

# City of Rockaway Beach Downtown Transportation Plan

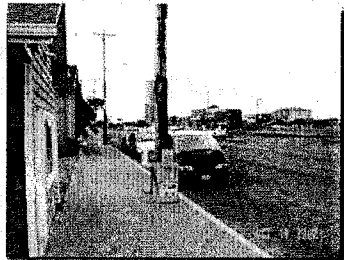
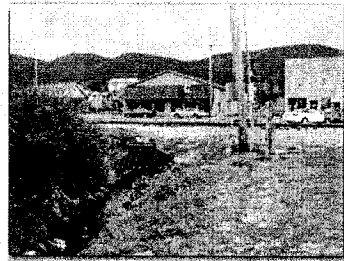
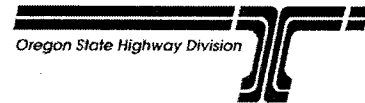
Prepared For:



City of  
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and

Oregon Department of  
Transportation



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# Executive Summary

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The Rockaway Beach Downtown Transportation Plan addresses key transportation issues in the City of Rockaway Beach. The plan focuses on the six-block segment of U.S. 101 from South 3rd Avenue to North 3rd Avenue. It emphasizes pedestrian and bicycle travel and parking on the west side of U.S. 101, including the Port of Tillamook Bay railroad and Miller Street areas. The plan also addresses the intersection of U.S. 101/South 2nd Avenue/Anchor Street; crossings of the railroad and U.S. 101; Pacific Street; and a new trail and bridge in the Rock Creek/State Recreation Area wayside.

The plan's goals are:

- Improve mobility, safety and accessibility for all travel modes.
- Improve pedestrian and bicycle circulation and facilities.
- Provide for improvements that can be implemented and that comply with applicable standards.

This plan has three sections: (1) Introduction, (2) Existing Conditions and Future Opportunities (3) Alternatives and Recommendations. The recommendations are summarized below.

## Summary of Recommendations

### U.S. 101

- Need: Improve pedestrian facilities and on-street parking, address safety and mobility issues at South 2nd Avenue/Anchor Street intersection, review warrants for left-turn lanes, consider benefits and drawbacks of Special Transportation Area (STA) designation.
- Recommendations:
  - West Side Sidewalk and Parking: Provide continuous parallel parking and sidewalk on west side of U.S. 101 from North 3rd Avenue to South 3rd Avenue. Would require conversion of existing diagonal parking area to parallel parking; additional parking would be added nearby.
  - U.S. 101/South 2nd Avenue/Anchor Street Intersection: Narrow entrance to Anchor Street with a landscaped, raised entrance; convert traffic to one lane; add parking on both sides; and add left-turn lane from South 2nd Avenue to U.S. 101.
  - Left-Turn Lanes on U.S. 101: Turn lanes are warranted by the Oregon Department of Transportation (ODOT) methodology, but are not recommended because of downtown impacts, especially loss of parking.

- Special Transportation Area (STA): An STA designation may be possible in Rockaway Beach and should be explored as a solution for long-term certainty. Because of the uncertainties in the STA process, in the short-term the City should work to implement the recommendations of this plan without STA designation.

### **Miller Street**

- Need: Improve facilities for pedestrians and local bicycle traffic while also preserving business access.
- Recommendations: Provide bridge over Rock Creek, pedestrian/bicycle path across State Recreation Area (wayside) parking lot, and transform Miller Street to a “slow street” where pedestrians and bicyclists share the road with vehicles.

### **Pacific Street**

- Need: Provide additional on-street parking in the downtown area and improve pedestrian facilities and circulation.
- Recommendations: Reconstruct Pacific Street to include diagonal parking on the west side, parallel parking on the east side, and sidewalks on both sides.

### **Railroad Crossings**

- Need: There are no sidewalks or crossing safety devices on the roads that cross the railroad tracks.
- Recommendations: Provide sidewalks (and Americans with Disabilities Act-compliant ramp or bridge where required) on the three streets that cross the railroad. Determine whether any of the four crossings can be reconstructed with a gated rail crossing, assuming that doing so would not interfere with preservation of on-street parking on U.S. 101.

### **Parking Estimate**

- Need: Parking is a high priority for Rockaway Beach. Some of the recommended concepts would remove existing parking; others would add parking.
- Recommendations: Potential parking impacts were estimated and additional sources of parking suggested. The net result is an increase in parking spaces in the downtown area.

## SECTION 1

# Introduction

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The Rockaway Beach Downtown Transportation Plan is a focused effort that addresses key transportation issues in the City of Rockaway Beach (see Figure 1-1). The plan focuses on the six-block segment of U.S. 101 from South 3rd Avenue to North 3rd Avenue, with an emphasis on pedestrian and bicycle travel and parking on the west side of U.S. 101, including the Port of Tillamook Bay railroad and Miller Street areas. These issues were identified as priority issues by the city and through a review of existing transportation system conditions.

## Planning Team and Process

### Project Management Team

A project management team (PMT) was formed at the beginning of the planning process to provide overall guidance and policy direction for the transportation plan. The PMT, consisting of the Rockaway Beach, Oregon Department of Transportation (ODOT) and consultant staffs, met initially in October 2002 to begin the project. PMT members met subsequently as part of the project advisory committee (PAC) and communicated regularly throughout the project.

### Public Involvement

A focused public involvement process was conducted as part of the transportation plan to ensure the substantive participation of Rockaway Beach citizens, stakeholders and other interested parties in the plan. Key components of the public involvement process were meetings of the city-appointed PAC – made up of elected and appointed city officials, other agency representatives, business owners and citizens at large – and a public open house.

### Downtown Development Committee

The PAC for this project was the existing Rockaway Beach Downtown Development Committee. In addition to meeting as the PAC, the committee also met several times without the consultant staff to review and discuss various aspects of the proposed plan. This additional involvement helped ensure that the proposed concepts had a thorough review with the local advisory committee.



