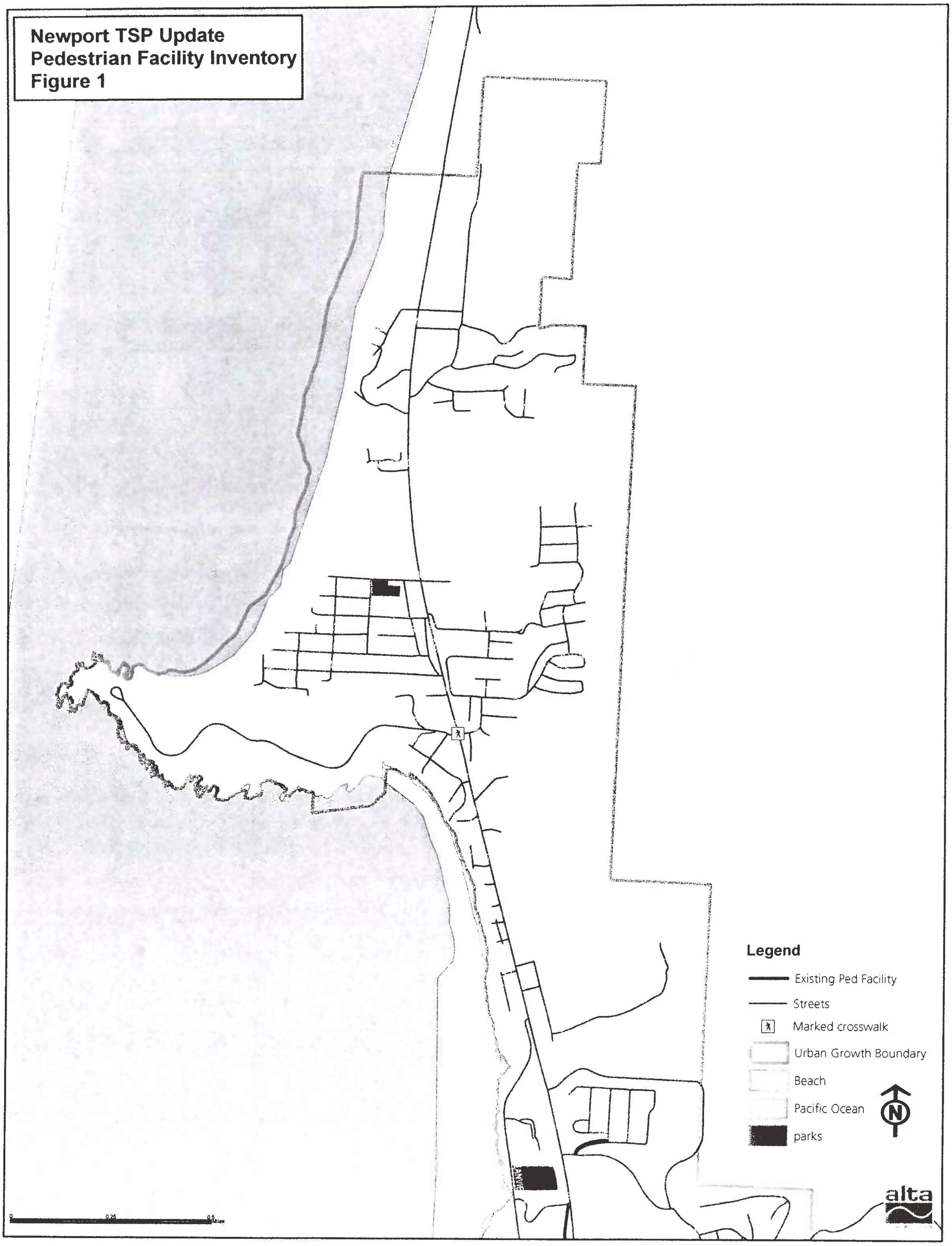
Location	Facility Type	Minimum / Recommended Width	Notes
Rural	Striped Shoulder walkway	6 ft / wider if high usage	In low-volume rural conditions, striped shoulders are acceptable as walkways (should be wide enough to accommodate both bicycles and pedestrians).
Urban Walkways	Sidewalks	5 ft / 6 ft (exclusive of curbs and obstructions)	Greater sidewalk widths are permitted and encouraged in areas of high use, such as the central business district. Sidewalks must be clear of obstructions for the minimum width.

Table 2: ADA Requirements for Pedestrian Facilities

Aspect	Minimum / Recommended	Notes
Width	3 ft / 5-6 ft	
Grade	Constant 5% 8.3% w/ landings every 2.5 ft	Sidewalks parallel to the road may be built at grade of road
Cross-slope	2%	It is critical to maintain a 3-foot wide minimum passage at or below 2% across driveways, curb cuts, and road approaches.
Curb Cuts	2 curb cuts per corner for new construction A 3-foot wide passage with cross-slope of 2% required behind curb cuts	Truncated domes are also required at curb cuts to assist the visually impaired in identifying the edge of the roadway.

Existing Sidewalks

Figures 1-3 show the city's existing sidewalk and crosswalk system. The Newport pedestrian system can generally be characterized as comprehensive in certain areas of the city, such as along the Bay Front and along US 101, and lacking in other areas, such as on the outskirts of town and in developments built before code required sidewalks to be constructed with new development. Sidewalk obstructions, typically planter boxes, overgrown vegetation and utility poles, also impede safe pedestrian travel. Pedestrian-actuated signal controls in Newport are generally only found along US 101, where the majority of traffic signals are located. Most crossings in Newport are either striped or unprotected with no identification. Where lighting is provided at the crossings it is generally not at a pedestrian-scale or located to clearly illuminate a pedestrian. The following streets currently have sidewalks on both sides of the street:


Newport TSP Update
Pedestrian Facility Inventory
Figure 1
Legend
Existing Ped Facility
Streets
Marked crosswalk
Urban Growth Boundary
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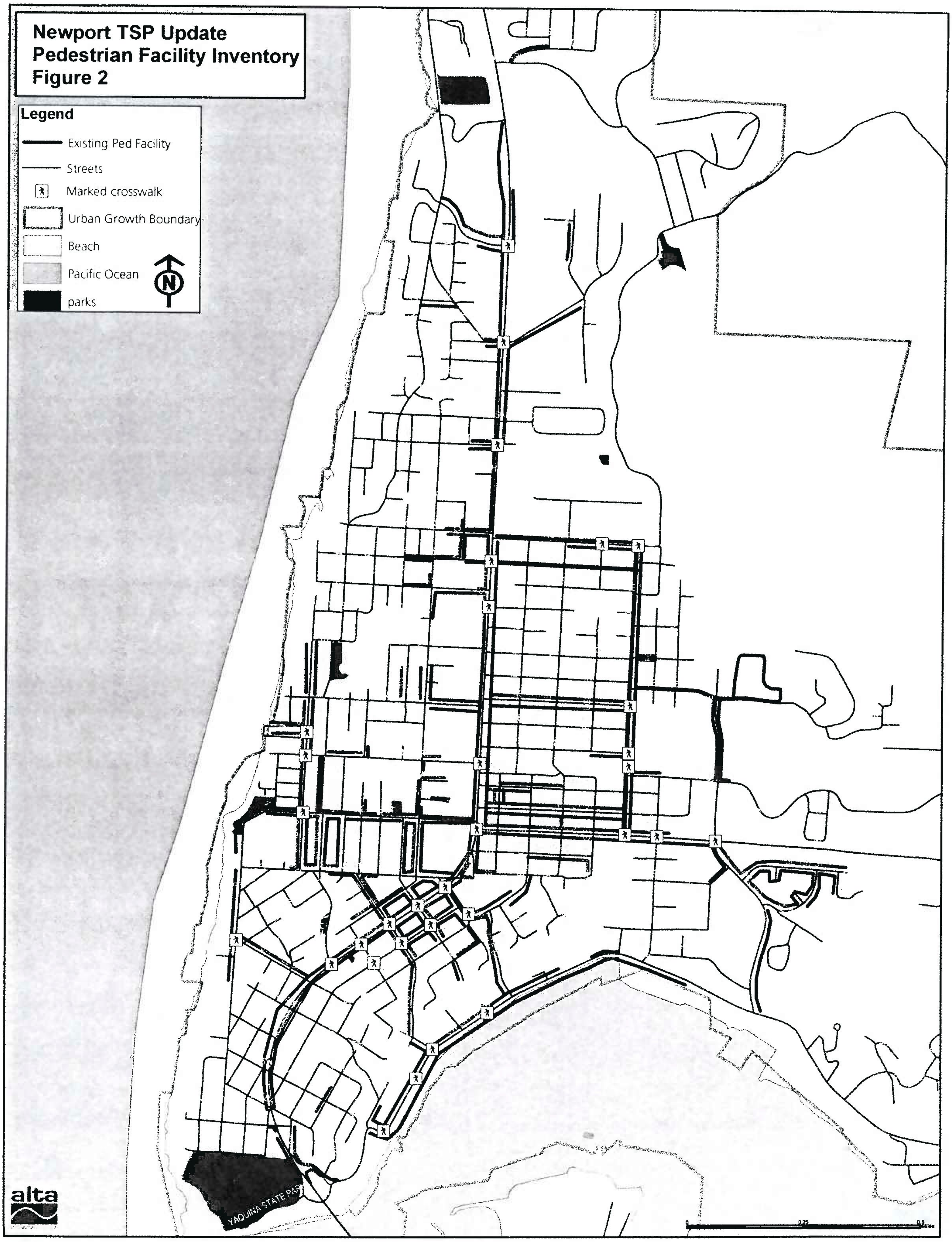
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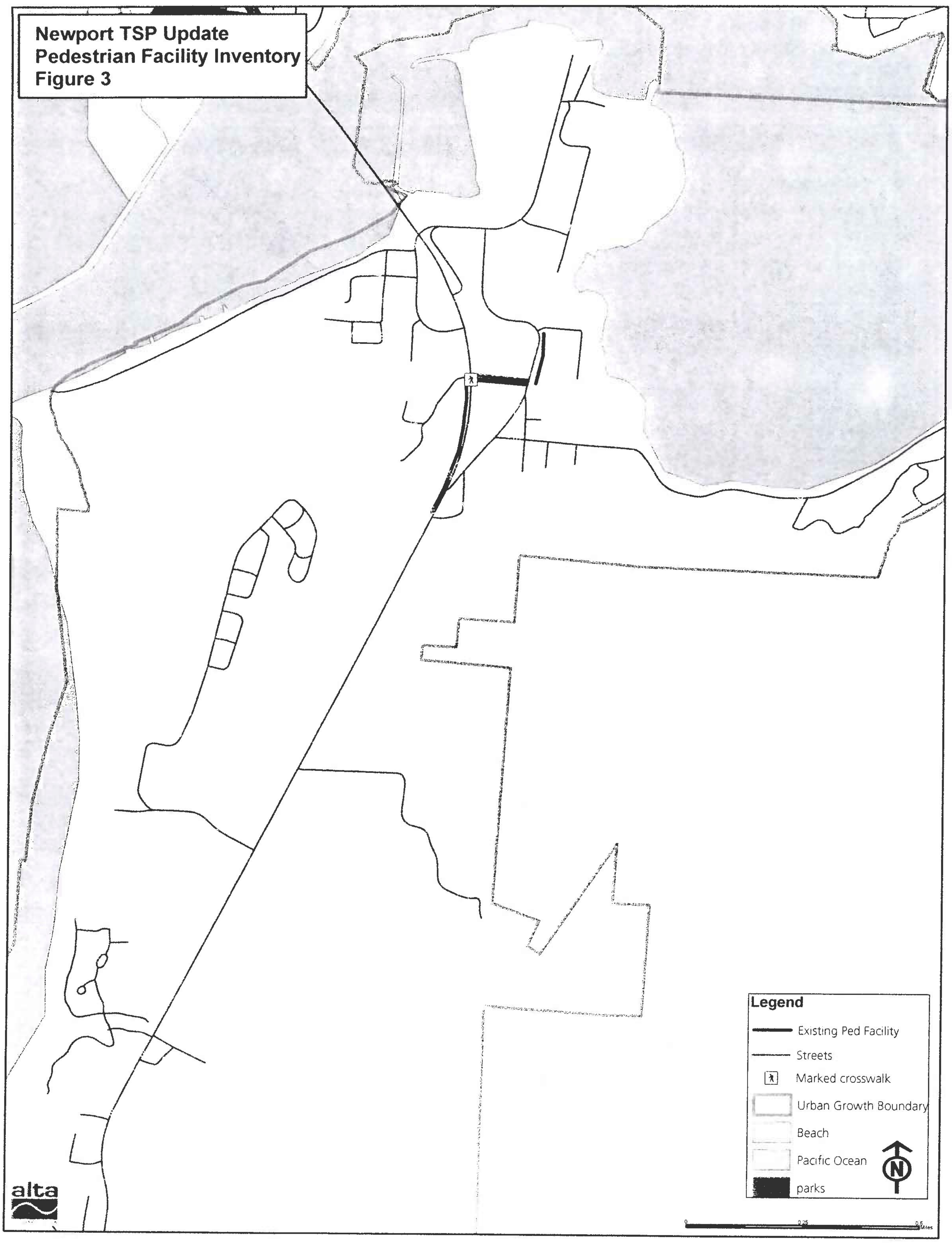
Newport TSP Update
Pedestrian Facility Inventory
Figure 3
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Existing Ped Facility
Streets
Marked crosswalk
Urban Growth Boundary
Beach
Pacific Ocean
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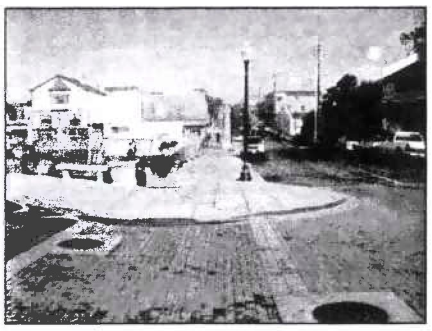
Table 3 Existing Newport Sidewalks		
Road	**From**	**To**
US 101	NE/NW 20th Street	NE/NW 15th Street
US 101	NE/NW 12th Street	SW Bayley Street
NE Eads Street	NE 12th Street	E Olive Street
NE 6th Street	US 101	NE Eads Street
NE 1st Street	US 101	NE Eads Street
NE Harney Street	NE 3rd Street	NE 7th Street
E Olive Street (Hwy 20)	US 101	NE Eads Street
W Olive Street	US 101	NW High Street
SW Bay Blvd	SW Bay Street	Pier 5
NW Coast Street	NW 8th Street	NW 3rd Street
NW 25th Street	US 101	Oil Can Henry's driveway
SE 32nd Street	US 101	SE Ferry Slip Road
SW 9th Street	SW Hurbert Street	SW Angle Street
SW Angle Street	US 101	SW Hatfield Drive
SW Nye Street	SW 2nd Street	E Olive Street (Hwy 20)
NW 6th Street	US 101	NW Nye Street
SW Hurbert Street	SW 2nd Street	SW 10th Street
NW Nye Street	NW 6th Street	NW 7th Street
SE 1st Street	SE Moore Drive	SE Larch Street

Existing Sidewalk Conditions

Existing sidewalk width in the city of Newport is typically 5' with no separation from the roadway. In certain higher traffic areas, such as along US 101 and sections of the Historic Nye Beach area, the sidewalks may be as wide as 10'. Development code requires standard 5' sidewalks for all new development.

Portions of Newport are very pedestrian friendly. The Nye Beach District, the newer segments of US 101, and the area immediately around City Hall have 8' - 10' wide sidewalks in excellent condition with a variety of complimentary pedestrian facilities, including textured crosswalks, bulb outs, ADA accessible curb ramps, pedestrian-scale lighting, and sidewalk amenities like benches and trash receptacles. However, even in Nye Beach, some of the amenities are located where they interfere with pedestrian movement, especially for visually impaired pedestrians.



Many sidewalks along collectors have old curb ramps that are not in compliance with new ADA standards and guidelines. Other curbs lack ramps entirely. When present, common deficiencies include ramps of insufficient width (less than 36 inches), ramps that are not aligned with the pedestrian flow, excessive slope (maximum of 1:12), excessive cross-slope (maximum of 1:50), no detectable warnings on walking surfaces, inadequate landings, and obstacles in the pedestrian path. The precise location and condition of all existing curb ramps is currently being compiled by the City of Newport and will be fully documented once completed.

Pedestrian Destinations

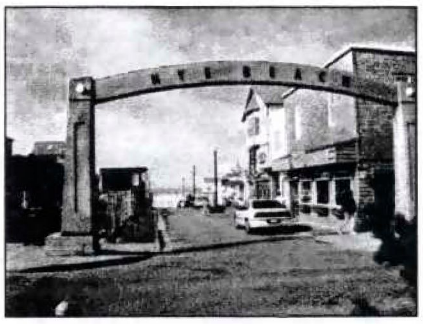
Major pedestrian destinations in Newport include the following (Figure 4):

- **Schools**—Sam Case Elementary School, Yaquina View Elementary School, Newport Middle School, Sonshine Christian School, Isaac Newton Magnet School, and Newport High School. The streets around these schools typically have sidewalks on at least one side of the street, with the exception of Yaquina View Elementary on SE Harney Street, which is lacking sidewalks on both sides of the street. The primary users of schools are children, who rely on biking and walking, and thus a complete and connected bicycle and pedestrian system, as their primary form of transportation more than many other groups. Other weekday users of the facilities include teachers, staff, and volunteers; all who may wish to walk or bike to the school. On weekends, the schools attract a variety of users as they often serve as the site of soccer, baseball, and football games.

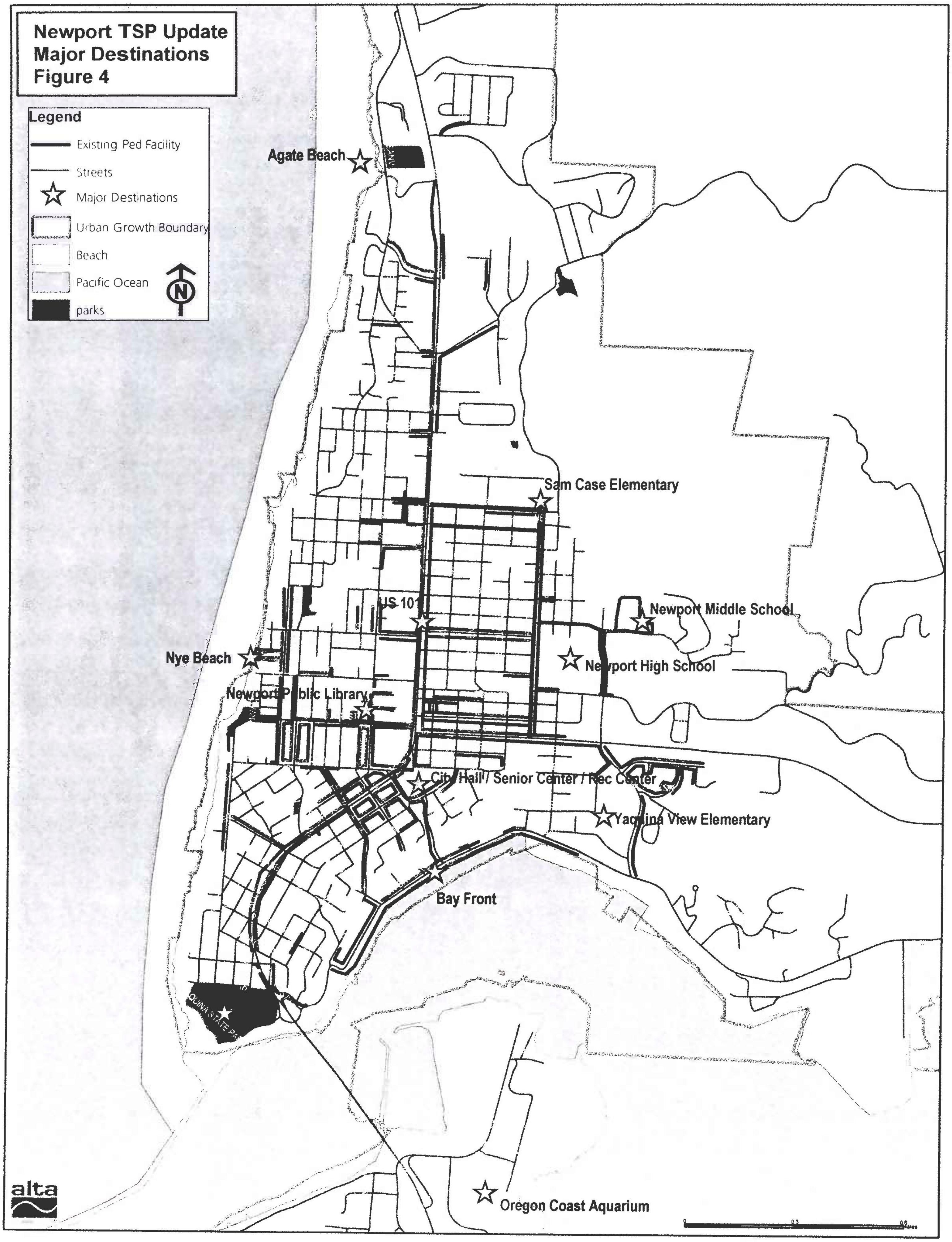
- **Parks**—Don Davis Park, Sam Moore Parkway, Green Thumb Park, Mombetsu Sister City Park, Founding Rock Park, Frank Wade Memorial Park, Big Creek Park, Agate Beach Neighborhood Park, Yaquina Bay State Park, Agate Beach Wayside Park, and South Beach State Park. With the exception of Don Davis Park and Green Thumb Park, the other parks all lack accessible pedestrian facility connections. Parks provide the opportunity for both passive and active recreation and are utilized by people of all ages. Children, as well as the elderly, rely on the non-motorized transportation system more heavily than other portions of the population and require good bicycle and pedestrian connections to desired destinations such as parks.
- **Shopping centers**—The commercial shopping area along US 101 includes a selection of fast food restaurants and local shopping strips with a variety of shops and stores. The stores on US 101 are accessible by sidewalks on these arterials; however, the high traffic volumes and curb tight sidewalks can make the walking experience uncomfortable.

Newport also has smaller shopping areas at the Nye Beach Shops and the Bay Front Shops. Both of these areas are accessible by sidewalk in the immediate area, however both lack continuous connections from other parts of the city. The shopping centers, particularly the smaller shopping areas at Nye Beach and the Bay Front are popular tourist destinations, but connecting to those areas on foot is difficult.

- **Beaches** —Nye Beach, South Beach, and Agate Beach are the major beaches in Newport. With the exception of Nye Beach, which is located in a pedestrian-friendly neighborhood, the other beaches are difficult to access from the existing pedestrian network. Beaches attract users of all ages, providing the opportunity for a variety of recreation activities.



- **Community/Tourist Destinations –** Important community and tourist destinations such as the library, Oregon Coast Aquarium, the Undersea Gardens, the senior center, the recreation center, etc are important resources for tourists and residents alike, and should be accessible by all modes of transport.



Newport TSP Update
Major Destinations
Figure 4
Legend
Existing Ped Facility
Streets
Major Destinations
Urban Growth Boundary
Beach
Pacific Ocean
parks
N
Agate Beach
Sam Case Elementary
US 101
Newport Middle School
Nye Beach
Newport High School
Newport Public Library
City Hall / Senior Center / Rec Center
Yaquina View Elementary
Bay Front
Oregon Coast Aquarium
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Pedestrian / Vehicle Crash Data

Crash listings for US 101 (from S 62nd Street to N 12th Street) and US 20 (from US 101 to Moore Drive) were obtained for the years 2003 – 2005 from ODOT. Table 4 summarizes the results of ODOT's reporting for US 101. There were no reported crashes along US 20. All crashes resulted in injury to the pedestrian.

Table 4 Pedestrian / Vehicle Crash Results

Milepost	Date	Crash Cause	Condition
140.29	November 2005	Motorist failed to yield	Day, rainy, wet
140.19	October 2005	Motorist failed to yield	Day, rainy, wet
140.82	June 2004	Motorist failed to yield	Day, clear, dry
140.32	February 2004	Motorist failed to yield	Day, rainy, wet
141.14	February 2004	Motorist failed to yield	Day, cloudy, dry
140.75	May 2003	Motorist failed to yield	Day, clear, dry
140.23	November 2003	Motorist failed to yield	Day, clear, dry

Pedestrian System Deficiencies

Though many of the arterials and collectors in Newport have adequate existing pedestrian facilities, there are still several barriers pedestrians must overcome:

- Limited street connectivity between major destinations - such as Nye Beach to the Bay Front - and land use clustering force pedestrians to walk along roadways lacking in any type of pedestrian facility to access destinations.
- Many of the roadways have sidewalks near the center of town, but are only 5' wide and curb tight. The lack of buffers (planter strip, bicycle lanes or on-street parking) can make walking uncomfortable and potentially dangerous next to high-speed traffic.
- Topography – Newport is located on a plateau with steep hills heading down to both the Bay Front and the ocean front, making it difficult for many pedestrians to reach desirable destinations. The Bicycle and Pedestrian Advisory Committee is currently working on identifying appropriate, accessible pedestrian routes from Nye Beach to the Bay Front.
- Crossing US 101 – Challenging due to long distances between signalized intersections and marked crossings in certain locations. This discourages pedestrians from walking to services along the roadway and may endanger those who chose to dart across the roadway to reach their desired destinations.
- Portions of the arterial and collector street systems lack ADA-compliant curb ramps and driveway cuts, particularly in the older sections of Newport. This can make traveling by wheelchair or motorized mobility device challenging, if not impossible.
- Streets and roads in perimeter areas lack basic pedestrian facilities such as shoulders.

Bicycle Facilities

According to AASHTO's *Guide for the Development of Bicycle Facilities* (1999) and the *Oregon Bicycle and Pedestrian Plan* (1995), there are several different types of bicycle facilities. Bicycles are allowed on all of the roadways in Newport and the surrounding areas. Bikeways are distinguished as preferential roadways that have facilities to accommodate bicycles. Accommodation can be a bicycle route designation or bicycle lane striping. Shared use paths are facilities separated from a roadway for use by cyclists, pedestrians, skaters, runners, or others. Shared use paths are discussed in the review of existing conditions for the Newport pedestrian system. The following types of bikeways, recognized by AASHTO and *Oregon Bicycle and Pedestrian Plan*, are found in Newport:

- ***Shared Roadway:*** Shared roadways include roadways on which bicyclists and motorists share the same travel lane. This is the most common type of bikeway. The most suitable roadways for shared bicycle use are those with low speeds (25 mph or less) or low traffic volumes (3,000 ADT or less).

- ***Signed Shared Roadway:*** Signed shared roadways are shared roadways that are designated and signed as bicycle routes and serve to provide continuity to other bicycle facilities (i.e., bicycle lanes) or designate a preferred route through the community. Common practice is to sign the route with standard Manual on Uniform Traffic Control Devices (MUTCD) green bicycle route signs with directional arrows. The OBPP recommends against the use of bike route signs if they do not have directional arrows and/or information accompanying them. Signed shared roadways can also be signed with innovative signing that highlights a special touring route (i.e., Oregon Coast Bicycle Route) or provides directional information in bicycling minutes or distance (e.g., "Library, 3 minutes, 1/2 mile"). Newport has both the Oregon Coast Bicycle Route as well as local signed bicycle routes.

- ***Shoulder Bikeway:*** These are paved roadways that have striped shoulders wide enough for bicycle travel. Sometimes shoulder bikeways are signed to alert motorists to expect bicycle travel along the roadway.

- ***Bike Lane:*** Bike lanes are portions of the roadway designated specifically for bicycle travel via a striped lane and pavement stencils. ODOT and Newport standard width for a bicycle lane is 6'. The minimum width of a bicycle lane against a curb or adjacent to a parking lane is 5'. A bicycle lane may be as narrow as 4', but only in very constrained situations. Bike lanes are most appropriate on arterials and major collectors, where high traffic volumes and speeds warrant greater separation.

State / Regional Bicycle Facility Standards

The Oregon Department of Transportation has developed standards and guidelines for appropriate facilities placement and design. The standards and guidelines summarized below are based on Chapter 11 of the 2003 Highway Design Manual and the Oregon Bicycle and Pedestrian Plan and apply to any roadway where bicycle use is allowed. The City of Newport adheres to the standards described below.

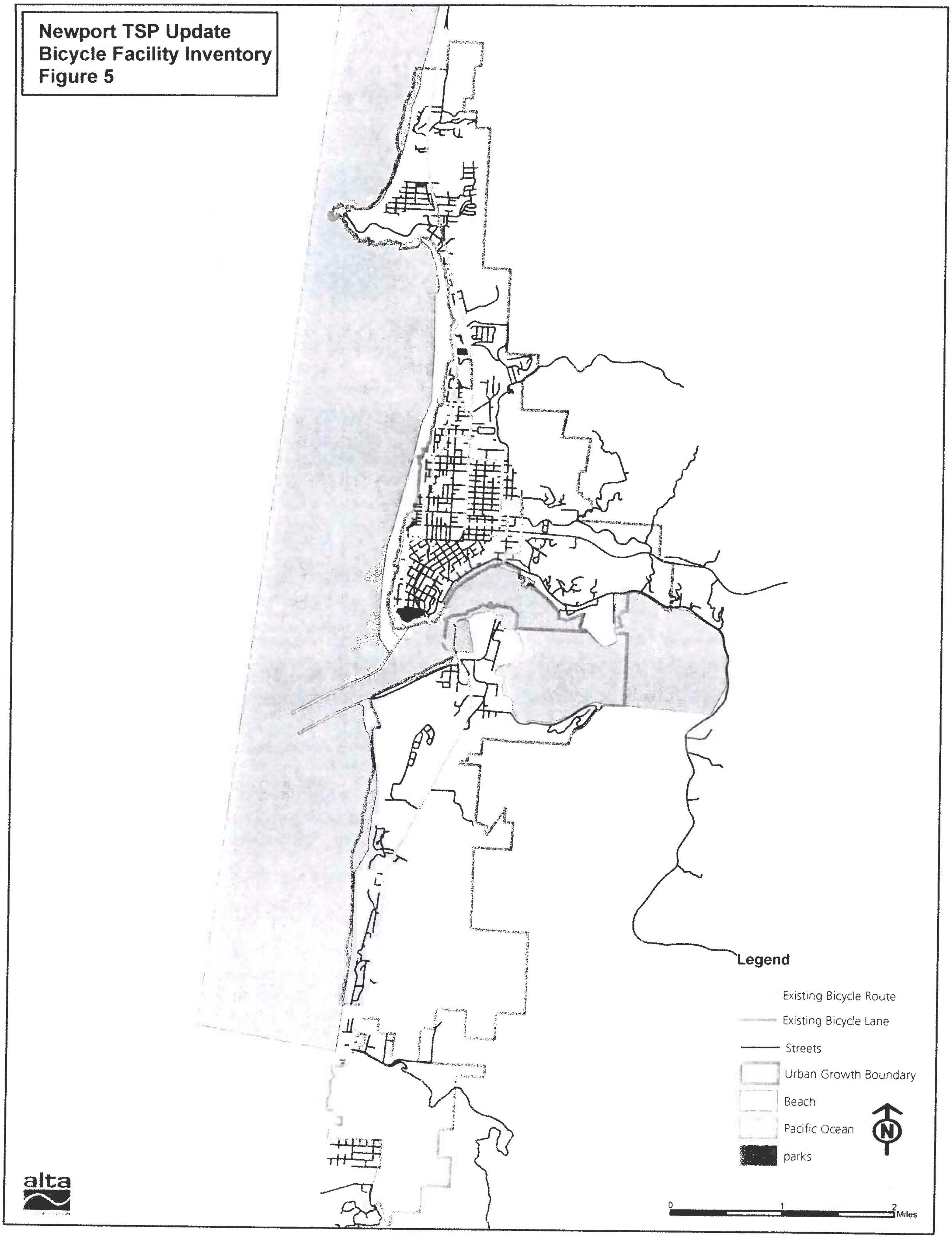
Table 5: ODOT Recommended Bicycle Facility Types and Standards

Location	Facility Type	Minimum / Recommended Width	Notes
Rural	Shared Roadway Shoulder Bikeway	n/a 4 ft / 6 ft	Appropriate for most rural roads. Shoulder bikeways recommended for semi-rural residential areas, areas close to urban areas, and/or where high bicycle volumes are expected.
Urban: Arterial and Major Collector	Bike lanes	4 ft (open shoulder) / 6 ft 5 ft (next to curb, guardrail, parking space) / 6 ft	A wide outside lane facility is not considered and acceptable substitute for bike lanes. Wider bike lanes may be appropriate in areas of very high use.
Urban: Minor Collectors and Local Streets	Shared roadways	n/a	Where auto speeds are high (over 25 MPH (40 km/hr)) or auto volumes are high (over 3000 cars/day), and/or where land uses dictate (such as near schools), bike lanes are appropriate on minor collectors.

Existing Bikeway Locations

Figure 5 shows the various bikeways on all roads in Newport. The majority of arterial and collector roads do not have designated bicycle facilities. Bicyclists must share the roadway with vehicle traffic and, in locations without sidewalks or paths, with pedestrians.

The bikeway facilities on Newport's roadways consist of bicycle lanes and signed shared roadways. Bicycle lanes are present on US 101 (South Coast Highway) from NE 49th St to NE 54th St, as well as in the southern (uphill) direction between the Best Western driveway


Newport TSP Update
Bicycle Facility Inventory
Figure 5
Legend
Existing Bicycle Route
Existing Bicycle Lane
Streets
Urban Growth Boundary
Beach
Pacific Ocean
parks
N
0
1
2
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and NW 25th St. Bike lanes are also striped along NE Harney Street between NE 3rd and NE 7th. The Oregon Coast Bicycle Route is signed through Newport. The route is located on US 101 heading south, diverting onto NW Oceanview Drive where it follows the coastline south along NW Spring Street, NW 8th Street, NW Coast Street, SW 2nd Street, SW Elizabeth Street, through Yaquina State Park, and back to US 101 just before the Yaquina Bay Bridge. Local bicycle routes are also signed in Newport along the following roads: NW Edenview Way, NW 15th Street, SE 1st Street, NE Fogarty Street, SE 4th Street, SE Harney Street, NE Eads Street, NE 1st Street.

Table 6 Existing Newport Bikeways

Location	Type
US 101 (South Coast Highway)	Signed shared roadway / bike lanes
NE Harney Street	Bike lane
NW Oceanview Drive	Signed shared roadway
NW Spring Street	Signed shared roadway
NW Coast Street	Signed shared roadway
Yaquina Bay State Park	Signed shared roadway
NW Edenview Way	Signed shared roadway
NW 15th Street	Signed shared roadway
SE 1st Street	Signed shared roadway
NE Fogarty Street	Signed shared roadway
SE 4th Street	Signed shared roadway
SE Harney Street	Signed shared roadway
NE Eads Street	Signed shared roadway
NE 1st Street	Signed shared roadway

Existing Bikeway Conditions

The existing bike lanes in Newport – the two short segments along US 101 and NE Harney Street – are 6' wide and in good condition, providing safe riding conditions for bicyclists.

The signed shared Oregon Coast Bicycle Route utilizes roadways that generally do not provide enough room for bicyclists to comfortably share the road with vehicles. Windy, hilly terrain and limited space on NW Oceanview Drive make bicycling a challenge from US 101 to SW Elizabeth Street. The signed local shared roadways are mostly collector streets, however they generally have lower traffic volumes while providing ample room for bicyclists and motor vehicles to share the roadway.

Destinations for Bicyclists

Major destinations for bicyclists are primarily the same as those for pedestrians: downtown, schools, employment centers, shopping centers, neighborhood commercial areas, parks, and the beaches. In addition, US 101 /US 20 provide regional connections to other highways and county roads to nearby cities such as Siletz, Depoe Bay, Lincoln City, Toledo and Waldport. There are many opportunities for excellent recreational bicycling on low-volume local roadways.

Popular destinations in the City of Newport include:

- Bay Front
- Newport Public Library
- Historic Nye Beach
- Oregon Coast Aquarium
- South Beach
- Don Davis Park
- Yaquina Bay State Park
- Local schools
- Burrows House Museum
- Log Cabin Museum
- Newport Performing Arts Center
- Newport Senior Center
- Services along US 101

Bicycle / Vehicle Crash Data

Crash listings for US 101 (from S 62nd Street to N 12th Street) and US 20 (from US 101 to Moore Drive) were obtained for the years 2003 – 2005 from ODOT. Table 7 summarizes the results of ODOT's reporting for US 101. There were no reported crashes along US 20.

Table 7 Bicycle / Vehicle Crash Results

Milepost	Date	Crash Cause	Condition
139.79	July 2005	Motorist failed to yield	Day, clear, dry
139.89	May 2004	Motorist failed to yield	Day, clear, dry
139.98	May 2004	Motorist failed to yield	Day, clear, dry
140.10	June 2004	Motorist failed to yield	Day, cloudy, dry
140.68	May 2003	Improper overtaking	Day, cloudy, dry

Bicycle System Deficiencies

Bicyclists face several major barriers in Newport:

- US 101, particularly through the heart of the city, is a high-volume, multi-lane facility which has few accommodations for bicyclists. The bicycle facilities in Newport are located to the east or west of this major corridor and do not provide adequate directional signage for connections to major pedestrian and bicycle destinations. Strip development, multiple driveways, wide roadways, and high speeds discourage bicycling on US 101 through town.
- The signed Oregon Coast Bicycle Route follows the hilly and windy NW Oceanview Drive along the coast line, placing bicyclists in conflict with motorists on a narrow road with restricted sight distances. The route also lacks signed connections from the Oregon Coast Bicycle Route to major destinations and facilities within Newport.
- Topography – As noted above the Oregon Coast Bicycle Route follows a hilly route, however many of the residential areas in Newport are located up on a plateau from both the ocean front as well as the Bay Front, making returning from those locations difficult for many cyclists.
- Yaquina Bay is a natural barrier that divides the city and destinations such as the Hatfield Marine Science Center and the Oregon Coast Aquarium from the major residential areas. The Yaquina Bay Bridge has a 3'5" wide sidewalk with two 11-foot wide travel lanes. A signal button that activates the sign to the left is located at each end of the bridge for bicyclists to use if riding across the bridge, otherwise bicyclists are asked to walk their bikes on the sidewalk across the ~ 0.5 mile bridge.
- Newport's local roadway system provides decent connectivity both east and west of US 101 with a grid street system. However, the existing signed bicycle routes do not adequately illustrate the best connections, leaving bicyclists to work out the best routes for themselves. Connections to the Bay Front can be difficult to make for bicyclists, due to an interrupted street grid and the elevation change down to the waterfront.
- A number of local bicyclists were observed riding on the sidewalk and against traffic. This may be due to the lack of facilities on both sides of the roadway or lack of education about safe bicycling techniques.

ORDINANCE NO. 1963

EXHIBIT "F"

Newport

Pedestrian and Bicycle Plan

July 2008

alta

Acknowledgements

The City of Newport appreciates the efforts of the numerous residents who participated in the development of this Plan. Their creativity, energy, and commitment to the future of Newport were the driving force behind this planning effort. In addition, the following citizens, City staff, and other agency and organization members contributed regularly to the development of the Pedestrian and Bicycle Plan.

Project Management Team

Ad Hoc Advisory Committee

Consultant Team

Alta Planning + Design, Inc.
Parametrix, Inc

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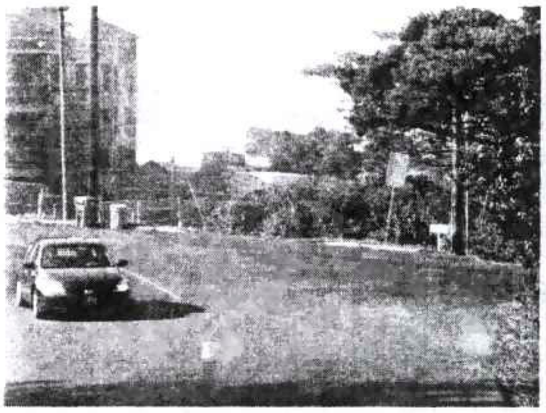
EXECUTIVE SUMMARY



Transportation and recreation are critical facets of life in Newport, and necessitate parks and natural areas, play and sports facilities, recreational amenities and programs, public transit services and connections, and on-street and off-street bikeways and walkways. These elements provide benefits to residents across the spectrum of age, economic status, physical ability, neighborhood location, and daily activity. These elements also offer residents, employees, and visitors complete community connectivity and interrelated opportunities for work, play, shopping, and exercise in and between every neighborhood in the city.

The Pedestrian and Bicycle Plan replaces the bicycle and pedestrian element of the 1997 Newport Transportation System Plan (TSP). The goal of this Plan is to provide a comprehensive list of projects and strategies for system-wide improvements to the walking and bicycling environment.