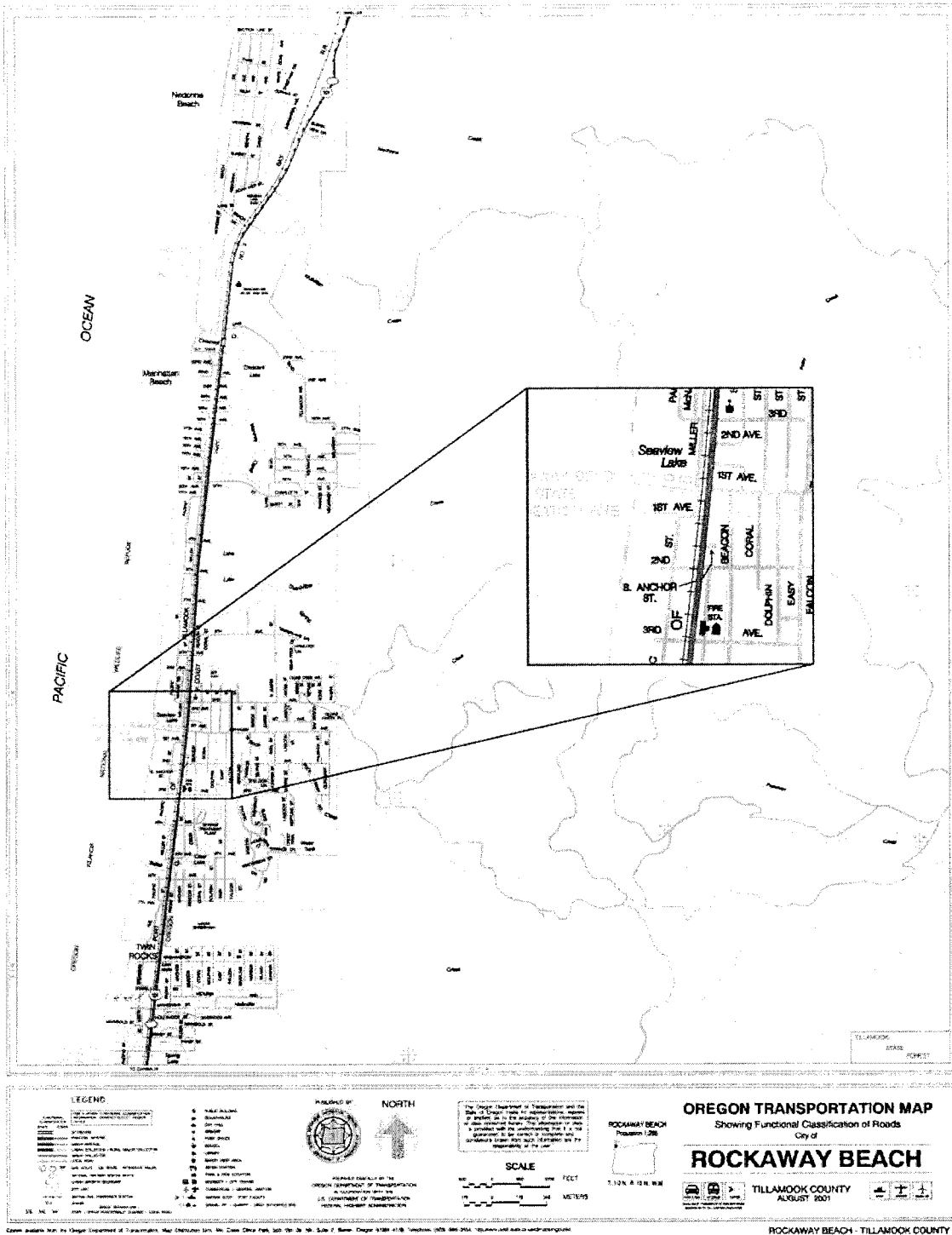


FIGURE 1-1  
City of Rockaway Beach—Location Map

## **PAC Meeting 1**

The purpose of the first PAC meeting on Jan. 23, 2003, was to introduce the committee and the consultant team, provide an overview of the project, and present and discuss background information and draft alternative concepts. Background information included the draft goals and objectives, and the existing conditions and future opportunities memorandum. Draft alternatives were presented for U.S. 101, Miller Street, Pacific Street, and Anchor Street/2nd Avenue. The agenda and summary notes from the first PAC meeting are included in Appendix A.

Before this first official PAC meeting, members of the consultant staff also met informally with the PAC in November 2002 to review the project goals and objectives and gather input on potential projects and alternatives.

## **Public Open House**

About 35 people participated in a public open house held on April 2, 2003. The participants included members of the city council, planning commission and downtown development committee; other members of the public; and agency staff members. The consulting team presented and discussed the draft alternative concepts, which had been revised on the basis of PAC comments. A summary of the open house is included in Appendix A.

## **Goals and Objectives**

The PMT developed draft goals and objectives, which the PAC then reviewed. The purpose of the following goals and objectives is to create a framework for the transportation plan and help ensure that the plan responds to the needs and desires of the community. Many of the goals and objectives were drawn from existing planning documents for Rockaway Beach, such as the city's comprehensive plan and the Resource Team Report prepared by the Oregon Downtown Development Association (ODDA) in 2000.

### **Goal 1: Mobility, Safety and Accessibility**

Improve mobility, safety, and accessibility for all travel modes.

#### **Objectives:**

1. Improve access to properties and local streets for all modes; identify access management solutions where needed.
2. Improve on- and-off street parking opportunities for auto and recreational vehicle (RV) users at business and recreational destinations.
3. Identify lane configurations and intersection improvements on U.S. 101, consistent with the Oregon Highway Plan (OHP), as needed to address circulation, safety and capacity deficiencies.
4. Create gateway treatments to let visitors on U.S. 101 know they are entering a city center.
5. Provide for improvements to public transportation loading areas and circulation routes.

6. Ensure transportation facilities allow for safe emergency vehicle access and circulation.
7. Address downtown transportation needs while maintaining railroad operations and safety.

## **Goal 2: Pedestrians and Bicycles**

Improve pedestrian and bicycle circulation and facilities.

### **Objectives:**

1. Create better pedestrian and bicycle linkages across U.S. 101 to link parks, beach access and motels to downtown.
2. Identify appropriate streetscape improvements, including landscaping, pedestrian-scale lighting, benches and street trees.
3. Improve bicycle and pedestrian safety and comfort on U.S. 101, focusing on the west side.
4. Provide facilities, such as sidewalks, crosswalks, curb extensions and signage, for safe and pleasant pedestrian travel.
5. Identify opportunities for off-street pedestrian and bicycle facilities, such as shared-use paths, trails and greenways.
6. Provide pedestrian access across the railroad tracks.

## **Goal 3: Implementation**

Provide for improvements that are implementable and comply with applicable standards.

### **Objectives:**

1. Propose new or updated design standards for city streets, in particular to emphasize traffic calming and pedestrian and bicycle travel.
2. Develop designs that improve local street connectivity as applicable.
3. Ensure that new facilities (and existing facilities as feasible) comply with the Americans with Disabilities Act (ADA).
4. Develop designs that minimize environmental impacts.
5. Develop designs that are cost-effective.
6. Develop designs that meet applicable local, county, state and federal plans, standards and criteria.
7. Develop a plan with sufficient detail to qualify for funding of engineering and construction phases.

## Plan and Policy Review

As an initial step in the planning process, the consultant team reviewed applicable city, county, and state plans and policies relevant to the transportation planning process. The purpose of this review was to provide a policy context for the planning effort, help ensure that proposed projects were consistent with existing relevant plans and policies, and aid in the development of implementing ordinances for the transportation plan.

The consulting staff reviewed documents for the jurisdictions that own, regulate or provide public services on the public roadways in Rockaway Beach. These jurisdictions include the city, Tillamook County, the Tillamook County Transportation District (TCTD) and the State of Oregon. Results of the plan and policy review are included in Appendix B.

The following documents were reviewed:

### Rockaway Beach

- Comprehensive Plan (Adopted 1981; amendments through June 1992)
- Zoning Ordinance (Ordinance No. 143, Articles 1-11) and Subdivision Ordinance (Article 13)
- Resource Team Report (ODDA, January 2000)
- Rockaway Beach Transportation Study: U.S. 101 and Railroad Improvement Project (ODOT, 1995)

### Tillamook County

- Draft Tillamook County Comprehensive Plan (spring 2002)
- Tillamook County Zoning Ordinance (December 2002)
- Tillamook County Land Division Ordinance (December 2002)
- Tillamook County Public Road Improvement Ordinance (1999)
- Urban Growth Area Agreements Between County and Cities (1996)
- Tillamook County Transportation District

### State of Oregon/ODOT

- State Planning Goals (1973)
- Transportation Planning Rule (Oregon Administrative Rule [OAR] 660-012)
- Oregon Transportation Plan (1992)
- Oregon Highway Plan (1999)
- Draft Oregon Rail Plan (2001)
- Oregon Public Transportation Plan (1997)

- Oregon Bicycle and Pedestrian Plan (1995)
- Oregon Transportation Safety Action Plan (1995)
- Access Management Rules (OAR 734-051)
- Freight Moves the Oregon Economy (1999)
- Transportation System Planning Guidelines (2001)
- Proposed Oregon Coast Highway Corridor Master Plan (ODOT, 1995)
- Scenic Byway Management Plan for the Nehalem, Tillamook, and Nestucca Regions of the U.S. 101 Corridor in Oregon (ODOT, 1997)
- Pacific Coast Scenic Byway Corridor Management Plan for U.S. 101 in Oregon (ODOT, 1997)

### **Federal**

- Transportation Equity Act for the 21st Century (TEA-21) and Implementing Regulations (23 Code of Federal Regulations [CFR] 450 and 49 CFR 613)

## SECTION 2

# Existing Conditions and Future Opportunities

This section describes existing transportation conditions and deficiencies and identifies future opportunities for the focus areas of the plan. The project staff described and evaluated existing conditions, including roadway and intersection geometry, vehicle traffic, public transportation, pedestrian facilities and bicycle facilities. As appropriate, the staff identified future potential opportunities. The information in this section was used to develop proposed alternatives in the subsequent phase of the planning effort.

## Existing Conditions and Deficiencies

### Street Inventory

There are three principal public agencies (ODOT, Port of Tillamook Bay and the City of Rockaway Beach) that own the public rights-of-way in the study area (no Tillamook County roads are located in this portion of the city). Table 2-1 shows the functional classification of each street.

**TABLE 2-1**  
Street Ownership and Functional Classification

Street Name	Right-of-way Ownership	Functional Classification
US Highway 101	Oregon Department of Transportation	State Highway—National Highway System Scenic Byway Non-freight Route
North 3rd Avenue	City of Rockaway Beach	Collector
North 2nd Avenue	City of Rockaway Beach	Local
North 1st Avenue	City of Rockaway Beach	Local
Nehalem Avenue	City of Rockaway Beach	Collector
South 1st Avenue	City of Rockaway Beach	Local
South 2nd Avenue	City of Rockaway Beach	Collector
South 3rd Avenue	City of Rockaway Beach	Local
Pacific Street	City of Rockaway Beach	Local
Miller Street	Port of Tillamook Bay	Local

The existing street geometry in the study area of Rockaway Beach consists primarily of one main highway (U.S. 101) with connecting local road side streets. Every intersection is two-way, stop-controlled from the side streets. There are three four-way intersections and five T-intersections. Intersection geometry is typical of a grid-type street layout. The intersections are generally orthogonal with the exception of U.S. 101/South 2nd Avenue/Anchor Street. This intersection has a large paved throat on the east side of U.S. 101.