Sidewalks, bicycle lanes, shoulder bikeways, shared roadways and shared-use paths comprise Newport's existing pedestrian and bicycle network. Obstacles currently facing pedestrian and bicycle travel generally include:

- Maintenance issues
- Lack of well-defined routes
- Fragmented sidewalk network
- Conflicts between pedestrians/cyclists and other transportation users
- Difficult pedestrian/bicyclist crossings at intersections and other locations
- Natural and man-made barriers
- Lack of adequate bicycle parking facilities in some areas
- Difficult pedestrian/bicycle connections to schools and transit

This Plan lays out a comprehensive system of recommended bikeways and walkways connecting key pedestrian and bicycle destinations and surrounding areas. The recommended system was developed based on input from City staff, stakeholder groups and Newport residents. The network also builds upon recommendations from previous planning efforts, including the Newport TSP, the Newport Comprehensive Plan, and the Newport Park System Master Plan. The system includes a variety of facilities including sidewalks, bicycle lanes, shoulder bikeways, an expanded shared roadway/bicycle boulevard network, and shared-use paths.

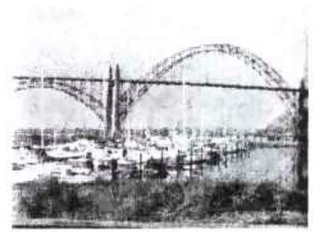
Equally important to the walkway and bikeway network are support programs. Additional strategies for improving walking and bicycling in Newport include:

- Developing a Safe Routes to School program to encourage children to walk and bicycle to school
- Improving bicycle parking facilities
- Improving pedestrian/bicycle access to transit
- Creating an alternative transportation coordinator position
- Developing a wayfinding/signing program
- Developing a "spot improvement" program for small-scale capital upgrades
- Developing a sidewalk infill program
- Developing education programs (e.g., safety bicycle/pedestrian safety training)
- Developing encouragement programs (e.g., employer incentives, multi-modal access guide, bicycle/pedestrian events)
- Enforcing traffic laws relating to pedestrians and cyclists

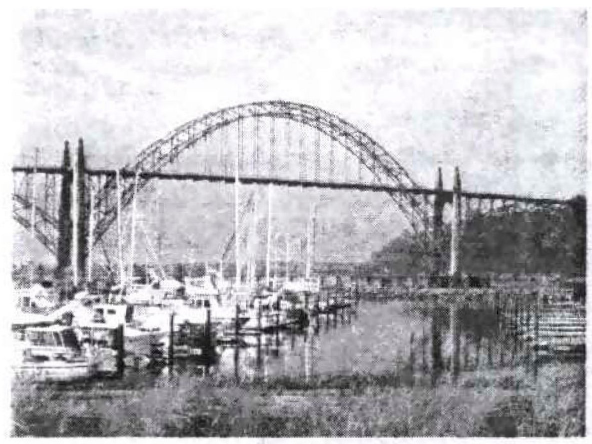
A variety of potential sources could help fund Newport's future pedestrian and bicycle system. Funding could potentially come from Federal sources (including the recently-authorized SAFETEA-LU transportation bill); State sources (including grant programs); and local sources.

Newport

Pedestrian & Bicycle Plan



1. INTRODUCTION


Yaquina Bay Bridge

Newport is located on the beautiful central Oregon Coast, and first built its reputation in the 1860s as a city with world-class oysters. Now in 2007, Newport is celebrating its' 125th anniversary as a city. Newport is the county seat of Lincoln County.

The City of Newport recognizes that bicycling and walking are an important part of daily transportation for residents, commuters, and other visitors to the city. This Plan is for all residents who desire to bicycle or walk to school or work, improve their level of daily physical activity, or go for a family bicycle ride to the park, aquarium, library, the beach, or downtown.

Benefits of Walking and Bicycling

Walking and bicycling are healthy, efficient, low-cost modes of travel, available to nearly everyone. Walking is the most basic form of transportation. Almost everyone is a pedestrian at some point in the day, since walking is often the quickest way to accomplish short trips in urban areas. Pedestrians also include persons using wheelchairs and other forms of mobility devices. Bicycling also provides many community benefits. Bicycling can help reduce traffic congestion, improve air quality, and improve physical fitness. This mode of transportation is also within reach for many people who cannot afford an automobile.

Walking and bicycling help develop and maintain "livable communities," make neighborhoods safer and friendlier, save on motorized transportation costs, and reduce transportation-related environmental impacts, auto emissions, and noise. They create transportation system flexibility by providing alternative mobility options, particularly in combination with transit systems, to people of all ages and abilities. Active living that integrates walking and bicycling into daily activities is key to improving public health and reducing Oregon's obesity crisis. Planners and city leaders are encouraged to create more walkable and bikeable communities that promote healthier lifestyles.

Walking and bicycling are important to the health of all those living and working in Newport, not just to those doing the walking or cycling. People choosing to ride or walk rather than drive are typically replacing short automobile trips, which contribute disproportionately high amounts of pollutant emissions to the environment. Since bicycling and walking contribute no pollution, require no external energy source, and use land efficiently, they effectively move people from one place to another without adverse environmental impacts.

Bicycling and walking require less space and infrastructure compared with automobile facilities. Improvements made for bicyclists often result in better conditions for other transportation users as well. For instance, paved shoulders, wide curb lanes, and bicycle lanes not only provide improved conditions for bicyclists, but also create a safe location for disabled vehicles to stop.

Walking and bicycling are also good choices for families. A bicycle enables a young person to explore her neighborhood, visit places without being driven by her parents, and experience the freedom of personal decision-making. More trips by bicycle and on foot mean fewer trips by car. In turn, this means less traffic congestion around schools and in the community, and less time parents spend driving their children.

Bicycling and walking create opportunities to speak to neighbors and put more "eyes on the street" to discourage crime and violence. Communities with high levels of walking and bicycling often have lower crime rates, and are generally attractive and friendly places to live.

The extent of bicycling and walking in a community has been described as a barometer of how well that community is advancing its citizens' quality of life. Streets that are busy with bicyclists and walkers are working at a human scale, fostering a heightened sense of neighborhood and community.

Plan Overview

The Pedestrian and Bicycle Plan replaces the bicycle and pedestrian element of the 1997 Newport Transportation System Plan (TSP. The goal of this Plan is to provide an assessment of Newport's existing walking and bicycling environment, and a comprehensive list of projects and strategies for system-wide improvements. This plan incorporates most of the projects proposed by the TSP, in addition to other projects and programs to further enhance bicycling and walking in Newport.

Goals, Policies, and Implementation Strategies

The goal sets forth the long-range vision of what the Pedestrian and Bicycle Plan is trying to achieve. Policies demonstrate what the City of Newport will do to reach the goal, while implementation strategies identify specific measures that need to be taken in order to implement the policies. The intent in the adoption of the Pedestrian and Bicycle Plan is that the policies and implementation strategies are not intended to apply directly to land use actions and permits, but are intended to set the framework for future ordinance amendments as applicable.

Goal

To promote non-motorized travel and provide a safe interconnected system of pedestrian and bicycle facilities in Newport.

Policies

The City of Newport shall:

1. Continue to improve, expand, and maintain pedestrian and bicycle facilities, as needed, throughout the community.
2. Ensure that pedestrian and bicycle networks provide direct connections between major activity centers (e.g., downtown Newport, the beach, area schools), and minimize conflicts with other transportation modes.
3. Adopt ordinances requiring sidewalks for all new and infill construction within the city.
4. Regard facilities for pedestrians and bicyclists as important parts of the overall transportation system and not just recreational facilities.
5. Increase the bicycle and pedestrian mode share throughout the City and improve bicycle and pedestrian access to the City's transportation system.

Implementation Strategies

1. Determine the actual location, design, and routing of pedestrian and bicycle facilities with user safety, convenience, and security as primary considerations.
2. Schedule and coordinate all pedestrian and bicycle improvements with the City's on-going Capital Improvement Program.
3. Establish pedestrian and bicycle construction standards and incorporate into the City's Public Works Standards.
4. Require bicycle lanes on all new Arterial and Major Collector streets, and identify opportunities to provide bicycle lanes on Minor Collectors and other streets as necessary.
5. Provide sidewalks on both sides of all streets with appropriate buffering (e.g. planter strips) wherever possible as part of new roadway construction, roadway reconstruction, and development of other projects affecting City right-of-way.

6. Establish a Sidewalk Infill Program to identify sidewalk gaps, and develop strategies, project prioritization criteria and funding for completing these gaps.

7. Retrofit existing pedestrian and bicycle facilities to current standards (where possible) to promote safety, connectivity, and consistency, as funds become available.

8. Require that all walkways and bikeways be constructed in a manner that addresses environmental conditions, such as natural, cultural, and historical features.

9. Discourage the use of cul-de-sac street designs that lack pedestrian and bicycle connectivity.

10. Require pedestrian and bicycle connections within and between developments to provide convenience and safety for pedestrians and bicyclists.

11. Require development of secondary walkways and bikeways internal to individual developments, consistent with the Oregon Transportation Planning Rule.

12. Develop an Americans with Disabilities Act (ADA) Transition Plan to identify strategies and priorities for upgrading the City's current public transportation infrastructure to accommodate persons with disabilities.

13. Establish a routine maintenance schedule for pedestrian and bicycle facilities, including bikeway sweeping and cracked sidewalk repair.

14. Develop and fund a "Spot Improvement" Program to respond quickly to location-specific bicycle/pedestrian infrastructure improvement needs.

15. Coordinate with the Lincoln County School District and the State of Oregon to develop a Safe Routes to School Program to promote walking and bicycling as viable travel modes to school.

16. Develop a safe, secure and convenient network of short- and long-term public bicycle parking facilities.

17. Develop seamless pedestrian/bicycle connections to the Lincoln County Transit system through improved crossings, connections, and transit stop conditions.

18. Develop education programs to increase the awareness of pedestrian and bicyclist needs and rights.

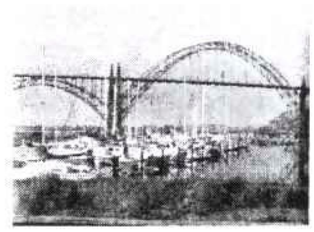
19. Develop encouragement programs to promote walking and bicycling as convenient, healthy, safe and viable transportation modes.

20. Develop enforcement programs to ensure pedestrians, bicyclists, and motorists obey traffic laws.

21. Identify and apply for all available state and federal grant funding opportunities to fund the system improvements identified in the Pedestrian and Bicycle Plan.

Plan Organization

The Plan begins with a description and assessment of Newport's existing pedestrian and bicycle facilities (Section 2). Based on the assessment, a recommended pedestrian and bicycle network is presented in Section 3, including a detailed list of proposed projects. Along with a recommended network of facilities, the Plan discusses recommended pedestrian and bicycle programs (Section 4) highlighting other methods for addressing walkers' and bicyclists' needs. The design guidelines and standards section (5) expands on the facility types recommended for Newport and also provides additional information on roadway crossings, and signing and striping facilities for bicyclists and pedestrians. Finally, Section 6 identifies potential strategies for funding the recommended pedestrian and bicycle projects and programs.



2. EXISTING CONDITIONS

Pedestrian Facilities - An Overview

The Oregon Bicycle and Pedestrian Plan defines pedestrian facilities as any facilities utilized by a pedestrian. Pedestrian travel is accommodated and enhanced by walkways, traffic signals, crosswalks, curb ramps, and other features like illumination or benches. Newport has several different types of "walkways", which are defined in the Oregon Bicycle and Pedestrian Plan as "transportation facilities built for use by pedestrians and persons in wheelchairs." Walkways include the following facilities:

- Sidewalks: The most common type of walkway, sidewalks generally parallel roadways. Sidewalks have a hard, smooth surface (e.g., concrete), with separation from the roadway typically consisting of a curb and/or planter strip.
- Shared-use Paths: Shared-use paths are used by various non-motorized users, including pedestrians, cyclists, in-skaters, and runners. Shared-use paths are typically paved (asphalt or concrete) but may also consist of an unpaved smooth surface as long as it meets Americans with Disabilities Act (ADA) standards.
- Roadway Shoulders: Roadway shoulders often serve as pedestrian routes in rural Oregon communities. On roadways with low traffic volumes (e.g., less than 3,000 Average Daily Traffic (ADT) volumes), roadway shoulders are often adequate for pedestrian travel. Similar to "shoulder bikeways" (described later), these roadways should have shoulders wide enough to accommodate both pedestrians and bicyclists.

Existing Pedestrian Facilities

The Existing Pedestrian Facilities Map (Map 2-1) on the following page depicts Newport's current pedestrian network. Sidewalks comprise the vast majority of existing walkways within the city.

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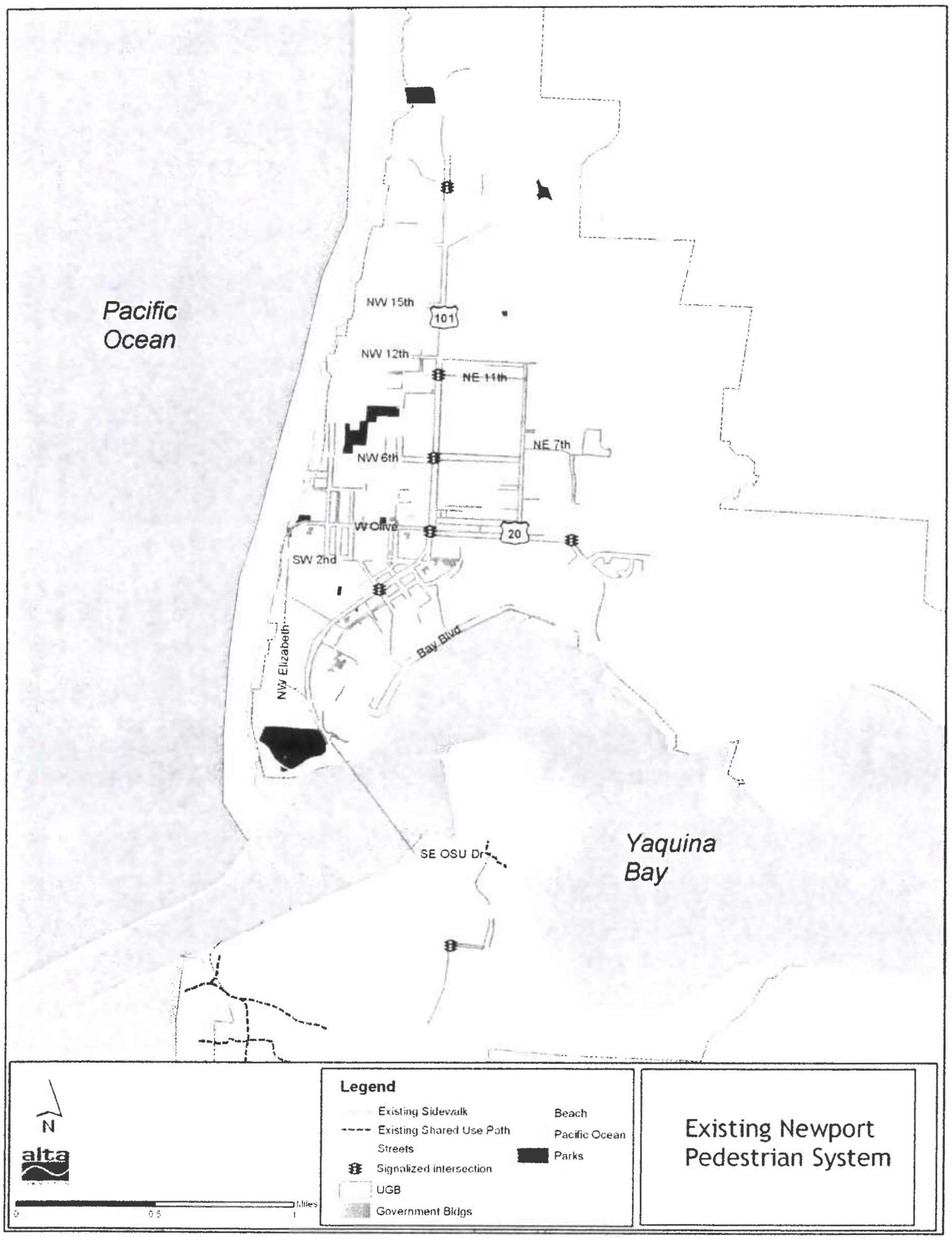

Map 2-1. Existing Pedestrian Facilities in Newport

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Sidewalks

Newport currently has an incomplete sidewalk network, with only certain areas, notably downtown, the US 101 corridor, and the Bay Front having a more comprehensive sidewalk system. Sidewalks also exist along certain east-west corridors, including portions of NE 11th and 12th Street, NE 6th Street, NE 1st Street, and W Olive Street. Curb-tight sidewalks exist on the city's Principal Arterial streets (on both sides), including most segments of U.S. 101, with widths ranging from five feet to over eight feet along US 101 and in portions of downtown Newport. Within the city's older residential neighborhoods and in the outlying areas, many streets either have sidewalks on one side only, or lack sidewalks altogether.

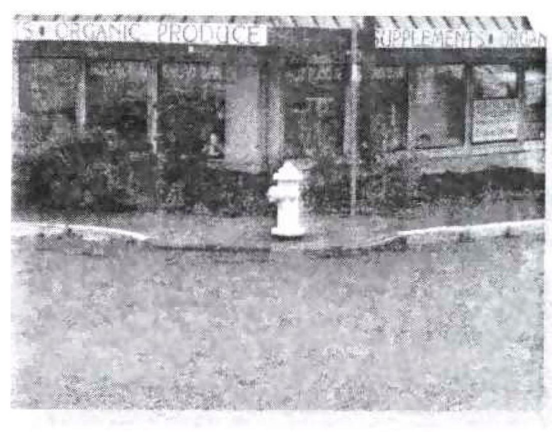
Sidewalk on U.S. 101 near 15th Street

Portions of Newport are very pedestrian friendly. The Nye Beach District, the newer segments of US 101, and the area immediately around City Hall have eight to 10 feet wide sidewalks in excellent condition with a variety of complimentary pedestrian facilities, including textured crosswalks, bulb outs, ADA accessible curb ramps, pedestrian-scale lighting, and sidewalk amenities like benches and trash receptacles. However, even in Nye Beach, some of the amenities are located where they interfere with pedestrian movement, especially for visually impaired pedestrians.

Wide sidewalks with curb ramps and bulb-outs in Nye Beach area

In addition to a list of specific sidewalk projects, the Newport TSP proposes strategies for improving the city's sidewalk environment, including:

- Constructing sidewalks on arterials and collector streets where they currently do not exist
- Providing continuous sidewalks on downtown streets and in the beach and bay front areas of town
- Replacing broken sidewalks



Sidewalk fire hydrant on ramp, preventing full use of the curb ramp on SW 2nd Street

The quality of intersections from a pedestrian perspective varies by location. Marked crosswalks and curb ramps exist at most major intersections on Arterial streets and within downtown Newport. The signalized intersections include pedestrian-activated signals or have pre-timed signal phasing allowing pedestrian crossing movements concurrent with parallel vehicle movements. Conditions along Collector and Local streets also vary by location. Marked crosswalks exist at intersections near schools and other pedestrian generators. Many sidewalks along collectors have old curb ramps that are not in compliance with new ADA standards and guidelines. Other curbs lack ramps entirely. When present, common deficiencies include ramps of insufficient width (less than 36 inches), ramps that are not aligned with the pedestrian flow, excessive slope (maximum of 1:12), excessive cross-slope (maximum of 1:50), no detectable warnings on walking surfaces, inadequate landings, and obstacles in the pedestrian path.

Shared-Use Paths/Trails

Newport currently has several shared-use paths, however they are mostly internal pathway systems, such as those found in Sam Moore Parkway and South Beach State Park. A shared-use path encircles the OSU Hatfield Marine Science Center, connecting the Aquarium with the Bay front. The TSP identifies a potential pedestrian trail along the North Jetty access road to the west of the Coast Guard Station.

General System Deficiencies

Pedestrians face daily obstacles in Newport, as described below.

Sidewalk with overgrown vegetation near Nye Beach

Maintenance Issues

Existing sidewalks in many parts of Newport suffer from cracking or heaving. Additionally, overgrown vegetation obstructs the sidewalk in some places, forcing pedestrians to walk in the adjacent planter strip (where one exists) or in the road.

Lack of Transit Stop Amenities

Many of the designated stops along the Lincoln County bus and Newport summer shuttle routes lack basic passenger amenities such as shelters, benches, and posted schedules. Walkways providing access to some stops are also in substandard condition.

Topography

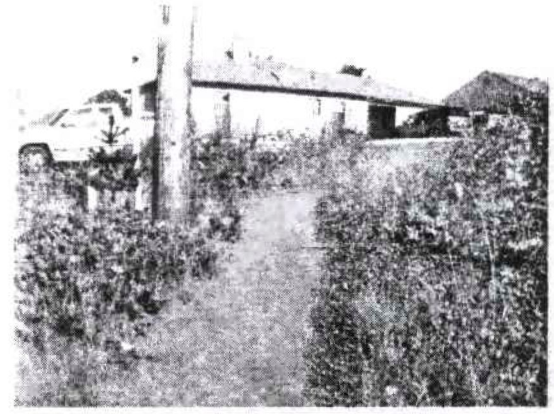
Newport is located on a plateau with steep hills heading down to both the Bay Front and Historic Nye Beach and the oceanfront, making it difficult for many pedestrians to reach desirable destinations or to walk confidently from one destination to another.

Lack of Signage

Newport's pedestrian system would benefit from signage and other wayfinding tools to orient pedestrians and direct them to and through major destinations like downtown, Historic Nye Beach, and the Bay Front. This has been a recent goal of the Pedestrian and Bicycle Committee.

Fragmented Sidewalk Network

Although a relatively complete sidewalk network exists in certain portions of Newport (such as Nye Beach, and the Bay Front), the system is fragmented in other areas. Several streets (e.g. NE 12th Street, NE 7th Street) near pedestrian destinations like Yaquina View Elementary, Sam Case Elementary, Newport Middle and High schools, Newport Hospital, Yaquina Bay State Park, and Sam Moore Parkway, have sidewalks on one side or no sidewalks at all. Neighborhoods at both the city's northern and southern edges also have a fragmented sidewalk network. (See Map 2-1)



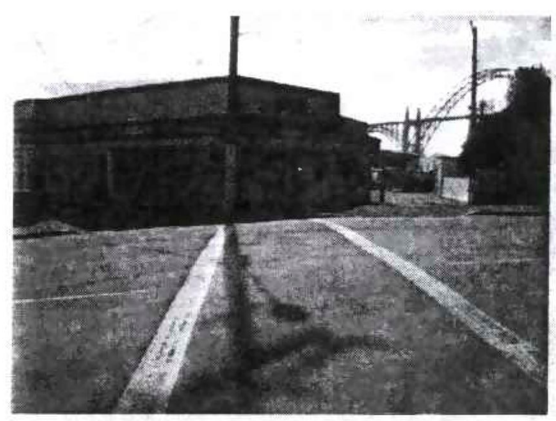
Demand path across from the library

Difficult Crossings

Pedestrians face a variety of difficult street crossing conditions:

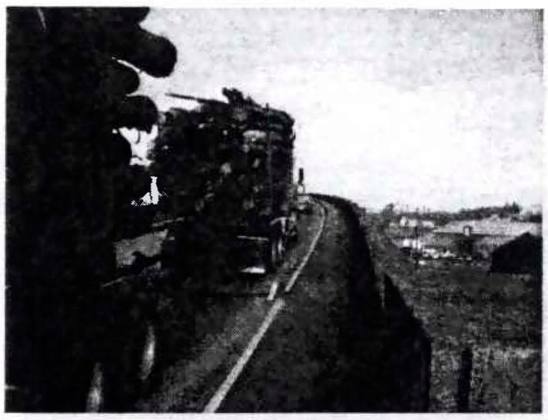
- Crossing US 101 and US 20 is challenging due to relatively long distances between signalized intersections and marked crossings. This discourages pedestrians from walking to services along those roadways. Many chose to dart across the roadway to reach their desired destinations.
- In several locations, crosswalks are difficult to see for approaching motorists. Crosswalk bars on many of the City's longitudinal (also known as "ladder style") crosswalks are fairly narrow and spaced far apart.
- Pedestrians with disabilities experience crossing difficulties in Newport. Curb ramps at many intersections are in poor condition or disrepair, while some intersections lack curb ramps altogether. This can make traveling by wheelchair or motorized mobility device challenging, if not impossible. Visually and mobility impaired pedestrians experience difficulty navigating through intersections with curb ramps oriented diagonally toward the intersection's center rather than toward a crosswalk. Signalized intersections also lack audible pedestrian signals to facilitate safe crossings for the visually impaired.

Bicyclist attempting to cross U.S. 101 at 15th Street



Some crosswalks are difficult to see due to minimal markings

Bicycle Facilities - An Overview



Yaquina Bay Bridge sidewalk with truck traffic

According to AASHTO's Guide for the Development of Bicycle Facilities (1999) and the Oregon Bicycle and Pedestrian Plan, there are several types of "bikeways". Bikeways are distinguished as preferential roadways accommodating bicycle travel. Accommodation can take the form of bicycle route designation or bicycle lane striping. Shared-use paths are separated from a roadway for use by cyclists, pedestrians, in-line skaters, runners, and others.

The Existing Bicycle Facilities Map (Map 2-2) depicts Newport's existing bicycle network. Existing facilities include bicycle lanes, shoulder bikeways, and shared-use paths in some areas, although shared roadways constitute the majority of existing bikeways in the City.

Bicycle Lanes

Designated exclusively for bicycle travel, bicycle lanes are separated from vehicle travel lanes with striping and also include pavement stencils. Bicycle lanes are most appropriate on arterial and collector streets where higher traffic volumes and speeds warrant greater separation. Bicycle lanes currently exist on several streets:

- NE Harney Street (NE 3rd St to NE 7th St)
- US 101 (south direction only)(Agate Beach Wayside Access Rd to NW 25th St)
- US 101 (NW 49th St to NW 54th St)

The bicycle lanes in Newport are approximately 5' wide, reflecting the City's minimum standard.

Shoulder Bikeway

Typically found in rural areas, shoulder bikeways are paved roadways with striped shoulders wide enough for bicycle travel. Shoulder bikeways often include signage alerting motorists to expect bicycle travel along the roadway.

A shoulder bikeway exists on U.S. 101 north of NW 25th St (except where bike lanes are striped) and on US 101 south of the Yaquina Bay Bridge, with shoulder widths ranging from four to seven feet.

Shared Roadway

The most common type of bikeway, shared roadways accommodate vehicles and bicycles in the same travel lane. The most suitable roadways for shared vehicle/bicycle use are those with low posted speeds (25 MPH or less) or low traffic volumes (3,000 ADT or less). These facilities may include traffic-calming devices to reduce vehicle speeds while limiting conflicts between motorists and bicyclists. Most of Newport's minor collector and local streets can be classified as shared roadways, as they can accommodate bicyclists of all ages and currently have little need for dedicated bicycle facilities (e.g., bicycle lanes). Curb-to-curb widths generally range between 40' and 50' and the typical street cross-section includes two vehicle travel lanes with on-street parking.

Bicycle Route

A common practice includes signing shared roadways with bicycle route signs, directional arrows and other wayfinding information. Signed bicycle routes currently exist on several streets:

- US 101 / Oceanview Drive / SW Elizabeth Street (The Oregon Coast Bicycle Route)
- NE 11th Street
- NE 1st Street
- NE Eads Street
- SE Fogarty Street

Shared-Use Paths

Described earlier, shared-use paths are used by various non-motorized users, including pedestrians, cyclists, in-skaters, and runners. Shared-use paths are typically paved (asphalt or concrete) but may also consist of an unpaved smooth surface as long as it meets ADA standards.

Newport currently has several shared-use paths, however they are mostly internal pathway systems, such as those found in Sam Moore Parkway and South Beach State Park. A shared-use path encircles the OSU Hatfield Marine Science Center, connecting the Aquarium with the Bay front. The TSP identifies a potential pedestrian trail along the North Jetty access road to the west of the Coast Guard Station.

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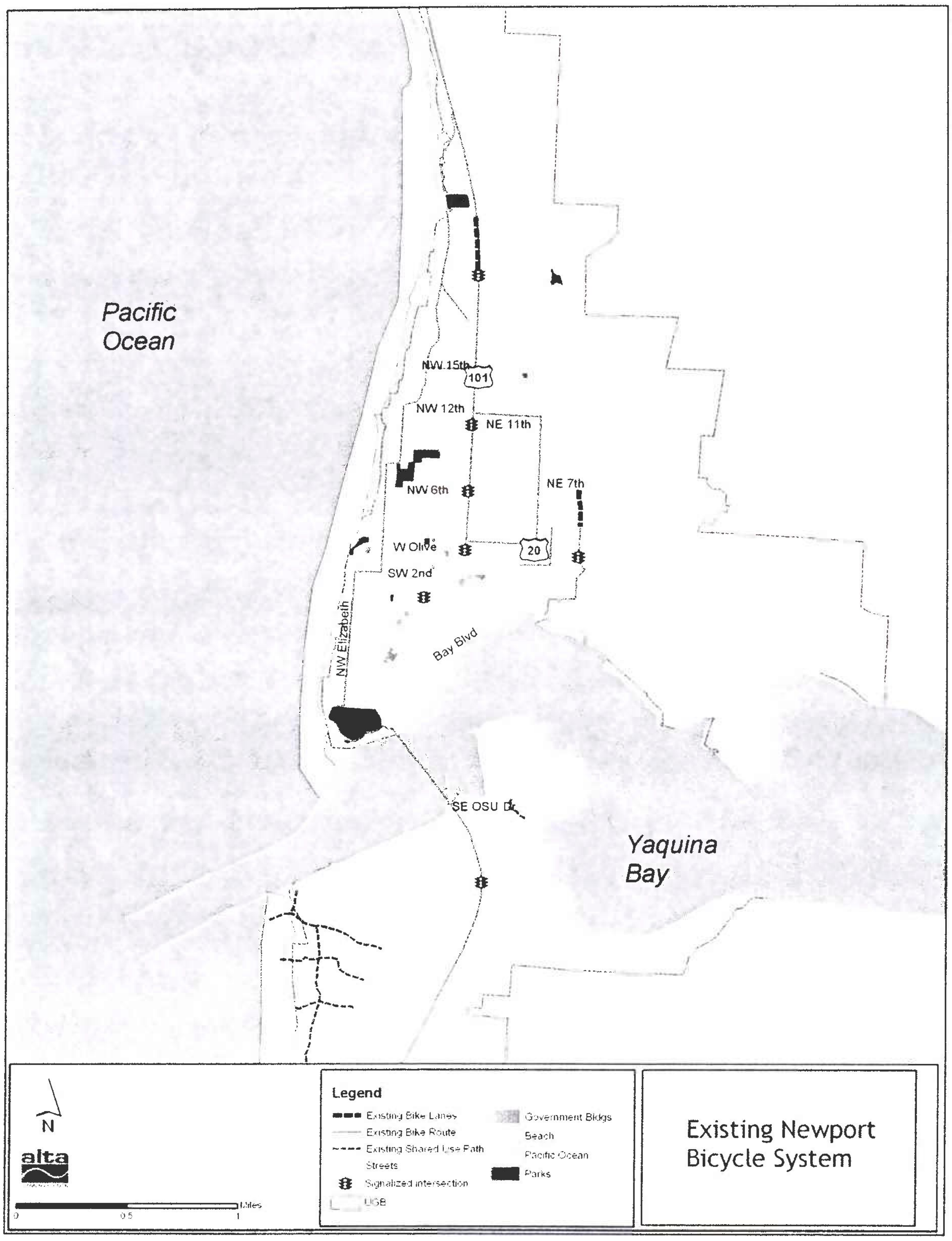

Map 2-2. Existing Bicycle Facilities in Newport

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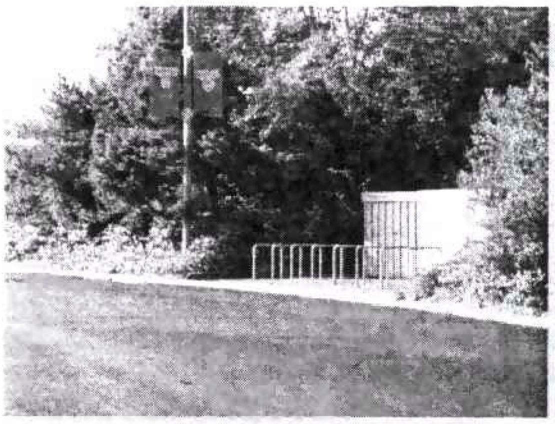
Bicycle Parking

The provision of bicycle parking is an important component in planning bicycle facilities and encouraging widespread use. Minimum recommended bicycle parking requirements for various land uses are established in Table 8 in Chapter II.3 of the Oregon Bicycle and Pedestrian Plan.

In completing field work and in discussions with the public, there is a general perception that not enough bicycle parking is provided (especially covered bike parking), particularly in desirable locations such as Nye Beach, the Bay Front, and near government buildings in downtown Newport. The shortage of quality bicycle racks in high-demand locations typically generates informal bicycle parking activities with cyclists securing their bikes to hand rails, street signs, light poles and other objects.



Accessible bicycle parking at the Oregon Coast Aquarium

General System Deficiencies

Bicyclists face several various issues, including:

Maintenance Issues

Gravel, glass and other debris are routinely present on the bikeway system. This typically occurs when passing motor vehicles blow debris into the adjacent bicycle lane or shoulder.

Older signage on bike route obscured by vegetation

Poor Pavement Conditions

Several on-street bikeways are characterized by poor pavement conditions, including potholes and uneven surfaces.

Lack of Signage

Newport's bikeway system lacks signage and other wayfinding tools to orient riders and direct them to and through major bicycling destinations like downtown and the Bay Front.

Debris in the bikeway on U.S. 101

Conflicts Between Cyclists and Other Transportation Users

Cyclist safety and comfort issues arise on higher volume roadways lacking dedicated bicycle facilities or traffic-calming treatments. For example, NW Nye Street provides a parallel north-south bicycle route to US 101, providing connections to residential areas, the library, parks, and downtown. However, the street also serves as a local vehicle circulation route with increasing traffic volumes, creating an uncomfortable bicycling environment.

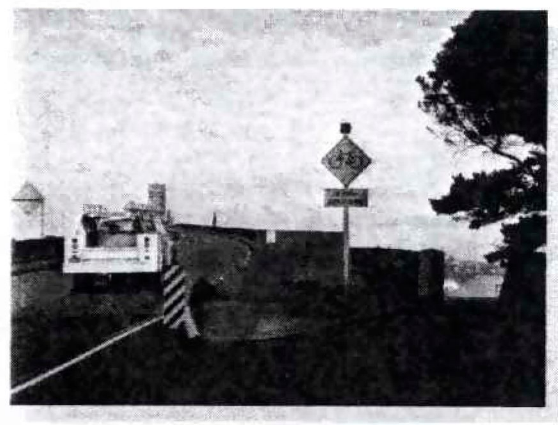
Topography

Newport is located on a plateau with steep hills heading down to both the Bay Front and Nye Beach and the oceanfront, making it difficult for many bicyclists to comfortably make round trips to these destinations, or to travel confidently from one destination to another.

Cyclists must either use vehicle travel lanes or gravel shoulders on NE Harney near U.S. 20

Barriers

Yaquina Bay is a natural barrier that divides the city and destinations such as the Hatfield Marine Science Center and the Oregon Coast Aquarium from the major residential areas. The Yaquina Bay Bridge has a 3'5" wide sidewalk with two 11-foot wide travel lanes. A signal button that activates a flashing yellow light above a "Bikes on Bridge When Flashing" sign is provided for cyclists wishing to ride across the bridge. Otherwise, cyclists are asked to walk their bikes on the sidewalk across the ~ 0.5-mile bridge. Riding on the sidewalk is not recommended due to high winds that may suddenly blow cyclists from the sidewalk into the travel lanes.



Existing signage for crossing Yaquina Bay Bridge

Lack of Shared Roadway Treatments

Although the Newport TSP proposes a designated shared roadway network, the Plan does not prescribe any treatments (e.g., signage, pavement markings, traffic calming) to facilitate safe, comfortable and convenient bicycle travel. The existing signed bicycle routes do not adequately illustrate the best connections, leaving bicyclists to work out the best routes for themselves.

Cyclist Behavior

A number of local bicyclists were observed riding on sidewalks and against traffic. This may indicate the need for education about safe bicycling techniques.

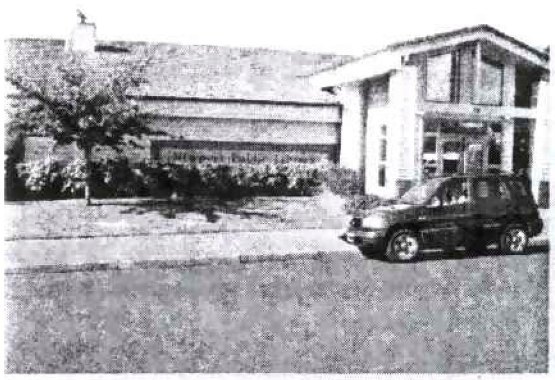
Pedestrian and Bicycle Destinations

US 101 and US 20 provide regional bicycle connections to other highways and county roads and to other communities like Siletz, Depoe Bay, Toledo, Lincoln City, and Waldport.

Within Newport, popular pedestrian/bicycle destinations include:

- Bay Front
- US Post Office
- Newport Public Library

- Historic Nye Beach
- Yaquina View Elementary School, Sam Case Elementary School, Newport Middle and High schools
- Yaquina Bay State Park
- Burrows House Museum
- Newport Performing Arts Center
- Newport Senior Center
- Services along US 101



The Newport public library is a desirable destination for many residents.

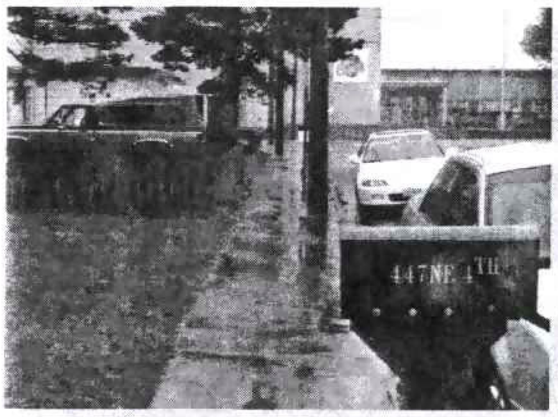
Connections with Transit

Ensuring a strong pedestrian and bicycle link to transit is an important part of making non-motorized transportation a part of daily life in Newport. There are four main components of bicycle/pedestrian-transit integration:

- Allowing bicycles on transit
- Providing benches, shelters, posted schedules, bicycle parking and other features at transit stops
- Improving connections between walkways, bikeways and transit
- Encouraging use of bicycle and transit programs

Shuttle sign posted on saw horse to serve as shuttle bus stop

Lincoln County Transit, Newport's main transit provider, provides fixed route bus service linking Newport with Yachats, Siletz/Toledo, and Lincoln City. All buses are ADA-accessible and come equipped with two capacity bike racks, however bikes are not allowed inside buses. The City of Newport also operates a free summer shuttle linking major business areas and tourist attractions in the city.



The sidewalk has a number of power poles that occupy much of the pedestrian space near the high school.

The quantity and quality of pedestrian infrastructure along the bus and shuttle routes varies by location. Most streets along the routes have sidewalks on both sides, including US 101, NE Avery Street, W Olive Street, SW Bay Blvd, and SW Coast Street. Several streets however lack sidewalks on one or both sides, including NE 4th Street, SW Fall Street, SW Elizabeth Street, and SW Bayley Street. It should be noted that sidewalks on several streets listed above are in substandard condition (e.g., cracked or in disrepair). Substandard sidewalks or the lack of sidewalks decreases accessibility for all users, especially during the winter months when inclement weather is expected. Most designated stops lack passenger amenities like shelters, benches, posted schedules and bicycle parking. This also decreases the value of transit as a viable transportation option.

Connections to Schools

Sam Case Elementary School, Newport Middle School, Newport High School, Central Coast SDA School

Three of Newport's four public schools are concentrated in northeast Newport, east of US 101 and north of US 20. The Central Coast SDA School is also nearby. With the exception of existing bicycle lanes on portions of NE Harney Street near Newport Middle School, all streets in this area lack dedicated bicycle facilities. Predominantly residential in character, most streets handle relatively low traffic volumes and are suitable for bicycle travel.

The sidewalk network is fragmented near Sam Case Elementary, Central Coast SDA School, and Newport Middle and High schools. Within the immediate vicinity, streets lacking sidewalks on both sides include NE Benton Street, NE Avery Street, and NE Douglas Street, in addition to nearly all east-west streets between NE 1st Street and NE 12th Street. Other streets, including NE 11th Street, NE 7th Street east of NE Harney Street, and NE 12th Street have sidewalks on one side only. The only streets with completed sidewalks on both sides of the street in the vicinity of the schools are NE 6th Street, NE 1st Street, and NE Eads Street. The TSP includes several proposed projects to complete sidewalk gaps in this area. Marked crosswalks exist along NE Eads Street and NE 6th Street leading to the schools. Curb ramps in varying conditions exist at some intersections where sidewalks are provided. In some locations however, curb ramps and marked crosswalks do not align with each other.