There are three primary street cross sections along U.S. 101. The northernmost cross section from North 3rd Avenue to North 1st Avenue consists of a sidewalk and on-street parking on the east side, two travel lanes, and a gravel shoulder on the west side. The middle cross section from North 1st Avenue to South 2nd Avenue consists of a sidewalk and on-street parking on the east side, two travel lanes, and a paved shoulder and diagonal parking on the west side. The southernmost cross section from South 2nd Avenue to South 3rd Avenue consists of a sidewalk and on-street parking on the east side, two travel lanes, and a gravel shoulder on the west side. Appendix C (Part 1) shows the approximate dimensions for each block along U.S. 101 in the study area.

The posted speed limit on U.S. 101 through downtown Rockaway Beach is 30 mph, while the side streets are posted at 15, 20, or 25 mph depending on location.

There are two parking scenarios along the U.S. 101 corridor. On-street parking is marked in a parking lane on the east side of U.S. 101 adjacent to a new curb and sidewalk. Off-street parking is provided in a diagonal parking frontage area on the west side of U.S. 101 partially in the ODOT and Port of Tillamook Bay rights-of-way.

The Port of Tillamook Bay railroad right-of-way is immediately adjacent to the western edge of U.S. 101. This creates the need for vehicles on the side streets to cross the railroad tracks in close proximity to U.S. 101. There are four rail crossings in the study area: North 3rd Avenue, South 1st Avenue, South 2<sup>nd</sup> Avenue, and South 3rd Avenue.

Miller Street is in the eastern portion of the Port of Tillamook Bay right-of-way from South 2nd Avenue to South 3rd Avenue. It is used as front door access to commercial and residential properties. This street is paved, but not marked for parking. Many vehicles were observed parallel parking on the west side of Miller Street.

A portion of Miller Street is north of Rock Creek, mostly within the Port of Tillamook Bay right-of-way.

To the west of Miller Street is Pacific Street, a wide, local street that provides access to a motel, a few businesses and residences. Pacific Street is paved from South 3rd Avenue to South 2nd Avenue, gravel from South 2nd Avenue to South 1st Avenue. With a 60-foot right-of-way, Pacific Street can be used to provide additional parking.

## **Motor Vehicle Operations**

The study area has been analyzed for motor vehicle operations for the existing condition (2002) and future condition (2022) based on the existing roadway geometry and lane configuration. Crash data have been gathered and traffic counts have been taken at key intersections to use in this analysis. These data are used to determine roadway capacity, and to identify and address safety concerns in the study area.

## **Study Intersections and Raw Traffic Counts**

The operational analysis of existing (2002) and future, forecasted, no-build conditions (2022) was conducted at the following study intersections:

- U.S. 101 and North 3rd Avenue
- U.S. 101 and South 1st Avenue

- U.S. 101 and South 2nd Avenue
- U.S. 101 and South 3rd Avenue

These intersections were included in the analysis because they are the primary intersections in the study area and because recent traffic counts (2002) were available. Traffic counts were conducted at the intersections of U.S. 101 with North 3rd Avenue and 1st Avenue on November 5, 2002. At the intersections of U.S. 101 with South 2nd Avenue and South 3rd Avenue, traffic counts were conducted during Spring Break on Friday, March 29, and Saturday, March 30, 2002. See Appendix C (Part 2) for the raw traffic counts.

### **Analysis of the Rockaway Automated Traffic Recorder**

ODOT traffic analysis procedures call for 30th-highest-hour traffic volumes to be used to calculate volume-to-capacity (v/c) ratios for intersections and street segments. To identify seasonal factors to apply to the raw count data and determine 30th-highest-hour traffic volumes at each intersection, an analysis of the Rockaway automated traffic recorder (ATR) site (29-001) was conducted. The Rockaway ATR site was used in the analysis because it is the closest recorder along U.S. 101 in relation to the study intersections. It is located 2 miles south of the Rockaway Beach city limits.

On the Oregon Coast, the 30th-highest-hour traffic volumes typically occur during the peak tourist season (weekend afternoons in August). Data from the Rockaway ATR site that are available on the ODOT Web site<sup>1</sup> were used to determine a seasonal factor of approximately 1.23 to calculate 30th-highest-hour traffic volumes using the Saturday traffic counts conducted in March 2002 during Spring Break. The 30th-highest-hour traffic volumes calculated using this methodology for the intersections of U.S. 101 with South 2nd Avenue and South 3rd Avenue are consistent with a recent traffic analysis conducted for the Rockaway Beach City Hall project.

At the intersections of U.S. 101 with South 1st Avenue and North 3rd Avenue, traffic counts were conducted in November 2002. As directed by ODOT's Transportation Planning Analysis Unit (TPAU), the seasonal factor tables available on the ODOT Web site were used to calculate 30th-highest-hour traffic volumes<sup>2</sup>. As discussed with the TPAU staff, the methodology described for the Spring Break 2002 counts was not applied to the November 2002 counts because the resulting high seasonal factor would artificially increase the minor approach turn movements. At each of the November 2002 count locations, a seasonal factor of approximately 1.60 was used to calculate 30th-highest-hour traffic volumes. The through volumes on U.S. 101 then were adjusted further at each of the November 2002 count locations to equal the 30th-highest-hour traffic volumes measured at the Rockaway ATR site.

See Appendix C (Part 3) for the balanced 2002 30th-highest-hour traffic volumes in Rockaway Beach.

Left-turn lanes were analyzed for each U.S. 101 intersection based on the ODOT *TPAU Analysis Procedures and Methods for Left Turn-Lane Criteria*. It was determined that the left-turn lane criteria are satisfied for the following intersections: U.S. 101/North 3rd Avenue,

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<sup>1</sup> [http://www.odot.state.or.us/tdb/traffic\\_monitoring/01tv/atr01\\_29.htm](http://www.odot.state.or.us/tdb/traffic_monitoring/01tv/atr01_29.htm)

<sup>2</sup> [http://www.odot.state.or.us/tdtppau/papers/2000\\_Seasonal%20\\_Factors.pdf](http://www.odot.state.or.us/tdtppau/papers/2000_Seasonal%20_Factors.pdf)



U.S. 101/North 2nd Avenue, U.S. 101/South 2nd Avenue and U.S. 101/South 3rd Avenue. In general, the turn lane criteria are based on the volume of turning traffic in relation to the volume of opposing through traffic. See Appendix C (Part 4) for left-turn lane details and results.

### **Analysis Inputs**

Using the year 2002 30th-highest-hour traffic volumes, an operational analysis of existing conditions was conducted with Synchro, version 5, for the four study intersections. Synchro is based on the Highway Capacity Manual (HCM), Transportation Research Board Special Report 209. For each of the intersections, results from the Synchro HCM unsignalized report are reported in this transportation plan.

The following inputs were used in the analysis:

- Ideal saturation flow rate: 1,800 vehicles/hour
- Intersection geometry: Intersection geometry is based on observations from the field visit and sketches provided in the traffic counts.
- Synchro defaults for the peak hour factor (0.92) and heavy vehicle percentages (2 percent) were used in the analysis.
- Pedestrians: Minimal, less than 10 per hour across each minor approach
- Grade = 0 percent
- Posted speeds were entered for each segment.
- Lane width: 12 feet
- Right turn on red: Allowed

### **State Highway Mobility Standards**

All of the study intersections included in the operational analysis of existing and future forecasted conditions in Rockaway Beach involve a state highway. The 1999 OHP designates U.S. 101 as a statewide National Highway System (NHS) non-freight route. In Rockaway Beach, the speed limit on U.S. 101 is 30 mph, and the section of highway is inside the urban growth boundary (UGB) in a non-metropolitan planning organization (MPO) area. Therefore, the mobility standard designated by the OHP for this section of roadway is a  $v/c$  ratio of less than 0.80. Each of the study intersections currently is unsignalized and the minor approaches have speed limits of less than 45 mph. Therefore, the OHP designates a maximum  $v/c$  ratio of 0.85 for local road approaches in the UGB (non-MPO areas, speed limit of less than 45 mph).

The highway mobility standards designated in the OHP apply primarily to transportation planning decisions. Separate mobility design standards are contained in ODOT's *Highway Design Manual*. These latter standards would be applied at the time a project is constructed and are not necessarily the same as the planning standards.

## Level of Service Analysis

Level of service (LOS) is a measure of effectiveness for traffic operations at an intersection. Traffic is able to move freely at an intersection operating at LOS A, B or C. Traffic operations become progressively worse as traffic operations move toward LOS D and E. LOS F represents conditions where traffic volumes exceed capacity, resulting in long queues and delays. LOS is based on control delay time at an intersection for unsignalized intersections. Appendix C (Part 5) provides detailed LOS definitions.

## Operational Analysis of Existing Conditions (30th Highest Hour)

Table 2-2 presents the LOS, OHP mobility standard, v/c ratio and delay time for each intersection analyzed under existing 30th-highest-hour conditions. Appendix C (Part 6) contains detailed reports for each intersection. Table 2-2 reports results for the movement with the worst operating performance on both the major and minor approaches at each intersection (major/minor). The operational performance of the major road is reported to show delay times and LOS experienced by a majority of the traffic moving through an intersection.

**TABLE 2-2**

Operational Analysis of Two-Way, Stop-Controlled Intersections—30th Highest Hour (Year 2002)

Intersection	LOS	OHP Mobility Standard	Maximum V/C Ratio	Delay (seconds)
U.S. 101 and North 3rd Avenue Critical Movement: Westbound	A/D	0.80/0.85	0.04/0.36	1.0/29.2
U.S. 101 and South 1st Avenue Critical Movement: Eastbound	A/C	0.80/0.85	0.02/0.19	0.6/23.4
U.S. 101 and South 2nd Avenue Critical Movement: Westbound	A/E	0.80/0.85	0.05/0.48	1.5/41.4
U.S. 101 and South 3rd Avenue Critical Movement: Westbound	A/C	0.80/0.85	0.02/0.18	0.6/22.8

Source: Synchro Highway Capacity Manual Unsignalized Report.

LOS = level of service.

OHP = Oregon Highway Plan.

As shown in Table 2-2, all of the study intersections meet mobility standards designated in the OHP under existing 30th-highest-hour conditions.

## Intersection Crash Analysis—Existing Conditions

A crash analysis was conducted using data obtained from ODOT for six intersections along U.S. 101 within the Rockaway Beach city limits: U.S. 101 at North 3rd Avenue, North 2nd Avenue, North 1st Avenue, South 1st Avenue, South 2nd Avenue and South 3rd Avenue. Crash data from January 1, 1997, to December 31, 2001, were obtained from ODOT for each intersection. Table 2-3 summarizes the number of crashes resulting in property damage only, injuries and fatalities at each of the six intersections, including the entering approaches, from years 1997 to 2001. The crash analysis is based on reported accidents only.

**TABLE 2-3**  
Crash Analysis (Year 1997 to 2001 Data)

Location	Property Damage	Injuries	Fatalities	Crash Rate <sup>1</sup>
U.S. 101 at North 3rd Avenue	2	2	0	0.31
U.S. 101 at North 2nd Avenue	1	0	0	N/A
U.S. 101 at North 1st Avenue	2	0	0	N/A
U.S. 101 at South 1st Avenue	0	0	0	0
U.S. 101 at South 2nd Avenue	2	1	0	0.24
U.S. 101 at South 3rd Avenue	0	0	0	0

Source: ODOT Crash Data, Years 1997 to 2001.

<sup>1</sup> Crash rate in terms of million entering vehicles. N/A indicates average daily traffic volumes not available.

Using average ADT volumes for the 5-year period, crash rates were determined for each intersection and are summarized in Table 2-3.

All intersections with available average daily traffic (ADT) volume information have crash rates lower than 0.31 per million entering vehicles, which does not indicate safety deficiencies.

### Segment Crash Rates—Existing Conditions

As described in the 2000 State Highway Crash Rate Tables published by the Crash Analysis and Reporting Unit, U.S. 101 is considered a non-freeway, primary highway. Table 2-4 summarizes the year 2000 crash rate and the 5-year average crash rate (1996 to 2000) for the segment of U.S. 101 within the Rockaway Beach city limits.

**TABLE 2-4**  
Crash Rates along U.S. 101 in Rockaway Beach

Location	Year 2000 Crash Rate <sup>1</sup>	5-year Average Crash Rate <sup>1</sup>
U.S. 101 – Rockaway Beach (Urban)	0.63	0.97

Source: 2000 State Highway Crash Rate Table, Crash Analysis and Reporting Unit, ODOT.

<sup>1</sup> Crash rate in terms of million vehicle miles.

On urban sections of primary, non-freeway segments throughout Oregon, the 5-year statewide average crash rate was 3.52 crashes per million vehicle miles (MVM) and the 2000 statewide average rate was 2.95 per MVM. As shown in Table 2-4, both the year 2000 and 5-year average crash rates along U.S. 101 are lower than the statewide averages on similar types of roadway.

## Rail Operations

U.S. 101 parallels an active, low-volume freight railroad. The railroad is owned by the Port of Tillamook Bay and maintains a right-of-way of 60 feet (30 feet from the centerline on each side). The rail operates once per day and travels at a top speed of 10 mph. The maximum length of the trains is about 2,450 feet and the average length of the trains is 1,500 feet. Four railroad crossings (and beach access roads) exist in the downtown study area: North 3<sup>rd</sup>, South 1<sup>st</sup>, South 2<sup>nd</sup>, and South 3<sup>rd</sup> Avenues. In addition to carrying freight traffic, the railroad also operates a seasonal dinner train in this location.

## Public Transportation

The Tillamook County Transportation District (TCTD) provides public transportation service in Tillamook County. The Tillamook-Manzanita fixed route provides service between the Cities of Tillamook and Manzanita. This route has stops at 2nd Street and Laurel Avenue in Tillamook; Fred Meyer; the City Hall in Bay City; at 6th Street and U.S. 101 in Garibaldi; at Anchor Street and 3rd Avenue in Rockaway Beach; in Wheeler; in Nehalem, and in Manzanita on 5th Street. The transfer point at 2nd Street and Laurel Avenue in Tillamook connects with other TCTD routes. The Tillamook-Manzanita route operates Monday through Saturday. On Monday through Friday, there are six round trips and on Saturday there are four round trips between Tillamook and Manzanita. The Tillamook-Manzanita route has the highest ridership of all the routes and serves a high number of commuters.

TCDC also operates a dial-a-ride (DAR) service in Tillamook County. The service operates on weekdays (except for holidays) from 8 a.m. to 5 p.m. These hours can be extended depending on demand and driver availability. DAR service is available to all users, with priority service to seniors and disabled passengers. Riders are asked to call 2 hours in advance to schedule a ride. Currently, it costs \$1 to ride DAR per one-way trip per zone.

First Student, a private busing company, provides school bus service in Rockaway Beach.

## Pedestrian Facilities

Wide sidewalks, on-street parking on the east side of U.S. 101 and retail storefront development help to create a comfortable pedestrian environment in downtown Rockaway Beach. The town recently constructed sidewalks and curb extensions on the east side of U.S. 101 in the downtown core between North 3rd and South 3rd Avenues. The curb extensions shorten the crossing distance of U.S. 101 by 8 feet. They also increase the visibility of pedestrians crossing the street. There is on-street parallel parking on the east side between North 3rd and South 3rd Avenues. This creates a physical buffer for pedestrians walking along U.S. 101. ADA-compliant<sup>3</sup> curb ramps have been installed on all sidewalks on the east side of U.S. 101 between North 3rd and South 3rd Avenues with the exception of the north sides of North 1st Avenue and Nehalem Avenue, and the south sides of South 2nd and South 3rd Avenues. Marked "parallel line" crosswalks also exist on all streets crossing U.S. 101 between North 3rd and South 3rd Avenues. No sidewalks exist on

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<sup>3</sup> Americans with Disabilities Act standards call for curb ramps with a minimum width of 4 feet, a maximum slope of 8 percent, landing width of 4 feet and a solid, slip resistant surface.

the west side of U.S. 101. No sidewalks exist on the east-west streets providing beach access (North 1st, South 1st, South 2nd, South 3rd Avenues).

## **Bicycle Facilities**

U.S. 101 is designated as the Oregon Coast Bike Route and serves thousands of cyclists each year. A 7-foot-wide shoulder bikeway accommodates southbound bicyclists on U.S. 101 in the study area. No bike facilities exist in the northbound direction. Most cyclists along this route travel southbound, in the direction of prevailing winds. Miller Street functions as a local on-street bike route because of its low traffic volume. No off-street multi-use paths or bike lanes exist in Rockaway Beach. No bike parking facilities exist on either side of U.S. 101.