Yaquina View Elementary School, Sonshine Christian School

Yaquina View Elementary School and the Sonshine Christian School are located south of US 20. Streets in the immediate vicinity lack dedicated bicycle facilities, including both US 20 and SE Moore Drive, two streets with higher traffic volumes that are not amenable to bicycle travel for younger bicyclists. The few remaining streets in the vicinity have relatively low vehicle traffic volumes and are suitable for bicycle travel.

No street in the immediate vicinity has complete sidewalks on both sides of the street. Both US 20 and SE Moore Drive have the most complete sidewalks, although streets have sections where sidewalk is missing. SE 2nd Street also has sidewalks in segments, although not adjacent to Yaquina View Elementary School. The remaining streets in the immediate vicinity lack sidewalks. In addition, the lack of street connectivity in this area of Newport reduces the available routes to school for students and forces them onto US 20 or down to SE Bay Blvd to reach school.

3. Recommended Pedestrian and Bicycle Network

Introduction

This chapter lays out the recommended pedestrian and bicycle network, a comprehensive system of bikeways and walkways connecting key pedestrian and bicycle destinations and surrounding areas. City staff, stakeholder groups, consultants and Newport residents all worked together to develop this recommended system. The network also builds upon current and past planning efforts, most notably the 1997 Newport TSP.

The following maps and text depict and discuss the recommended walkway and bikeway network. A list provided at the end of this chapter outlines individual project proposals.

Recommended Pedestrian Network

The Proposed Pedestrian System Maps (Map 3-1 through Map 3-3) on the following pages depicts existing and proposed pedestrian facilities. Proposed improvements include filling major gaps in the existing sidewalk system and providing sidewalks on new streets. Other pedestrian system recommendations include shared-use paths and US 101 crossing improvements to accommodate safe and convenient pedestrian crossings.

Sidewalks

The projects depicted on the Proposed Pedestrian System Map (and listed in the project table at the end of this chapter) build upon recommendations of the TSP, and reflect input received from City staff and Newport residents. The City has established guidelines that require sidewalks to be built on both sides of new streets in most cases. To complete the sidewalk network along existing streets, special emphasis should be given to completing sidewalk gaps and providing sidewalks on routes serving major pedestrian destinations (e.g., schools and commercial/tourist points of interest).

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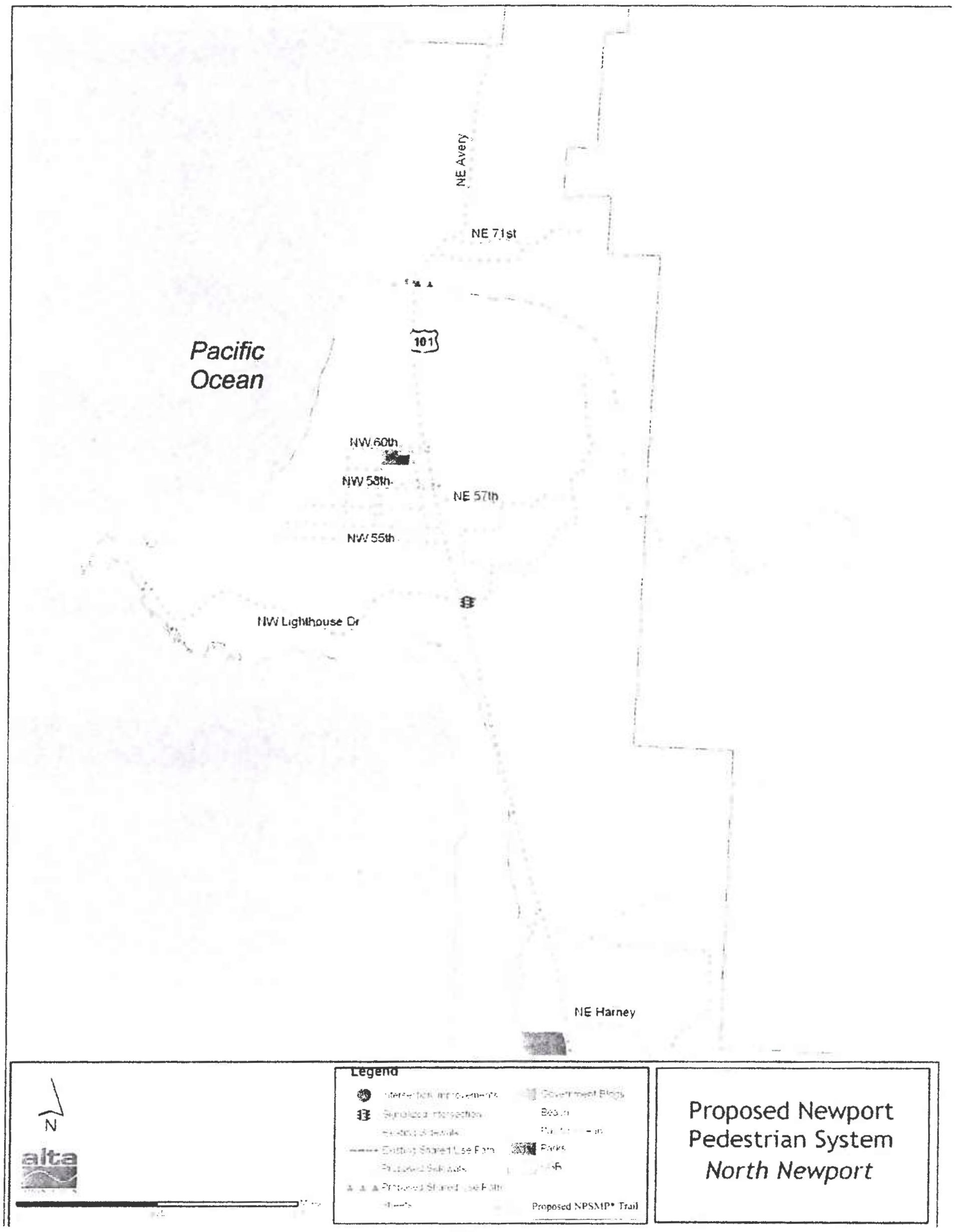

Map 3-1. Proposed Pedestrian System in North Newport

*NPSMP (1994 Newport Park System Master Plan) – See NPSMP Facility Map on page 3-36 for proposed trail locations outside of Map boundary.

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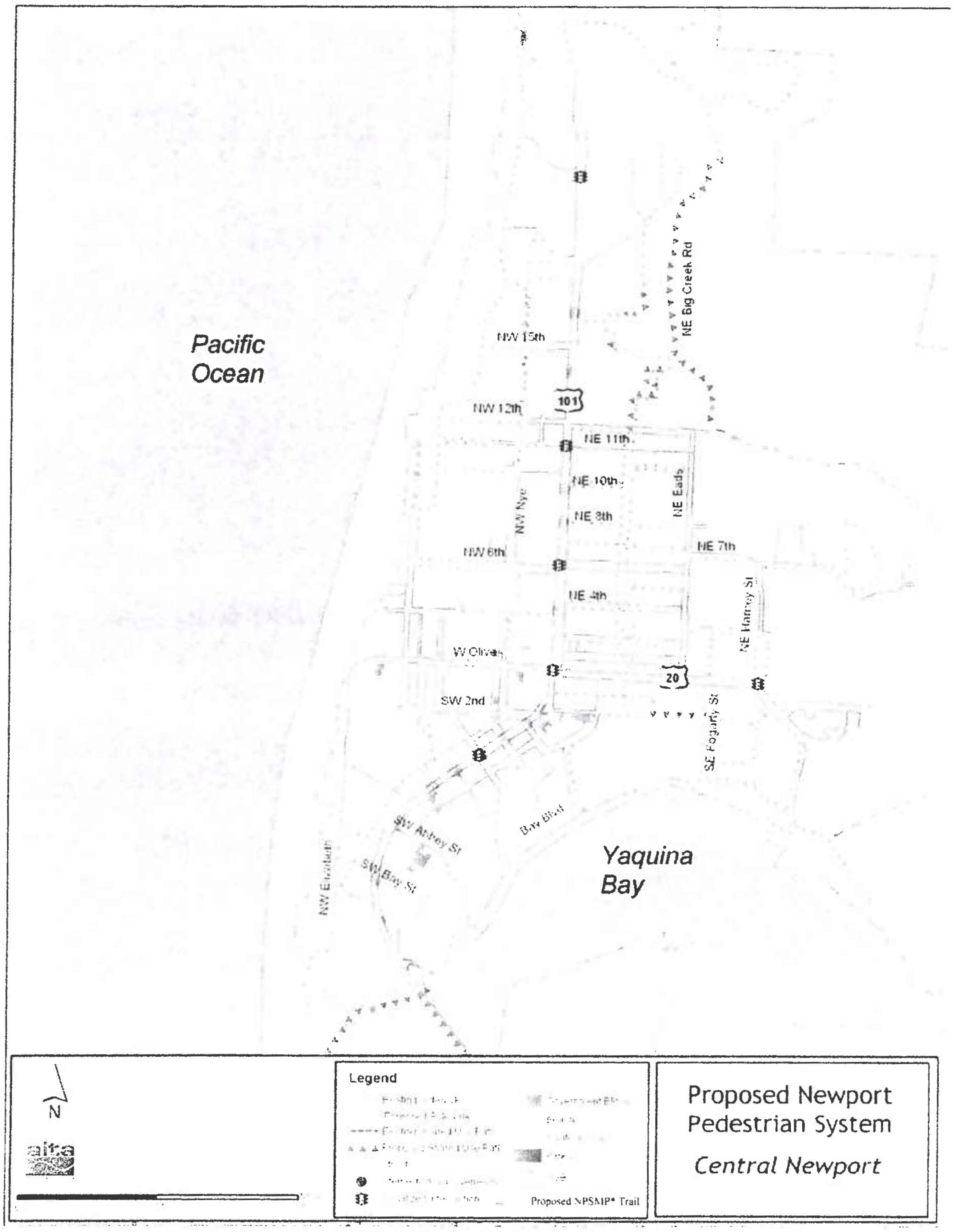

Map 3-2. Proposed Pedestrian System in Central Newport

*NPSMP (1994 Newport Park System Master Plan) – See NPSMP Facility Map on page 3-36 for proposed trail locations outside of Map boundary.

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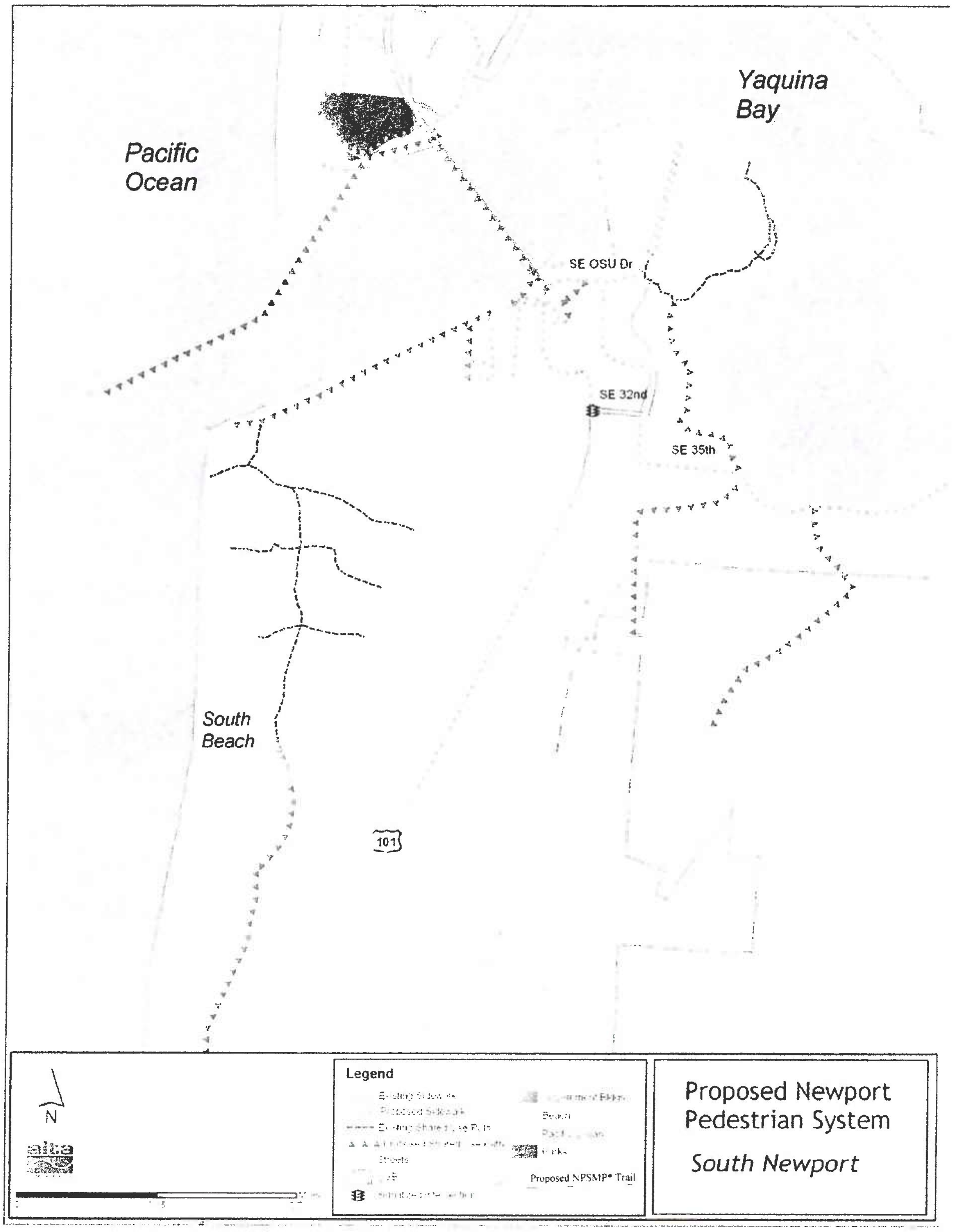

Map 3-3. Proposed Pedestrian System in South Newport

*NPSMP (1994 Newport Park System Master Plan) – See NPSMP Facility Map on page 3-36 for proposed trail locations outside of Map boundary.

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Intersection Improvements

Pedestrian crossings at intersections represent a major challenge in Newport's existing pedestrian environment. This plan contains an overall strategy to improve intersections and other pedestrian crossings citywide through a variety of treatments (outlined in Section 5, Design Guidelines). Although many intersections throughout Newport could be targeted for enhancements, City staff, ODOT staff, and residents identified the locations discussed below as deserving additional attention in determining how best to ensure bicyclist and pedestrian safety while crossing.

US 101 Crossings

The crossing locations of US 101 identified for improvement are discussed below (locations identified on Map 3-2):

NW 68th undercrossing of US 101

This crossing location is identified in the Newport Parks System Master Plan as a needed crossing of US 101 in the northern portion of Newport. Undercrossings are discussed further in Section 5 of this plan.

Mid-block between 16th Street and 17th Street

Provides an additional pedestrian crossing (along with the crossing at 15th Street and the proposed crossing at 13th Street) between the signals at 11th Street and 20th Street. The crossing should include a raised median island, advance stop bars in the vehicle lanes, appropriate signage indicting the presence of a pedestrian crossing, and a striped continental crosswalk.

13th Street

It was determined that an additional pedestrian crossing was needed between the signal at 11th Street and the existing pedestrian crossing at 15th Street. This location near the McDonalds was identified as the most likely desired crossing location. The crossing should include a raised median island, advance stop bars in the vehicle lanes, appropriate signage indicting the presence of a pedestrian crossing, and a striped continental crosswalk.

10th Street

There is an existing pedestrian crossing where NE 10th Street intersects US 101, located on the north side of the 'T' intersection. It is recommended that the crossing be moved to the south side of the intersection and improved through the installation of a raised median and the striping of advance stop bars and continental crosswalks.

8th Street

Provides an additional pedestrian crossing between the signal at 6th Street and the signal at 11th Street. The crossing should be located north of the intersection of NW 8th Street and US 101 and include: a raised median island, advance stop bars in the vehicle lanes, appropriate signage indicting the presence of a pedestrian crossing, and a striped continental crosswalk.

3rd Street / 4th Street

There is an existing pedestrian crossing located at NW 3rd Street. It is recommended that this crosswalk be moved to the south side of the NE 4th Street / US 101 intersection (across from the Arctic Circle). This location provides a more direct connection to the high school while also providing the opportunity for a raised median. The improved crossing should also include advance stop bars in the vehicle lanes, appropriate signage indicting the presence of a pedestrian crossing, and a striped continental crosswalk.

2nd Street (outside City Hall)

A crosswalk in this location provides access to the City offices as well as the transit stop located outside of City Hall. The recommended location is just north of the 2nd Street access in front of City Hall and just south of the Chevron gas station driveway. The crossing should include a raised median island, advance stop bars in the vehicle lanes, appropriate signage indicting the presence of a pedestrian crossing, and a striped continental crosswalk.

SW Angle Street, SW Lee Street, SW Hurbert Street (signalized), SW Alder Street
It is recommended that curb extensions be installed at all intersections along US 101 through downtown Newport where on-street parking is allowed. The curb extensions shorten the crossing distance while making pedestrians more visible to the on-coming vehicle traffic.

SW Neff Way
There is an existing marked crosswalk at SW Neff Way on the southern end of the 'T' intersection. This crosswalk passes through a well-used left turn lane from US 101 to SW Neff Way. The recommendation is to move the marked crosswalk to the north side of the intersection. The crossing should include a raised median island, advance stop bars in the vehicle lanes, appropriate signage indicting the presence of a pedestrian crossing, and a striped continental crosswalk.

SW Abbey Street and SW Bay Street
New crossings at SW Abbey Street and SW Bay Street provide access to the hospital and further east, the Bay Front from west Newport. These locations are not appropriate for a raised median given the allowed turning movements at both intersections. The recommendation is to tighten the turning radius for vehicles turning onto SW Abbey Street and to SW Bay Street, particularly on the east side of US 101. In addition, marked crosswalks should be provided on both sides of the intersection with the appropriate signage for drivers.

Mid-block between SW Bayley Street and SW Minnie Street
A crossing in this location provides access to Yaquina Bay State Park and the regional transit offices. The crossing should include a raised median island, advance stop bars in the vehicle lanes, appropriate signage indicting the presence of a pedestrian crossing, and a striped continental crosswalk. In addition, adding curb extensions to reduce the turning radius of both streets should shorten the crossing distance at both SW Minnie and SW Bayley.

The TSP also recommends a median along portions of US 101, which would greatly improve pedestrian crossings by providing a refuge for pedestrians and allow them to cross US 101 in two stages, increasing their safety while also increasing the number of potential gaps in traffic the pedestrian will be able to take advantage of in crossing only two lanes of traffic, rather than trying to cross 4 or 5 lanes at once.

As noted earlier, additional types of crossing treatments are discussed in more detail in Section 5.

North Bridgehead

The figures below describe the existing and the recommended improvements for increasing bicyclist and pedestrian safety around the north end of the Yaquina Bay Bridge.

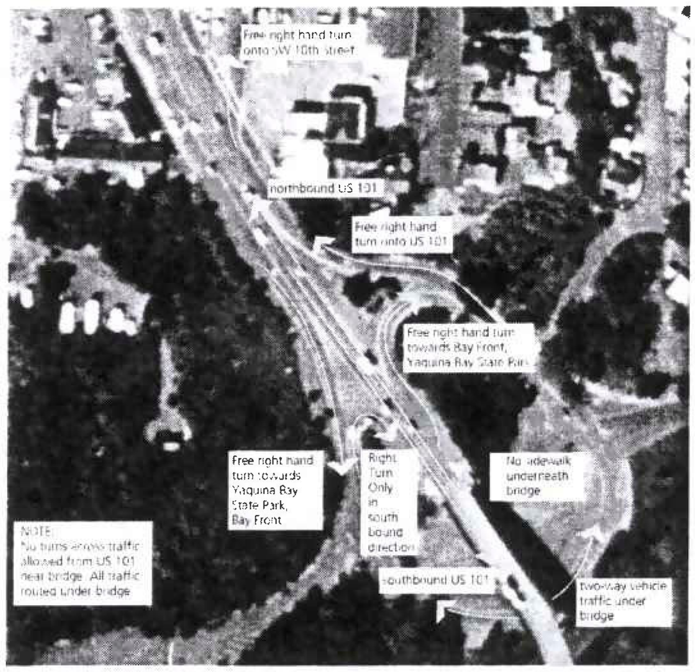

Figure 3-1. Existing Conditions, North Bridgehead, Yaquina Bay Bridge

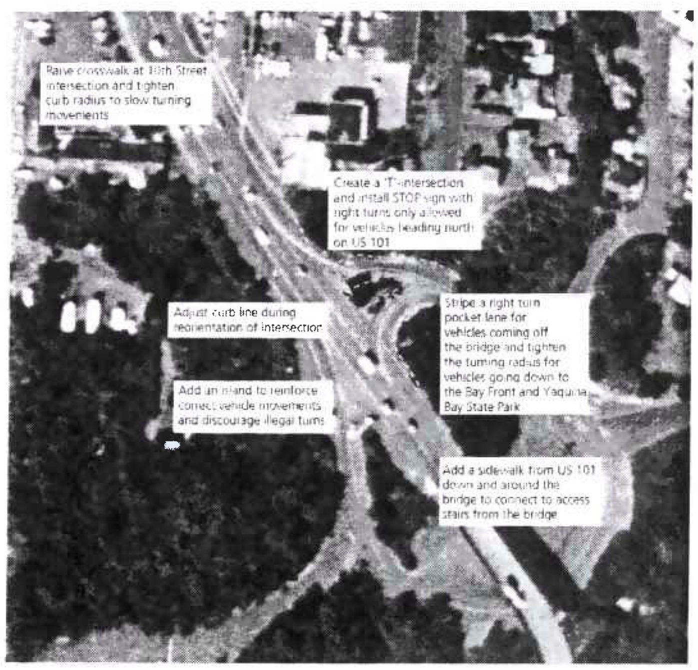

Figure 3-2. Recommended Improvements, North Bridgehead, Yaquina Bay Bridge

Shared-use Paths

Shared-use paths are proposed in sections of Newport to provide transportation and recreational benefits to residents and visitors. This section briefly discusses these recommendations.

Big Creek Path

A shared-use path could potentially follow the alignment of the existing NE Big Creek Road. Currently the road is a signed for one-way vehicle traffic. However, the TSP documents plans for the extension of NE Harney Street north from NE 7th Street past Frank Wade Park to connect with another existing portion of NE Harney Street. Once this extension is completed, NE Big Creek Road can be converted to a shared-use path for the use of bicyclists, pedestrians, and other non-motorized users. This will provide an excellent north-south alternative to US 101 while providing additional connections to residential areas, the middle and high school, the fair grounds, and parks.

SW Jetty Path

Providing a shared-use path along the south jetty will provide a connection from the bridge, residential areas, and the Aquarium to the south jetty and connect into the existing path system within South Beach State Park.

North Jetty Path

The north jetty path would be a shared-use path from SW Naterlin Drive down and along the north jetty. Coordination between the US Coast Guard, Oregon State Parks, US Army Corps of Engineers, and the City of Newport would be required to ensure the safety of all users while preserving access to the north jetty for authorized vehicles.

Yaquina Bay Bridge

As noted earlier, the Yaquina Bay Bridge does not meet current ODOT standards for bicyclist and pedestrian bridge accommodations. Improved bicycle and pedestrian facilities can be provided in two ways.

- Widen the sidewalks on both sides to a minimum of 10 feet when bridge improvements are undertaken, creating paths on either side of the bridge deck.
- Attach a separated bicycle/pedestrian bridge to the existing Yaquina Bay Bridge. This structure could possibly be attached to the bridge pilings or the bottom of the bridge deck, based on an engineering study. In addition, appropriate access points would have to be identified and designed to both the north and south of the bridge.

SE 2nd Street Bridge

As noted earlier, access to Yaquina View Elementary School is constrained by the lack of street connectivity. To improve connectivity in this area of Newport and provide alternate biking and walking routes to US 20, a non-motorized bridge should be provided to connect SE 2nd Street across the ravine.

Paths in South Newport

Opportunities exist to develop shared-use paths in conjunction with planned residential and commercial development in South Newport. This would enhance the transportation network while providing recreational benefits to the employees and residents of the area. A shared-use path could also be tied into Oregon Coast Community College as the area develops.

Recommended Bicycle Network

The Proposed Bicycle System Map (Map 3-4 through Map 3-6) depicts existing and proposed bicycle facilities. Proposed facilities include bicycle lanes and shared roadways/bicycle boulevards. The proposed system also includes shared-use paths, described earlier in this chapter. The proposed bicycle system builds upon previous planning efforts, and also addresses input received from City staff, Newport residents, and other stakeholders.

To safely accommodate bicycle travel on corridors with current or anticipated high traffic volumes, bicycle lanes are proposed on several existing and future streets, based on several factors, including:

- Gaps in the existing bicycle lane system
- Existing and forecasted traffic volumes
- Previous planning efforts identifying the need for bicycle lanes on specific streets
- Planned street improvements that will include bicycle lanes as part of construction
- Whether an existing street could be retrofitted to include bicycle lanes with minimal parking or private property impacts
- Planned land development projects with the potential to generate higher bicycle volumes

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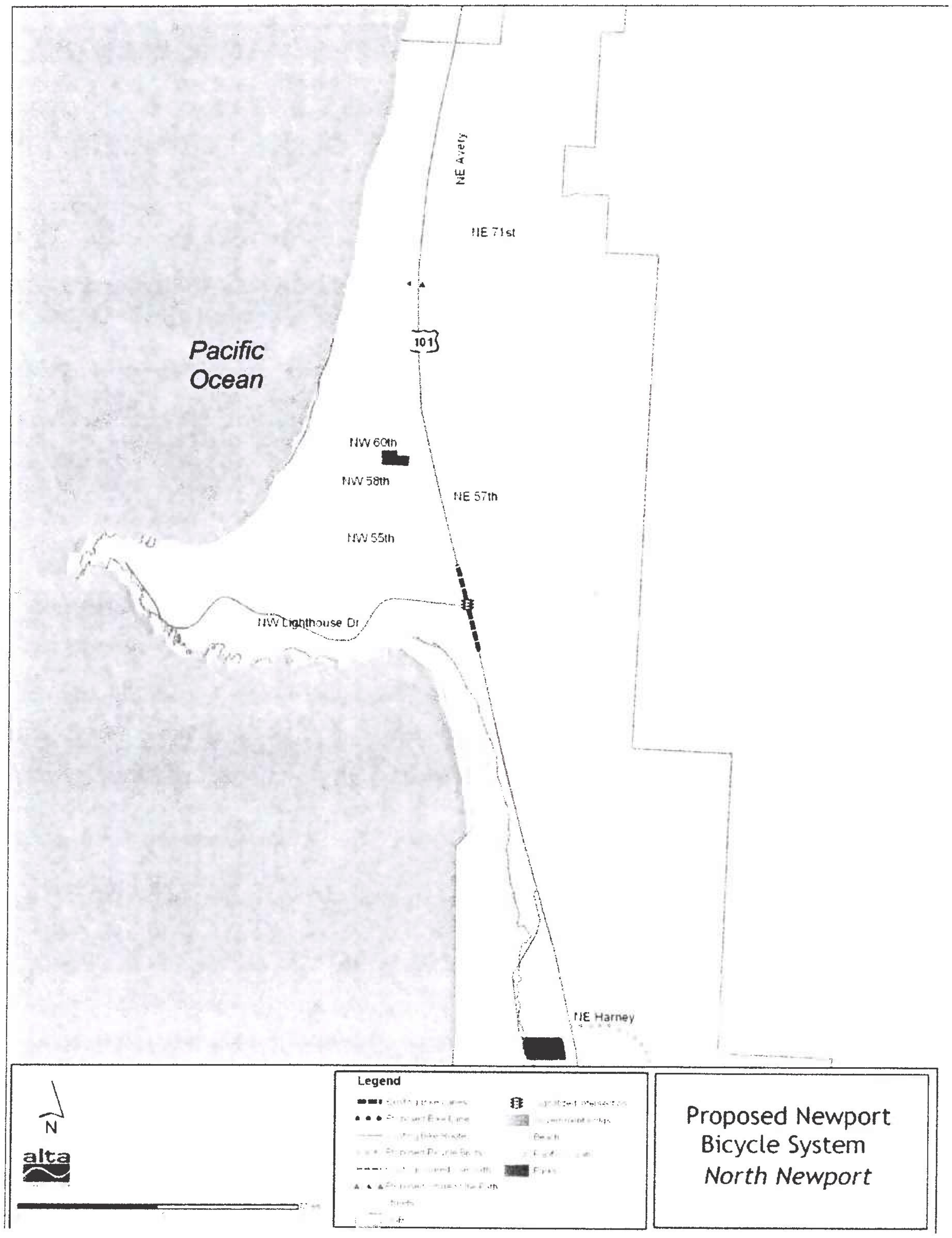

Map 3-4. Proposed Bicycle System in North Newport

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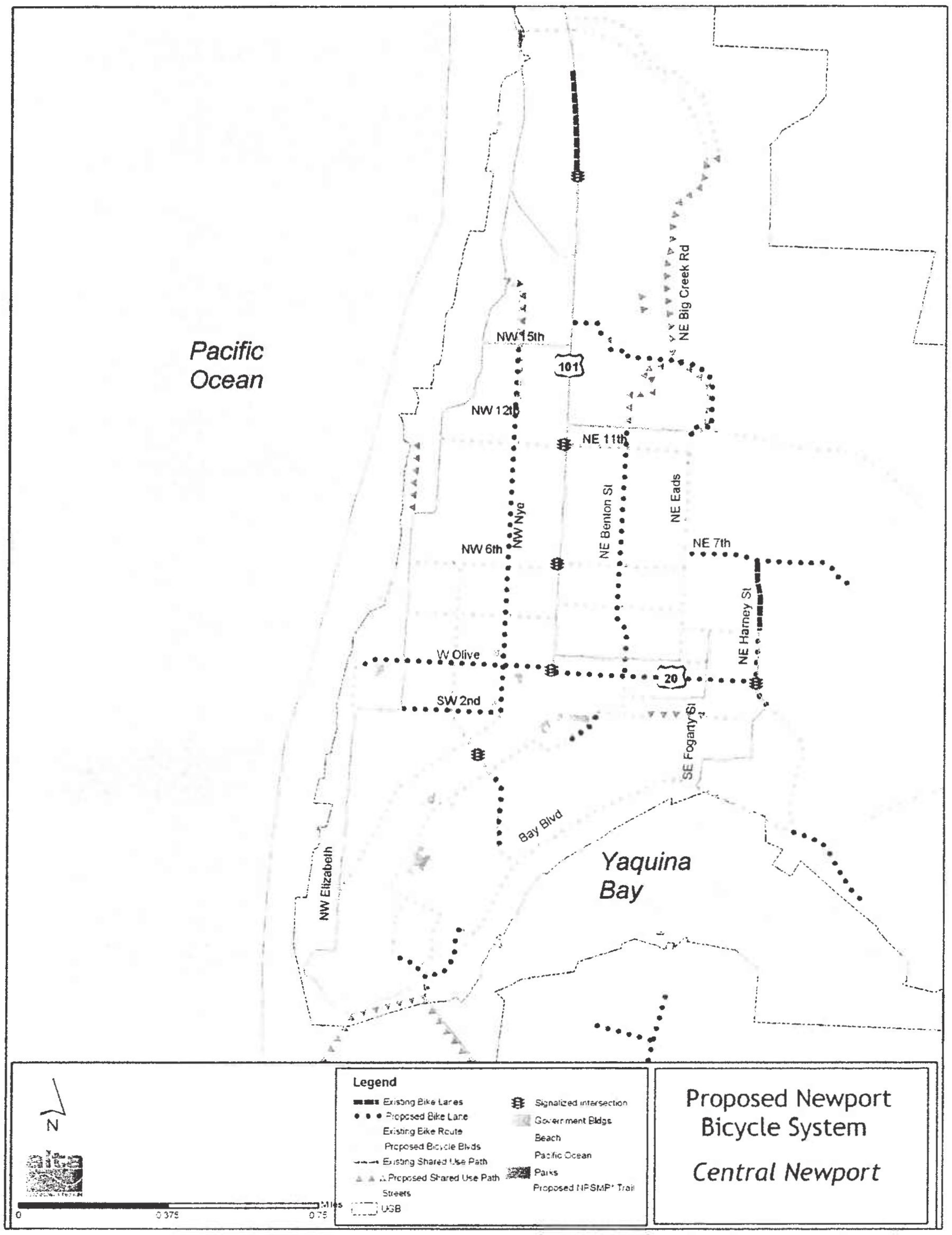

MAP 3-5. Proposed Bicycle System in Central Newport

*NPSMP (1994 Newport Park System Master Plan) – See NPSMP Facility Map on page 3-36 for proposed trail locations outside of Map boundary.

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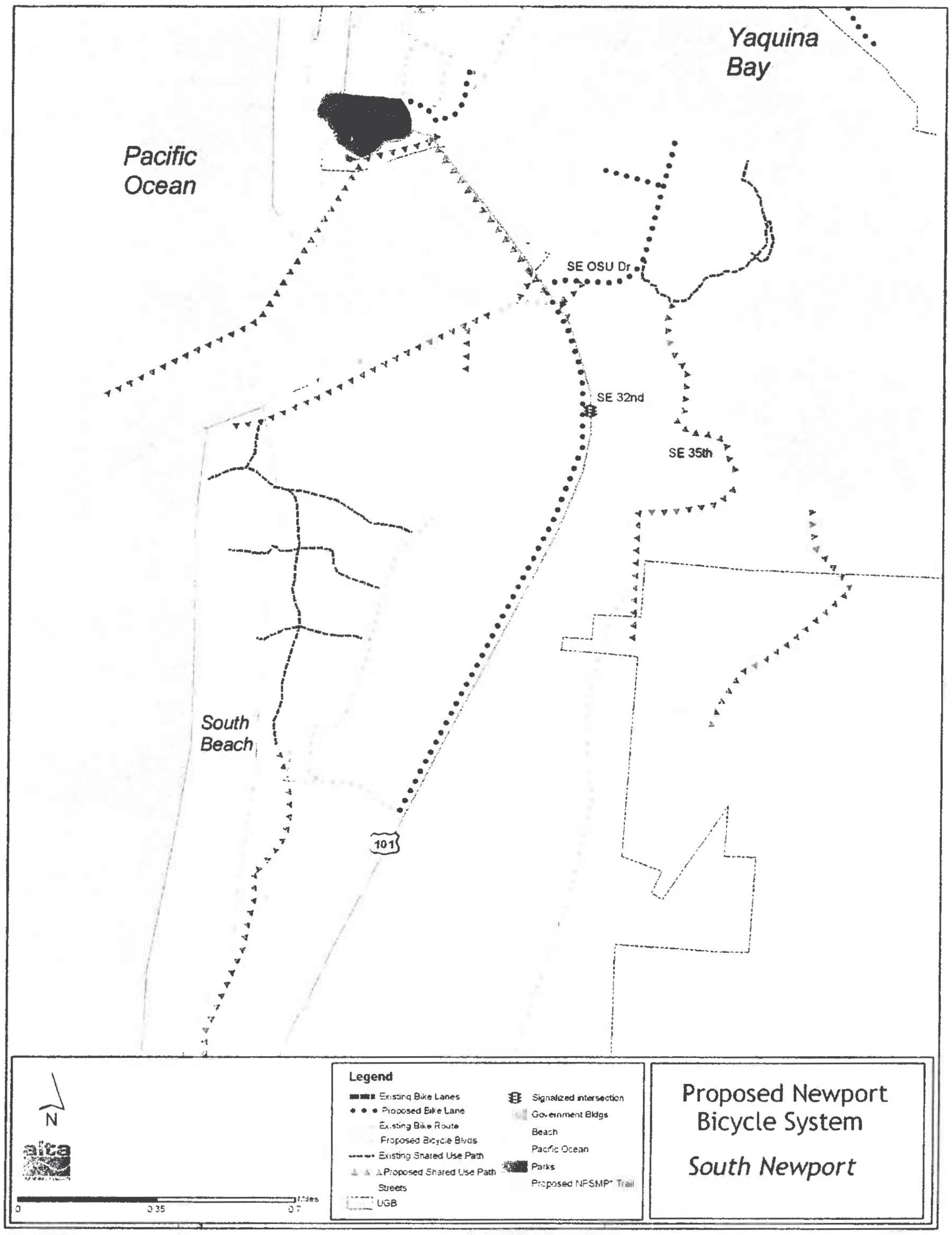

Map 3-6. Proposed Bicycle System in South Newport

*NPSMP (1994 Newport Park System Master Plan) – See NPSMP Facility Map on page 3-36 for proposed trail locations outside of Map boundary.

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Bicycle Lanes

A variety of physical and other constraints create challenges for retrofitting many existing streets with bicycle lanes in Newport. As a result, most bicycle lanes are proposed on streets with relatively wide rights-of-way and on streets with fewer physical constraints, such as NW Nye Street. The City should continually monitor vehicle and bicycle travel patterns throughout the entire community, and identify opportunities to provide bicycle lanes on higher-volume streets wherever possible.

Shared Roadways/Bicycle Boulevards

A number of streets are proposed as shared roadways and include various applications that can be used to improve bicyclist safety and comfort on these corridors. These applications can be used on most streets in Newport, including streets where physical or other constraints preclude the use of dedicated bicycle lanes. Shared roadways that incorporate treatments to accommodate cyclists are often called "bicycle boulevards." Bicycle boulevards are developed through a combination of traffic calming measures and other streetscape treatments, and are intended to prioritize safe and convenient bicycle travel. Appropriate treatments depend on several factors including traffic volumes, vehicle and bicycle circulation patterns, street connectivity, street width, physical constraints, and other parameters.

Bicycle Boulevard Applications

Treatments for Newport's shared roadway/bicycle boulevard network have been divided into five main categories based on their level of "intensity", with Level 1 representing the least intensive treatments that could be implemented at relatively low cost with minimal physical impacts. Described in detail in the Design Guidelines section (Section 5), the five bicycle boulevard application levels include the following:

- Level 1: Signage
- Level 2: Pavement markings
- Level 3: Intersection treatments
- Level 4: Traffic calming
- Level 5: Traffic diversion

Figure 3-1 depicts the recommended application levels for Newport's shared roadway/bicycle boulevard system. It should be noted that corridors proposed for higher-level applications would also receive relevant lower-level treatments. For instance, a street targeted for Level 3 applications should also include Level 1 and 2 applications as necessary. It should also be noted that some applications may be appropriate on some streets while inappropriate on others. In other words, it may not be appropriate or necessary to implement all "Level 2" applications on a Level 2 street. To identify and develop specific treatments for each bicycle boulevard, the City should involve the bicycling community, neighborhood groups, and the Public Works Department. Further analysis and engineering work may also be necessary to determine the feasibility of some applications.