## **Bicycle and Pedestrian Circulation Issues**

The most notable deficiency in the pedestrian environment is the lack of sidewalks on the west side of U.S. 101. Also, U.S. 101 creates the most significant crossing impediment to pedestrian and bicycle travel in Rockaway Beach. This is because most homes and businesses exist on the east side of U.S. 101, and the beach and tourist lodging facilities are west of U.S. 101. South 1st and Nehalem Avenues are the primary access points to the beach and, therefore, are the two crossings with the greatest pedestrian use. Pedestrian trip generators, such as the school, library, bank, post office, transit stop and future civic center, are located east of U.S. 101. Another pedestrian and bicycle impediment to north-south travel is located on Miller Street at Rock Creek, where Miller Street does not cross the creek. Currently, some pedestrians walk around the creek and onto the railroad tracks to continue on Miller Street north or south of Rock Creek.

## **Intermodal Travel**

Passengers using the TCTD transit system also have the opportunity to make connections with other modes of travel. TCTD provides service from Rockaway Beach to downtown Portland, from which passengers have access to the Portland transit system, the Portland airport, Amtrak rail service, and Greyhound bus service.

## **Future Conditions and Opportunities**

### **Motor Vehicles**

#### **Year 2022 Traffic Volumes**

Year 2022, future, forecasted, no-build, 30th-highest-hour traffic volumes were developed to evaluate future operating conditions in Rockaway Beach at each of the four study intersections. The ODOT Future Volume Tables, which are available on the ODOT Web site<sup>4</sup>, were used to determine a projected growth rate of 1.3 percent along U.S. 101 within the Rockaway Beach city limits. The ODOT Future Volume Tables use historical data to project future ADT volumes along state highways. The 1.3 percent growth rate was applied to year 2002 30th-highest-hour volumes to calculate year 2022, future, forecasted, 30th-highest-hour traffic volumes.

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<sup>4</sup> [http://www.odot.state.or.us/tddtpau/papers/2019\\_Future%20\\_Volumes.pdf](http://www.odot.state.or.us/tddtpau/papers/2019_Future%20_Volumes.pdf).

See Appendix C (Part 7) for growth rate calculations and Appendix C (Part 8) for the 2022, future, forecasted, 30th-highest-hour traffic volumes at each of the study intersections.

### Operational Analysis of Future Conditions (30th Highest Hour)

Table 2-5 presents the LOS, OHP mobility standard, v/c ratio and delay time for each intersection analyzed under 2022, future, forecasted, 30th-highest-hour conditions.

Appendix C (Part 9) contains detailed reports for each intersection. Intersections that will not meet OHP mobility standards under future, forecasted, 30th-highest-hour conditions are shown in bold, italic text.

**TABLE 2-5**  
Operational Analysis of TWSC Intersections—30th Highest Hour (Year 2022)

Intersection	LOS	OHP Mobility Standard	Maximum V/C Ratio	Delay (seconds)
U.S. 101 and North 3rd Avenue Critical Movement: Westbound	A/F	0.80/0.85	0.05/0.68	1.2/70.6
U.S. 101 and South 1st Avenue Critical Movement: Eastbound	A/E	0.80/0.85	0.03/0.34	0.7/35.0
<b><i>U.S. 101 and South 2nd Avenue Critical Movement: Westbound</i></b>	<b><i>A/F</i></b>	<b><i>0.80/0.85</i></b>	<b><i>0.07/0.92<sup>1</sup></i></b>	<b><i>1.9/136.0</i></b>
U.S. 101 and South 3rd Avenue Critical Movement: Westbound	A/E	0.80/0.85	0.03/0.36	0.8/38.0

Source: Synchro HCM Unsignalized Report

<sup>1</sup> By adding an exclusive left-turn lane on the westbound approach to the intersection of U.S. 101 and South 2nd Avenue, the maximum v/c ratio on this approach would be 0.71 under future, forecasted, 2022, 30th-highest-hour conditions.

LOS = level of service.

OHP = Oregon Highway Plan.

v/c = volume-to-capacity.

As shown in Table 2-5, three of the four study intersections will meet mobility standards designated in the OHP under future, forecasted, 30th-highest-hour conditions. The westbound movement at the intersection of U.S. 101 with South 2nd Avenue will not meet OHP mobility standards under future, forecasted conditions during the peak tourist season. As measured during the Spring Break traffic count in 2002, there are currently a high number of left- and right-turn movements from the westbound approach at this intersection. The westbound approach is a shared left-turn/through/right-turn lane. As shown in the analysis of future conditions, making a turn from this approach becomes more difficult as through traffic volumes increase on U.S. 101. To improve operations at this intersection under future, forecasted conditions, the addition of a westbound left-turn lane should be considered at this location. With the addition of an exclusive left-turn lane on this approach, the maximum v/c ratio of the westbound minor approach would be 0.71.

## Rail

Four railroad crossings (and beach access roads) exist in the study area: North 3<sup>rd</sup>, South 1<sup>st</sup>, South 2<sup>nd</sup>, and South 3<sup>rd</sup> Avenues. These are unimproved crossings with asphalt pavement leading to the rail alignment and asphalt in-fill area between rails. Current ODOT standards recommend that an improved gated rail crossing be installed to provide for safe crossing across rails. Based on field observation, it appears that the vertical profile may restrict the installation of a gated crossing. The proximity of the rail to the edge of U.S. 101 most likely will restrict the ability to transition the vertical profile between the elevated rails and the highway elevation.

A technical field survey and preliminary engineering should be performed to identify if any of the four crossings could be reconstructed with a gated rail crossing.

Pedestrian crossings could be improved by constructing a sidewalk or path that would level the approach grade across the railroad tracks. A designated sidewalk would help direct pedestrians safely across the tracks and away from vehicular traffic.

## Bicycle and Pedestrian

The following potential future opportunities were identified on the basis of the review of existing conditions:

- A pedestrian/bicycle bridge across Rock Creek would allow safe and continuous pedestrian and bicycle circulation on Miller Street along the west side of the downtown core area. A bicycle and pedestrian path could connect Miller Street south of Rock Creek between the city-operated parking lot at South 1st Avenue and the railroad tracks. Miller Street then could function as a local north-south pedestrian alternative to U.S. 101. This is the current location of the Chamber of Commerce “caboose.” It might be necessary to relocate the caboose to allow space for a new path.
- The entrance to the Rockaway Beach State Recreation Area on South 1st Avenue could be enhanced as a pedestrian gateway to the beach. This could take the form of a wide sidewalk or esplanade entrance to the beach.
- There is ample room on the east side of the railroad right-of-way for a sidewalk or pedestrian path along U.S. 101. This walkway should be set back from U.S. 101 travel lanes. A buffer, such as on-street parallel parking, off-street diagonal parking or vegetation, would improve the safety and comfort of this walkway.

## SECTION 3

# Alternatives and Recommendations

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This section describes the draft alternatives developed by the consultant team and presented to the PMT and PAC and to the general public at the open house. It indicates which alternatives were rejected and which were supported for further development. At the end of this section, a table is presented that compares all of the alternatives against the plan's goals, objectives and evaluation criteria.

The alternatives development process consisted of the following steps:

- The consultant team, PMT and PAC developed goals and objectives.
- The consultant team developed the existing conditions and future opportunities document, which was reviewed by the PMT and PAC.
- The consultant team developed a set of draft alternatives for presentation and review at the PMT and PAC meeting on Jan. 23, 2003. The draft concepts were revised on the basis of discussions at that meeting.
- In February 2003, the consultant team presented the concepts related to U.S. 101 to a group of ODOT staff members for their review and comment.
- Based on input from the January and February 2003 meetings, the consultant team revised the concepts and presented them at a public open house on April 2, 2003.
- Subsequently, the consultant team wrote the draft transportation plan and presented it for a final review to the PMT, PAC and ODOT staff.