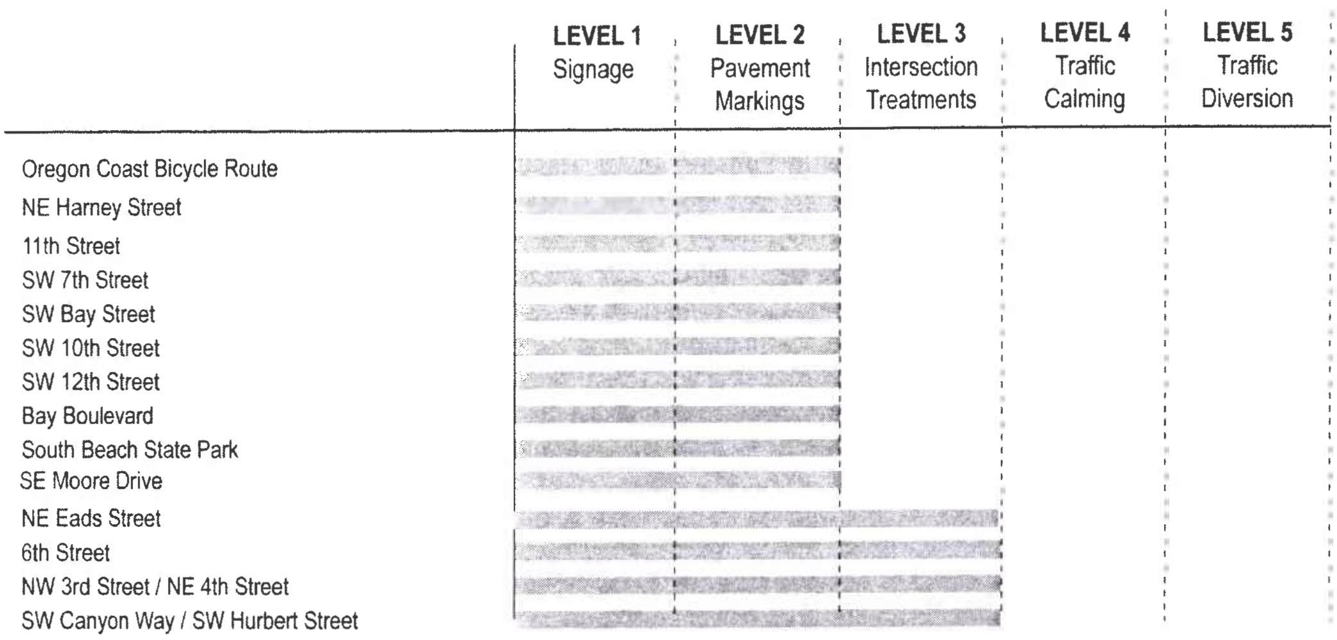


Figure 3-3. Recommended Bicycle Boulevard Applications by Street

Project Prioritization

Several evaluation criteria were developed to identify and prioritize projects for improving Newport's walking and bicycling environment. Specifically, the criteria were applied in two ways:

- To lay out the best possible future pedestrian/bicycle network by identifying the features of a network most important to the residents of Newport
- To rank projects against each other as an indication of their relative importance

The goal was to develop three tiers of project priorities so that the City may focus funding and funding applications on the highest priority projects. Each evaluation criterion was assigned a range of points, with the number of potential points reflecting the criterion's relative importance. Specific evaluation criteria used in this Plan include the following:

- *Connectivity*: To what degree does the project fill a missing gap in the bicycle and/or pedestrian system?
- *User Generator*: To what degree will the project likely generate transportation or recreational usage based on population, corridor aesthetics, etc.?
- *Land Uses*: How many user generators does the project connect within one-fourth to one-half of a mile, such as schools, parks, hospitals, EOU, employment and commercial districts, etc.?
- *Overcomes Barrier*: How well does the project overcome a barrier in the current bicycle and pedestrian network?
- *Safety and Comfort*: Can the project potentially improve bicycling and walking at locations with perceived or documented safety issues? This criterion takes into account available crash data as well as feedback from the local bicycling and walking community.

- *Regional Benefit*: To what degree does the project offer potential benefits to the wider, regional community by offering opportunities for increased connectivity to parks, view points, connections to Newport and Lincoln County bicycle/pedestrian facilities, etc.?
- *Ease of Implementation*: How difficult will it be to implement the project? This criterion takes into account constraints like topography, existing development, and environmental, political and economic issues, which should considered only after the project has been evaluated on merit.

Using the above criteria, each project was ranked based on information obtained from site visits, field work, City officials and the public; and grouped the projects into Tier 1 (short-term), Tier 2 (medium-term) and Tier 3 (long-term) priorities.

The short-, medium-, and long-term priorities may change according to available funds, changing priorities, new roadway projects that coincide, new development and redevelopment opportunities, or other factors.

It should be noted that the purpose of this exercise is to understand the relative priority of the projects so that the City may apportion available funding to the highest priority projects. Medium- and long-term projects are also important, and may be implemented at any point in time as part of a development or public works project. The ranked lists should be considered a "living document" and should be frequently reviewed to ensure they reflect current Newport priorities.

The list of proposed pedestrian and bicycle projects (and relative prioritization) is located at the end of this chapter.

Project Costs

This section summarizes planning level cost estimates associated with the recommended pedestrian and bicycle improvement projects. The estimates were based on similar Pedestrian and Bicycle Plans and experience in other communities. Table 3-2 summarizes cost estimates for individual pedestrian and bicycle treatments, while Table 3-3 at the end of this chapter summarizes costs by project. The estimates also include contingency and construction management costs, which represent a proportion of the original project costs.

The table at the end of this chapter provides cost estimates for individual projects proposed in this Plan. The table below provides a cost summary for Tier 1, Tier 2 and Tier 3 projects combined. The total implementation cost of the Pedestrian and Bicycle Plan is estimated at approximately $41.4 million. It should be noted that this estimate includes $20 million for improvements to the Yaquina Bay Bridge for bicyclists and pedestrians. Chapter 6 discusses potential funding sources for implementing projects in this Plan.

Table 3-1. Planning Level Cost Estimates for Tier 1, 2, and 3 Projects

Projects	Planning Level Cost Estimate
Tier 1	$4,305,900
Tier 2	$7,418,300
Tier 3	$29,708,000
Total	**$41,432,200**

Table 3-2. Planning Level Unit Cost Estimates for Newport Projects

Item	Unit	Unit Cost	Source	Comments
Curb ramp (dual)	Each	$2,500	City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	
Detectable warning strip (truncated domes)	Each	$300	City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	
Curb extension	Each	$5,000	City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	Minor curb extension without landscaping
Sidewalk	Linear Foot	$35	City of Wilsonville, OR Bicycle and Pedestrian Master Plan (adopted 2006)	
Longitudinal Crosswalk	Each	$600	Previous pedestrian and bicycle planning projects conducted by Alta Planning + Design	Thermoplastic bars measuring 2' x 10'
Transverse (parallel bar) crosswalk	Linear Foot	$170	Previous pedestrian and bicycle planning projects conducted by Alta Planning + Design	Thermoplastic bars
Pedestrian refuge island	Each	$20,000	City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	
Bicycle lane (street widening)	Mile	$300,000	City of Wilsonville, OR Bicycle and Pedestrian Master Plan (adopted 2006)	Both sides of street
Bicycle lane (signing and striping only)	Mile	$25,000	City of Wilsonville, OR Bicycle and Pedestrian Master Plan (adopted 2006)	Both sides of street
Blue bicycle lane (striping and paint)	Linear Foot	$45	City of Portland, OR	6' wide on State highway, one side of street
Supplemental bicycle lane striping (fog line and hash marks)	Mile	$34,000	City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	Both sides of street
Roadway shoulder (rural roadways)	Mile	$635,000	Florida Dept. of Trans. "2004 Transportation Costs"	Both sides of street
Stop sign	Each	$200	City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	
Warning sign	Each	$200	City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	
In-street Pedestrian Crossing Sign with mounting device	Each	$200	City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	
Shared-use path	Mile	$400,000	City of Wilsonville, OR Bicycle and Pedestrian Master Plan (adopted 2006)	Cross-section includes 2' shoulder, 12' paved surface, and 6' unpaved surface; cost excludes treatments for path/ roadway crossings
Shared-use path feasibility study	Mile	$20,000 – $100,000	Previous trail feasibility studies conducted by Alta Planning + Design	Depends on complexity of issues, such as environmental analysis, land ownership, topography, public process, etc.
Type 1 path/roadway crossing	Each	$5,000	City of Wilsonville, OR Bicycle and Pedestrian Master Plan (adopted 2006)	
Type 1+ path/roadway crossing	Each	$15,000	City of Wilsonville, OR Bicycle and Pedestrian Master Plan (adopted 2006)	
Type 2 path/roadway crossing	Each	$10,000	City of Wilsonville, OR Bicycle and Pedestrian Master Plan	

Item	Unit	Unit Cost	Source	Comments
			(adopted 2006)	
Type 3 path/roadway crossing	Each	$100,000	City of Wilsonville, OR Bicycle and Pedestrian Master Plan (adopted 2006)	
Level 1 bicycle boulevard applications	Mile	Wayfinding sign: $125 Warning sign: $200	City of Portland, OR; City of Wilsonville, OR Bicycle and Pedestrian Master Plan (adopted 2006)	Approx. 12 wayfinding signs per mile; number of warning signs depends on location
Level 2 bicycle boulevard applications	Mile	Sharrow: $120 Directional marking: $20	City of Portland, OR	One sharrow per 200 feet (both sides of street), or one directional marking per 600 feet (both sides of street) and at key intersections
Level 3 bicycle boulevard applications	By project	Stop sign: $200 Bike loop detector: $3,000 Curb extension: $5,000 Median/ refuge island: $20,000 Half signal: $100,000	City of Berkeley, CA; City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	Type and number of treatments depend on location
Level 4 bicycle boulevard applications	By project	Chicane: $20,000 Mini traffic circle: $4,000 Speed hump: $2,000	City of Seattle, WA, City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	Type and number of treatments depend on location
Level 5 bicycle boulevard applications	By project	Choker entrance: $8,000 Traffic diverter: $20,000	City of Santa Barbara, CA Pedestrian Master Plan (adopted 2006)	Type and number of treatments depend on location
Contingency	--	30% of original project cost	City of Wilsonville, OR Bicycle and Pedestrian Master Plan (adopted 2006)	Addresses potential inflation costs of materials and labor, and time leading to a project's implementation
Design and Construction Management	--	25% of original project cost	City of Wilsonville, OR Bicycle and Pedestrian Master Plan (adopted 2006)	

Table 3-3. Recommended Pedestrian and Bicycle Projects

Newport Project Matrix					
Project	From - to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
US 101 Crossings					
NW 68th Undercrossing	n/a	An undercrossing of US 101 at NW 68th	ODOT / Newport	3	$2,000,000
Mid-block between 16th Street & 17th Street	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	3	$225,000
13th Street	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	3	$225,000
10th Street	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	2	$225,000
8th Street	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	2	$225,000
3rd Street / 4th Street	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	1	$225,000
2nd Street (outside City Hall)	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	1	$225,000
SW Angle Street	n/a	Add curb extensions	ODOT / Newport	1	$32,000
SW Lee Street	n/a	Add curb extensions	ODOT / Newport	1	$32,000
SW Hurbert Street	n/a	Add curb extensions	ODOT / Newport	1	$32,000
SW Alder Street	n/a	Add curb extensions	ODOT / Newport	1	$32,000
SW Neff Way	n/a	Add median, raised stop bars, appropriate signage, and striped continental crosswalk	ODOT / Newport	2	$225,000
SW Abbey Street	n/a	Tighten the turning radius for vehicles, add marked crosswalks.	ODOT / Newport	3	$175,000
SW Bay Street	n/a	Tighten the turning radius for vehicles, add marked crosswalks.	ODOT / Newport	3	$175,000
Mid-block between SW Bayley Street & SW Minnie Street	n/a	Add median, raised stop bars, appropriate signage, striped continental crosswalk, and curb extensions	ODOT / Newport	2	$225,000

Newport Project Matrix					
Project	From - to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
Sidewalks					
NE Avery Street	US 101 to end of street	Construct sidewalk on west side of street	Newport	2	$187,000
NE 71st Street	NE Avery Street to NE Echo Ct	Construct sidewalk on south side of street	Newport	3	$98,000
NE 70th Street	NE Avery Street to fire access easement road	Construct sidewalk on north side of street	Newport	3	$66,700
Fire Access Easement	NE 70th Street to NE 71st Street	Construct pedestrian accessway	Newport	3	$15,000
US 101	NE Avery Street to Agate Beach Access Road	Construct sidewalk on west side of street	ODOT / Newport	3	$595,000
NE 57th Street	US 101 to NE Evergreen Lane	Construct sidewalk on south side of street	Newport	2	$107,000
NE Evergreen Lane	End of street to NE 54th Street	Construct sidewalk on west side of street	Newport	3	$207,000
NE 54th Street	NE Evergreen Lane to NE 56th Street	Construct sidewalk north side of street	Newport	3	$51,000
NE 56th Street	NE 54th Street to NE Lucky Gap Street	Construct sidewalk on east/south of street	Newport	3	$72,000
NE Lucky Gap Street	NE 56th Street to NE 57th Street	Construct sidewalk on east side of street	Newport	3	$46,000
NW 60th Street	US 101 to end of street	Construct sidewalks on both sides of street	Newport	2	$132,000
NW 58th Street	US 101 to end of street	Construct sidewalks on both sides of street	Newport	2	$190,000
NW 57th Street	NW Gladys Street to end of street / NW Biggs Street to end of street	Construct sidewalk on south side of street	Newport	3	$94,500
NW 56th Street	US 101 Access Road to end of street	Construct sidewalk on south side of street	Newport	2	$120,000
NW 55th Street	US 101 to end of street	Construct sidewalk on north side of street	Newport	2	$135,000
NW Rhododendron Street	NW 55th Street to NW 60th Street	Construct sidewalk on east side of street	Newport	2	$87,000

Newport Project Matrix

Project	From - to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
NW Biggs Street	NW 56th Street to NW 60th Street	Construct sidewalks on both side of street	Newport	2	$131,000
NW Gladys Street	NW 56th Street to NW 60th Street	Construct sidewalks on west side of street	Newport	3	$76,000
NW Lighthouse Drive	US 101 to end of street	Construct sidewalks on north side of street	Newport	3	$285,000
NE Harney Street	US 101 to NE Big Creek Road	Construct sidewalks on south side of street	Newport	2	$178,000
NE Lakewood Drive	NE Harney Street to end of street	Construct sidewalk on one side of street	Newport	2	$160,000
NE Crestview Drive	NE 20th Street to end of street	Complete sidewalk gaps on west side of street	Newport	3	$29,000
NE Crestview Place	NE 20th Street to end of street	Construct sidewalks on west side of street	Newport	3	$53,000
NE 20th Place	NE 20th Street to end of street	Construct sidewalks on south side of street	Newport	3	$52,000
NE Douglas Street	NE 20th Place to end of street	Construct sidewalks on west side of street	Newport	3	$50,000
NW Oceanview Drive	US 101 to NW Spring Street	Construct sidewalks on west side of street	Newport	3	$420,000
NW Spring Street	NW Oceanview Drive to NW 8th Street	Construct sidewalks on west side of street	Newport	2	$88,000
NW 8th Street	NW Spring Street to NW Coast Street	Construct sidewalks on north side of street	Newport	2	$27,000
NW 15th Street	NW Oceanview Drive to NW Grove Street	Construct sidewalks on south side of street	Newport	3	$58,000
NW 12th Street	NW Spring Street to just east of NW Nye Street	Construct sidewalks on south side of street	Newport	2	$74,000
NW 11th Street	NW Spring Street to US 101	Complete sidewalk gaps on both sides of the street	Newport	1	$111,000
NW 10th Street	NW Spring Street to NW Nye Street	Construct sidewalk on south side of street	Newport	2	$67,000
NW 6th Street	NW Coast Street to NW Nye Street	Construct sidewalks on both sides of street	Newport	1	$184,000
NW 3rd Street	NW Hurbert Street to US 101	Complete sidewalk gaps on north side of street	Newport	1	$81,000
NE 12th Street	US 101 to NE Benton Street	Complete sidewalk gaps on south side of street	Newport	1	$51,000
NE 8th Street	US 101 to NE Eads Street	Construct sidewalks on one side of the street	Newport	2	$107,000

Newport Project Matrix

Project	From - to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
NE 7th Street	US 101 to NE Eads Street	Construct sidewalks on one side of the street	Newport	1	$107,000
NE Jeffries Place	NE 7th Street to end of street	Construct sidewalks on west side of street	Newport	3	$33,000
NE 7th Drive	NE 7th Street to end of street	Construct sidewalks on west side of street	Newport	3	$80,000
NE 6th Street	NE 7th Drive to end of street	Construct sidewalks on south side of street	Newport	3	$84,000
NE 4th Street	US 101 to NE Douglas Street	Construct sidewalks on both sides of the street	Newport	1	$145,000
NE 3rd Street	NE Eads Street to NE Harney Street	Complete sidewalk gaps on both sides of street	Newport	1	$117.000
NE 2nd Street	US 101 to NE Eads Street	Complete sidewalk gaps on both sides of street	Newport	2	$106,500
SE 1st Street	US 101 to SE Douglas Street	Construct sidewalks on south side of street	Newport	1	$89,000
SE 2nd Street	SE Benton Street to SE Douglas Street	Construct sidewalks on south side of street	Newport	1	$39,000
SE Benton Street	SE 1st Street to US 20	Construct sidewalks on west side of street	Newport	1	$15,000
SE Coos Street	SE 2nd Street to US 20	Construct sidewalk on west side of street	Newport	2	$33,000
SE Douglas Street	SE 2nd Street to US 20	Construct sidewalk on west side of street	Newport	2	$33,000
SE 2nd Street	SE Fogarty Street to SE Harney Street	Construct sidewalks on south side of street	Newport	1	$38,000
SE 4th Street	SE Fogarty Street to SE Harney Street	Construct sidewalks on south side of street	Newport	1	$38,000
SE Harney Street	SE 4th Street to SE 2nd Street	Construct sidewalks on east side of street	Newport	1	$33,000
Bay Blvd	Length of street	Complete sidewalk gaps on both side of street	Newport	2	$157,500
SW Hatfield Drive	SW Bay Blvd to SW 10th Street	Construct sidewalks on west side of street	Newport	3	$57,000
SW Harbor Drive	SW Bay Street to SW 11th Street	Construct sidewalks on west side of street	Newport	1	$43,500
SW Neff Way / SW Alder Street	US 101 to SW 2nd Street	Construct sidewalks on both sides of street	Newport	1	$143,000
SW 7th Street	SW Alder Street to SW Elizabeth Street	Construct sidewalks on north side of street	Newport	2	$152,000
SW Elizabeth Street	SW Government Street to SW Abbey Street	Construct sidewalk on west side of street	Newport	1	$121,000

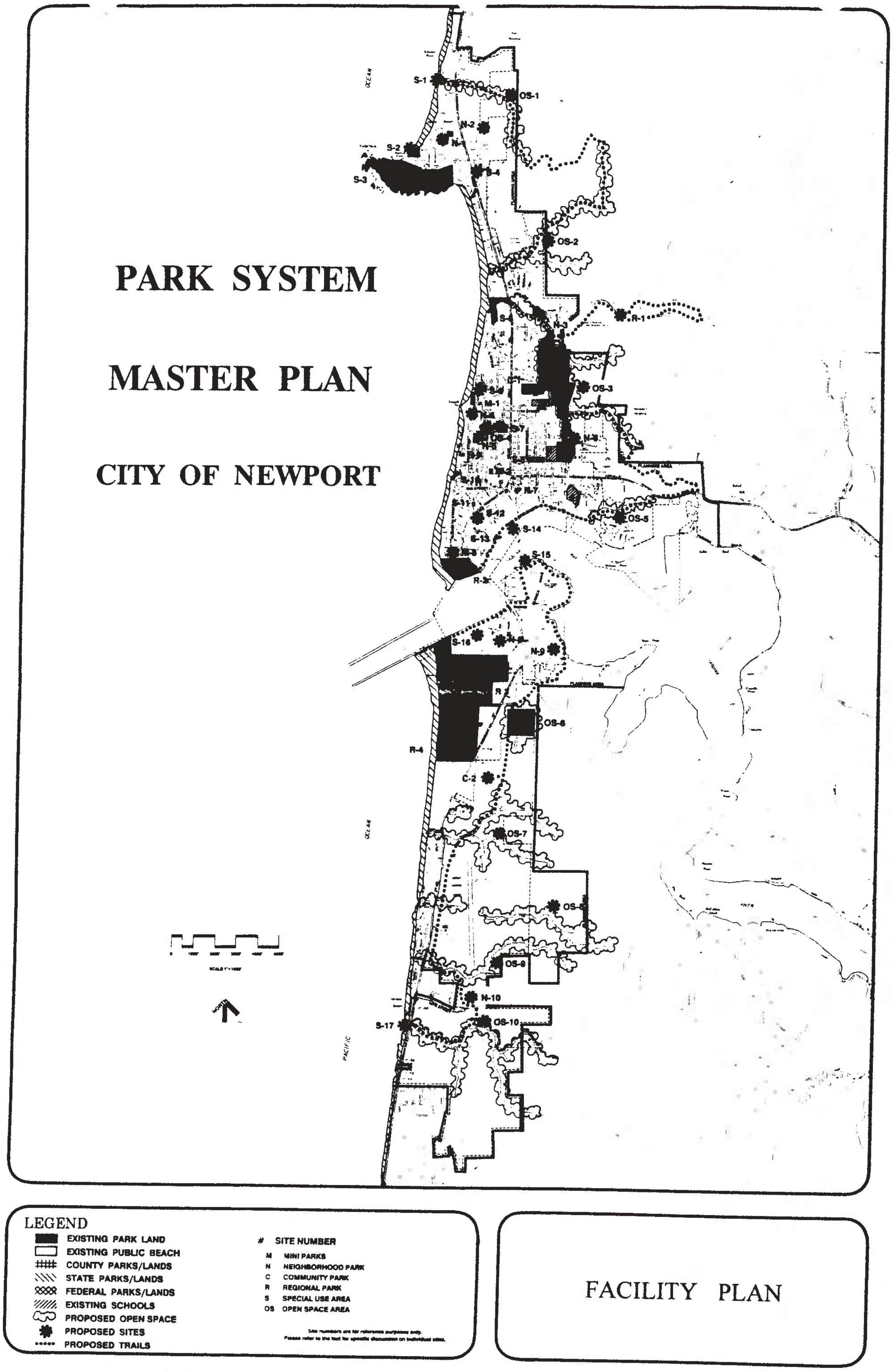
Newport Project Matrix					
Project	From – to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
SW Government Street / Yaquina State Park	Yaquina State Park	Construct sidewalk adjacent to road through park	State Parks / Newport	3	$116,000
SE OSU Drive	SE 26th Street to end of street	Construct sidewalks on both sides of street	Newport	2	$210,000
SE OSU Drive	SW Abalone Street to SE Ferry Slip Road	Construct sidewalks on north side of street	Newport	2	$67,500
SE Ferry Slip Road	SE 29th Street to SE OSU Drive	Construct sidewalks on west side of street	Newport	1	$91,000
SW Abalone Street	SE OSU Drive to US 101	Construct sidewalks on west side of street	Newport	1	$100,000
SW Brant Street	SW Abalone Street to end of street	Construct sidewalks on west side of street	Newport	1	$91,000
SE 35th Street	SE Ferry Slip Road to end of street	Construct sidewalk on one side of street	Newport	1	$337,500
US 101	SE Ash Street to South Beach State Park	Construct sidewalk on west side of road	ODOT / Newport	3	$250,000
US 101	SW Abalone Street to SE 32nd Street	Construct sidewalk on west side of road	ODOT / Newport	2	$32,000
SE Fogarty Street	US 20 to SE Bay Blvd	Construct sidewalk on east side of street	Newport	2	$93,000
NE 36th Street	US 101 to NE Harney Street	Construct sidewalk on one side of street	Newport	2	$114,000
NE 10th Court	NE Eads to NE Benton Street	Construct sidewalks on both sides of street	Newport	2	$100,000
NE 10th Street	NE Benton Street to US 101	Construct sidewalks on both sides of street	Newport	2	$105,000
NE 5th Street	NE Benton Street to NE Eads Street	Construct sidewalks on both sides of street	Newport	2	$106,000
NE Fogarty Street	US 20 to NE 3rd Street	Construct sidewalks on both sides of street	Newport	2	$95,000
SE Moore Drive	Bay Boulevard to SE 2nd Street	Construct sidewalk on west side of road	Newport	2	$106,000
SE 2nd Street	SE Moore Drive west	Construct sidewalks on both sides of street	Newport	2	$19,000
SE 5th Street	SE Moore Drive west	Construct sidewalks on both sides of street	Newport	2	$150,000

Newport Project Matrix					
Project	From - to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
San Bay-O Circle	Proposed connection to Crestview to proposed connection to Chambers Ct	Construct sidewalk along one side of street from proposed connections to Crestview and to Chambers Court	Newport	2	$41,000
Sidewalks and Bike Lanes					
NW Nye Street	NW 15th Street to SW 2nd Street	Construct bicycle lanes on both sides of street and complete sidewalk gaps on east side of street	Newport	1	$166,000
NE Benton Street / NE Coos Street	NE 12th Street to US 20	Construct bicycle lanes and sidewalks on both sides of street	Newport	2	$439,000
NE 7th Street	NE Eads Street to NE 6th Street	Construct bicycle lanes and sidewalks on both sides of street and sidewalks on south side of street	Newport	1	$180,000
NE Harney Street	US 20 to NE 3rd Street	Construct bicycle lanes and sidewalks on both sides of street and sidewalks on south side of street	Newport	2	$77,000
US 20	NE Harney Street / SE Moore Drive to US 101 intersection	Construct bicycle lanes and fill in sidewalk gaps on both sides of street	ODOT / Newport	2	$47,000
SE Bay Blvd	SE Moore Drive to SE Vista Drive	Construct bicycle lanes and sidewalks as described in ODOT grant application	Newport	1	The city has received grant monies
SW 10th Street	SW Hatfield Drive to SE 2nd Street	Stripe bicycle lanes on south side of street and fill in sidewalk gaps on both sides of street	Newport	2	$38,000
SW 2nd Street	SW Nye Street to SW Coast Street	Stripe bicycle lanes on both sides of the street and complete sidewalk gaps on north side of the street	Newport	3	$61,000
SW Naterlin Drive	SW Bay Street to US 101	Construct bicycle lanes and sidewalk on south side of street	Newport	2	$94,000
Bicycle Lanes					
SW Canyon Way	SW Fall Street to SW 9th Street	Construct bicycle lane on east side of street	Newport	3	$9,000
US 101	Yaquina Bay Bridge to South Beach State Park Access	Stripe bicycle lanes on both sides of street	ODOT	3	$54,000
West Olive	US 101 to SW Elizabeth St	Stripe bicycle lanes on both sides of street	Newport	2	$20,000

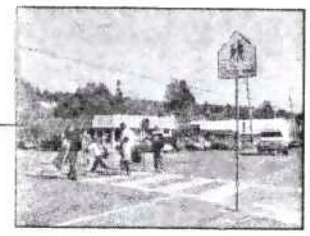
Newport Project Matrix					
Project	**From - to**	**Description**	**Lead Responsibility**	**Priority (Tier 1, 2, 3)**	**Planning Level Cost Estimate (excluding property acquisitions and easements)[4]**
New Boat Launch Pathway	OSU Drive to New Boat Launch	Designate bike and pedestrian lane on access road on Northern edge of parking lot	Port	3	$9,000
Shared Roadways / Bicycle Boulevards					
Oregon Coast Bicycle Route	US 101 to Yaquina Bay Bridge	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	2	$7,000
NE Harney Street	US 101 to NE Big Creek Road	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	3	$1,500
11th Street	NW Spring Street to NE Eads Street	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	1	$1,500
6th Street	NW Coast Street to NE Eads Street	Implement Level 1, 2, and 3 bicycle boulevard applications (signage, pavement markings, intersection treatments)	Newport	1	$1,700
NW 3rd Street / NE 4th Street	NW Coast Street to NE Eads Street	Implement Level 1, 2, and 3 bicycle boulevard applications (signage, pavement markings, intersection treatments)	Newport	2	$2,300
SW 7th Street	SW 2nd Street to SW Elizabeth Street	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	2	$1,500
SW 10th / 9th Street	SE 2nd Street to SW Bay Street	Implement Level 1, 2, and 3 bicycle boulevard applications (signage, pavement markings, intersection treatments)	Newport	1	$2,200
SW Canyon Way / SW Hurbert Street	SW Bay Blvd to NW 6th Street	Implement Level 1, 2, and 3 bicycle boulevard applications (signage, pavement markings, intersection treatments)	Newport	1	$1,900
SW Bay Street	SW 9th Street to SW 12th Street	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	1	$400
SW 10th Street / SW 12th Street	SW Bay Street to US 101	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	1	$700
Bay Blvd	SW Naterlin Drive to SE Moore Drive	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	2	$2,500
South Beach State Park	US 101	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	3	$2,300
NE Eads Street	US 20 to NE 12th Street	Implement Level 1, 2, and 3 bicycle boulevard applications (signage, pavement markings, intersection treatments)	Newport	1	$15,000

Newport Project Matrix					
Project	From - to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
SE Moore Drive	Bay Blvd to US 20	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	1	$1,000
OSU Drive	US 101 to end	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	1	$2,000
SW 26th Street	US101 to west of town	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	2	$500
Old Boat Launch access	US 101 to old boat launch	Implement Level 1 and 2 bicycle boulevard applications (signage, pavement markings)	Newport	3	$14,000
Shared-use Paths					
NE Big Creek Road	NE Harney Street to NE 12th Street	Construct a shared-use path along the NE Big Creek right-of-way	Newport	2	$440,000
SE 2nd Street Bridge	Se Douglas Street to SE Fogarty Street	Construct a non-motorized shared-use bridge over the existing ravine to provide a more direct connection to Yaquina View Elementary School from the nearby residential areas	Newport	3	$1,500,000 - $3,000,000
Yaquina Bay Bridge	Bridge	Provide a dedicated travel space for bicyclists and pedestrians	Newport	3	$15,000,000-$20,000,000
North Jetty Trail	SW Naterlin Drive to north jetty	Construct a shared-use path out the north jetty	Newport	1	$780,000
South Jetty Trail	SW 26th Street to south jetty	Construct a shared-use path out along the south jetty	Newport / Oregon State Parks	2	$450,000
San-Bay-O Connection	San-Bay-O Circle to NE Crestview	Construct a shared-use path connection, requires an easement over private property. Exact location uncertain.	Newport	2	$35,000
Route to Main Shopping Area	NE Chambers Ct to Frank Wade Park and Park to San-Bay-O Circle	Construct a shared-use path connecting to main shopping area	Newport	1	$82,000
Path across old RV park	SE Pacific Way to OSU Drive	Improve pathway through RV park, route pedestrians off blind corner at SE Pacific Drive and OSU Drive	Newport	1	$500
Estuary Trail Access	SE 35th Street to Chestnut Street	Provide a dedicated travel space for bicyclists and pedestrians as an alternative to Idaho Point Road	Newport	2	$175,000

Newport Project Matrix					
Project	From - to	Description	Lead Responsibility	Priority (Tier 1, 2, 3)	Planning Level Cost Estimate (excluding property acquisitions and easements)[4]
Connector to OCCC	SE 35th to OCCC	Provide a dedicated travel space for bicyclists and pedestrians	Newport	2	$450,000
Ash Extension	Ash Street end to SE 35th	Provide a dedicated travel space for bicyclists and pedestrians along railway right-of-way		2	$191,000
Connector to US 101 Stairways	US 101 to SW 26th and SW 27th Avenues	Provide access to US 101 stairways	Newport	1	$79,000
Connector to US 101 Bridge	SW 26th (South Jetty Road) to US 101 Bridge	Continues to the improvements on the east side of the US 101 bridge to OSU Drive	Newport	2	$60,000
Development of SW Coho Street	South Jetty Road to SW 30th Street	Provides pedestrian access on unimproved road	Newport	2	$99,000
Connector – SW 29th Street or SW 30th Street	State Park and South Beach neighborhood	Links into State Park trail system	Newport	1	$35,000
Connector	SW 26th to State Park	Links into State Park trail system	Newport	1	$83,000
Connector	State Park to South Shore	Links into State Park trail system	Newport	2	$156,000
Connector	South Shore to Airport	Links State Park trail system to airport	Newport	3	$869,000
Yaquina Bay Estuary Trail Extension	Yaquina Bay Trail to SE 35th Street	Extends existing trail	Newport	1	$321,000
NW Coast Street	NW 8th Street to NW 11th Street	Provide bicycle and pedestrian improvements over existing gravel road	Newport	2	$113,000
NW Nye Street	NW 15th Street to NW Oceanview	Construct shared use path connecting Nye to Oceanview	Newport	2	$110,000



MAP 3-7. **1994 Newport Park System Master Plan Facility Map**



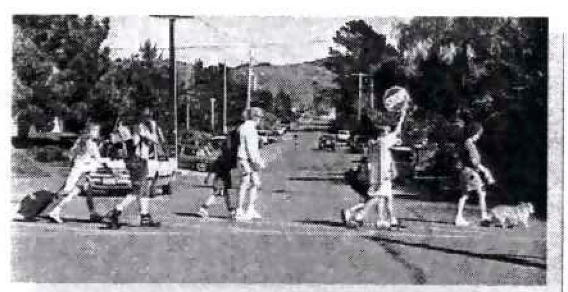
4. RECOMMENDED PEDESTRIAN AND BICYCLE PROGRAMS

Introduction

Bicycle and pedestrian programs enhance the biking and walking experience in ways other than the provision of traditional walkways and bikeways. Support programs include educational programs, the provision of bicycle parking, and various city programs and policies.

Safe Routes to School

Safe Routes to School (SR2S) refers to a variety of multi-disciplinary programs aimed at promoting walking and bicycling to school, and improving traffic safety around school areas through education, incentives, increased law enforcement, and engineering measures. Safe Routes to School programs typically involve partnerships among municipalities, school districts, community and parent volunteers, and law enforcement agencies. Newport's SR2S efforts are a vital component of the Pedestrian and Bicycle Plan, as they will facilitate the implementation and funding for specific improvements that will help increase bicyclist and pedestrian safety and encourage fewer auto trips.



Student escorting fellow students across the street

The City has a vested interest in encouraging schoolchildren to lead active lifestyles. Safe Routes to School programs offer ancillary benefits to neighborhoods by helping to slow traffic and provide reasonable facilities for walking by all age groups. The City benefits from a generally well-connected street system near most schools, a critical element in encouraging children to bike and walk to school.

Why Do We Need SR2S?

The purpose of a SR2S program is to identify and improve school commute routes, to increase the number of students who walk and/or bicycle to school in Newport, to lessen traffic congestion, and to improve health. Although most children walked or biked to school before and during the 1980s, the number of children walking or bicycling to school has sharply declined since, due to urban growth patterns and design, which have made it less safe to do so, in addition to other factors such as higher obesity rates and changes in lifestyle emphasizing more driving. Walking and bicycling to school are healthy alternatives to being driven and can provide a sense of independence for children who may otherwise be restricted by school bus or parents' schedules.

What are the Benefits of a SR2S Program?

Children walking to school

The primary benefit of implementing a SR2S program is the resulting increase in safety for children walking and riding bicycles to school. A comprehensive strategy based on a cooperative effort between school officials, parents, residents and city planning staff will ensure that specific school-related traffic calming projects and pedestrian and bicycle improvements will become priority projects eligible for State, Federal or other grant funding. The involvement of various stakeholders throughout the Safe Routes process increases the likelihood for implementation of needed safety improvements. While the primary focus of a SR2S program is improving safety for children walking and biking to school, these safety benefits often extend to all age and activity groups. In addition to safety enhancements, a SR2S program helps integrate physical activity into the everyday routine of schoolchildren. Health concerns related to sedentary lifestyles have become the focus of efforts both statewide and nationally to reduce health risks associated with being overweight. Identifying and improving routes for children to safely walk and bicycle to school is one of the most cost-effective means of reducing weekday morning traffic congestion (especially at school drop-off and pick-up sites) and can help reduce auto-related pollution.

Local Coordination and Involvement

In order to be successful, a SR2S program in Newport will need buy-in from individuals and organizations throughout the community. While each individual school will have unique concerns and goals for developing a SR2S program, an organizational strategy that promotes the sharing of ideas between schools can be more effective than several isolated school groups. The key components of an effective SR2S program include champions (individuals at each school who spearhead their school's organizing effort), stakeholders (a team of people from an individual school), and a task force made up of all the stakeholder teams in the community.

The basic components of the proposed SR2S program include bicycle/pedestrian safety education, encouragement, engineering improvements, and enforcement of traffic laws.

Education

Curriculum programs implemented in schools can teach children the basics regarding pedestrian and bicycle safety. Classroom educational materials should be presented in a variety of formats (safety videos, printed materials, and classroom activities), and should continually be updated to make use of the most recent educational tools available. Classroom education programs should also be expanded to promote the health and environmental benefits of bicycling and walking. Outside schools, educational materials should be developed for different audiences, including elected officials (describing the benefits of and need for a SR2S program), and parents (proper school drop-off procedures and safety for their children).

Educational programs should be linked with events and incentive programs when appropriate, and students should be included in task force activities, such as mapping locations for improvements. Involving students can serve as an educational tool and can also provide the task force with meaningful data that is useful for prioritizing improvement locations. Educational programs, and especially on-bike training, should be expanded to more schools and for more hours per year.

Encouragement

School commute events and frequent commuter contests are used to encourage participation. Programs that may be implemented include a "Walking School Bus Program," which involves parents taking turns walking (or bicycling) with groups of children to school. A good opportunity to kick-off a SR2S program is during International Walk to School Day, held annually in early October. Good resources and start-up material can be found at the City of Portland's new Safe Routes to School website, http://www.trans.ci.portland.or.us/saferoutes/program/. Organized Bike and Walk to School Days should be held monthly or weekly to keep the momentum going and encourage more children and their parents to walk or bike to school. Prizes or drawings for prizes offered to participants have been used in some schools as an incentive. Events related to bicycling and walking should be incorporated into existing curricula when practical. Involving local celebrities or publishing the names of student participants in events can be effective means of encouraging student involvement. Another key to successful events is promotion. Ensuring that parents are aware of events (whether classroom-specific or district-wide) is crucial to gaining maximum student participation.

In-class training

On-bike training

Other contests and event ideas to encourage bicycling and walking to school include: competitions in which classrooms compete for the highest proportion of students walking or biking to school, themed or seasonal events, and keeping classroom logs of the number of miles biked and walked by children and plotting these distances on a map of Oregon or the U.S. A wealth of information and ideas for promoting SR2S programs can be found at: www.nhtsa.dot.gov/people/injury/pedbimot/ped/saferouteshtml/index.html.

Enforcement

Various techniques are employed to ensure traffic laws are obeyed. The SR2S task force and stakeholder teams should develop priority areas in need of enforcement by the Newport Police Department. One option to avoid the cost of providing physical police presence is to use innovative signage, such as in-roadway crosswalk signs or in-roadway warning lights, to alert motorists that children may be crossing, or speed feedback signs that indicate to motorists their current speed. Neighborhood speed watch programs, in which community members borrow a radar device and use it to record the license plate numbers of speeding vehicles, can also be effective.

Engineering

To provide safe access for children, school sites should have designated pedestrian access points that do not require students to cross in front of drop-off and pickup traffic. Locations identified through the SR2S process should be considered for SR2S grant funding.

Streetscape improvements should ensure adequate sight distance on all access routes, crossings, and intersections. School zone designations for speed limits should be an element of a comprehensive circulation plan that also includes school-based student as well as Police Department crossing guard programs and identification of safe routes for bicycling and walking to school.

Funding

While much of the initial work involved in starting a SR2S program can be conducted by stakeholder team volunteers, eventually funding will be needed to plan and implement physical improvements, hold events, and develop and implement educational programs and materials.

Capital Funding

Capital funding for infrastructure improvements is available from a variety of sources. The SR2S task force should work with City staff to identify all potential funding sources and to provide support on funding requests. Newport may be able to pursue federal funds recently made available with the new Safe Routes to School Program established in the Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users (SAFTEA-LU). This section of the bill provides $612 million in funding over the next five years with no state receiving less than $1 million per fiscal year. Other portions of SAFETEA-LU, such as the Transportation Enhancements (TE) and the Congestion Mitigation and Air Quality (CMAQ) funds may also provide funding opportunities for bicycle and pedestrian projects.

Program Funding

As Newport's SR2S program develops, funding will be needed to support the overall program, including coordination assistance, purchasing incentives, printing newsletters, staffing events, and developing educational materials. Both school-based and program-based funding will be essential for success. When program funding is pursued, it should be emphasized that a SR2S program improves the entire community by relieving traffic congestion, contributing to cleaner air, creating alternative transportation routes, and improving the health and safety of children and the entire community. In order to maintain and expand the program, new sources of funding need to be obtained. Other possible funding sources include:

- **Corporations and Businesses**: Local corporations and businesses may be able to provide cash, prizes, and/or donations, such as printing services, through community giving or other programs. Parents or other members of stakeholder teams may be a good source for contacting companies.
- **Foundations**: There are institutions throughout the country that provide funding to non-profit organizations. The Foundation Center is a national organization dedicated to collecting and communicating information about philanthropy in the U.S., and is an excellent source for researching potential foundation funding sources. Potential foundation funding sources can be searched by geographic region and by category. Some categories that may be applicable include transportation, health, environment, and community building.
- **Individuals**: Statistically, individuals give more money than corporations and foundations combined. A local fund drive can quickly reach a large number of people if outreach is conducted by stakeholder team members.

- **Events**: Many SR2S programs have raised funds by holding special events, often using a related themed event such as a walkathon or a bicycling event. More traditional fundraising efforts, such as bake sales, concerts, talent shows, etc., can also help raise funds.
- **Parent Teacher Associations (PTAs) and School Districts**: Many PTAs have funds to distribute to school programs, and often schools have their own safety funding sources. Stakeholder teams should work with local PTAs and school districts to see if there is a method for applying for a grant.
- **City and County Funds**: Some cities and counties allocate funds to support SR2S programs. Some also allocate a portion of their local Transportation Enhancement funds to SR2S educational programs.
- **State Funds**: Each state receives Federal Highway Safety Funds, also called 402 Funds. Although each state handles this program differently, most funding is available on a competitive basis for projects that increase road safety.