## U.S. 101

This portion of the plan recommends several changes to U.S. 101, including the following:

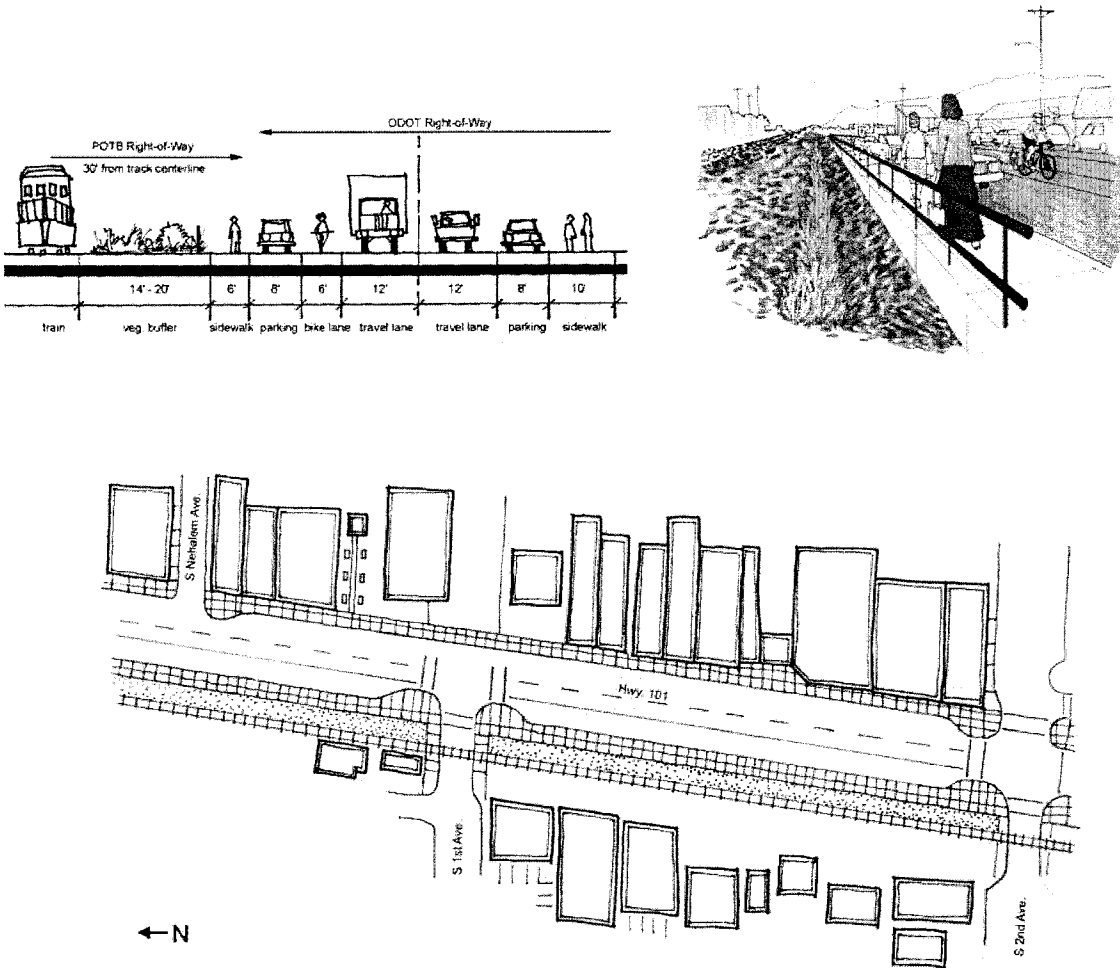
- A cross section that accommodates pedestrian facilities and parking on the west side of the highway
- Safety and mobility issues at the intersection with South 2nd Avenue and Anchor Street
- Railroad crossings
- Left-turn lanes
- Designation of an STA

## West Side Sidewalk and Parking

The consultant team developed a cross section for the west side of U.S. 101 from North 3rd Avenue to South 3rd Avenue. The cross section would accommodate a 6-foot-wide sidewalk and an 8-foot-wide parking lane in addition to the existing 6-foot-wide shoulder bikeway



and 12-foot-wide travel lane on the west side of U.S. 101 (see Figure 3-1). No changes are proposed to the cross section on the east side of U.S. 101, which includes a 10-foot-wide sidewalk, an 8-foot-wide parking lane and a 12-foot-wide travel lane.



**FIGURE 3-1**  
US 101 West Side Sidewalk and Parallel Parking

**Sidewalk**

The cross section allows for a 6-foot-wide sidewalk, curb extensions where feasible, and parallel parking for the entire length of U.S. 101 between North 3rd Avenue and South 3rd Avenue.<sup>5</sup> Currently, there is no sidewalk on the west side of U.S. 101. As shown in the cross section and plan view figures, the existing ODOT right-of-way cannot accommodate all of these features. Although the demarcation between the ODOT right-of-way and the adjacent Port of Tillamook Bay right-of-way varies, the sidewalk on the west side would be located primarily on the Port of Tillamook Bay right-of-way. A low (2-foot-high) railing or wall (see

<sup>5</sup> Curb extension design and location on U.S. 101 must conform with ODOT design standards.

Figure 3-1) should be provided to discourage trespassing across the railroad tracks and guide pedestrians to the appropriate crossings of the railroad tracks. The Port of Tillamook Bay staff has preliminarily provided its approval for this use.

### **Parking**

To provide a continuous sidewalk on the west side of the highway, some changes in parking would be required. Currently, informal parallel parking exists on the west side of U.S. 101 except between Nehalem Avenue and South 2nd Avenue where there is a diagonal parking area separated from the highway by railroad ties. It is proposed that this parking area be converted to parallel parking to provide a continuous sidewalk on the west side of U.S. 101. This change would result in a loss of parking on this block; however, several additional parking spaces could be provided nearby (see further discussion in the Parking Estimate subsection). This change also would allow a 10-foot-wide sidewalk to be provided in this area, mirroring the east side of the street and greatly helping define the core area of downtown Rockaway Beach. If the existing diagonal parking configuration is retained, a continuous sidewalk could not be provided.

### **Pedestrian Crossings**

Marked crosswalks demarcate locations for pedestrians to cross the street, alert drivers to the presence of pedestrians and alert drivers to their legal obligation to yield when pedestrians are in the crosswalk. Typically, crosswalks are marked by two parallel lines.

Pedestrian crossings are safer and more comfortable when the crossing distance is shorter. For this reason, curb extensions from the new west side sidewalk should be used to the extent possible at corners where there are marked or unmarked crossings of U.S. 101.

A more aesthetic treatment for crosswalks would involve the use of stamped asphalt. This treatment would provide a color and texture change that would enhance the appearance of the roadway and help define the area of downtown Rockaway Beach. Installing this treatments on U.S. 101 would require approval from ODOT and would still require marking the two white parallel crosswalk lines.

### **Recommendation**

- Based on the support of the participants at the April 2, 2003, public open house, a continuous sidewalk with parallel parking and curb extensions where feasible is recommended along the west side of U.S. 101 between North 3rd Avenue and South 3rd Avenue. This would require the conversion of the existing diagonal parking area to parallel parking.

### **U.S. 101/South Second Avenue/Anchor Street Intersection**

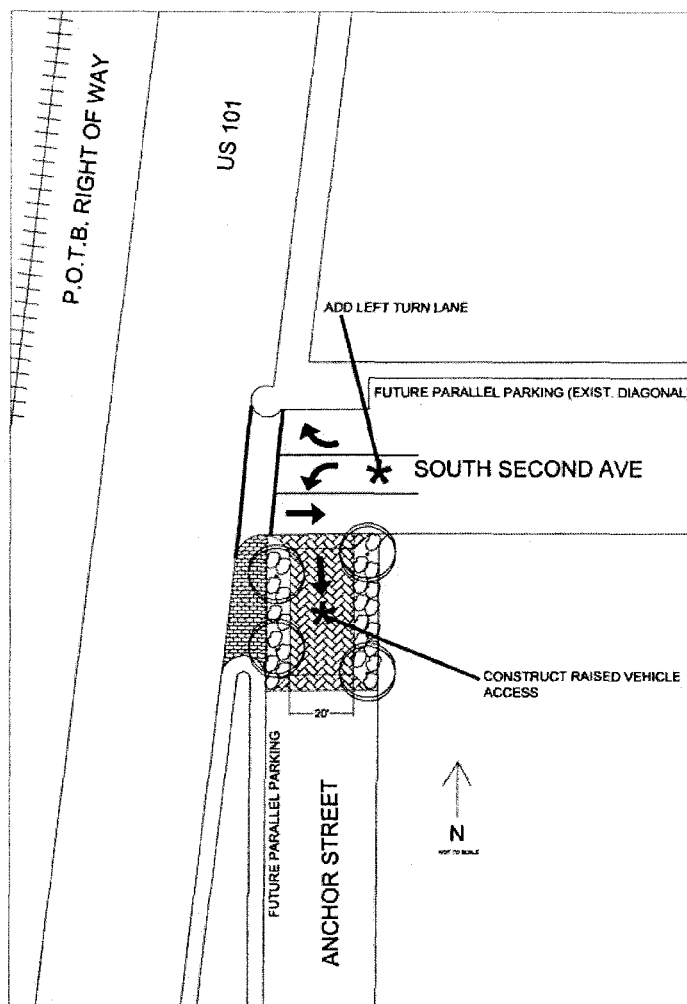
The consultant team looked at ways to improve the U.S. 101/South 2nd Avenue/Anchor Street intersection with respect to safety and function.