Bicycle Parking

Lack of secure, convenient bicycle parking is a deterrent to bicycle travel. Bicyclists need parking options that can provide security against theft, vandalism, and weather. Like automobile parking, bicycle parking is most effective when it is located close to trip destinations, is easy to access, and is easy to find. Where quality bicycle parking facilities are not provided, determined bicyclists lock their bicycles to street signs, utility poles or trees. These alternatives are undesirable as they are usually not secure, may interfere with pedestrian movement, and can create liability or damage street furniture or trees. Bicycle parking facilities that are conveniently located and adequate in both quantity and quality can help reduce bicycle theft and eliminate inappropriate parking, benefiting everyone. Bicycle parking is highly cost-effective compared with automobile parking.

The City might undertake a bicycle parking analysis to determine whether all of the bicycle parking recommended by the Oregon Bicycle and Pedestrian Plan is being provided, and if so, that it is being provided in locations that are visible and free of obstacles. Recommendations for the type and placement of bicycle parking facilities are presented in the Design Guidelines section.

Bicycle/Pedestrian Access to Transit

The Lincoln County Transit system provides great opportunities for increasing pedestrian/bicycle-transit partnerships in Newport and throughout Lincoln County Transit's service area. Improvements to the pedestrian environment around transit stops and transit centers increases pedestrian safety, comfort, and may generate more ridership since most passengers start and end their trips as pedestrians. Integrating bicycles with transit allows the bicyclist to overcome barriers such as hills, inclement weather, night riding, and breakdowns. To improve the pedestrian/bicycle-transit link, Newport and Lincoln County Transit need to:

- Complete the sidewalk network on both sides of the roadway along the Newport/Yachats, Newport/Lincoln City and Newport/Siletz and Toledo bus routes to ensure connectivity and accessibility for all users. This can be accomplished as new development or redevelopment occurs, or as part of a Sidewalk Infill Program.
- Provide benches, shelters, lighting, posted maps and schedules and other amenities at transit stops;
- Provide secure bicycle parking at or near transit stops;

- Address the needs of bicycle and pedestrian circulation in the design of future transit centers; and
- Ensure that bicycles are always allowed on buses

Providing Good Sidewalks and Bikeways to Transit Stops

Improvements to the pedestrian environment around transit stops increases pedestrian safety, comfort, and may generate more transit ridership since most transit trips include a pedestrian trip at one or both ends. Most streets along the bus routes have sidewalks on both sides, though some streets have sidewalks on one side only or no sidewalks at all. Furthermore, sidewalks on several streets are in substandard condition (e.g., cracked or in disrepair).

Newport's bikeway network should also provide good access to transit. Most streets along the shuttle route are suitable for bicycle travel either through low-volume streets or the provision of bicycle lanes on higher-volume roads.

The Design Guidelines section provides further recommendations for the design of transit stop amenities.

Providing Secure Bicycle Parking

Long-term bicycle parking facilities (e.g., lockers) may be the most appropriate parking provision along the various Newport bus routes. "BikeStations" may also be appropriate in "higher-activity" areas like Nye Beach and the Bay Front. BikeStations are public/private community support facilities designed to encourage bicycling and transit use by providing:

- Secure, valet bicycle parking
- Transit amenities and services
- Close connections to transit

BikeStations may also provide other amenities such as:

- Bicycle accessory retail sales
- Bicycle rentals
- Restrooms/changing facilities
- Electric bicycles
- Safety/education information

San Jose, CA BikeStation™

Depending on specific design and location parameters, BikeStations can cost several hundred thousand dollars to build and operate. However, costs can be significantly reduced by utilizing existing buildings or covered structures. Opportunities to develop BikeStations could arise with new development or redevelopment in high-activity areas.

Alternative Transportation Coordinator

The City of Newport should consider creating an Alternative Transportation Coordinator full- or part-time position. This position would oversee implementation of the various related plans, such as the Pedestrian and Bicycle Plan. The position would also coordinate with other City departments (e.g., Public Works and Planning) and other organizations (e.g., Lincoln County Transit) to ensure that the needs of bicyclists and pedestrians are being considered in all new projects and relevant programs.

Along with a coordinator, the City should continue the successful Bicycle and Pedestrian Advisory Committee that meets regularly to identify and discuss the needs of bicyclists and pedestrians within the City of Newport.

Wayfinding/Signing Program

The ability to navigate through a town or city is informed by landmarks, natural features, and other visual cues. A signage system is a key component of a navigable environment and would inform pedestrians, bicyclists, and motorists, while also enhancing the identity of Newport. An effective wayfinding system communicates information clearly and concisely. Placing signs throughout the city indicating to bicyclists and pedestrians their direction of travel, location of destinations, and the time/distance to those destinations will increase users' comfort and accessibility to the bicycle and pedestrian system. Costing between $100 -$200 dollars each, wayfinding signs are a relatively cost-effective means for improving the walking and bicycling environment.

Spot Improvement Program

Having the ability to respond quickly to the requests of bicyclists and pedestrians will enhance Newport's standing as a bicycle- and pedestrian-friendly community. A Spot Improvement Program could be funded once a year, with all funds dedicated to smaller spot improvements identified by City staff and residents. Such improvements might include:

- Striping and signing of a particular path to increase safety and path user compliance along a heavily-used path
- Adding bicycle parking to locations that currently lack appropriate or insufficient parking, such as areas in the Bay Front
- Sidewalk infill to safely connect vital pedestrian routes, especially in school areas
- Adding appropriate directional and informational signage along paths, sidewalks, and bicycle routes
- Re-striping of bicycle lanes or crosswalks where the striping has worn away
- ADA improvements in parks

Becoming a Bicycle Friendly Community

The Bicycle Friendly Community (BFC) Campaign is a national awards program that recognizes municipalities that actively support bicycling. A Bicycle-Friendly Community provides safe accommodations for cycling and encourages its residents to bike for transportation and recreation. The Bicycle Friendly Community Campaign is administered by the League of American Bicyclists, an education and advocacy organization working to bring better cycling to communities around the country. The BFC designation is awarded at one of four levels (from lowest to highest): bronze, silver, gold, and platinum. To date, there have been no platinum designations awarded. In Oregon, five communities have been designated Bicycle Friendly Communities: Portland (Gold), Corvallis (Gold), Eugene (Silver), Ashland (Bronze) and Beaverton (Bronze).

What Does it Take?

Determining whether a community is bicycle-friendly involves considering many factors and conditions. The application is an audit of a community's efforts to provide a more bicycle-friendly environment. The audit reviews engineering, education, encouragement, enforcement, and evaluation and planning efforts for bicycling. The entire application and feedback from cyclists in the community is sought to determine whether the League will award the BFC designation. The application is available online at http:// www.bicyclefriendlycommunity.org/apply.cfm.24. The BFC campaign effort can be initiated by anyone; however, the application process requires information that only the City and City staff would possess, and requires the enthusiastic support of Newport.

Strategies

There are a number of short- and long-term steps Newport can take to become a "Bicycle Friendly Community." The City should first commit to becoming a BFC. The League of American Bicyclists provides an "Action Plan for Bicycle Friendly Communities," which identifies ten specific steps that the community should take to improve bicycling conditions. The City should then adopt the Action Plan publicly with the full backing of the Mayor and City Council.

Action Plan for Bicycle-Friendly Communities

1. Adopt a target level of bicycle use (e.g., percent of trips) and safety to be achieved within a specific timeframe, and improve data collection necessary to monitor progress.

2. Provide safe and convenient bicycle access to all parts of the community through a signed network of on- and off-street facilities, low-speed streets, and secure parking. Local cyclists should be involved in identifying maintenance needs and on-going improvements.

3. Establish information programs to promote bicycling for all purposes, and to communicate the many benefits of bicycling to residents and businesses (e.g., with bicycle maps, public relations campaigns, neighborhood rides, a ride with the Mayor).

4. Make the City a model employer by encouraging bicycle use among its employees (e.g., by providing parking, showers and lockers, and establishing a city bicycle fleet).

5. Ensure all city policies, plans, codes, and programs are updated and implemented to take advantage of every opportunity to create a more bicycle-friendly community. Staff in all departments should be offered training to better enable them to complete this task.

6. Educate all road users to share the road and interact safely. Road design and education programs should combine to increase the confidence of bicyclists.

7. Enforce traffic laws to improve the safety and comfort of all road users, with a particular focus on behaviors and attitudes that cause motor vehicle/bicycle crashes. Bicyclists should be educated to always ride in the direction of vehicle traffic.

8. Develop special programs to encourage bicycle use in communities where significant segments of the population do not drive and where short trips are most common, such as the Safe Routes to School program discussed earlier in this chapter.

9. Promote intermodal travel between Community Transit and bicycles (e.g., by installing bicycle racks on buses, improving parking at transit stops, and improving bicycle access to transit stops.

10. Establish a citywide, multi-disciplinary committee for non-motorized mobility to submit to the Mayor/Council a regular evaluation and action plan for completing the items in this action plan.

The City should educate community members and City staff on how to become more bicycle-friendly. This could entail holding a workshop or other public forum to introduce community leaders to the basic elements of a BFC. The City should also work with Oregon's Bicycle Transportation Alliance and Safe Routes to School programs to further the education effort.

Finally, the City should implement the Action Plan. Once the Action Plan has been adopted, the City needs to ensure that the Plan is implemented, and prepare and submit its BFC application.

Sidewalk Infill Program

It is a major objective of this Plan to expand sidewalks in order to increase walking for transportation and recreation, and to overcome gaps in sidewalks that inhibit walking. The very qualities that make Newport unique and livable are inextricably linked to its pedestrian-friendliness. The City also recognizes the intrinsic health, safety, economic, and environmental benefits of improving pedestrian facilities and the level of walking.

Completing some sidewalk links can be challenging, especially in older residential areas where residents have developed fencing and landscaping within the public right-of-way and may consider those areas to be part of their personal space, or where topographic constraints exist. In addition, some residents may not want traditional sidewalks due to the rural look of their neighborhoods, and potential impacts to mature landscaping and trees. Regardless, the public right-of way that is generally located on either side of the paved driving and parking area is intended for walking, whether or not a sidewalk currently exists.

Newport should develop a Sidewalk Infill Program where City staff periodically inventory the street network to identify sidewalk gaps, and develop strategies, project prioritization criteria and funding for completing these gaps. Potential project prioritization criteria include filling gaps along key pedestrian routes, near major pedestrian trip generators like schools, and along streets with high vehicle volumes.

Potential Implementation Process

In order to inform adjacent property owners of plans to construct a sidewalk in the public right-of-way, the Public Works Department could conduct extensive public outreach. The outreach could include of the following steps:

At the beginning of design, City staff would send a notification letter to all residents on the block face (owner and resident) on blocks that would have sidewalk infill construction on either side of the street. The letter would notify them that their location has been chosen for the Sidewalk Infill Program, that design has started, and to contact Public Works with any questions about the program.

City staff would send a notification postcard to the resident list at 50 percent design completion. This would allow the design to be far enough along to answer specific questions on a location-by-location basis, but still allow changes to the design as appropriate before finalizing the design. City staff would meet with any residents who contact the City regarding design/construction details, and they would refer any questions about the general Sidewalk Infill Program to the Public Works Department.

When design is complete and the project goes out to bid, City staff would send a third notification postcard to the resident list informing them that the project is out to bid. Council would award the construction contract and receive a map of all locations where sidewalks are to be constructed. When construction contracts are approved by Council, City staff would send a 4th notification postcard to the resident list informing them that Council has approved the construction contract and the anticipated construction schedule, and that the residents would receive a door hanger notice at least 72 hours before construction begins at their particular location.

Accommodating People with Disabilities

With the advent of the Americans with Disabilities Act (ADA) in 1990, the nation recognized the need to provide equal access to all residents. Since its inception, ADA has significantly changed the design requirements for the construction of public space. However, much of the pedestrian environment built prior to the ADA's inception does not adequately accommodate people with disabilities. The City of Newport's approach is to gradually change this situation through land development project requirements, unrelated capital street improvement projects, and capital projects that specifically retrofit antiquated public pedestrian facilities.

It is important to note that a pedestrian environment that is strategically built to be accessible for people with disabilities is also more accessible for all. Curb ramps, for instance, can accommodate strollers, shopping carts and dollies for the movement of goods. Accessible intersection crossings can increase the safety for people regardless of ability. In recognition of this, the City's philosophical approach is to create pedestrian environments that are attractive, functional, and accessible to all people.

Developing an ADA Transition Plan

As a part of the implementation of ADA, the Justice Department requires that all municipal jurisdictions have an ADA Transition Plan, which is intended to spell out the City's intentional retrofitting of its built environment to an accessible state.

While the elements of the Pedestrian and Bicycle Plan are purposely written to accommodate people with disabilities, a separate document with greater specificity is required. The ADA Transition Plan should use all the relevant strategies of this document as well as other current practices that have merit. Monies set aside to implement the ADA Transition Plan should be focused to accomplish the priorities of the Plan, rather than diverting them to ADA compliance in an unrelated project.

In order to adequately plan the pedestrian environment for people with disabilities, the ADA Transition Plan must take into account each of the disabilities and the limitations they present. It is also important to be aware of how planning for people with one disability affects people with another. For example, gradual ramps and smooth transitions to the street help people in wheelchairs, but present challenges for the sight-impaired if they cannot easily find the end of the sidewalk and beginning of the street. Additionally, the Plan should also consider the needs of children and older adults.

The section below identifies populations whose needs must be taken into account in creating an accessible pedestrian environment.

People with Mobility Impairments

People with mobility impairments range from those who use wheelchairs, crutches, canes, orthotics, and prosthetic devices, to those who do not use such devices but face constraints for many reasons when walking long distances, on non-level surfaces, or on steep grades. Curb ramps are particularly important to people with mobility impairments. Prosthesis users often move slowly and often have difficulty with steep grades or cross slopes.

People with mobility impairments are affected by:

- Uneven surfaces that hinder movement or cause loss of balance
- Rough surfaces that make rolling difficult, cause a loss of balance, or cause pain especially for people with back injuries
- Steep uphill slopes that can make movement slow or impossible
- Steep downhill slopes that can cause a loss of control or are difficult to negotiate
- Cross slopes that cause instability or loss of balance
- Narrow sidewalks that impede the ability of users to turn or to cross paths with others
- Devices that are hard to reach, such as push buttons for walk signals and doors
- Long distances
- Situations that require fast reaction time
- Signalized walk phases that are shorter than the time it takes for them to cross the street

People with Sensory Impairments

People with sensory impairments include those who are partially or fully blind or deaf. They also include people whose perception of touch or balance is not good, as well as those who are colorblind.

Visually-impaired people have the following characteristics:

- Limited or no perception of the path ahead
- Limited or no information about their surroundings, especially in a new place
- Changing environments in which they rely on memory
- Lack of non-visual information
- Inability to react quickly
- Unpredictable situations, such as complex intersections that are not at 90 degrees

- Inability to distinguish the edge of the sidewalk from the street
- Compromised ability to detect the proper time to cross a street
- Compromised ability to cross a street along the correct path (especially when a curb ramp is oriented diagonally toward an intersection's center point)
- Need for more time to cross the street

Hearing impaired people rely on visual information, which is often inadequate. They face most of their mobility difficulties in not being able to hear approaching vehicles and not being able to detect the time of their arrival. This is especially an issue in locations with limited sight distances, such as where streets curve or landscaping blocks the view.

People with Cognitive Impairments

People with cognitive impairments encounter difficulties in thinking, learning, responding, and performing coordinated motor skills. Cognitive disabilities can cause some to become lost, or to have difficulty finding their way. They may also not understand standard street signage. People who are not able to read benefit from signs with symbols and colors.

Children and Other Adults

Children and many older adults do not fall under specific categories for disabilities, but must be taken into account in pedestrian planning. Children are less mentally and physically developed than adults. They have the following characteristics:

- Less peripheral vision
- Less ability to judge speed and distance
- Difficulty locating sounds
- Read less than adults or not at all, so do not understand text signs
- Sometimes act impulsively or unpredictably
- Lack familiarity with traffic
- Face difficulty carrying packages

Other adults often exhibit degrading sensory or physical capabilities. This can cause them to:

- Gradually lose vision, especially at night
- Have decreased ability to hear sounds and detect where they come from
- Have less endurance; have less strength to walk up hills
- Have less balance, especially on uneven or sloped sidewalks
- React slowly to dangerous situations
- Walk slowly

Education Programs

School-based Education Programs

A school-based bicycle and pedestrian education program educates students about the rules of the road, proper use of bicycle equipment, bicycling skills, street crossing skills, and the benefits of bicycling and walking. These types of education programs are usually sponsored by a joint City/school district committee that includes appointed parents, teachers, student representatives, administrators, police, active bicyclists and engineering department staff. These programs can also be rolled into a Safe Routes to School Program.

Education need not be limited to younger schoolchildren. Adult bicycle education and safety programs can be developed from existing courses, such as the League of American Bicyclists courses. Additionally, the Newport Police Department may want to utilize adult bicycle education programs as a "bicycle traffic school" in lieu of fines for bicycle-related traffic violations.

Safety Handbook

Safety handbooks are generally developed as part of a school-based bicycle and pedestrian safety program. Handbooks may include a circulation map of the campus and immediate neighborhood showing the preferred circulation and parking patterns, suggested routes to school, locations of crosswalks, crossing guards and signalized intersections, instructions for bicycle maintenance and use, instructions for fitting and wearing a helmet, instructions for crossing the street, and lists of emergency and school numbers. A general handbook can be published by the City and used by each school in conjunction with the school-specific map.

Educate Motorists, City Staff, Maintenance, and Construction Crews

Motorist education on the rights of bicyclists and pedestrians is limited. Many motorists mistakenly believe, for example, that bicyclists do not have a right to ride in travel lanes and that they should be riding on sidewalks. Education about the rights and responsibilities of pedestrians and cyclists can include:

- Incorporating bicycle and pedestrian safety into traffic school curriculum.
- Producing a brochure on bicycle and pedestrian safety and laws for public distribution.
- Enforcing traffic laws for cyclists.
- Providing bicycle and pedestrian planning training for all City planners.
- Working with contractors, subcontractors and city maintenance and utility crews to ensure they understand the needs of bicyclists and pedestrians and follow standard procedures when working on or adjacent to roadways and walkways.

Bicycle Patrol Unit

The City of Newport may want to work with the Police Department, local business and neighborhood groups to establish local Bicycle Patrol Units. A Bicycle Patrol Unit may be an official law enforcement unit, a private security guard patrol, or a volunteer network. Bicycles are an excellent community policing tool, as officers on bikes are often viewed as more approachable, thus improving trust and relations between the citizens and police. Bicycle patrol units can work closely with citizens to address concerns before they become problems. Bicycle patrol units can have a direct impact on bicycle safety by enforcing bicycle traffic laws (e.g., wrong-way riding, sidewalk riding, obeying traffic controls, children wearing helmets), and providing bicycle safety education.

Encouragement Programs

Strategies for community involvement in bicycle and pedestrian improvements will be important to ensure broad-based support – which translates into political support – to help secure financial resources. Involvement by the private sector in raising awareness of the benefits of bicycling can range from small incremental activities by non-profit groups, to efforts by the largest employers in the City. Specific programs are described below.

Facilitate the Development of Employer Incentive Programs

Employer incentive programs to encourage employees to walk and bike to work include strategies like providing bicycle lockers and shower facilities, offering more flexible arrival and departure times, and fun incentives such as entry into monthly raffle contests. The City may offer incentives to employers to institute these improvements through air quality credits, lowered parking requirements, reduced traffic mitigation fees, or other means.

Community Bikeway/Walkway Adoption

Community Bikeway/Walkway Adoption programs are similar to the widely-instituted Adopt-a-Highway programs throughout the country. These programs identify local individuals, organizations, or businesses that would be interested in "adopting" a bikeway or walkway. Adopting a facility would mean that person or group would be responsible for the facility's maintenance either through direct action or as the source of funding for the City's maintenance of that facility. For example, members of a local recreation group may volunteer every other weekend to sweep a bikeway and identify and address larger maintenance needs. Or, a local bike shop may adopt a bikeway by providing funding for the maintenance costs. The managers of an adopted bikeway may be allowed to post their name on bikeway signs throughout the bikeway in order to display their commitment to bicycling in Newport.

Create a Multi-Modal Access Guide

A multi-modal access guide provides concise customized information on how to access specific destinations with emphasis on bicycling, walking and transit. Access guides can be as simple as a map printed on the back as a business card or as complex as a multi-page packet distributed to employees. Some items commonly included in access guides are:

- A map of the area depicting bus stops, recommended walking and bicycling routes, landmarks, facilities such as restrooms and drinking fountains, locations of bicycle and vehicle parking, and major roads
- Information on transit service, including frequency, fares, accepted methods of payment, first and last runs, schedules, phone numbers and websites of transit service providers and taxis

- Information on how long it takes to walk or bike from a transit center to a destination
- Accessibility information for people with disabilities

Best practices include using graphics, providing specific step-by-step travel directions, providing parking location and pricing information, and providing information about the benefits of walking and bicycling. High quality access guides should be concise and accurate and should incorporate input from key stakeholders, including public transportation operators, public officials, employees, staff who will be distributing the access guide, and those with disabilities.

Work with Businesses to Develop Incentives for Bicycling and Walking

Incentive programs to encourage bicycling and walking to local businesses can be developed in coordination with individual businesses, the Chamber of Commerce, and the Bicycle Transportation Alliance. Such efforts may include:

- Creating promotional events such as "Bicycle to the Grocery Store" days, when cyclists get vouchers for, or discounts on items in the store, or "bicycle to the video store" days, when cyclists receive free popcorn or a discount on a movie rental.
- Holding an annual community event to encourage residents to replace one car trip a week with a bicycle trip. This type of event could be integrated with current special events like "Celebrate Newport."
- Developing, promoting and publicizing bicycle commuter services, such as bike shops selling commute gear, bikes-on-transit policies, and regular escorted commute rides.
- Creating an annual commuter challenge for area businesses.

Walk- and Bike-to-School Days

The City and School District should encourage residents to participate in the annual international Walk-to-School Day held each October. The City and School District could also create a Bike-to-School day. These events raise the profile of bicycling and walking among children. Local Bike- and Walk-to-Work days can be held annually in conjunction with the school-related events.

Bike Fairs, Organized Rides, and Races

Hosting bike fairs, organized rides (such as Cycle Oregon), and races in Newport can raise the profile of bicycling in the area and provide entertainment for all ages at the same time. Bike fairs and races provide an opportunity to educate and encourage current and potential bicyclists. These events can also bring visitors to Newport that may also contribute to the local economy. These events could be sponsored and implemented through collaboration between the City and local employers.

TravelSmart Programs

TravelSmart is an innovative way to encourage environmentally-friendly ways to travel. The concept, used in more than 300 projects around the world, identifies individuals who want to change the way they travel and uses personal, individualized contact to motivate them to think about their travel options. TravelSmart provides customized information and training to help people take transit, bike, walk or carpool for some of their trips. TravelSmart projects provide many benefits including individual health and financial improvements, and community-wide benefits such as reduced air pollution and enhanced community safety.

TravelSmart gives participants just the information they ask for to help them get started, or to keep on walking, biking, taking transit or carpooling. Those who do not want information are left alone. Materials are delivered by a "Travel Ambassador" in the most efficient and cost effective way – by bicycle. Travel Ambassadors are cross-trained to answer participants' questions concerning all alternative travel modes. Depending on the information requested by an individual participant, marketing materials could include maps identifying safe, convenient and direct walking and bicycling routes in Newport, public bicycle parking locations, Lincoln County Transit maps and schedules, and free bus passes. Travel Ambassadors would contact program participants periodically to answer questions about alternative transportation. The City could also periodically survey participants about their travel habits to gauge the program's success.

Enforcement Programs

The best protection for pedestrians and bicyclists traveling along and across streets are motorists who are aware of and follow laws regarding bicycle/pedestrian right-of-way. Many people however are unaware of these laws.

Targeted enforcement action should be focused in those areas with high bicycle and pedestrian volumes or where non-motorized travelers are especially vulnerable. Law enforcement efforts should be targeted during periods and at locations where motorists and the general public will become aware of bicycle/pedestrian laws and their penalties. It is recommended that such targeted enforcement occur at least four times per year and last one week. Focused enforcement should also take place at the start of the school year at selected schools near their primary access points by children walking and cycling. An effective form of targeted enforcement is the use of a Police Officer posing as a pedestrian crossing the street. Motorists who do not yield to the officer are ticketed by other Police Officers further down the street. Another example of effective enforcement of the bicycle and pedestrian right-of-way is ticketing cars parked across the sidewalk or within striped bicycle lanes.

All targeted enforcement actions should be coordinated with the Public Works Department. The Newport Police Department should also be surveyed for input on appropriate educational material, advisory and warning signs, and other tools to help them accomplish their mission. Finally, it is recommended that the Police Department vigorously pursue legal action against motorists who cause a bicycle/pedestrian injury or fatality.

Pedestrians and bicyclists are protected in the public right-of-way by the Oregon Vehicle Code, as enforced by the Newport Police Department. Some of the key provisions of the Oregon Vehicle Code pertaining to pedestrians and bicyclists are shown below.

811.015 Failure to obey traffic patrol member; penalty.

(1) The driver of a vehicle commits the offense of failure to obey a traffic patrol member if:

> (a) A traffic patrol member makes a cautionary sign or signal to indicate that students have entered or are about to enter the crosswalk under the traffic patrol member's direction; and
>
> (b) The driver does not stop and remain stopped for students who are in or entering the crosswalk from either direction on the street on which the driver is operating.

(2) Traffic patrol members described in this section are those provided under ORS 339.650 to 339.665.

(3) The offense described in this section, failure to obey a traffic patrol member, is a Class A traffic violation. [1983 c.338 §545; 1995 c.383 §12; 2003 c.278 §2]

811.020 Passing stopped vehicle at crosswalk; penalty.

(1) The driver of a vehicle commits the offense of passing a stopped vehicle at a crosswalk if the driver:

> (a) Approaches from the rear another vehicle that is stopped at a marked or an unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway; and
>
> (b) Overtakes and passes the stopped vehicle.

(2) The offense described in this section, passing a stopped vehicle at a crosswalk, is a Class B traffic violation. [1983 c.338 §546]

811.025 Failure to yield to pedestrian on sidewalk; penalty.

(1) The driver of a vehicle commits the offense of failure to yield to a pedestrian on a sidewalk if the driver does not yield the right of way to any pedestrian on a sidewalk.

(2) The offense described in this section, failure to yield to a pedestrian on a sidewalk, is a Class B traffic violation. [1983 c.338 §547; 1995 c.383 §42]

811.028 Failure to stop and remain stopped for pedestrian; penalty.

(1) The driver of a vehicle commits the offense of failure to stop and remain stopped for a pedestrian if the driver does not stop and remain stopped for a pedestrian when the pedestrian is:

(a) Proceeding in accordance with a traffic control device as provided under ORS 814.010 or crossing the roadway in a crosswalk, as defined in ORS 801.220; and

(b) In any of the following locations:

(A) In the lane in which the driver's vehicle is traveling;

(B) In a lane adjacent to the lane in which the driver's vehicle is traveling;

(C) In the lane into which the driver's vehicle is turning;

(D) In a lane adjacent to the lane into which the driver's vehicle is turning, if the driver is making a turn at an intersection that does not have a traffic control device under which a pedestrian may proceed as provided under ORS 814.010; or

(E) Less than six feet from the lane into which the driver's vehicle is turning, if the driver is making a turn at an intersection that has a traffic control device under which a pedestrian may proceed as provided under ORS 814.010.

(2) For the purpose of this section, a bicycle lane or the part of a roadway where a vehicle stops, stands or parks that is adjacent to a lane of travel is considered to be part of that adjacent lane of travel.

(3) This section does not require a driver to stop and remain stopped for a pedestrian under any of the following circumstances:

(a) Upon a roadway with a safety island, if the driver is proceeding along the half of the roadway on the far side of the safety island from the pedestrian; or

(b) Where a pedestrian tunnel or overhead crossing has been provided at or near a crosswalk.

(4) The offense described in this section, failure to stop and remain stopped for a pedestrian, is a Class B traffic violation. [2005 c.746 §2]

811.035 Failure to stop and remain stopped for blind pedestrian; penalty.

(1) The driver of a vehicle commits the offense of failure to stop and remain stopped for a blind pedestrian if the driver violates any of the following:

(a) A driver approaching a blind or blind and deaf pedestrian carrying a white cane or accompanied by a dog guide, who is crossing or about to cross a roadway, shall stop and remain stopped until the pedestrian has crossed the roadway.

(b) Where the movement of vehicular traffic is regulated by traffic control devices, a driver approaching a blind or blind and deaf pedestrian shall stop and remain stopped until the pedestrian has vacated the roadway if the blind or blind and deaf pedestrian has entered the roadway and is carrying a white cane or is accompanied by a dog guide. This paragraph applies notwithstanding any other provisions of the vehicle code relating to traffic control devices.

(2) This section is subject to the provisions and definitions relating to the rights of pedestrians who are blind or blind and deaf under ORS 814.110.

(3) The offense described in this section, failure to stop and remain stopped for a blind pedestrian, is a Class B traffic violation. [1983 c.338 §549; 1985 c.16 §280; 2003 c.278 §3]

811.050 Failure to yield to rider on bicycle lane; penalty.

(1) A person commits the offense of failure of a motor vehicle operator to yield to a rider on a bicycle lane if the person is operating a motor vehicle and the person does not yield the right of way to a person operating a bicycle, electric assisted bicycle, electric personal assistive mobility device, moped, motor assisted scooter or motorized wheelchair upon a bicycle lane.

(2) This section does not require a person operating a moped to yield the right of way to a bicycle or a motor assisted scooter if the moped is operated on a bicycle lane in the manner permitted under ORS 811.440.

(3) The offense described in this section, failure of a motor vehicle operator to yield to a rider on a bicycle lane, is a Class B traffic violation. [1983 c.338 §698; 1985 c.16 §336; 1991 c.417 §4; 1997 c.400 §8; 2001 c.749 §23; 2003 c.341 §7]

811.060 Vehicular assault of bicyclist or pedestrian; penalty.

(1) For the purposes of this section, "recklessly" has the meaning given that term in ORS 161.085.

(2) A person commits the offense of vehicular assault of a bicyclist or pedestrian if:

(a) The person recklessly operates a vehicle upon a highway in a manner that results in contact between the person's vehicle and a bicycle operated by a person, a person operating a bicycle or a pedestrian; and

(b) The contact causes physical injury to the person operating a bicycle or the pedestrian.

(3) The offense described in this section, vehicular assault of a bicyclist or pedestrian, is a Class A misdemeanor. [2001 c.635 §5]

811.435 Operation of motor vehicle on bicycle trail; exemptions; penalty.

(1) A person commits the offense of operation of a motor vehicle on a bicycle trail if the person operates a motor vehicle upon a bicycle lane or a bicycle path.

(2) Exemptions to this section are provided under ORS 811.440.

(3) This section is not applicable to mopeds. ORS 811.440 and 814.210 control the operation and use of mopeds on bicycle lanes and paths.

(4) The offense described in this section, operation of a motor vehicle on a bicycle trail, is a Class B traffic violation. [1983 c.338 §643]

814.400 Application of vehicle laws to bicycles.

(1) Every person riding a bicycle upon a public way is subject to the provisions applicable to and has the same rights and duties as the driver of any other vehicle concerning operating on highways, vehicle equipment and abandoned vehicles, except:

(a) Those provisions which by their very nature can have no application.

(b) When otherwise specifically provided under the vehicle code.

(2) Subject to the provisions of subsection (1) of this section:

(a) A bicycle is a vehicle for purposes of the vehicle code; and

(b) When the term "vehicle" is used the term shall be deemed to be applicable to bicycles.

(3) The provisions of the vehicle code relating to the operation of bicycles do not relieve a bicyclist or motorist from the duty to exercise due care. [1983 c.338 §697; 1985 c.16 §335]

811.440 When motor vehicles may operate on bicycle lane.

This section provides exemptions from the prohibitions under ORS 811.435 and 814.210 against operating motor vehicles on bicycle lanes and paths. The following vehicles are not subject to ORS 811.435 and 814.210 under the circumstances described:

(1) A person may operate a moped on a bicycle lane that is immediately adjacent to the roadway only while the moped is being exclusively powered by human power.

(2) A person may operate a motor vehicle upon a bicycle lane when:

(a) Making a turn;

(b) Entering or leaving an alley, private road or driveway; or

(c) Required in the course of official duty.

(3) An implement of husbandry may momentarily cross into a bicycle lane to permit other vehicles to overtake and pass the implement of husbandry.

(4) A person may operate a motorized wheelchair on a bicycle lane or path.

(5) A person may operate a motor assisted scooter on a bicycle lane or path.

(6) A person may operate an electric personal assistive mobility device on a bicycle lane or path. [1983 c.338 §645; 1991 c.417 §1; 2001 c.749 §24; 2003 c.341 §8]

5. DESIGN GUIDELINES AND STANDARDS

Introduction

This chapter discusses recommended design guidelines for Newport's pedestrian and bicycle system. Design recommendations are proposed for each of the non-motorized facility types proposed in this plan including bikeways and walkways. This chapter also discusses other important issues that should be considered as the City improves existing facilities and expands the pedestrian and bicycle network.

The design standards use the Manual on Uniform Traffic Control Devices (MUTCD) guidelines as the preferred approach with options identified that the city can implement at their discretion. ODOT will only follow the MUTCD guidelines for their facilities. The MUTCD uses highly specific language to classify the guidelines. The following terms are defined by the MUTCD:

- Standard: A statement of required, mandatory, or specifically prohibitive practice regarding a traffic control device.
- Guidance: A statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate.
- Option: A statement of practice that is a permissive condition and carries no requirement or recommendation. Options may contain allowable modifications to a Standard or Guidance.
- Support: An informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition or enforceable condition.

The inclusion of design guidelines and standards not included in the MUTCD does not constitute tacit approval of the recommendations by the City or State.

Sidewalks

A variety of considerations are important in sidewalk design. Providing adequate and accessible facilities should lead to increased numbers of people walking, improved safety, and the creation of social space. Attributes of well-designed sidewalks include the following:

- **Accessibility**: A network of sidewalks should be accessible to all users and meet ADA requirements.
- **Adequate width**: Two people should be able to walk side-by-side and pass a third person comfortably and different walking speeds should be possible. In areas of intense pedestrian use, sidewalks should be wider to accommodate the greater volume of walkers.

- **Safety**: Design features of the sidewalk should allow pedestrians to have a sense of security and predictability. Sidewalk users should not feel they are at risk due to the presence of adjacent traffic.
- **Continuity**: Walking routes should be obvious and should not require pedestrians to travel out of their way unnecessarily.
- **Landscaping**: Plantings and street trees within the roadside area should contribute to the overall psychological and visual comfort of sidewalk users, without providing hiding places for attackers.
- **Social space**: Sidewalks should be more than areas to travel; they should provide places for people to interact. There should be places for standing, visiting, and sitting. The sidewalk area should be a place where adults and children can safely participate in public life.
- **Quality of place**: Sidewalks should contribute to the character of neighborhoods and business districts and strengthen their identity.

Width

Required sidewalk widths in Newport vary based a street's ownership and functional classification. According the Highway Design Manual (HDM), ODOT requires six-foot sidewalks with four-foot planter strips on US 101, although this requirement is not often met. The City of Newport requires five-foot sidewalks on all streets.

Generally, sidewalks should be at least six feet wide, exclusive of the curb and other obstructions. This width enables two pedestrians (including wheelchair users) to walk side by side, or to pass each other comfortably. It also allows two pedestrians to pass a third pedestrian without leaving the sidewalk. This Plan recommends that the City of Newport increase its current minimum sidewalk width standard to six feet to address these issues.

Surface

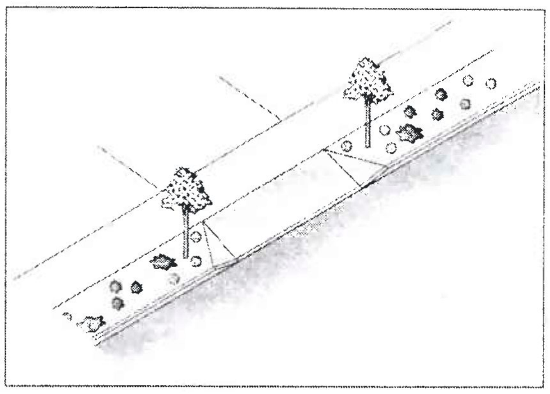
Sidewalk surfaces should be smooth and continuous. It is also desirable that the sidewalk surface be stable, firm and slip resistant. Preferred materials include Portland Cement Concrete (PCC) and Asphalt Concrete (AC). PCC provides a smooth, long-lasting and durable finish that is easy to grade and repair. AC has a shorter life expectancy but may be more appropriate in less urbanized areas and in park settings. Crushed aggregate may also be used as an all-weather walkway surface in park areas, but this material generally requires a higher level of maintenance to maintain accessibility.

Brick pavers (or other decorative treatments) may be used on some sidewalks and crosswalks if they are constructed to avoid settling or removal of bricks, which can create tripping hazards. This treatment should also be constructed to provide a high level of smoothness to accommodate wheelchairs and other mobility devices. Alternatives to brick pavers include "stamping" molds to create the visual appearance of bricks.

The Americans with Disabilities Act allows a maximum two percent cross-slope on sidewalks and other walkways. Where sidewalks meet driveways, curb cuts or intersections, a three-foot-wide area should be maintained with a two percent cross-slope.

Addressing Obstructions

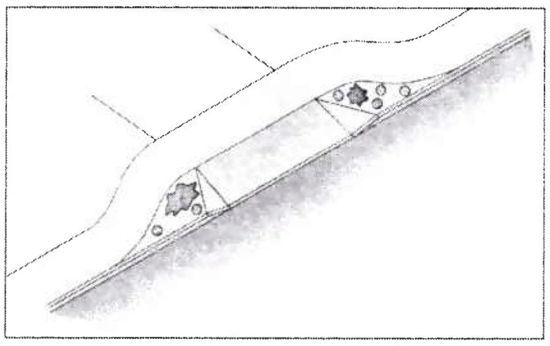
Obstructions to pedestrian travel in the sidewalk corridor typically include sign posts, utility and signal poles, mailboxes, fire hydrants and street furniture. Obstructions should be placed between the sidewalk and the roadway to create a buffer for increased pedestrian comfort while maintaining six feet of lateral clearance. When sidewalks abut perpendicular or angle on-street parking, wheelstops should be placed in the parking area to prevent parked vehicles from overhanging in the sidewalk. When sidewalks abut hedges, fences, or buildings, an additional two feet of lateral clearance should be added to provide appropriate shy distance.



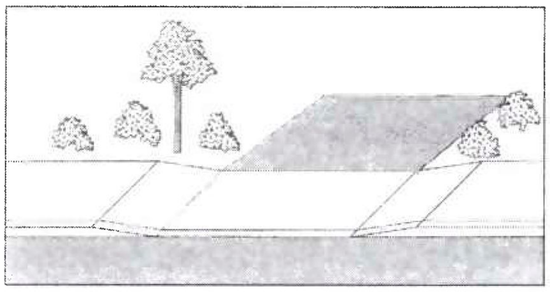
Driveway apron utilizing a planter strip

Driveways represent another sidewalk obstruction, especially for wheelchair users. The following techniques can be used to accommodate wheelchair users at driveway crossings:

- Reducing the number of accesses reduces the need for special provisions. This strategy should be pursued first.
- Constructing wide sidewalks avoids excessively steep driveway slopes. The overall width must be sufficient to avoid an abrupt driveway slope.
- Planter strips allow sidewalks to remain level, with the driveway grade change occurring within the planter strip.
- Where constraints preclude a planter strip, wrapping the sidewalk around the driveway has a similar effect. However, this method may have disadvantages for visually-impaired pedestrians who follow the curb line for guidance.
- When constraints only allow curb-tight sidewalks, dipping the entire sidewalk at the driveway approaches keeps the cross-slope at a constant grade. However, this may be uncomfortable for pedestrians and could create drainage problems behind the sidewalk.



Sidewalk wrapped around driveway



Entire sidewalk dips at driveway

Alternatives to Sidewalks

Although the City of Newport has a goal of providing sidewalks on both sides of all streets, physical and other constraints (especially in older neighborhoods) could preclude sidewalks in some parts of the city. Alternative sidewalk treatments could be used to accommodate foot traffic in these areas.

Soft Paths

In areas where paved sidewalks are not feasible or appropriate due to site conditions such as existing trees, walls, or other obstacles, a soft path alternative should be explored. A soft path is a pedestrian path constructed of a pervious material such as decomposed granite or other universally accessible material. Another option is rubberized sidewalks, which use one recycled automobile tire per square foot of sidewalk. Rubberized sidewalks cost approximately one-third more than the cost of typical concrete sidewalks, but require significantly less maintenance than concrete sidewalks that are located near trees, since they can be lifted out of the ground for periodic tree root trimming. Rubberized sidewalks are less likely than concrete to be broken up by tree roots, further reducing long-term costs. Soft paths should be at least five feet wide. Constricted areas may have a reduced width consistent with the ADA guidelines.