The existing U.S. 101/South 2nd Avenue/Anchor Street intersection has unconventional, skewed geometry and is challenging for both motorists and pedestrians. South 2nd Avenue is currently a two-lane, two-way street. Anchor Street is currently a two-lane, one-way street in the southbound direction from South 2nd Avenue. The geometry should be changed to allow for safer vehicle maneuvers and shorter pedestrian crossing distances. In addition,

based on traffic volume forecasts, the intersection will fail to meet the mobility standards set by the OHP if the existing lane configurations remain (see Section 2).

**Mobility**

The addition of a westbound right-turn lane from South 2nd Avenue to U.S. 101 (see Figure 3-2) is proposed to address future mobility deficiencies. Adding the turn lane would provide additional capacity for traffic entering and crossing U.S. 101 from South 2nd Avenue. With this change, the intersection will meet OHP mobility standards. The addition of the turn lane would require a change from diagonal parking to parallel parking for the north side of South 2nd Avenue between Anchor and Beacon Streets, resulting in the loss of about two parking spaces (see the Parking Estimates subsection for further details).



**FIGURE 3-2**  
US 101-Anchor Street-S. 2nd Avenue Intersection Concept

## Safety

To address the safety concerns at this intersection, the consultant team, PAC and public open house participants recommended the option shown in Figure 3-2:

- Construct a curb extension to narrow the entrance width of the intersection on the east side of U.S. 101, construct a raised approach apron to the Anchor Street entrance, provide landscaping adjacent to the street and make the entrance one-lane, one-way (southbound).
- Establish one-way parallel parking on both sides of Anchor Street where applicable to South 3rd Avenue.

The changes will help to “de-emphasize” the entrance to Anchor Street, making it less desirable to use as a thoroughfare while maintaining its function for local traffic, including emergency vehicles and recreational vehicles. These changes also would substantially shorten the pedestrian crossing distance at this location.

The raised area should be constructed to make it aesthetically appealing by using brick, concrete or asphalt that may be stamped with a pattern and/or colored. Natural materials, such as cobblestone or brick, also can be considered. A driveway style approach should be constructed at either end of the apron to allow for safe vehicle undercarriage clearance and passage of emergency vehicles. Landscaped areas are shown in Figure 3-2 to frame the streetscape and act as traffic calming.

The other option presented at the open house included a curb extension without the raised approach or the landscaped area. While this alternative was supported, the additional features of other alternative were preferred by the open house participants.

## Recommendation

- Based on the discussion above and input from the PAC and the general public, the changes shown in Figure 3-2 are recommended for implementation.

## Left-Turn Lanes on U.S. 101

As discussed in Section 2, the need for left-turn lanes from U.S. 101 to the cross streets was analyzed as part of the review of existing and future conditions. This potential need has been raised before by the ODOT staff as well as by the recent city hall traffic studies. Based on the ODOT guidelines, left-turn lane criteria are satisfied at all U.S. 101 intersections in the study area (U.S. 101/North 3rd Avenue, U.S. 101/North 2nd Avenue, U.S. 101/South 2nd Avenue and U.S. 101/South 3rd Avenue) for northbound and southbound left-turning vehicles. The installation of turn lanes at each intersection would improve vehicle operations and keep through traffic moving on U.S. 101.

The addition of left-turn lanes in the study area would mean the removal of most of the on-street parking along U.S. 101 where turn lanes would be installed, including the recommended new parking areas. While vehicle mobility and safety are a goal of the city, on-street parking in the downtown core area is considered a higher priority because it is crucial for the economic success of the downtown area.

### **Recommendation**

- Both the PAC and the open house participants strongly opposed adding left-turn lanes on U.S. 101. The existing two-lane configuration on U.S. 101 in the downtown core area should remain.
- If left-turn lanes are needed to address mobility or safety problems on U.S. 101, the possibility of locating them outside the downtown core area, while still providing access to key destinations, should be explored.

### **Special Transportation Area**

The PAC and city staffs are interested in pursuing an STA designation on a portion of U.S. 101 in Rockaway Beach to better balance the needs of through traffic with local traffic and economic development. There are concerns that future changes to U.S. 101 could conflict with the city's goals of maintaining and enhancing the downtown area as an aesthetically appealing destination that functions well for pedestrians and bicyclists and is economically vibrant.

A tool developed and supported by the Oregon Transportation Commission, STAs are designated segments of state highways designed to make a downtown district function well when the state highway is also the community's main street. For example, an STA may have special features that result in lower speeds, narrower lane widths, and wider sidewalks on the state highway. As of June 2003, four STAs have been conditionally designated on district or regional highways in Oregon. To date, no STAs have been designated on statewide highways, such as U.S. 101. Although the STA designation process is under review by ODOT, designations on statewide highways require a detailed management plan and an agreement between the local jurisdiction and ODOT. Details of the STA management plan requirements are provided in the OHP.

### **Potential Benefits**

- Provides greater flexibility for state highway standards, such as highway mobility, street spacing, signal spacing and street treatments. For example, highway mobility standards may allow for more congestion than on other urban highways.
- Receives ODOT approval up front, addresses exceptions early in the planning process and in writing
- Potential funding benefits – may help the community's main street (for example, U.S. 101) qualify for funds
- Provides certainty about how the highway will be managed

### **Potential Drawbacks**

- Criteria and the process are exacting. They must be a good fit to the existing city conditions or the city must have future plans that would make it a good fit.
- It is a new program that has not yet been implemented on a statewide highway, such as U.S. 101.

- There may be other, easier ways to make the desired changes

### Review of STA Characteristics

Table 3-1 provides a preliminary review of STA characteristics as they relate to Rockaway Beach. Because the STA requirements are complex and subject to interpretation, this analysis should be considered a starting point for the city to consider the value of pursuing an STA designation.

**TABLE 3-1**  
Preliminary Review of STA Characteristics as They Relate to Rockaway Beach<sup>1</sup>

Characteristic	Is Characteristic Present Today or Likely in Future?	Notes
<b>Location</b>		
Must straddle a state highway; any new development to be built off the highway or only on one side	Maybe	Most existing development is on east side of U.S. 101. Would be stronger candidate for STA if development were on both sides.
Cannot be located on a freeway or expressway	Yes	U.S. 101 is a statewide highway and not a freeway or expressway.
Area has a majority, if not all, of STA attributes, either as existing or planned uses and infrastructure through an adopted plan	Maybe	Issues listed as "maybe" in this table would need to be resolved, such as through future plans.
STA does not apply to entire city	Yes	Proposed STA area would apply to a core area of the city. City would like STA to apply to as large an area as possible.
<b>Traffic</b>		
STA located in compact area with local street network to facilitate local auto and pedestrian circulation	Maybe	Development is relatively compact, but not entirely. Local street network provides moderate circulation off U.S. 101, but could be improved.
Traffic speeds are slow, generally 25 mph or less	Yes	Current posted speed on U.S. 101 in downtown area is 30 mph.
Identify strategies for addressing freight and through traffic including speed, possible signalization, parallel or other routes, actions elsewhere in the corridor	Maybe	Would need to study options for parallel routes to ensure adequate traffic capacity.
<b>Design</b>		
In STA area, there are mixed uses; buildings are close together	Maybe	There are mixed uses and buildings in the core area close together. However, development on the west side of U.S. 101 is limited.
Sidewalks have ample width and are adjacent to highway and buildings	Yes	Sidewalks on the east side have been widened. Improvements proposed in this plan would improve sidewalks and pedestrian circulation on the west side.
Public road connections are preferred over private driveways	Maybe	Access management is a key component of an STA. Some driveway closures might be required.
On-street parking or shared parking lots are located behind or to the side of buildings	Yes	There are no parking lots on U.S. 101 in front of buildings.

**TABLE 3-1**  
Preliminary Review of STA Characteristics as They Relate to Rockaway Beach<sup>1</sup>

Characteristic	Is Characteristic Present Today or Likely in Future?	Notes
Streets are designed for ease of crossing by pedestrians	Yes	Improvements proposed in this plan would improve pedestrian crossing conditions.

<sup>1</sup> This section is based on the Special Transportation Area (STA) description in the Oregon Highway Plan. As of May 2003, the STA designation process is under review.