Colored Shoulders

Colored shoulders visually narrow the roadway and slow traffic, making it more pedestrian friendly. They are optional treatments for neighborhoods with no room for traditional sidewalks. Drivers see only travel lanes as available road space, so the roadway appears narrower than it is when the shoulders are a different color. Painting the road surface requires frequent maintenance; lower-maintenance methods include:

- Paving travel lanes with concrete, and bicycle/pedestrian facilities with asphalt, or the reverse
- Slurry sealing or chip-sealing the roadway, and not the pedestrian path
- Incorporating dyes into concrete or asphalt
- Colored unit pavers that resemble brick

Bicycle Lanes

This Plan proposes bicycle lanes on several existing streets in Newport. The City currently requires 5-foot bicycle lanes on city streets while ODOT requires six-foot bicycle lanes on State highways. Cyclists need at least four feet of lateral clearance while operating in a bicycle lane. A lane's usable width is normally measured from the curb face to the center of the lane stripe, although adjustments should be made for drainage grates and longitudinal joints between the street pavement and the curb gutter pan. Discussed later, this Plan recommends that the City increase its current bicycle lane width standard to six feet to address these issues. If parking is permitted on a street, bicycle lanes should be placed between the parking lane and the travel lane.

Oregon Administrative Rules require bicycle lanes to be striped with an eight-inch solid white line to increase the visual separation between the vehicle lane and bicycle lane. A four-inch solid white line may also be striped between the bicycle lane and adjacent on-street parking to encourage parking closer to the curb and to provide additional separation from motor vehicles.

Manual on Uniform Traffic Control Devices (MUTCD) Guidelines

Part 3 of the MUTCD covers roadway markings, while Part 9 of the MUTCD covers signs, pavement markings, and highway traffic signals specifically related to bicycle operation on both roadways and shared-use paths.

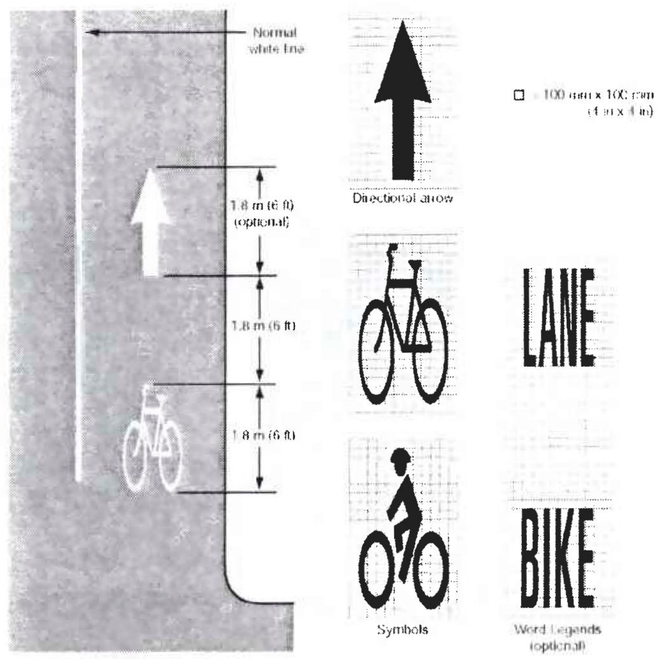
Section 3B.22 Preferential Lane Words and Symbol Marking, Section 9C.04 Markings for Bike Lanes and Section 9B.04 Bicycle Lane Signs (R3-17, R3-17a, R3-17b) provide the baseline standard for striping, marking and signing bike lanes in Newport.

Section 3B.22 Preferential Lane Word and Symbol Markings

The Standard states, "When a lane is assigned full or part time to a particular class or classes of vehicles, preferential lane markings shall be used. Signs or signals shall be used with preferential lane word or symbol markings. All preferential lane word and symbol markings shall be white. All preferential lane word and symbol markings shall be positioned laterally in the center of the preferred-use lane." The standard continues by noting that, "Where a preferential lane use is established, the preferential lane shall be marked with one or more of the following symbol or word markings for the preferential lane use specified: ...Bicycle lane – the preferential lane use marking for a bicycle lane shall consist of a bicycle symbol or the work marking BIKE LANE."

Section 9C. 04 Markings for Bike Lanes

The Guidance notes that. "Longitudinal pavement markings should be used to define bicycle lanes." The standard states that, "If used, the bicycle lane symbol marking shall be placed immediately after an intersection and at other locations as needed. The bicycle lane symbol marking shall be white. If the word or symbol pavement markings are used, Bicycle Lane signs shall also be used, but the signs need not be adjacent to every symbol to avoid overuse of the signs."



MUTCD Markings for Bike Lanes

Section 9B.04 Bicycle Lane Signs

The standard for Bicycle Lane Signs states, "The BIKE LANE (R3-17) sign shall be used only in conjunction with marked bicycle lanes as described in Section 9C.04, and shall be placed at periodic intervals along the bicycle lanes."

The Oregon Bicycle and Pedestrian Plan recommends placing stencils after most intersections to alert motorists and cyclists of the exclusive nature of bicycle lanes. For long street segments with few intersections, the appropriate frequency of stencils is calculated by multiplying the street's design speed by 40. For instance, stencils should be placed every 1,400 feet on streets with a 35 MPH designated speed.

MUTCD Bike Lane Sign R3-17

Other Bicycle Lane Treatments

Addressing Drainage Grates and Other Obstacles

Bicycle lanes should be provided with adequate drainage to prevent ponding, washouts, debris accumulation and other potentially hazardous situations for cyclists. Drainage grates should be bicycle-safe (See Figure 5-1). When an immediate replacement of an incompatible grate is not possible, a temporary correction of welding thin metal straps across the grates perpendicular to the drainage slots (four to six inches apart, center-to-center spacing) should be considered. Bicycle lanes should also include a smooth riding surface, and utility covers should be adjusted flush with the street surface. Furthermore, raised pavement markings (e.g., reflectors and truncated domes) can cause steering difficulties for bicyclists, and should not be used to delineate bicycle lanes.

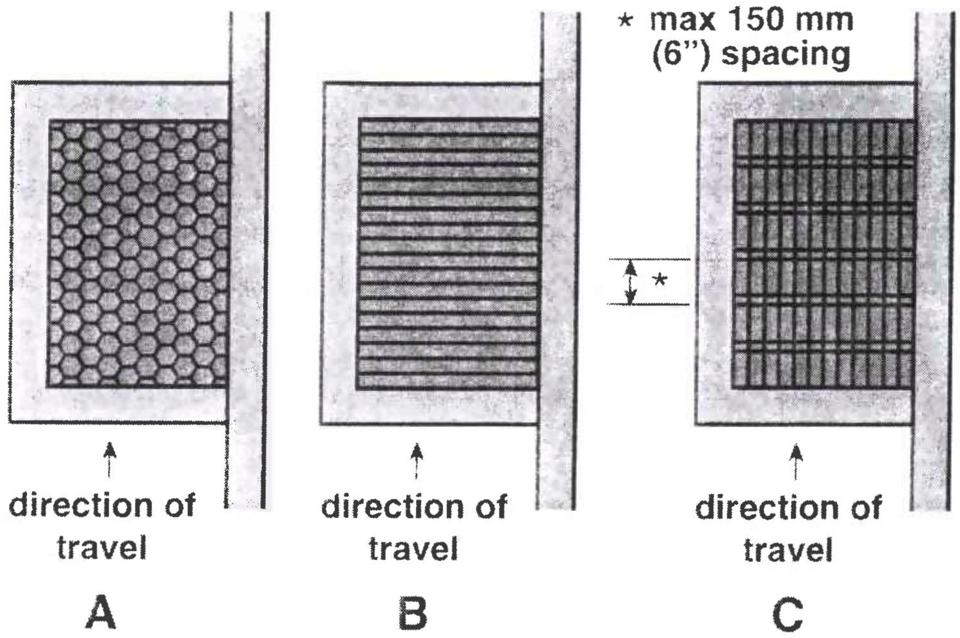


Figure 5-1. Bicycle-Safe Drainage Grates

Shared Roadways/Bicycle Boulevards

Typically the most common type of bikeway, shared roadways are streets with relatively low traffic volumes and posted speeds that enable cyclists and motorists to share the same travel lanes. These streets usually have two travel lanes with or without adjacent on-street parking. Additional treatments, described below, vary by street.

Bicycle Routes

The MUTCD defines a designated bicycle route as, "a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational route signs, with or without specific bicycle route numbers. Bicycle routes, which might be a combination of various types of bikeways, should establish a continuous routing."

Bicycle Boulevards

Bicycle routes that incorporate treatments to accommodate cyclists are often called "bicycle boulevards." Bicycle boulevards are developed through a combination of traffic calming measures and other streetscape treatments, and are intended to slow vehicle traffic while facilitating safe and convenient bicycle travel. Appropriate treatments depend on several factors including traffic volumes, vehicle and bicycle circulation patterns, street connectivity, street width, physical constraints, and other parameters. Most streets could be provided relatively inexpensive treatments like new signage, pavement markings, striping and signal improvements to facilitate bicyclists' mobility and safety. Other potential treatments include curb extensions, medians, on-street parking delineation and other features that can be implemented at reasonable cost and are compatible with snow plowing and emergency vehicle accessibility. It should be noted that many bicycle boulevard treatments can also benefit pedestrians. Curb extensions, for instance, can reduce vehicle speeds on a street by creating a visual "pinch point" for motorists. They also improve the pedestrian environment by shortening the pedestrian crossing distance.

Bicycle Boulevard Applications

The following section describes recommended applications for Newport's proposed shared roadway/bicycle boulevard system. The treatments have been divided into five main categories based on their level of "intensity", with Level 1 representing the least intensive treatments that could be implemented at relatively low cost. It should be noted that each successive application "level" would also include (where necessary) treatments identified for the previous levels. Furthermore, several treatments could fall within multiple categories as they achieve multiple goals.

Level 1: Signage

Bikeway signage is relatively cost-effective treatment the can improve the bicycling environment along Newport's bicycle boulevard system. Described below, signage can serve both wayfinding and safety purposes.

Wayfinding Signs

Bicycle wayfinding signs should be installed along Newport's bicycle boulevards and other cycling routes.

MUTCD Bike Route Guide Sign D11-1

MUTCD Guidelines

There are no Standards proscribed for wayfinding or guide signs in the MUTCD. However, there are several sections that do address wayfinding signage along bicycle routes.

Section 9B.19 Bicycle Route Guide Signs provides the following guidance, "If used, Bicycle Route Guide (D11-1) signs should be provided at decision points along designated bicycle routes, including signs to inform bicyclists of bicycle route direction changes and confirmation for route direction, distance, and destination. If used, Bicycle Route Guide signs should be repeated at regular intervals so that bicyclists entering from side streets will have an opportunity to know that they are on a bicycle route.

Section 9B.20 Bicycle Route Signs provides the Option of establishing a unique identification (route designation) for a State or local bicycle route using the Bicycle Route (M1-8) sign.

Section 9B.21 Destination Arrow and Supplemental Plaque Signs for Bicycle Route Signs provides the Option of mounting Destination (D1-1b and D1-1c) signs or directional arrow signs (M7-1 through M7-7) below the Bicycle Route Guide sign to furnish additional information.

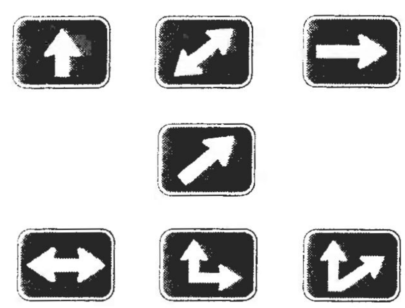
Optional Signage Design

The City of Portland has found great success in using a slightly different bicycle route sign than identified in the MUTCD. The City of Portland sign differs in three primary ways:

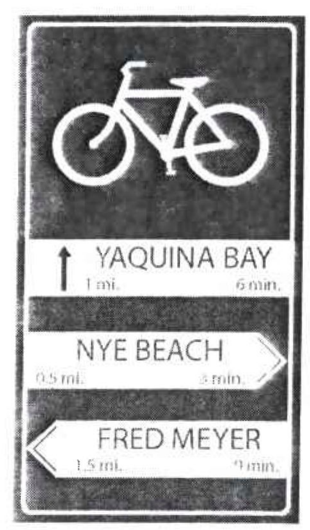
- It incorporates the Bicycle Route Guide Sign, the Destination Arrow, and the Directional Arrow signs all on one sign
- It provides for the inclusion of multiple destinations on one sign
- It includes time to destination as well as distance

MUTCD Bicycle Route Sign M1-8

MUTCD Destination Sign D1-1b



MUTCD Directional Arrow Signs M7-1/7



Optional Wayfinding Signage Design

Warning Signs

On bicycle boulevards with higher vehicle and bicycle volumes (e.g., SE Bay Blvd, NW 6th St), the City should also consider installing additional warning signs advising motorists to the presence of cyclists. This signage would also be effective in areas with higher numbers of bicycle trips, such as the Oregon Coast Bicycle Route.

MUTCD Guidelines

Section 9B.17 Bicycle Warning Sign notes that a Bicycle Warning sign (W11-1) alerts the road user to unexpected entries into the roadway by bicyclists and other crossing activities that might cause conflicts. As an option, a supplemental plaque with the legend AHEAD or XXX FEET may be used with the Bicycle Warning sign.

Section 9B.18 Other Bicycle Warning Signs provides the Option for the installation of additional warning signs such as BIKEWAY NARROWS on bicycle facilities to warn bicyclists of conditions not readily apparent. In addition, in situations where there is a need to warn motorists to watch for bicyclists traveling along the highway, the SHARE THE ROAD (W16-1) plaque may be used in conjunction with the W11-1.

MUTCD Bicycle Warning Sign (W11-1) with supplemental plaque (W16-1)

Level 2: Pavement Markings

A variety of pavement marking techniques can effectively improve bicycling conditions along bicycle boulevards.

On-Street Parking Delineation

MUTCD Guidelines

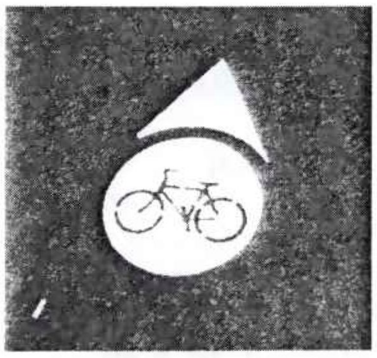
Section 3B.18 Parking Space Markings in the MUTCD provides support for the marking of on-street parking.

Delineating on-street parking through paint or other materials clearly indicates where a vehicle should be parked, and can discourage motorists from parking their vehicles too far into the adjacent travel lane. This helps cyclists by maintaining a wide enough space to safely share a travel lane with moving vehicles while minimizing the need to swerve farther into the travel lane to maneuver around parked cars. In addition to benefiting cyclists, delineated parking spaces also promote the efficient use of on-street parking by maximizing the number of spaces in high-demand areas, such as in the Bay Front.

Directional Pavement Markings

MUTCD Guidelines

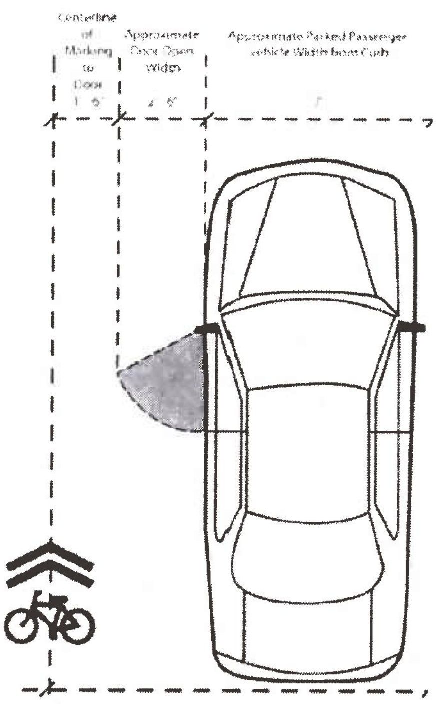
The MUTCD currently provides no guidance on the use of directional pavement markings for bicyclists, although *Section 9C.01 Function of Markings* provides this general support, "Markings indicate the separation of the lanes for road users, assist the bicyclist by indicating assigned travel paths, indicate correct position for traffic control signal actuation, and provide advance information for turning and crossing maneuvers."



Directional Pavement Marking – Portland (OR)

Directional pavement markings effectively lead cyclists along a bicycle boulevard (and reinforce cyclists that they are on a designated route). The markings take the form of small bicycle symbols (about one foot in diameter) placed every 600-800 feet along a linear corridor. When a bicycle boulevard travels along several streets (with multiple turns at intersections), additional markings accompanied by directional arrows are provided to guide cyclists through turns and other complex routing areas. Directional pavement markings also visually queue motorists that they are traveling along a bicycle route and should exercise caution.

Shared Lane Marking (Sharrow)



MUTCD Guidelines

The shared lane marking (commonly called a sharrow) is not currently approved for use by the MUTCD. The National Committee on Uniform Traffic Control Devices (NCUTCD) has recommended to the Federal Highway Administration (FHWA) that this marking be included in the next edition of the MUTCD. Until the marking is officially approved and published in the next MUTCD, its use is still considered experimental – and is not approved for use except under written experimental authorization by FHWA.

Sharrows are high-visibility pavement markings that help position bicyclists within the travel lane. These markings are often used on streets where dedicated bicycle lanes are desirable but are not possible due to physical or other constraints. Sharrows are placed strategically in the travel lane to alert motorists of bicycle traffic, while also encouraging cyclists to ride at an appropriate distance from the "door zone" of adjacent parked cars. Placed in a linear pattern along a corridor (typically every 100-200 feet) at a minimum of 11 feet from the face of curb, sharrows also encourage cyclists to ride in a straight line so their movements are predictable to motorists. These pavement markings have been successfully used in many small and large communities throughout the U.S. Sharrow markings made of thermoplastic tend to last longer than traditional paint. In Newport, sharrows could be used on bicycle boulevards with higher vehicle volumes, such as SE Bay Blvd, SW Elizabeth St, and 11th Street.

Sharrow placement on a local street

Level 3: Intersection Treatments

Described below, a variety of intersection treatments can be used to safely and conveniently facilitate bicycle travel on bicycle boulevards.

Stop Sign Placement

Placing stop signs on cross-streets approaching a bicycle boulevard can facilitate convenient through bicycle travel. A reduced number of stop signs on a designated bicycle route enables riders to maintain their momentum and exert less energy with fewer "stops and starts". This treatment should be used judiciously to minimize the potential for increasing vehicle speeds on the bicycle boulevard. Additionally, appropriate traffic control measures should be used where bicycle boulevards intersect major streets.

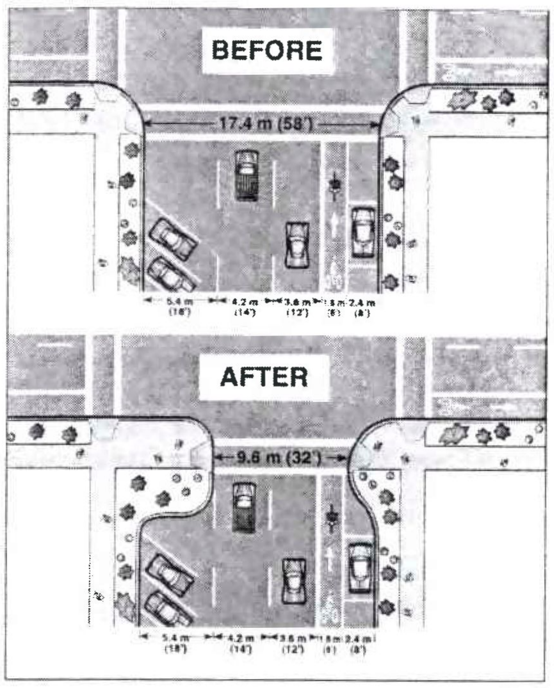
Bicycle Detection at Signalized Intersections

Several treatments can be used to streamline bicycle travel where bicycle boulevards approach intersections with actuated signals. In-pavement bicycle loop detectors can sense a bicyclist's presence (in the way that vehicle loop detectors sense automobiles) and trigger the signal to provide a "green" phase for the cyclist. Bicycle loop detectors should be placed within the bicyclist's expected path, (including left turn lanes and shoulders), and should be accompanied with a pavement marking indicating the optimal location for detection. Vehicle loop detectors can also be used for bicycle detection, provided they are located within the bicycle travel path and their "sensitivity" levels are adjusted for cyclists.

Similar to pedestrian activation buttons, bicyclist activation buttons can also be used at signalized intersections as long as they do not require cyclists to dismount or make unsafe leaning movements. These devices should be placed as close to the street as possible in a location that is unobstructed by parked vehicles or motorists making right-hand turns.

Half Signals

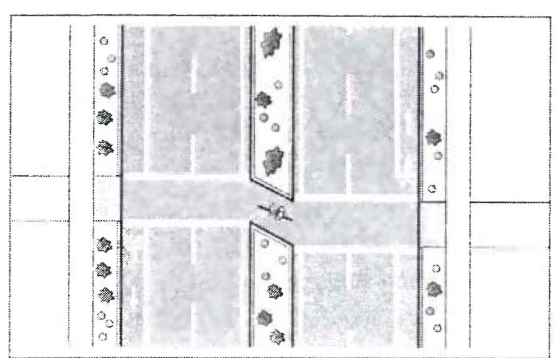
Because bicycle boulevards generally travel along lower-volume minor streets, they typically have minimal treatments to accommodate bicycle/pedestrian crossings when they approach major streets. In situations where there are few "crossable" gaps and where vehicles on the major street do not stop for pedestrians and cyclists waiting to cross, "half signals" could be installed to improve the crossing environment. Half signals include pedestrian and bicycle activation buttons and may also include bicycle loop detectors on the bicycle boulevard. Many of these models have been used successfully for years overseas, and their use in the United States has increased dramatically over the last decade. Discussed in the "Signals and Signal Warrants" section (later in this chapter), a variety of half signal applications could be used on Newport's bicycle boulevard network.



Intersection with curb extensions installed

Curb Extensions

Curb extensions slow vehicle traffic by creating a visual "pinch point" for approaching motorists. Typically constructed within the on-street parking lane, these devices can calm vehicle traffic passing through or turning at an intersection. Curb extensions also benefit cyclists and pedestrians on cross-streets by reducing the crossing distance within the roadway. Curb extensions should be designed with sufficient radii to accommodate the turning movements of snowplows, school buses and emergency vehicles.



Crossing with a median/refuge island

Medians/Refuge Islands

Medians are elevated or delineated islands that break up non-motorized street crossings into multiple segments. Where shared roadways intersect major streets at unsignalized intersections, medians can be used to simplify bicyclist and pedestrian crossings on the major street. Appropriate signage should be installed on the major street to warn motorists of bicyclist/pedestrian crossings. Additionally, vegetation within the median should be low to maintain adequate sight distances for both motorists and bicyclists/pedestrians. Medians can also be used along the bicycle boulevard to create a visual pinch point for motorists as well as to accommodate mid-block bicycle/pedestrian crossings.

Level 4: Traffic Calming

Traffic calming treatments on bicycle boulevards improve the bicycling environment by reducing vehicle speeds to the point where they generally match cyclists' operating speeds, enabling motorists and cyclists to safely co-exist on the same facility. Specific traffic calming treatments are described below.

Chicane

Chicanes

Chicanes are a series of raised or delineated curb extensions on alternating sides of a street forming an S-shaped curb, which reduce vehicle speeds through narrowed travel lanes. Chicanes can also be achieved by establishing on-street parking on alternate sides of the street. These treatments are most effective on streets with narrower cross-sections.

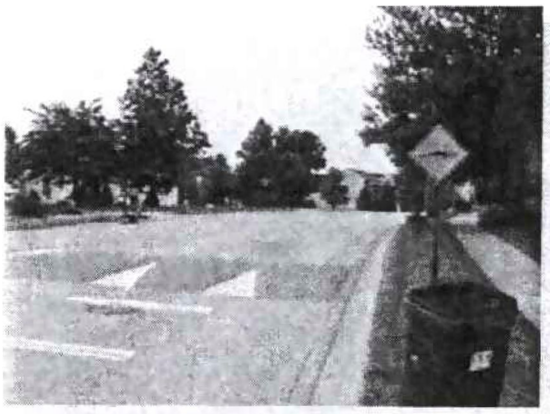
Traffic circle

Mini Traffic Circles

Mini traffic circles are raised or delineated islands placed at intersections, reducing vehicle speeds through tighter turning radii and narrowed vehicle travel lanes. These devices can effectively slow vehicle traffic while facilitating all turning movements at an intersection. Mini traffic circles can also include a paved apron to accommodate the turning radii of larger vehicles like fire trucks or school buses.

Speed Humps

Speed humps are rounded raised areas of the pavement requiring approaching motor vehicles to reduce speed. These devices also discourage through vehicle travel on a street when a parallel through route exists.



Speed hump

Level 5: Traffic Diversion

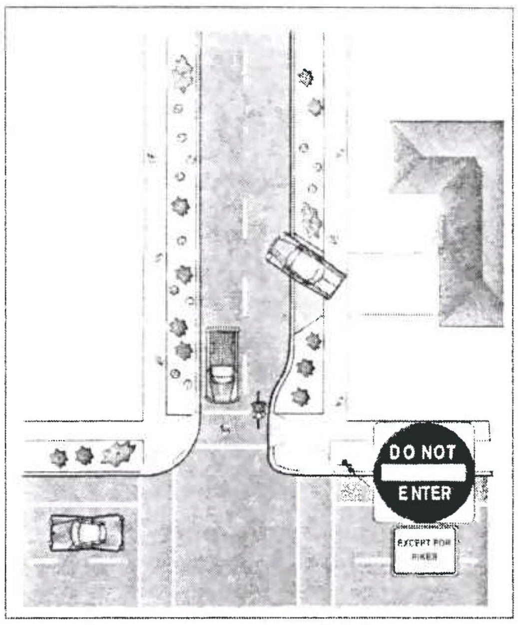
Traffic diversion treatments maintain through bicycle travel on a street while physically restricting through vehicle traffic. These treatments direct through vehicle traffic onto parallel higher-order streets while accommodating bicyclists and local vehicle traffic on the bicycle boulevard. Traffic diversion is most effective when the higher-order streets can sufficiently accommodate the diverted traffic associated with these treatments.

Choker Entrances

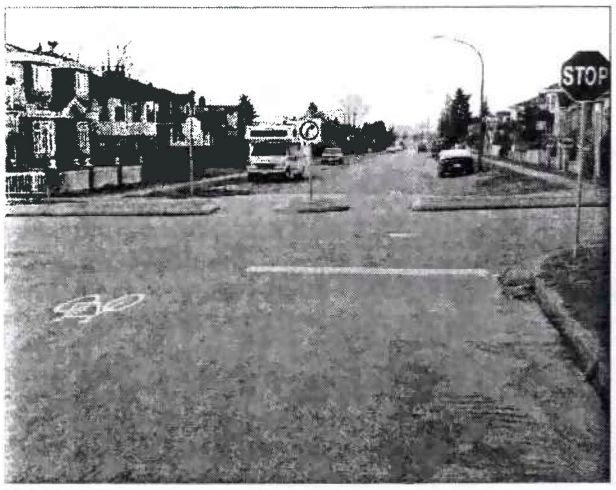
Choker entrances are intersection curb extensions or raised islands allowing full bicycle passage while restricting vehicle access to and from a bicycle boulevard. When they approach a choker entrance at a cross-street, motorists on the bicycle boulevard must turn onto the cross-street while cyclists may continue forward. These devices can be designed to permit some vehicle turning movements from a cross-street onto the bicycle boulevard while restricting other movements.

Traffic Diverters
Similar to choker entrances, traffic diverters are raised features directing vehicle traffic off the bicycle boulevard while permitting through bicycle travel.

Figure 5-2 on the following page illustrates an example of bicycle boulevard applications on a hypothetical street.



Choker at entrance of 2-way local street



Traffic diverters: median island (left) and bike/ped only refuge on NE 16th and Tillamook in Portland (right).

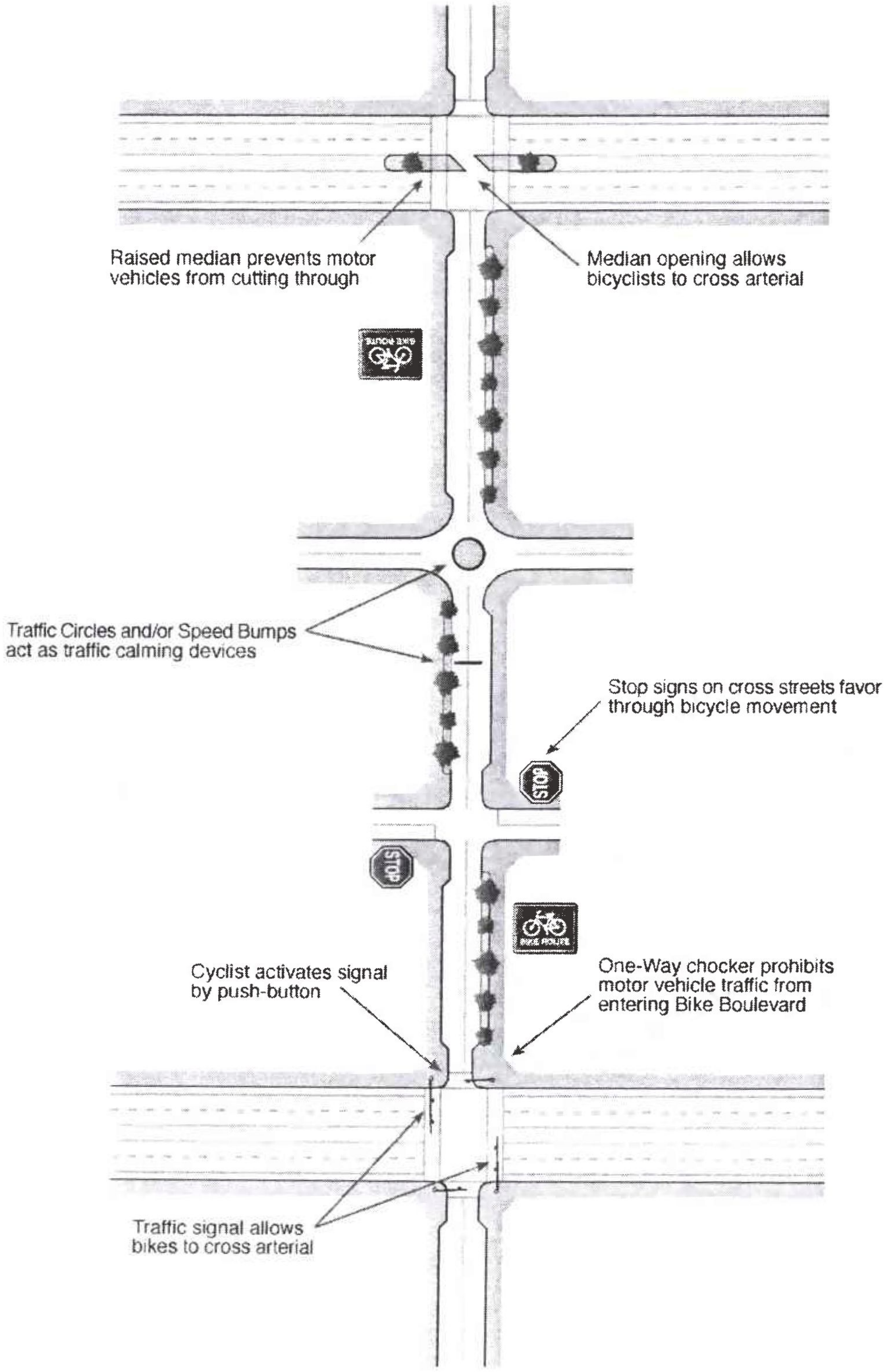


Figure 5-2. Sample Bicycle Boulevard Treatments

Recommended Street Standards

This section discusses recommended changes to street design standards pertaining to walking and bicycling fatalities. Depending on the corridor under focus, standards are either dictated by the City of Newport or ODOT.

ODOT Street Design Standards

Within Newport, U.S. 101 and US 20 are State highways and are therefore subject to ODOT design standards and final review for approval for any non-standard roadway treatments. Approved standards are laid out in the agency's Highway Design Manual (HDM), updated in 2003. The HDM standards are based on several parameters, including a highway's functional classification and posted speed. Within the Newport city limits, both US 101 and US 20 are classified as "Urban Principal Arterial-Other" by the HDM. This classification dictates the type and width of bicycle and pedestrian facilities on these highways. In addition, there is a state permitting process for establishing new pedestrian crossings of state facilities.

The standard width for bike lanes is six feet, with a minimum width of five feet. Sidewalks separated with a buffer are the preferred facility for pedestrians, with a standard width of six feet. However, several conditions require greater widths:

- In the absence of a buffer, an additional two feet is encouraged and should be added to the width of a curbside sidewalk.
- Curbside sidewalks should not be placed directly adjacent to a high-speed (design speed of 45 mph and above) travel lane.
- Curbside sidewalks on bridges shall be at least seven feet wide.

City of Newport Street Design Standards

Newport's 1997 TSP outline design standards for City-owned streets. The following table summarizes existing and proposed standards for bicycle/pedestrian facilities. This Plan recommends increasing the City's bicycle lane width standard from five to six feet to provide sufficient lateral clearance for bicyclists and to enable cyclists to safely maneuver around obstructions like drainage grates.

This Plan also recommends that the City's standards be changed to require bicycle lanes on all new Arterials and Major Collectors. Bicycle lanes should be also be constructed on Minor Collectors with high traffic volumes (3,000 ADT or above) or where conditions warrant the separation of bicyclists and motor vehicles.

This Plan recommends increasing the City's sidewalk width standard from five to six feet on arterials, collectors, and local streets. Discussed earlier, this width enables two pedestrians (including wheelchair users) to walk side by side, or to pass each other comfortably. It also allows two pedestrians to pass a third pedestrian without leaving the sidewalk. The city code should also be clarified, requiring a planter strip to be constructed between the sidewalk and curb.

Table 5-1. City of Newport Existing and Proposed Street Design Standards

	Bicycle Lanes		Sidewalks		Planter Strip	
Functional Classification	Existing Standard	Recommended Standard	Existing Standard	Recommended Standard	Existing Standard	Recommended Standard
Major Arterial	Required, 5' minimum[1]	Required, 6' minimum	6' minimum	6' minimum	4'	6'
Minor Arterial	Optional, 5' minimum	Required, 6' minimum	6' minimum	6' minimum	N/A	6'
Collector	Not required	Optional, 6' minimum [2]	5' minimum	6' minimum	N/A	4'
Local Street	Not required	Not required	5' minimum	6' minimum	N/A	4'
Woonerf – Shared Street	Not required	Not required	Not required	Not required	Not required	Not required

1 Bicycle lanes should be provided on Arterials unless more desirable parallel facilities are designated and designed to accommodate bicyclists.

2 Bicycle lanes should be provided on Minor Collectors where traffic volumes or other factors warrant. Otherwise, Minor Collectors should be designated and designed as shared roadways/bicycle boulevards with appropriate treatments outlined in the "Shared Roadways/Bicycle Boulevards" section of this Plan (proposed standard).

The proposed changes noted above in Table 5-1 are intended for application when new streets are being built and when major reconstruction of existing streets occurs where additional right-of-way is acquired for the planned road improvement. As the city works to fill in the bicycle and pedestrian network within the current built environment, adhering to the existing standards noted in Table 5-1 will be sufficient and a great improvement over the existing condition in many locations.

The following graphics provide some examples in the application of the proposed design standards for new and major reconstructed streets in Newport.

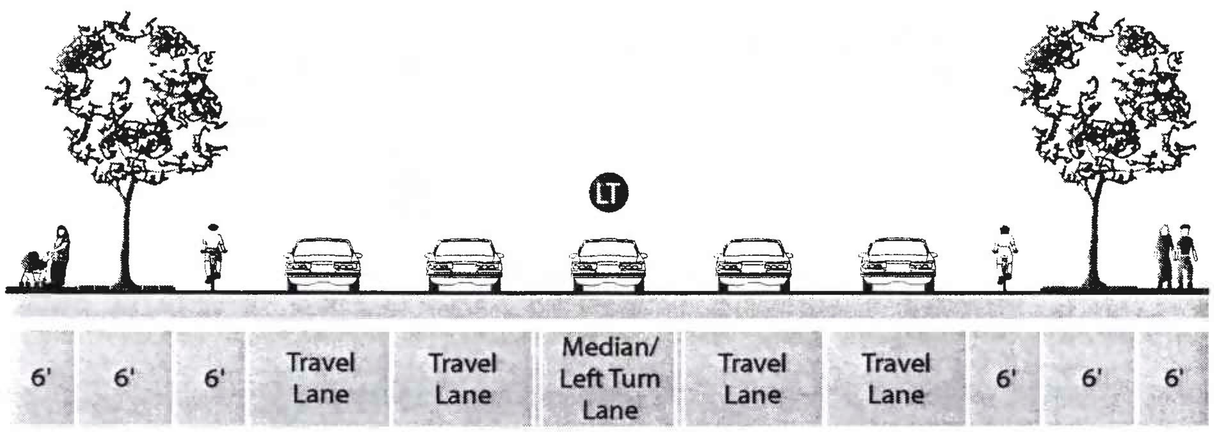


Figure 5-3. Major Roadway with 6' Minimum Planter Strip

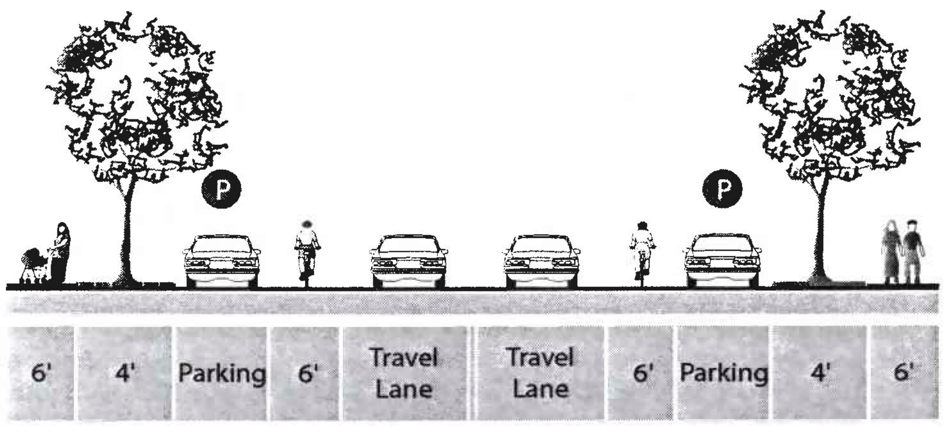


Figure 5-4. Two Lane Road with 4' Minimum Planter Strip

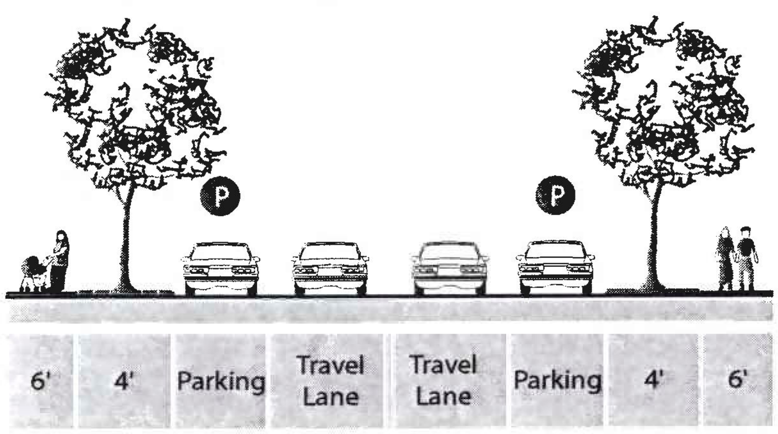


Figure 5-5. Shared Use Roadway

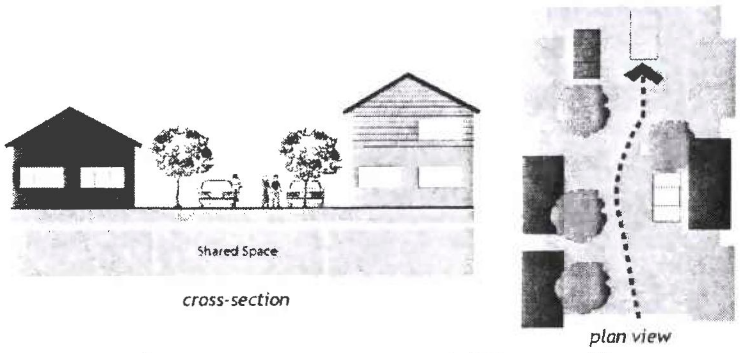


Figure 5-6. Proposed "Woonerf"

"Woonerf "- Shared Street

A "Woonerf" ("Street for living") is a Dutch term for a common space created to be shared by pedestrians, bicyclists, and low-speed motor vehicles. An example is NE Cliff Street in the Nye Beach area. Woonerfs are typically narrow streets without curbs and sidewalks, and vehicles are slowed by placing trees, planters, parking areas, and other obstacles in the street. Motorists become the intruders and must travel at very low speeds. This makes a street available for public use that is essentially only intended for local residents. A woonerf identification sign is placed at each street entrance. Consideration must be given to provide access by fire trucks, sanitation vehicles and other service vehicles (school buses and street sweepers), if needed. A woonerf design also provides the opportunity to apply "green street" treatments such as permeable pavers and bioswales to reduce or eliminate the need for expensive sewer connections while improving the surrounding environment.

A woonerf is generally not appropriate where there is a need to provide nonresident motorists with access to services or through travel. The design needs to keep vehicle speeds very low in order to make the streets safe for children.

Green Street Treatments

Filter strips and bio-swales are innovative and green ways to retain and treat stormwater from impervious surfaces and work well in areas where a traditional curb and gutter is not desired or not keeping with the context and feel of the surrounding area. The design guidelines for filter strips and swales are similar; both methods use grassy vegetation or aggregate to remove sediment from stormwater runoff. Use of filter strips and swales can be limited in retrofit situations due to slope, soil, and right-of-way conditions. Existing underground utility conflicts may increase cost and complexity.

Filter Strips

Filter strips (Figures 5-7 and 5-8) are gently sloped grassy and aggregate areas that are used to treat small quantities of sheet flow runoff. They are often used to pretreat stormwater flow of minimal depth (.5 inches) as it passes from an impervious area, like a parking lot or roadway, into a swale or infiltration area.

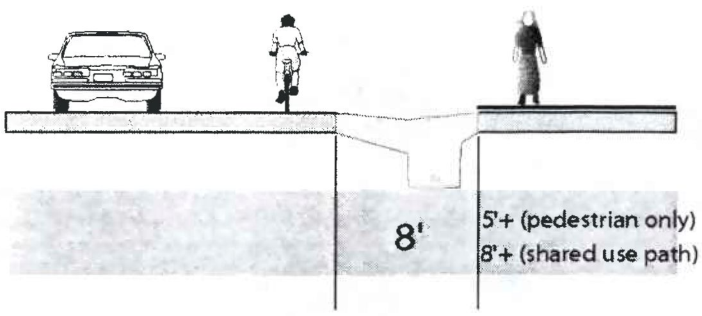


Figure 5-7. Aggregate Filter Strip

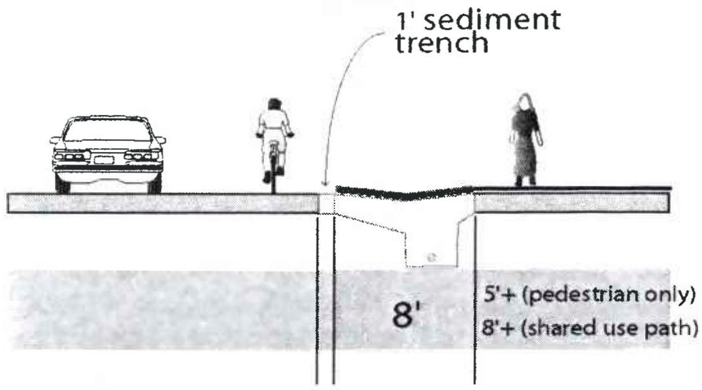


Figure 5-8. Grass Filter Strip

Swales

Swales (Figure 5-9) are shallow, wide depressions adjacent to roadways and trails that collect stormwater runoff over vegetation to slowly settle sediments and particulate matter. The pollutants are filtered out, settled, or removed by plants, causing fewer pollutants to enter ecologically sensitive water bodies. For more information and further design guidelines for swales and other Green Street concepts, Metro's (OR) series of "Green Streets" guidebooks is an excellent resource.

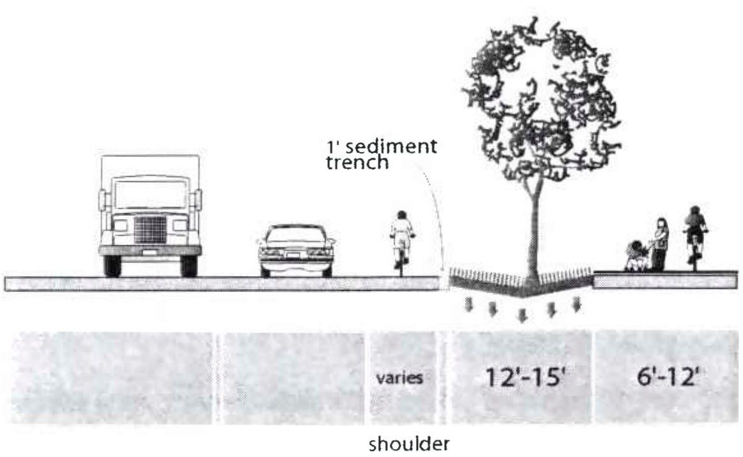


Figure 5-9. Bio-swale

Bio-Swale

Bio-Swale Guidelines (Metro, "Green Streets")	
Optimal Length	200-250 ft
Slope of sides (optimal)	1% - 2%
Slope of sides (minimum, maximum)	1%, 6%
Optimal water depth	3 inches
Optimal width	12 ft

Transition Zones

ODOT's Highway Design Manual (HDM) discusses the importance of accommodating pedestrians and cyclists in "transition zones." These transitions often occur when high-speed rural highways (e.g., U.S. 101 and US 20) enter urbanized areas. The HDM indicates that visual queues and other design elements are critical to informing motorists that they are entering a changing environment that is urbanized, requires slower speeds, and greater attention to pedestrians, cyclists and transit vehicles. The HDM recommends various treatments on rural State highways where they enter urbanized areas, including bicycle lanes, sidewalks with planter strips, marked crosswalks and landscape features. On the State highway system in Newport, the primary rural/urban transition area exists along U.S. 101 on the north and south end of town, and where US 20 enters Newport from the east. A variety of treatments are proposed to visually queue motorists that they are entering the city, including bicycle lanes on U.S. 20 from SE Moore Dr/NE Harney St to US 101, as well as completing sidewalk gaps in this area. Pavement markings and signage will also address urban/rural transitions on other roads entering Newport.

Intersection Treatments

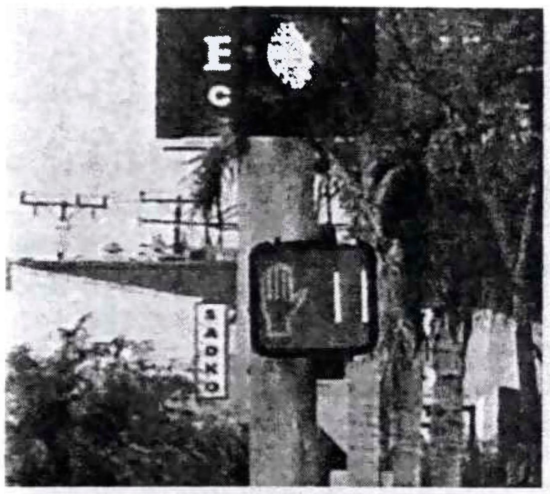
Several design and operational treatments could be implemented to improve the pedestrian environment at intersections. Attributes associated with good intersection design include the following:

- **Clarity**: It should be obvious to motorists that there will be pedestrians present; it should be obvious to pedestrians where to cross.
- **Predictability**: The placement of crosswalks should be predictable. Additionally, the frequency of crossings should increase where pedestrian volumes are greater.
- **Visibility**: The location and illumination of the crosswalk allows pedestrians to see and be seen by approaching traffic while crossing.
- **Short wait**: The pedestrian does not have to wait unreasonably long for an opportunity to cross.
- **Limited exposure**: Conflict points with traffic are few, and the distance to cross is short or is divided into shorter segments with crossing islands.

- **Clear crossing**: The crosswalk is free of barriers, obstacles, and hazards and is accessible to all users. Pedestrian crossing information is available in accessible locations.

Signal Timing Evaluation and Modification

Providing adequate pedestrian crossing time is a critical element of the walking environment at signalized intersections. The Manual on Uniform Traffic Control Devices (MUTCD) recommends traffic signal timing to assume a pedestrian walking speed of four feet per second, meaning that the length of a signal phase with parallel pedestrian movements should provide sufficient time for a pedestrian to safely cross the adjacent street. It should be noted however that the four feet per second walking speed does not reflect the walking rates of many users. At crossings where older pedestrians or pedestrians with disabilities are expected, crossing speeds as low as three feet per second may be assumed. All existing traffic signals in Newport are operated by ODOT, therefore the City and ODOT should periodically evaluate signal timing plans to ensure adequate pedestrian crossing times are provided.

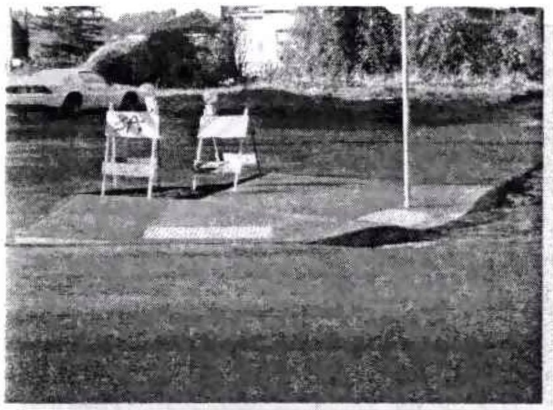


Pedestrian crossing countdown signal

Innovative Pedestrian Signal Features

Pedestrian Countdown Signals

According to the MUTCD, "Pedestrian Signal Heads provide special types of traffic signal indications exclusively intended for controlling pedestrian traffic. These signal indications consist of the illuminated symbols of a WALKING PERSON (symbolizing WALK) and an UPRAISED HAND (symbolizing DONT WALK)." An advanced type of pedestrian signal head contains a countdown signal, in addition to the WALK/DON'T WALK symbol. The countdown signal displays the number of seconds remaining for the individual to complete their crossing. These applications could be effective throughout Newport, particularly along US 101, which is characterized by wider pedestrian crossing distances.



Dual curb ramps with detectable warning strips

Leading Pedestrian Interval (LPI)

Including LPIs at signalized crossings provides pedestrians with a three- to four-second head start into the intersection before parallel traffic is released by the green light. LPIs ensure that pedestrians are well into the intersection and visible to turning vehicles prior to vehicles entering the crosswalk. Suggested locations for installation are US 101 / 20th Street, US 101 / 25th Street, and US 20 / US 101.

Curb Ramps

Curb ramps are a fundamental element of an accessible public realm. A sidewalk without a curb ramp can be useless to someone in a wheelchair, forcing them back to a driveway and out into the street for access. Likewise, street crossings must be aligned and properly designed to accommodate the needs and desires of all people. Many of the single access ramps built in previous decades direct users diagonally into the street intersection (rather than straight into the crosswalk area). This can be problematic for visually impaired pedestrians as they could experience difficulty orienting themselves toward the crosswalk. Where possible, all intersection corners should provide dual curb ramps oriented directly across the street. Curb ramps should also have detectable warning strips to accommodate the visually impaired. AASHTO's Guide for the Planning, Design, and Operation of Pedestrian Facilities and the Oregon Highway Design Manual provide further guidance on curb ramp design.

Crosswalks

Newport currently uses a variety of crosswalk treatments, including "transverse" (also called "parallel bar") markings consisting of two bars crossing an intersection; "longitudinal" (also called "ladder style") markings; and combinations of these marking styles. Crosswalks with pavement texturing and color also exist in Historic Nye Beach. The MUTCD indicates that transverse crosswalks should include solid white lines six to 24 inches wide (extending across the full pavement width), with a minimum of six feet between the lines. Longitudinal crosswalk bars should be 12 to 24 inches wide, at least six feet long, with 1- to 5-foot spacing between each bar (the space between bars should not exceed 2.5 times the bar width). To minimize maintenance costs, the bars should not be placed directly within vehicle wheel paths (where possible).

Where crosswalks are located at unsignalized crossings of US 101, they should be accompanied by advance stop bars striped 30 feet back from the crosswalk within the vehicle travel lanes. Advance stop bars provide additional protection to pedestrians while improving communication between pedestrians and drivers.

Signals and Signal Warrants

Full Signalized Crossings

The Federal government has provided guidance to determine where traffic control signals should be considered for installation. The Pedestrian Volume signal warrant is intended for the application where traffic volumes on a major street are high enough that pedestrians on an approaching side street or path experience excessive delay in crossing the major street. Section 4C.05 of the MUTCD details Warrant 4, Pedestrian Volume. For signal warrant analysis, a location with a wide median, even if the median width is greater than nine meters (30 feet), should be considered as one intersection.

Warrant 4, Pedestrian Volume

Support:

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

Standard:

The need for a traffic control signal at an intersection or mid-block crossing shall be considered if an engineering study finds that both of the following criteria are met:

A. The pedestrian volume crossing the major street at an intersection or mid-block location during an average day is 100 or more for each of any 4 hours or 190 or more during any 1 hour;

B. There are fewer than 60 gaps per hour in the traffic stream of adequate length to allow pedestrians to cross during the same period when the pedestrian volume criterion is satisfied. Where there is a divided street having a median of sufficient width for pedestrians to wait, the requirement applies separately to each direction of vehicular travel.

At non-intersection crossings, the traffic control signal should be pedestrian-actuated, parking and other sight obstructions should be prohibited for at least 30 m (100 ft) in advance of and at least 6.1 m (20 ft) beyond the crosswalk, and the installation should include suitable standard signs and pavement markings if a traffic control signal is justified by both this signal warrant and a traffic engineering study.

The criterion for the pedestrian volume crossing the major roadway may be reduced as much as 50 percent if the average crossing speed of pedestrians is less than 1.2 m/sec (4 ft/sec).

Warrant 5, School Crossing, is another signal warrant that could have applications in Newport. Several Collector streets in Newport connect schools and surrounding neighborhoods, with some of these streets serving primary commuter routes for students. Furthermore, cities like Sacramento have modified their usage projections by upwardly accounting for youth, disabled, and elderly populations through the "Equivalent Adult Units" factors (see the chart at right) at intersections that are deemed to present special circumstances:

- Forty pedestrians cross during a one-hour period, or 25 cross per hour for four consecutive hours using the Equivalent Adult Units system.[1]
- Fewer than five gaps in traffic during the peak five-minute period.[3]

Equivalent Adult Units

Type	Factor
Child	2
Senior	1.5
Disabled	2

Warrant 5, School Crossing

Support:

The School Crossing signal warrant is intended for the application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal.

Standard:

The need for a traffic control signal shall be considered when an engineering study of the frequency and adequacy of gaps in the vehicular traffic stream as related to the number and size of groups of school children at an established crossing across the major street shows that the number of adequate gaps in the traffic stream during the period when the children are using the crossing is less than the number of minutes in the same period (see Section 7A.03[2]) and there are a minimum of 20 students during the highest crossing hour.

Before a decision is made to install a traffic control signal, consideration shall be given to the implementation of other remedial measures, such as warning signs and flashers, school speed zones, school crossing guards, or a grade-separated crossing.

The School Crossing signal shall not be applied at locations where the distance to the nearest traffic control signal along the major street is less than 90 m (300 ft), unless the proposed traffic control signal will not restrict the progressive movement of traffic.

Guidance:

If this warrant is met and a traffic control signal is justified by an engineering study, then:

A. If at an intersection, the traffic control signal should be traffic-actuated and should include pedestrian detectors.

B. If at a nonintersection crossing, the traffic control signal should be pedestrian-actuated, parking and other sight obstructions should be prohibited for at least 30 m (110 ft) in advance of and at least 6.1 m (20 ft) beyond the crosswalk, and the installation should include suitable standard signs and pavement markings.

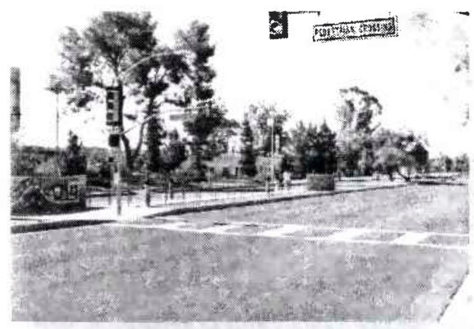
C. Furthermore, if installed within a signal system, the traffic control signal should be coordinated.

[1] Use of a system of Equivalent Adult Units is recommended in order to recognize intersections that require special attention due to the presence of seniors or children, even if they don't meet the volume requirement. These two groups are disproportionately represented in collision and fatality statistics.

[2] "Alternate gaps and blockades are inherent in the traffic stream and are different at each crossing location. For safety, students need to wait for a gap in traffic that is of sufficient duration to permit reasonably safe crossing. When the delay between the occurrence of adequate gaps becomes excessive, students might become impatient and endanger themselves by attempting to cross the street during an inadequate gap."

[3] Average number of gaps per five-minute period = total usable gap time in seconds divided by pedestrian crossing rate at four feet per second, multiplied by 12.

Half Signalized Crossings



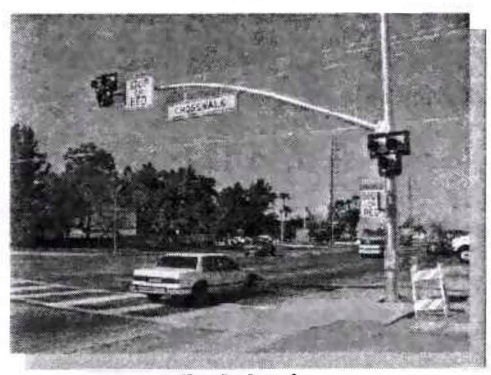
Pelican signal in Tucson, AZ

In situations where there are few "crossable" gaps and where vehicles do not stop for pedestrians waiting to cross (or because of multiple lanes, it is unsafe to cross in front of a stopped vehicle), there are a number of innovative pedestrian traffic signals that do not operate as full signals that could be installed. Many of these models have been used successfully for years overseas, and their use in the United States has increased dramatically over the last decade. However, these types of signals are not yet included in the MUTCD, and are not available for use on state facilities.

Pelican Signals

Puffin signal

A Pelican (**Pe**destrian **Li**ght **C**ontrol **A**ctivated crossi**n**g) signal incorporates a standard red-yellow-green signal light that rests in green for vehicular traffic until a pedestrian wishes to cross and presses the button. The signal then changes to yellow, then red, while WALK is shown to the pedestrian. The signal can be installed as either a one-stage or two-stage signal, depending on the street's characteristics. In a two-stage crossing, the pedestrian crosses first to a median island and is then channelized along the median to a second signalized crossing point. At that point, the pedestrian then activates a second crossing button and another crossing signal changes to red for the traffic while the pedestrian is given a WALK signal. The two crossings only delay the pedestrian minimally and allow the signal operation to fit into the arterial synchronization, thus reducing the potential for stops, delays, accidents, and air quality issues. A Pelican crossing is quite effective in providing a pedestrian crossing at mid-block locations when the technique can be integrated into the roadway design.



Hawk signal

Puffin Signals

A Puffin (**P**edestrian **U**ser **F**riendly **In**telligent) crossing signal is an updated version of a Pelican crossing. The signal consists of traffic and pedestrian signals with push-button signals and infrared or pressure mat detectors. After a pedestrian pushes the button, a detector verifies the presence of the pedestrian at the curbside. This helps eliminate false signal calls associated with people who push the button and then decide not to cross. When the pedestrian is given the WALK signal, a separate motion detector extends the WALK interval (if needed) to ensure that slower pedestrians have time to cross safely. Conversely, the signal can also detect when the intersection is clear of pedestrians and return the green signal to vehicles, reducing vehicle delay at the light. Puffin signals are designed to be crossed in a single movement by the pedestrian, unlike the Pelican signal, which can be designed to cross in either one or two stages.

Hawk Signals

A Hawk (**H**igh-Intensity **A**ctivated Cross**W**al**k**) signal is a combination of a beacon flasher and traffic control signaling technique for marked crossings. The beacon signal consists of a traffic signal head with a red-yellow-red lens. The unit is normally off until activated by a pedestrian. When pedestrians wish to cross the street, they press a button and the signal begins with a flashing yellow indication to warn approaching drivers. A solid yellow, advising the drivers to prepare to stop, then follows the flashing yellow. The signal is then changed to a solid red, at which time the pedestrian is shown a WALK indicator. The beacon signal then converts to an alternating flashing red, allowing the drivers to proceed after stopping at the crosswalk, while the pedestrian is shown the flashing DON'T WALK signal.

Crossing Treatments

Like most bicycle and pedestrian systems in built urban areas, non-motorized users in Newport must cross roadways at certain points. While at-grade crossings create a potentially high level of conflict between bicyclists and pedestrians and motorists, well-designed crossings have not historically posed a safety problem. In most cases, intersection crossings can be properly designed at-grade to a reasonable degree of safety and meet existing traffic and safety standards.

Evaluation of intersections involves analysis of vehicular and anticipated path user traffic patterns, including vehicle speeds, traffic volumes (average daily traffic and peak hour traffic), street width, sight distance and user profile (age distribution, destinations served). Crossing features for all roadways include warning signs both for vehicles and path users. The type, location, and other criteria are identified in AASHTO's Guide for the Development of Bicycle Facilities and the MUTCD. Consideration must be given for adequate warning distance based on vehicle speeds and line of sight, with visibility of any signing absolutely critical. Catching the attention of motorists jaded to roadway signs may require additional alerting devices such as a flashing light, roadway striping or changes in pavement texture. Care must be taken not to place too many signs at crossings lest they begin to lose their impact.

The following section identifies several roadway crossing treatments that should be considered for Newport's bicycle and pedestrian system.

Roadway Crossing Prototypes

The proposed intersection approach that follows is based on established standards, published technical reports,[4] and experiences from cities around the country.[5] Intersection crossings generally will fit into one of four basic categories:

- Type 1: Marked/Unsignalized; Type 1+: Marked/Enhanced
- Type 2: Route Users to Existing Signalized Intersection
- Type 3: Signalized/Controlled
- Type 4: Grade-separated crossings

Type 1: Marked/Unsignalized Crossings

A marked/unsignalized crossing (Type 1) consists of a crosswalk, signage, and often no other devices to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, route traffic, use patterns, vehicle speed, road type and width, and other safety issues such as proximity to schools. The following thresholds recommend where unsignalized crossings may be acceptable:

Maximum traffic volumes:

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[4] Federal Highway Administration (FHWA) Report, "Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations."

[5] In particular, the recommendations in this report are based in part on experiences in cities like Portland (OR), Seattle (WA), Tucson (AZ), and Sacramento (CA), among others

- ≤9,000-12,000 Average Daily Traffic (ADT) volumes
- Up to 15,000 ADT on two-lane roads, preferably with a median.
- Up to 12,000 ADT on four-lane roads with median.

Maximum travel speed:

- 35 MPH

Minimum line of sight:

- 25 MPH zone: 155 feet
- 35 MPH zone: 250 feet
- 45 MPH zone: 360 feet

Type 1 Crossing

On two-lane residential and collector roads below 15,000 ADT with average vehicle speeds of 35 MPH or less, crosswalks and warning signs ("Path Xing") should be provided to warn motorists, with engineering judgment used to determine the appropriate level of traffic control and design.

Type1 Enhanced (Type 1+)

If well-designed, crossings of multi-lane higher-volume arterials over 15,000 ADT may be unsignalized with features such as a combination of some or all of the following: excellent sight distance, sufficient crossing gaps (more than 60 per hour), median refuges, and/or active warning devices like flashing beacons or in-pavement flashers. These are referred to as "Type 1 Enhanced" (Type 1+). Such crossings would not be appropriate; however, if a significant number of school children used the identified route. Furthermore, both existing and potential future non-motorized traffic volume should be taken into consideration.

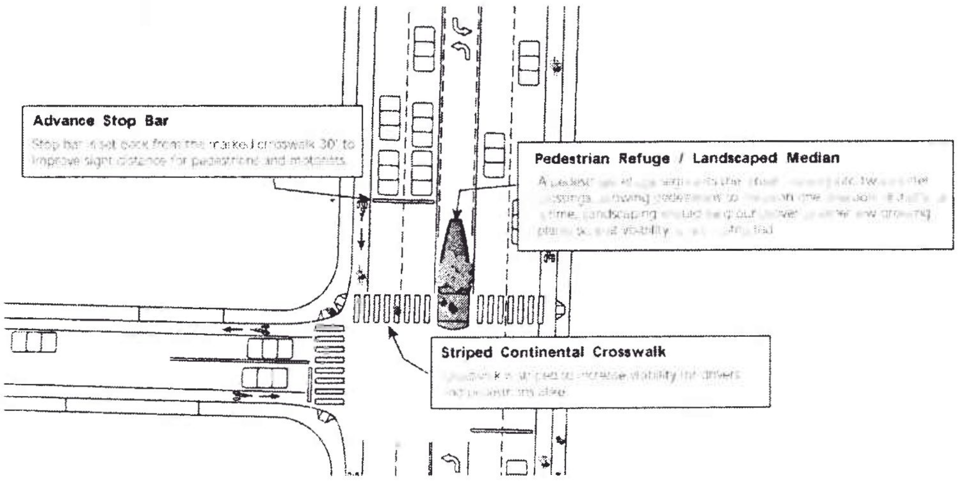


Figure 5-10. Type 1+ Crossing with Median

On roadways with low to moderate traffic volumes (<12,000 ADT) and a need to control traffic speeds, a raised crosswalk may be the most appropriate crossing design to improve pedestrian visibility and safety. These crosswalks are raised 75 millimeters above the roadway pavement (similar to speed humps) to an elevation that matches the adjacent sidewalk. The top of the crosswalk is flat and typically made of asphalt, patterned concrete, or brick pavers. Brick or unit pavers should be discouraged because of potential problems related to pedestrians, bicycles, and ADA requirements for a continuous, smooth, vibration-free surface. Detectable warning strips are needed at the sidewalk/street boundary so that visually impaired pedestrians can identify the edge of the street.

Type 2: Route Users to Existing Signalized Intersection

Crossings within 250 feet of an existing signalized intersection with pedestrian crosswalks are typically diverted to the signalized intersection for safety purposes. For this option to be effective, barriers and signing may be needed to direct trail users to the signalized crossings. In most cases, signal modifications would be made to add pedestrian detection and to comply with the Americans with Disabilities Act.

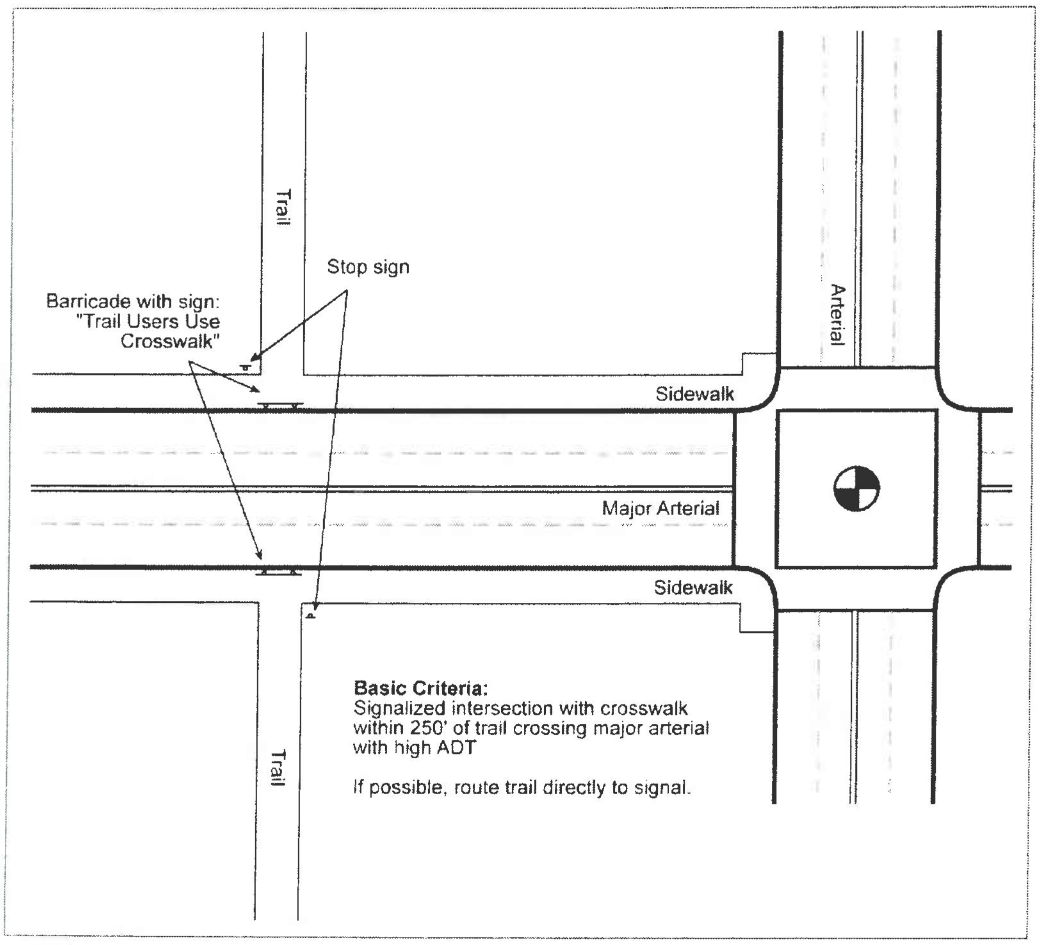


Figure 5-11. Type 2 Crossing Treatment

Type 3: Signalized/Controlled Crossings

New signalized crossings may be recommended for crossings that meet pedestrian, school, or modified warrants, are located more than 250 feet from an existing signalized intersection and where 85th percentile travel speeds are 40 MPH and above and/or ADT exceeds 15,000 vehicles. Each crossing, regardless of traffic speed or volume, requires additional review by a registered engineer to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity, and safety.


Type 3 Crossing

The maximum delay for activation of the signal should be two minutes, with minimum crossing times determined by the width of the street. The signals may rest on flashing yellow or green for motorists when not activated, and should be supplemented by standard advanced warning signs. As described in the "Half Signalized Crossings" section earlier in this chapter, various types of pedestrian signals exist and can be used at Type 3 crossings.

Type 4: Grade-separated Crossings

Grade-separated crossings may be needed where existing bicycle/pedestrian crossings do not exist, where ADT exceeds 25,000 vehicles, and where 85th percentile speeds exceed 45 MPH. Safety is a major concern with both overcrossings and undercrossings. In both cases, users may be temporarily out of sight from public view and may have poor visibility themselves. Undercrossings, like parking garages, have the reputation of being places where crimes occur. Most crime on trails, however, appears to have more in common with the general crime rate of the community and the overall usage of the trail than any specific design feature.


Type 4 Grade-Separated Undercrossing

Design and operation measures are available which can address trail user concerns. For example, an undercrossing can be designed to be spacious, well-lit, equipped with emergency cell phones at each end and completely visible for its entire length prior to entering. Other potential problems with undercrossings include conflicts with utilities, drainage, flood control, and maintenance requirements. Overcrossings pose potential concerns about visual impact and functional appeal, as well as space requirements necessary to meet ADA guidelines for slope.


Type 4 Grade-Separated Overcrossing

Summary of At-Grade Crossing Recommendations

Table 5-2 provides guidance on how to implement at-grade path/roadway crossings in Newport.

Table 5-2. Summary of At-Grade Crossing Recommendations[6]

Roadway Type (Number of Travel Lanes and Median Type)	Vehicle ADT ≤ 9,000			Vehicle ADT > 9,000 to 12,000			Vehicle ADT > 12,000 to 15,000			Vehicle ADT > 15,000		
	Speed Limit **											
	30 mi/h	**35 mi/h**	**40 mi/h**	**30 mi/h**	**35 mi/h**	**40 mi/h**	**30 mi/h**	**35 mi/h**	**40 mi/h**	**30 mi/h**	**35 mi/h**	**40 mi/h**
2 Lanes	1	1	1/1+	1	1	1/1+	1	1	1+/3	1	1/1+	1+/3
3 Lanes	1	1	1/1+	1	1/1+	1/1+	1/1+	1/1+	1+/3	1/1+	1+/3	1+/3
Multi-Lane (4 or more lanes) with raised median ***	1	1	1/1+	1	1/1+	1+/3	1/1+	1/1+	1+/3	1+/3	1+/3	1+/3
Multi-Lane (4 or more lanes) without raised median	1	1/1+	1+/3	1/1+	1/1+	1+/3	1+/3	1+/3	1+/3	1+/3	1+/3	1+/3

*__General Notes:__ Crosswalks should not be installed at locations that could present an increased risk to pedestrians, such as where there is poor sight distance, complex or confusing designs, a substantial volume of heavy trucks, or other dangers, without first providing adequate design features and/or traffic control devices. Adding crosswalks alone **will not** make crossings safer, nor will they necessarily result in more vehicles stopping for pedestrians. Whether or not marked crosswalks are installed, it is important to consider other pedestrian facility enhancements (e.g., raised median, traffic signal, roadway narrowing, enhanced overhead lighting, traffic-calming measures, curb extensions), as needed, to improve the safety of the crossing. **These are general recommendations; good engineering judgment should be used in individual cases for deciding which treatment to use.**

For each pathway-roadway crossing, an engineering study is needed to determine the proper location. For each engineering study, a site review may be sufficient at some locations, while a more in-depth study of pedestrian volume, vehicle speed, sight distance, vehicle mix, etc. may be needed at other sites.

** Where the speed limit exceeds 40 mi/h (64.4 km/h), marked crosswalks alone should not be used at unsignalized locations.

*** The raised median or crossing island must be at least four ft (1.2 m) wide and six ft (1.8 m) long to adequately serve as a refuge area for pedestrians in accordance with MUTCD and AASHTO guidelines. A two-way center turn lane is not considered a median.

1= Type 1 Crossings. Ladder-style crosswalks with appropriate signage should be used.

1/1+ = With the higher volumes and speeds, enhanced treatments should be used, including marked ladder style crosswalks, median refuge, flashing beacons, and/or in-pavement flashers. Ensure there are sufficient gaps through signal timing, as well as sight distance.

1+/3 = Carefully analyze signal warrants using a combination of Warrant 2 or 5 (depending on school presence) and EAU factoring. Make sure to project pathway usage based on future potential demand. Consider Pelican, Puffin, or Hawk signals in lieu of full signals. For those intersections not meeting warrants or where engineering judgment or cost recommends against signalization, implement Type 1 enhanced crosswalk markings with marked ladder style crosswalks, median refuge, flashing beacons, and/or in-pavement flashers. Ensure there are sufficient gaps through signal timing, as well as sight distance.

[6] This table is based on information contained in the U.S. Department of Transportation Federal Highway Administration Study, "Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations," February 2002.

Pedestrian-Ways

Pedestrian-ways (also known as "accessways") provide direct connections to schools, parks, community centers, retail areas, neighborhoods, and other paths. They are intended to be short, direct connections to reduce unnecessary out-of-direction travel for bicyclists and pedestrians. Pedestrian-ways should be at least 10 feet wide, and "be of such design and location as reasonably required to pedestrian travel, and shall be dedicated to the public."

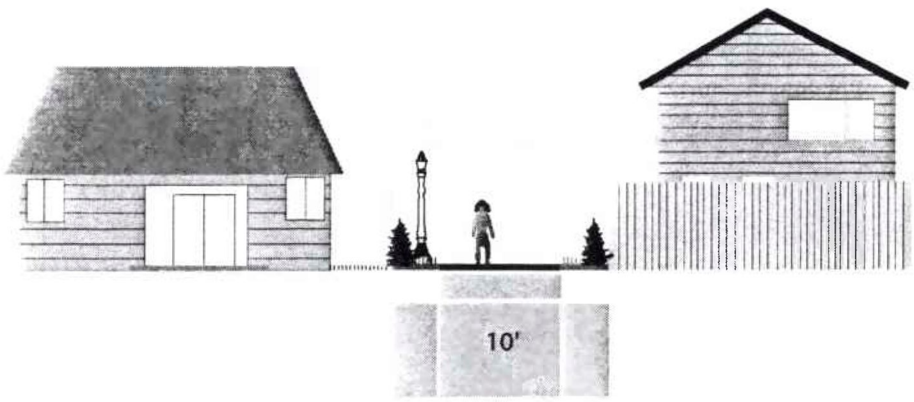


Figure 5-12. Pedestrian-Ways (or "Accessways")

Shared-Use Paths

As the City of Newport develops its shared-use path network, several design issues should be taken into consideration. Shared-use paths should be designed to accommodate two-way bicycle and pedestrian traffic, and typically should have their own rights-of-way (for a minimum of 75 percent of their length to reinforce the experience of traveling on a path). Because most of the proposed paths will be also serve maintenance vehicles, the paved surface should be asphalt or concrete (or a durable unpaved surface that is smooth and meets ADA requirements).

The graphic below depicts the recommended cross-section for shared-use paths in Newport. A narrower path width may be allowed (8 feet minimum) in physically constrained areas. Wider path widths are recommended in areas where user volumes are expected to be high. Soft shoulders (at least two feet wide) should be provided on both sides of the path, and a wider shoulder should be provided to accommodate runners and joggers where space permits. Soft shoulders may consist of bark or wood chips.

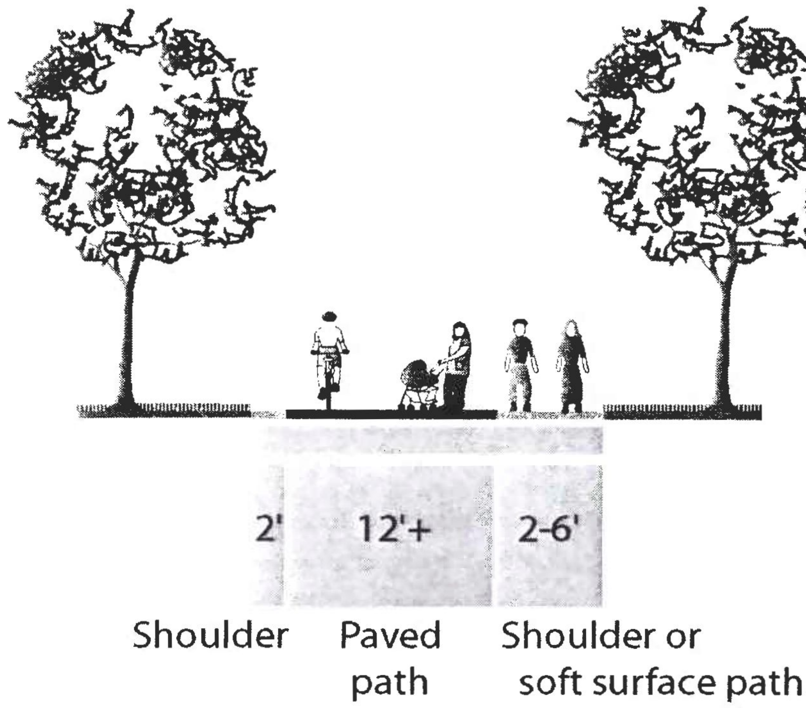


Figure 5-13. Shared-Use Paths

Shared-use paths should also be designed to restrict access from unauthorized vehicles. Bollards can be placed at path/roadway crossings to permit bicycle/pedestrian access while restricting vehicle access. Removable and unlockable bollards also maintain easy path access for maintenance and emergency vehicles.

Table 5-3 highlights additional design recommendations for Newport's shared-use path network. The recommendations are based on experience in other communities, as well as guidelines prescribed by AASHTO and the *Oregon Bicycle and Pedestrian Plan.*

Table 5-3. Shared-Use Path Design Recommendations

Parameter	Recommendation
Paved width	12' (8' in constrained areas)
Soft surface width	6' minimum
Shoulder width[1]	2' minimum
Lateral clearance between path and adjacent signs	3'-6'
Overhead clearance	8' minimum
Separation from parallel roadway	5' minimum
Grade/running slope	5% maximum
Cross-slope	2% maximum
Fence height	54 inches
Bollards	5' minimum between bollards

Source: AASHTO Guide for the Development of Bicycle Facilities; ODOT Oregon Bicycle and Pedestrian Plan.

1 A soft surface path paralleling the paved path can take the place of a shoulder on one side.

Shared-Use Paths along Roadways

Shared-use paths should not be placed directly adjacent to roadways (e.g., with minimal or no separation) for variety of reasons:

- Half of bicycle traffic would ride against the normal flow of vehicle traffic, contrary to the rules of the road.
- When the path ends, cyclists riding against traffic tend to continue to travel on the wrong side of the street, as do cyclists making their way to the path. Wrong-way bicycle travel is a major cause of vehicle/bicycle crashes.
- At intersections, motorists crossing the path often do not notice bicyclists approaching from certain directions, especially where sight distances are poor.
- Bicyclists on the path are required to stop or yield at cross-streets and driveways, unless otherwise posted.
- Stopped vehicles on a cross-street or driveway may block the path.
- Because of the closeness of vehicle traffic to opposing bicycle traffic, barriers are often necessary to separate motorists from cyclists. These barriers serve as obstructions, complicate facility maintenance and waste available right-of-way.
- Paths directly adjacent to high-volume roadways diminish users' experience by placing them in an uncomfortable environment. This could lead to a path's underutilization.

Shared-use paths can successfully be placed along roadways, provided several design considerations are met:

- A minimum 5-foot buffer should be provided between the path and roadway to address potential conflicts between motorists and path users.

- There are few vehicle/path user conflict points (e.g., cross-streets and driveways).
- There is a commitment to provide path continuity along the corridor.
- The path can be terminated at each end onto streets with good bicycle and pedestrian facilities or onto another safe, well-designed path though appropriate street crossing treatments.
- The path should not take the place of bicycle/pedestrian facilities (e.g., sidewalks and bicycle lanes) on the parallel street.

Sidewalks as Shared-Use Paths

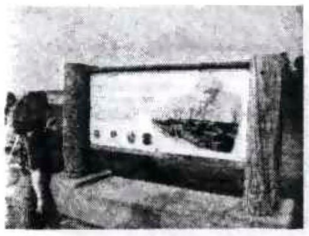
Utilizing or providing a sidewalk as a shared-use path is unsatisfactory for several reasons. Sidewalks are typically designed for pedestrian speeds and maneuverability and are not safe for higher bicycle speeds. Conflicts are common between pedestrians traveling at low speeds (e.g., exiting stores, parked cars, etc.) and bicyclists, as are conflicts with fixed objects (e.g., utility poles, mailboxes, parked cars extending into the sidewalk from a driveway). Walkers, joggers, skateboarders and in-line skaters can (and often do) change their speed and direction almost instantaneously, leaving bicyclists insufficient reaction time to avoid collisions.

Similarly, pedestrians often have difficulty predicting the direction an oncoming cyclist will take. At intersections, motorists are often not looking for bicyclists who are traveling at higher speeds than pedestrians) entering a crosswalk area, particularly when motorists are making a turn. Sight distance is often impaired by buildings, walls, fences and shrubs along sidewalks, especially at driveways. In addition, bicyclists and pedestrians often prefer to ride or walk side-by-side when traveling in pairs. Sidewalks are typically too narrow to enable this to occur without serious conflict between users.

It should also be noted that developing extremely wide sidewalks does not necessarily add to the safety of sidewalk bicycle travel. Wide sidewalks might encourage higher speed bicycle use and can increase the potential for conflicts with motorists at intersections, as well as pedestrians with fixed objects.

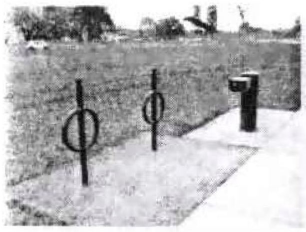
Path Amenities

A variety of amenities can make a path inviting to the user. The following table highlights some common items that make path systems stand out. Costs vary depending on the design and materials selected for each amenity.



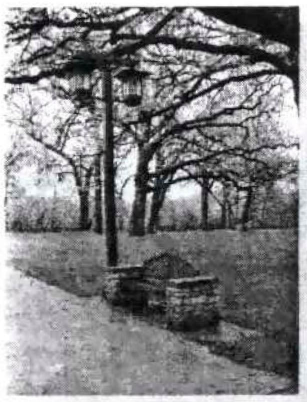
Interpretive Installations

Interpretive installations and signs can enhance the users experience by providing information about the history of Newport and the surrounding area. Installations can also discuss local ecology, environmental concerns, and other educational information.



Water Fountains and Bicycle Parking

Water fountains provide water for people (and pets, in some cases) and bicycle racks allow recreational users to safely park their bikes if they wish to stop along the way, particularly at parks and other desirable destinations.



Pedestrian-Scale Lighting and Furniture

Pedestrian-scale lighting improves safety and enables the facility to be used year-round. It also enhances the aesthetic of the pathway. Lighting fixtures should be consistent with other light fixtures in the city, possibly emulating a historic theme.

Providing benches at key rest areas and viewpoints encourages people of all ages to use the pathway by ensuring that they have a place to rest along the way. Benches can be simple (e.g., wood slates) or more ornate (e.g., stone, wrought iron, concrete).

Maps and Signage

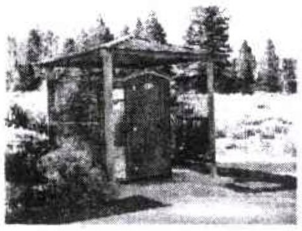
A comprehensive signing system makes a bicycle and pedestrian system stand out. Informational kiosks with maps at trailheads and other pedestrian generators can provide enough information for someone to use the network with little introduction – perfect for areas with high out-of-area visitation rates as well as the local citizens.

Art Installations

Local artists can be commissioned to provide art for the pathway system, making it uniquely distinct. Many pathway art installations are functional as well as aesthetic, as they may provide places to sit and play on.

Landscaping

Landscape features, including street trees or trees along paths, can enhance the visual environment and improve the path user experience. Trees can also provide shade from heat and also provide protection from rain.



Restrooms

Restrooms benefit path users, especially in more remote areas where other facilities do not exist. Restrooms can be sited at major trailheads or at other strategic locations along the path system.

Path Safety and Security

Various design and programmatic measures can be taken to address safety issues on a shared-use path. Table 5-4 summarizes key safety issues and strategies for minimizing impacts.

Table 5-4. Safety Recommendations

Safety Issue	Recommended Improvements
Unwanted vehicle access on the path	• Utilize landscaping to define the corridor edge and path, including earth berms and large boulders. • Use bollards at intersections • Pass a motorized vehicle prohibited ordinance and sign the path. • Create a Path Watch Program and encourage citizens to photograph report illegal vehicle use of the corridor. • Lay the trail out with curves that allow bike/ped passage, but are uncomfortably tight for automobile passage.
Privacy of adjacent property owners	• Encourage the use of neighborhood friendly fencing and also planting of landscape buffers. • Clearly mark path access points. • Post path rules that encourage respect for private property. • Strategically placed lighting.
Litter and dumping	• Post path rules encouraging pack-it-in/pack-it-out etiquette. • Place garbage receptacles at trailheads. • Strategically-placed lighting, utilizing light shields to minimize unwanted light in adjacent homes. • Manage vegetation within the right-of-way to allow good visual surveillance of the path from adjacent properties and from roadway/path intersections. • Encourage local residents to report incidents as soon as they occur. • Remove dumpsites as soon as possible.
Trespassing	• Clearly distinguish public path right-of-way from private property through the use of vegetative buffers and the use of good neighbor type fencing. • Post path rules that encourage respect for private property.

Safety Issue	Recommended Improvements
Crime	• Manage vegetation so that corridor can be visually surveyed from adjacent streets and residences. • Select shrubs that grow below 3' in height and trees that branch out greater than 6' in height. • Place lights strategically and as necessary. • Place benches and other path amenities at locations with good visual surveillance and high activity. • Provide mileage markers at quarter-mile increments and clear directional signage for orientation. • Create a "Path Watch Program" involving local residents. • Proactive law enforcement. Utilize the corridor for mounted patrol training.
Private use of corridor	• Attempt to negotiate win/win solutions with property owners. • Eliminate where detrimental impact to path cannot be reasonably ameliorated.
Local on-street parking	Post local residential streets as parking for local residents only to discourage path user parking. Place "no outlet" and "no parking" signs prior to path access points.
Trailhead safety	Clearly identify trailhead access areas.
Vandalism	• Select benches, bollards, signage and other site amenities that are durable, low maintenance and vandal resistant. • Respond through removal or replacement in rapid manner. • Keep a photo record of all vandalism and turn over to local law enforcement. • Encourage local residents to report vandalism. • Create a Trail Watch Program; maintain good surveillance of the corridor. • Involve neighbors in path projects to build a sense of ownership. • Place amenities (benches, etc.) in well used and highly visible areas.

Community Involvement with Safety on the Path

Creating a safe path environment goes beyond design and law enforcement and should involve the entire community. The most effective and most visible deterrent to illegal activity on Newport's path system will be the presence of legitimate path users. Getting as many "eyes on the corridor" as possible is a key deterrent to undesirable activity. There are several components to accomplishing this as outlined below.

Provide good access to the path

Access ranges from providing conveniently located trailheads along the path, to encouraging the construction of sidewalks to accommodate access from private developments adjacent to the path. Access points should be inviting and signed so as to welcome the public onto the path.

Good visibility from adjacent neighbors

Neighbors adjacent to the path can potentially provide 24-hour surveillance of the path and can become Newport's biggest ally. Though some screening and setback of the path is needed for privacy of adjacent neighbors, complete blocking out of the path from neighborhood view should be discouraged. This eliminates the potential of neighbors' "eyes on the path," and could result in a "tunnel effect" on the path.

High level of maintenance

A well-maintained path sends a message that the community cares about the public space. This message alone will discourage undesirable activity along the path.

Programmed events
Community events along the path will help increase public awareness and thereby attract more people to use the path. Neighbors and residents can help organize numerous public events along the path which will increase support for the path. Events might include a day-long path clean up or a series of short interpretive walks led by long time residents or a park naturalist.

Community projects
The support generated by community groups could be further capitalized by involving neighbors and friends of the path in a community project. Ideas for community projects include volunteer planting events, art projects, interpretive research projects, or even bridge building events. These community projects are the strongest means of creating a sense of ownership along the path that is perhaps the strongest single deterrent to undesirable activity along the path.

Adopt-a-Path Program
Nearby businesses, community institutions, and residential neighbors often see the benefit of their involvement in the path development and maintenance. Businesses and developers may view the path as an integral piece of their site planning and be willing to take on some level of responsibility for the path. Creation of an adopt-a-path program should be explored to capitalize on this opportunity and build civic pride.

Path Watch Program
Partnering with local and county law enforcement, a path watch program would provide an opportunity for local residents to become actively involved in crime prevention along Newport's path system. Similar to Neighborhood Watch programs, residents are brought together to get to know their neighbors, and are educated on how to recognize and report suspicious activity.

Internal Circulation Standards

Pedestrian circulation in larger residential and commercial developments is influenced by the infrastructure provided for the pedestrian as well as the infrastructure and design of auto circulation and parking.

Automobile Infrastructure

Parking lots should be located in such a manner as to encourage pedestrian access to the development, connect uses to the street and decrease the distance between adjacent developments. To accomplish this, parking should be located behind and to the side of buildings wherever possible. Landscaping should be provided between the pedestrian circulation system and automobile areas to provide protection, security and accessibility for the pedestrian while providing sufficient sight distance. Parallel parking can also be used to buffer pedestrian routes from moving vehicles.

Pedestrian Infrastructure

An internal pedestrian circulation system should:

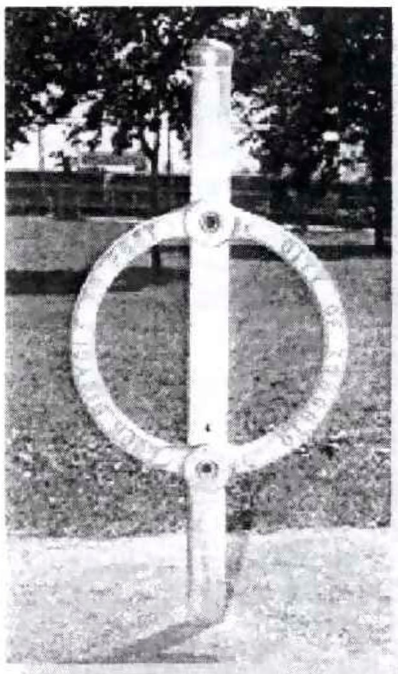
- Be barrier-free and designed for safety and security
- Ensure continuous sidewalks and safe crossing points
- Connect all uses within a development (buildings, parking areas, etc.)

- Clearly link public sidewalks with all internal walkways
- Clearly link the individual sites within a development to each other and to surrounding off-site uses (mixed-use and residential areas)
- Be defined with landscaping, paving, and pedestrian-scale lighting
- Meet ADA guidelines
- Provide adequate sight distance

Pedestrian circulation routes could be composed of treated surfaces such as scored or brushed concrete in order to differentiate the pedestrian system from the auto system. Where pedestrian routes cross an auto circulation route, striping should be provided.

To provide greater opportunity for pedestrian connectivity and to prevent autos from having to use the public street system to travel between adjacent developments, parking and pedestrian circulation should be designed to accommodate connections between developments.

Pedestrian circulation plans should be required with each large lot development. These plans must emphasize connectivity through sidewalk design, traffic circulation, landscaping, and lighting.


Bolt-on ring rack

Bicycle Infrastructure

Internal circulation for bicyclists is as important a consideration as for cars and pedestrians. Bicyclists should have a clearly delineated travel path through any development, as well as clear travel paths that link individual sites within the development and provide safe travel. In smaller developments or constrained situations, this can be accomplished through directional signage, lane markings, and signage that clearly show a shared roadway system (such as a shared lane marking), and signage and markings indicating slow speeds (10 MPH) required while in the development.

In larger developments, bicycle lanes should be striped to both indicate the travel route to bicyclists and to constantly inform motorists to expect bicyclists within the development. The bicycle lanes should be supplemented with appropriate directional signage for bicyclists. Signage and markings indicating slow speeds (10 MPH) are also recommended. Bicycle circulation plans should be required with each large lot development.


Sleeve ring rack

Bicycle Parking

Bicycle parking can be broadly defined as either short-term or long-term parking:

- **Short-term parking**: Bicycle parking meant to accommodate visitors, customers, messengers and others expected to depart within two hours; requires approved standard rack, appropriate location and placement, and weather protection.
- **Long-term parking**: Bicycle parking meant to accommodate employees, students, residents, commuters, and others expected to park more than two hours. This parking is to be provided in a secure, weather-protected manner and location.

Short-Term Bicycle Parking

Short-term bicycle parking facilities are intended to provide short-term bicycle parking, and include racks which permit the locking of the bicycle frame and one wheel to the rack and support the bicycle in a stable position without damage to wheels, frame or components. Short-term bicycle parking is currently provided at no charge at most locations. Such facilities should continue to be free, as they provide minimal security, but encourage cycling and promote proper bicycle parking.

Bicycle rack dimensions requirements should meet or exceed those recommended by the Oregon Bicycle and Pedestrian Plan, including the following:

- Bicycle parking spaces should be at least six feet long and 2.5 feet wide, and overhead clearance for covered spaces should be at least seven feet.
- A 5-foot aisle for bicycle maneuvering should be provided and maintained beside or between each row of bicycle parking.
- Bicycle racks or lockers should be securely anchored to the surface or structure.

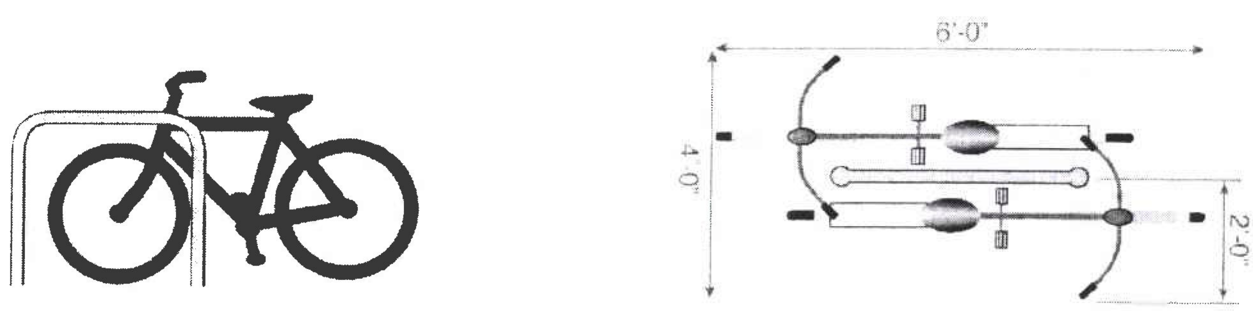
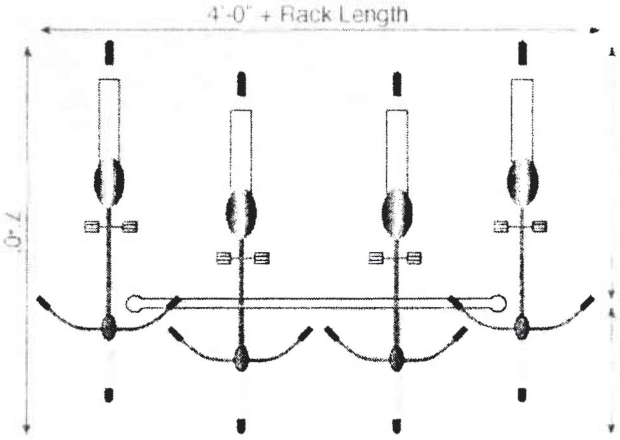


Figure 5-14. Inverted "U" Rack

Ribbon, Spiral, or Freestanding Racks
(with access from only one side)



Actual capacity is usually 3 bikes

Figure 5-15. Ribbon, Spiral, and Freestanding Racks

Where racks are not possible on sidewalks (because of narrow sidewalk width, sidewalk obstructions, or other issues), bicycle parking can be created in the street where on-street vehicle parking is allowed. Two possible options for creating parking in the street include clustered racks in a car parking space protected by bollards or curbs, and racks installed on sidewalk curb extensions where adequate sight distance can be provided. Installing bicycle parking directly in a car parking space incurs only the cost of the racks and bollards or other protective devices.

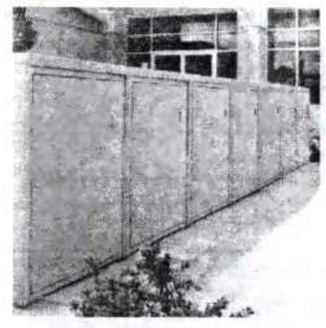
A curb extension is more expensive to install, and can be prohibitively expensive if substantial drainage and/or utility work is necessary. Costs may be less if the curb extension is installed as part of a larger street or pedestrian improvement project. While on-street bicycle parking may take space away from the automobile parking, there are ways to mitigate auto parking loss: Additional auto parking spaces can be created by consolidating driveways, moving fire hydrants, or otherwise finding places where it may be possible to admit auto parking where it is currently prohibited. Options for combining bicycle and motorcycle parking also exist.

On-street bicycle parking may be installed at intersection corners or at mid-block locations. Mid-block on-street parking may be closer to cyclists' destinations, although it could force cyclists to dismount and walk to the parking site if access from the street is difficult or dangerous. Combining a mid-block pedestrian crossing with mid-block on-street parking facilities could mitigate this situation.

Table 5-5. Bicycle Rack Placement Guidelines

Design Issue	Recommended Guidance
Minimum Rack Height	To increase visibility to pedestrians, racks should have a minimum height of 33 inches or be indicated or cordoned off by visible markers.
Signing	Where bicycle parking areas are not clearly visible to approaching cyclists, signs at least 12 inches square should direct them to the facility. The sign should give the name, phone number, and location of the person in charge of the facility, where applicable.
Lighting	Lighting of not less than one foot-candle illumination at ground level should be provided in all bicycle parking areas.
Frequency of Racks on Streets	In popular retail areas, two or more racks should be installed on each side of each block. This does not eliminate the inclusion of requests from the public which do not fall in these areas. Areas officially designated or used as bicycle routes may warrant the consideration of more racks.
Location and Access	Access to facilities should be convenient; where access is by sidewalk or walkway, curb ramps should be provided where appropriate and ADA compliant. Parking facilities intended for employees should be located near the employee entrance, and those for customers or visitors near the main public entrances. (Convenience should be balanced against the need for security if the employee entrance is not in a well traveled area). Bicycle parking should be clustered in lots not to exceed 16 spaces each. Large expanses of bicycle parking make it easier for thieves to operate undetected.
Locations within Buildings	Provide bike racks within 50 feet of the entrance. Where a security guard is present, provide racks behind or within view of a security guard. The location should be outside the normal flow of pedestrian traffic.
Locations near Transit Stops	To prevent bicyclists from locking bikes to bus stop poles - which can create access problems for transit users, particularly those who are disabled - racks should be placed in close proximity to transit stops where there is a demand for short-term bike parking.
Locations within a Campus-Type Setting	Racks are useful in a campus-type setting at locations where the user is likely to spend less than two hours, such as classroom buildings. Racks should be located near the entrance to each building. Where racks are clustered in a single location, they should be surrounded by a fence and watched by an attendant. The attendant can often share this duty with other duties to reduce or eliminate the cost of labor being applied to the bike parking duties; a cheaper alternative to an attendant may be to site the fenced bicycle compound in a highly visible location on the campus. For the long-term parking needs of employees and students, attendant parking and/or bike lockers are recommended.
Retrofit Program	In established locations, such as schools, employment centers, and shopping centers, the City should conduct bicycle parking audits to assess the bicycle parking availability and access, and add in additional bicycle racks where necessary.

Long-Term Bicycle Parking



Long-term bicycle parking facilities are intended to provide secure long-term bicycle storage. Long-term facilities protect the entire bicycle, its components and accessories against theft and against inclement weather, including snow and wind-driven rain. Examples include lockers, check-in facilities, monitored parking, restricted access parking, and personal storage.

Long-term parking facilities are more expensive to provide than short-term facilities, but are also significantly more secure. Although many bicycle commuters would be willing to pay a nominal fee to guarantee the safety of their bicycle, long-term bicycle parking should be free wherever automobile parking is free. Potential locations for long-term bicycle parking include large employers and institutions where people use their bikes for commuting, and not consistently throughout the day. An advantage of lockers is that they can be configured to more easily accommodate different styles of bicycles, such as recumbent bicycles.

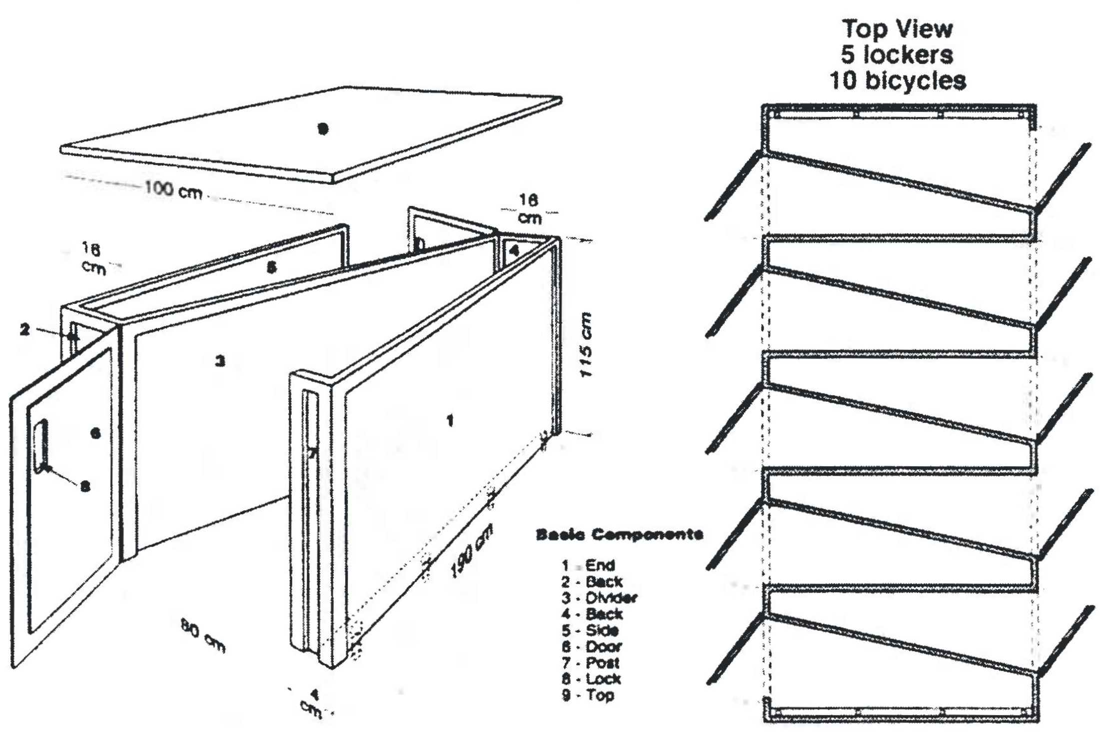


Figure 5-16. Cycle-Safe Lockers

Transit Stops

This section provides guidance for the design a specific transit stop elements, including sidewalk approaches, landing pads, bus pullouts and bus shelters.

Sidewalk and Path Approaches

Pedestrian connections should be designed to provide the most direct route to transit stops to avoid out-of-direction travel and minimize travel distance. Direct routes will also reduce the damage to landscaping by providing pedestrians with other preferred routes. Connections should be a continuation of the sidewalk and path system to reduce dead-end paths. At transit stops, sidewalks should be provided at a minimum to the nearest intersection or to the nearest section of existing sidewalk. It may also be necessary to wrap a sidewalk around a corner to join an existing sidewalk on a side street. If a transit route does not have complete sidewalks, it is still important to provide a suitable area for waiting pedestrians.

Landing Pads

At permanent bus stops, the ADA requires an eight- by five-foot landing pad to accommodate disabled users. For bus stops along streets without curbs, the roadway shoulder should be at least eight feet wide to serve as the landing pad.

Bus Pullouts

Where traffic conditions warrant a bus pullout at an intersection, a far-side location is preferred. The needs of passengers boarding or exiting the bus should not conflict with the needs of pedestrians and cyclists moving through the area. A curb extension helps pedestrian crossing movements, prevents motorists from entering the bus pullout area, and reduces conflicts with through bicyclists. Each pullout should be designed to meet roadway conditions and bus characteristics.

Where parking is allowed on streets, a curb extension can be placed within the parking lane so that passengers may board or exit the bus without stepping into the street. This also makes it easier to meet ADA requirements (the bus pulls up right next to the curb).

Bus Shelters

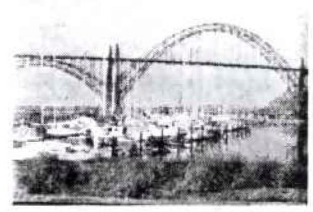
A standard-size bus shelter requires a six- by 10-foot pad. The shelter should be placed at least two feet from the curb when facing away from the street and at least four feet when facing toward the street. The adjacent sidewalk must still have a five-foot clear passage. Orientation of the shelter should take into account prevailing winter winds. Sidewalks separated from the roadway with a planter strip offer a unique opportunity to provide a bus shelter out of the path of passing pedestrians.

Maintenance Guidelines

Proper maintenance of pedestrian and bicycle facilities is a critical element of providing a safe and user-friendly system. Table 5-6 summarizes a recommended maintenance schedule for Newport's bicycle/pedestrian system. These guidelines address maintenance of the system's off-street portions. On-street segments should be maintained according to the standards of the responsible jurisdiction (e.g., City, ODOT, etc.).

Table 5-6. Maintenance Guidelines

Maintenance Task	Frequency
Inspections	Seasonal – at both beginning and end of summer
Signage replacement	1-3 years
Site furnishings; replace damaged components	As needed
Fencing repair	Inspect monthly for holes and damage, repair immediately
Pavement markings replacement	1-3 years
Pavement sweeping/blowing	As needed; before high use season
Pavement sealing; pothole repair	5-15 years
Lighting repair	Annually
Introduced tree and shrub plantings, trimming	1-3 years
Shrub/tree irrigation for introduced planting areas	Weekly during summer months until plants are established
Shoulder plant trimming (weeds, trees, branches)	Twice a year; middle of growing season
Major damage response (fallen trees, washouts, flooding)	Schedule based on priorities
Culvert inspection	Before rainy season; after major storms
Maintaining culvert inlets	Inspect before onset of wet season
Waterbar maintenance (earthen trails)	Annually
Trash disposal	Weekly during high use; twice monthly during low use
Litter pick-up	Weekly during high use; twice monthly during low use
Graffiti removal	Weekly; as needed



6. FUNDING SOURCES

Federal Funding Sources

Federal funding is primarily distributed through a number of different programs established by the Federal Transportation Act. The latest act, The Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU) was enacted in August 2005 as Public Law 109-59. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009.

In Oregon, Federal funding is administered through State (ODOT) and regional planning agencies. Most, but not all, of these funding programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system.

SAFETEA-LU

There are a number of programs identified within SAFETEA-LU that provide for the funding of bicycle and pedestrian projects.

Surface Transportation Program

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a wide variety of projects on any Federal-aid Highway including the National Highway System, bridges on any public road, and transit facilities.

Bicycle and pedestrian improvements are eligible activities under the STP. This covers a wide variety of projects such as on-street facilities, off-road trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. SAFETEA-LU also specifically clarifies that the modification of sidewalks to comply with the requirements of the Americans with Disabilities Act is an eligible activity.

As an exception to the general rule described above, STP-funded bicycle and pedestrian facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. In addition, bicycle-related non-construction projects, such as maps, coordinator positions, and encouragement programs, are eligible for STP funds. ODOT estimates that they will receive an average of $84 million annually for this program through the lifetime of SAFETEA-LU.

Highway Safety Improvement Program

This program funds projects designed to achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways and walkways. This program includes the Railway-Highway Crossings Program and the High Risk Rural Roads Program. ODOT estimates that they will receive an average of $14 million annually for this program through the lifetime of SAFETEA-LU. This program replaces the Hazard Elimination Program from TEA-21.

Transportation Enhancements

Administered by ODOT, this program is funded by a set-aside of STP funds. Projects must serve a transportation need. These funds can be used to build a variety of pedestrian, bicycle, streetscape and other improvements that enhance the cultural, aesthetic, or environmental value of transportation systems. The statewide grant process is competitive.

Congestion Mitigation/Air Quality Program

The Congestion Mitigation/Air Quality Improvement Program (CMAQ) provides funding for projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions.

These federal funds can be used to build bicycle and pedestrian facilities that reduce travel by automobile. Recreational facilities generally are not funded. ODOT estimates that they will receive an average of $14 million annually for this program through the lifetime of SAFETEA-LU.

Recreational Trails Program

The Recreational Trails Program of the Federal Transportation Bill provides funds to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized and motorized uses. These funds are available for both paved and unpaved trails, but may not be used to improve roads for general passenger vehicle use or to provide shoulders or sidewalks along roads.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails
- Purchase and lease of trail construction and maintenance equipment
- Construction of new trails, including unpaved trails
- Acquisition or easements of property for trails
- State administrative costs related to this program (limited to seven percent of a State's funds)
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds)

Safe Routes to School (SR2S)

Under the SR2S Program, Federal funds are administered by ODOT. Under the Oregon Safe Routes to School Program, approximately $3.7 million will be available for grants between 2006 and 2010. The grants can be used to identify and reduce barriers and hazards to children walking or bicycling to school. ODOT estimates that they will receive an average of $1.37 million annually for this program through the lifetime of SAFETEA-LU.

New Freedom Initiative

SAFETEA-LU creates a new formula grant program that provides capital and operating costs to provide transportation services and facility improvements that exceed those required by the Americans with Disabilities Act.

Community Development Block Grants

The Community Development Block Grants program provides money for streetscape revitalization, which may be largely comprised of pedestrian improvements. Federal Community Development Block Grant grantees may "use Community Development Block Grants funds for activities that include (but are not limited to): acquiring real property; reconstructing or rehabilitating housing and other property; building public facilities and improvements, such as streets, sidewalks, community and senior citizen centers and recreational facilities; paying for planning and administrative expenses, such as costs related to developing a consolidated plan and managing Community Development Block Grants funds; provide public services for youths, seniors, or the disabled; and initiatives such as neighborhood watch programs."

Rivers, Trails and Conservation Assistance Program

The Rivers, Trails and Conservation Assistance Program (RTCA) is a National Parks Service program which provides technical assistance via direct staff involvement, to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation monies available. Projects are prioritized for assistance based on criteria that include conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments.

Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) is a Federally-funded program that provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction. These funds are administered by the Oregon Parks and Recreation Department.

Transportation, Community and System Preservation Program

The Transportation, Community and System Preservation Program provides federal funding for transit-oriented development, traffic calming and other projects that improve the efficiency of the transportation system, reduce the impact on the environment, and provide efficient access to jobs, services and trade centers. The program is intended to provide communities with the resources to explore the integration of their transportation system with community preservation and environmental activities. The Transportation, Community and System Preservation Program funds require a 20 percent match.

State Funding Sources

Statewide Transportation Improvement Program

The Statewide Transportation Improvement Program (STIP) is ODOT's short-term capital improvement program, providing project funding and scheduling information for the department and Oregon's metropolitan planning organizations. It is a four-year program developed through the coordinated efforts of ODOT, federal and local governments, Area Commissions on Transportation, tribal governments and the public.

In developing this funding program, ODOT must verify that the identified projects comply with the Oregon Transportation Plan (OTP), ODOT Modal Plans, Corridor Plans, local comprehensive plans, and SAFETEA-LU planning requirements. The STIP must fulfill Federal planning requirements for a staged, multi-year, statewide, intermodal program of transportation projects. Specific transportation projects are prioritized based on Federal planning requirements and the different State plans. ODOT consults with local jurisdictions before highway-related projects are added to the STIP.

Oregon Revised Statute 366.514

Often referred to as the "Oregon Bike Bill," this law applies equally to bicycle and pedestrian facilities. The statute's intent is to ensure that future roads be built to accommodate bicycle and pedestrian travel. The statute requires the provision of bicycle and pedestrian facilities on all Major Arterial and Collector roadway construction, reconstruction or relocation projects where conditions permit. The statute also requires that in any fiscal year, at lease one percent of highway funds allocated to a jurisdiction must be used for bicycle/pedestrian projects.

Oregon Transportation Infrastructure Bank

The Oregon Transportation Infrastructure Bank is a statewide revolving loan fund designed to promote innovative transportation funding solutions. Oregon's program was started in 1996 as part of a 10-state Federal pilot program. Additional legislation passed in 1997 by the Oregon Legislature establishes the program in state law and includes expanded authority. Eligible borrowers include cities, counties, transit districts, other special districts, port authorities, tribal governments, state agencies, and private for-profit and non-profit entities. Eligible projects include:

- Highway projects, such as roads, signals, intersection improvements and bridges
- Transit capital projects, such as buses, equipment, and maintenance or passenger facilities
- Bikeway or pedestrian access projects on highway right-of-way

Eligible project costs include preliminary engineering, environmental studies, right-of-way acquisition, construction (including project management and engineering), inspections, financing costs, and contingencies.

Measure 66 Funds - Oregon State Lottery

Ballot Measure 66 amends the Oregon Constitution to allow money from the State Lottery to be used for restoring and protecting Oregon's parks, beaches, watersheds and critical fish and wildlife habitat. Funds are coordinated by Oregon State Parks, and may be used for trail-related right-of-way acquisition and construction.

Special Transportation Fund

The State's Special Transportation Fund Program provides financial support to designated counties, transit districts and Indian tribal governments for special transportation services benefiting seniors and people with disabilities. The majority of the STF money (75 percent) is allocated on a population-based formula. The remaining funds are distributed by the Public Transportation Discretionary Grant Program.

Bicycle and Pedestrian Program Grants

The Pedestrian and Bicycle Grant Program is a competitive grant program that provides approximately $5 million every two years to Oregon cities, counties and ODOT regional and district offices for design and construction of pedestrian and bicycle facilities. Proposed facilities must be within public rights-of-way. Grants are awarded by the Oregon Bicycle and Pedestrian Advisory Committee.

Bicyclist Safety Mini-Grant Program

The Community Cycling Center Bicyclist Mini-Grant Program provides funding to public agencies and non-profit 501(c)(3) organizations to promote the safety of bicyclists in Oregon. Funding is available statewide through a grant to the Community Cycling Center from ODOT's Transportation Safety Division. Funding is available for projects targeting youth and/or adults, with a focus on projects that incorporate a strong educational element, especially in communities that do not currently have access to bike safety education resources. For communities that currently do have access to these resources, innovative and creative project proposals are highly encouraged. Applicants may apply for grants between $800 and $5,000.

Pedestrian Safety Mini-Grant Program

Administered by Oregon's Bicycle Transportation Alliance and the Willamette Pedestrian Coalition, the Pedestrian Safety Mini-Grant Program is funded through ODOT's Traffic Safety Division. The program provides funds to police departments around the state to stage crosswalk enforcement actions against motorists who fail to yield to pedestrians. In these operations, a decoy police officer attempts to cross a street at an intersection or marked crosswalk (crosswalk laws apply to unmarked crosswalks as well). If passing motorists fail to stop and yield for the pedestrian, they are issued either a warning or a citation. The operations include a media outreach component, with the purpose of raising awareness around motorists' responsibility toward pedestrians. Grant funds may also be used to offer diversion classes that violators can take in lieu of paying tickets. Applicants may apply for grants up to $5,000.

Local Funding Sources

Local Bond Measures

Local bond measures, or levies, are usually initiated by voter-approved general obligation bonds for specific projects. Bond measures are typically limited by time based on the debt load of the local government or the project under focus. Funding from bond measures can be used for right-of-way acquisition, engineering, design and construction of pedestrian and bicycle facilities.

Tax Increment Financing/Urban Renewal Funds

Tax Increment Financing (TIF) is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project (e.g., sidewalk improvements) is constructed, surrounding property values generally increase and encourage surrounding development or redevelopment. The increased tax revenues are then dedicated to finance the debt created by the original public improvement project. Tax Increment Financing typically occurs within designated Urban Renewal Areas (URA) that meet certain economic criteria and approved by a local governing body. To be eligible for this financing, a project (or a portion of it) must be located within the URA.

System Development Charges/Developer Impact Fees

System Development Charges (SDCs), also known as Developer Impact Fees, represent another potential local funding source. SDCs are typically tied to trip generation rates and traffic impacts produced by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- or off-site pedestrian improvements that will encourage residents to walk or use transit rather than drive. In-lieu parking fees may be used to help construct new or improved pedestrian facilities. Establishing a clear nexus or connection between the impact fee and the project's impacts is critical in avoiding a potential lawsuit.

Street User Fees

The revenue generated by the street user fee is used for operations and maintenance of the street system, and priorities are established by the Public Works Department. Revenue from this fund should be used to maintain on-street bicycle and pedestrian facilities, including routine sweeping of bicycle lanes and other designated bicycle routes.

Local Improvement Districts (LIDs)

Local Improvement Districts (LIDs) are most often used by cities to construct localized projects such as streets, sidewalks or bikeways. Through the LID process, the costs of local improvements are generally spread out among a group of property owners within a specified area. The cost can be allocated based on property frontage or other methods such as traffic trip generation.

Business Improvement Districts

Pedestrian improvements can often be included as part of larger efforts aimed at business improvement and retail district beautification. Business Improvement Districts collect levies on businesses in order to fund area-wide improvements that benefit businesses and improve access for customers. These districts may include provisions for pedestrian and bicycle improvements, such as wider sidewalks, landscaping, and ADA compliance.

Other Local Sources

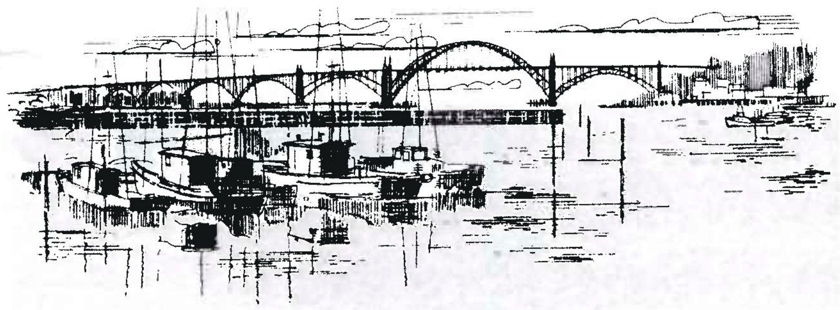
Residents and other community members are excellent resources for garnering support and enthusiasm for a bicycle and pedestrian facility, and the City should work with volunteers to substantially reduce implementation and maintenance costs. Local schools, community groups, or a group of dedicated neighbors may use the project as a project for the year, possibly working with a local designer or engineer. Work parties can be formed to help clear the right-of-way for a new path or maintain existing facilities where needed. A local construction company could donate or discount services. Other opportunities for implementation will appear over time, such as grants and private funds. The City should look to its residents for additional funding ideas to expedite completion of the bicycle and pedestrian system.

Other Funding Sources

American Greenways Program

Administered by The Conservation Fund, the American Greenways Program provides funding for the planning and design of greenways. Applications for funds can be made by local, regional or statewide non-profit organizations and public agencies.

The maximum award is $2,500, but most awards range from $500 to $1,500. American Greenways Program monies may be used to fund unpaved trail development.



CITY OF NEWPORT

169 SW COAST HWY

NEWPORT, OREGON 97365

TDD/VOICE 1-800-735-2900

OFFICE OF Community Development

CERTIFICATE OF MAILING OF NOTICE OF ADOPTION AND THE ADOPTED TEXT AND FINDINGS AS APPLICABLE

Local File # 1-CP-08 + 2-CP-08

Date of Deposit in the U.S. Mail: August 25, 2008

Name of Person Mailing James Bassingthwaite

Signature of Person Mailing

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635 Capitol Street NE, Suite 150
Salem, OR 97301-2540