### Recommendation

- Short-term: Because of the exacting requirements of the STA process and uncertainty as to whether the city could meet the requirements in a timely manner, the city should work to implement the contents of this plan without an STA designation.
- Long-term: To provide the city with greater certainty about the future management of U.S. 101 in Rockaway Beach, the city should explore an STA designation in Rockaway Beach. A first step toward accomplishing this would be to work with ODOT to develop an STA management plan according to the requirements in the OHP. The City would like the STA to apply to as large an area as possible.

## Miller Street

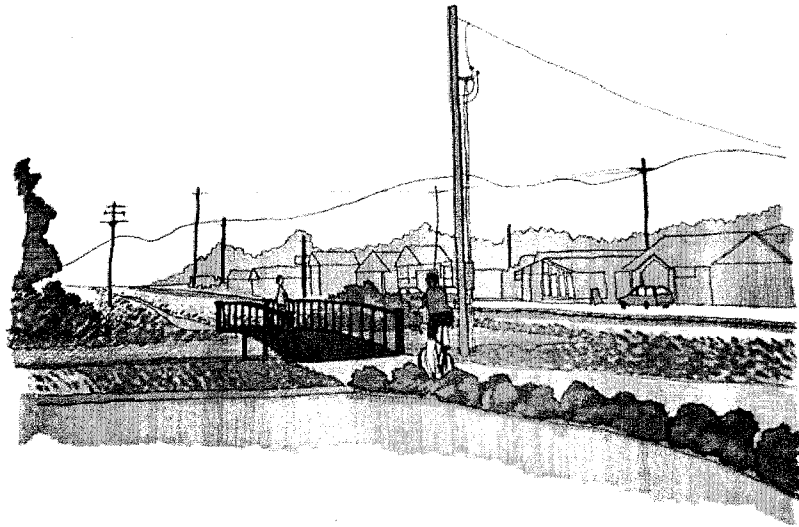
To further enhance pedestrian and bicycle circulation on the west side of U.S. 101, the consultant team explored changes to Miller Street between the State Recreation Area (wayside) and South 3rd Avenue. These include:

- A pedestrian/bicycle bridge over Rock Creek
- A new pedestrian/bicycle trail at the east end of the State Recreation Area (wayside) parking lot
- Redesigning Miller Street from South 1st Avenue to South 3rd Avenue as a "slow street"

Together these changes would provide a continuous pedestrian/bicycle route that provides access to and from the businesses on the east side of the highway and the ocean beach.

## Rock Creek Biking/Walking Bridge

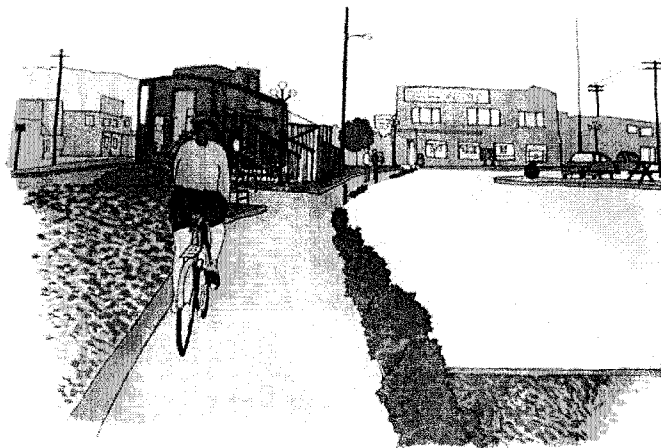
A bridge across Rock Creek would provide an important north-south connection for walkers and bicyclists in Rockaway Beach (see Figure 3-3). Currently, the creek interrupts Miller Street and people trespass on and across the Port of Tillamook Bay railroad tracks to continue north or south on Miller Street. The bridge would be at least 12 feet wide. It would connect to a new trail to the north that travels along the wayside parking lot.



**FIGURE 3-3**  
Rock Creek Biking/Walking Bridge

### **New Biking/Walking Trail at Wayside Lot**

To provide a continuous local bicycle and walking connection, a 12-foot-wide trail should be constructed that would connect the new Rock Creek Bridge and the beach via South 1st Avenue (see Figure 3-4). This would provide a connection to Miller Street, south of South 1st Avenue. Depending on its design, this trail could require the removal of two or three parking spaces in the wayside parking lot. As discussed in the Parking Estimates subsection, additional parking spaces could be created nearby.



**FIGURE 3-4**  
New Biking/Walking Trail at Wayside Lot



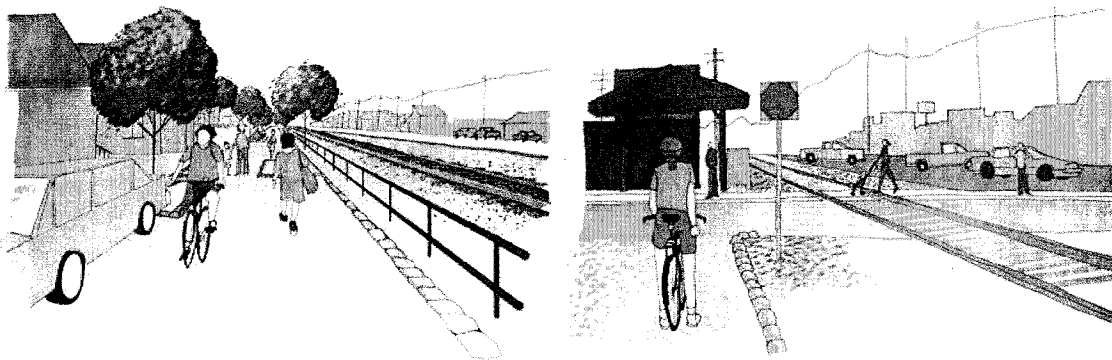
### Slow Street Concept: South 1st Avenue to South 3rd Avenue

The recommendation for Miller Street between South 1st and South 3rd Avenues is to transform it to a shared walking/biking/slow driving street (see Figure 3-5). This concept of a “slow street” is also known as a woonerf, a Dutch word that means “street for living.” This would be accomplished by placing trees, planters, chicanes and parallel parking along the roadway. Vehicle traffic would continue to use the street, and the one-way northbound vehicular access and on-street parking on the west side of the street would be maintained.

A different roadway texture and color also should be used to signify that the street is a “slow street.” Typically, pavers or stamped asphalt could be used in this context. To strengthen the identity of downtown Rockaway Beach, brick pavers could be used that match the ones used in the sidewalk on the east side of U.S. 101. With these features, the street maintains its function for vehicles, but also supports shared use with pedestrians and bicyclists.

A low barrier would be added between the east side of the street and the Port of Tillamook Bay railroad tracks to direct pedestrians to the street crossings and discourage them from crossing the tracks in other locations.

The new pedestrian-oriented Miller Street would provide an opportunity for a series of interpretive signs along the east side of Miller Street (between the street and the railroad). These signs could provide images and explanations about the history of Rockaway Beach, especially in relation to the railroad. This series of historical signs would provide an added attraction for visitors and residents.



**FIGURE 3-5**  
Slow Street Concept: South 1st Avenue to South 3rd Avenue

### Recommendation

- The three concepts above (Rock Creek biking/walking bridge, biking/walking trail through the wayside lot, and Miller Street “slow street” concept) were presented to the PAC and the open house participants and are recommended for implementation.
- Interpretive signs along the east side of Miller Street are recommended.

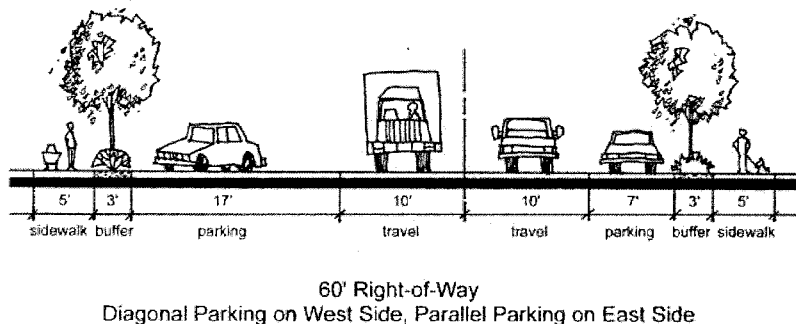
## Pacific Street

To provide additional on-street parking options near the downtown core area, the consultant team developed four cross-section options for Pacific Street between South 1st Avenue and South 3rd Avenue. The cross sections assume a 60-foot right-of-way. The primary difference among the options is the provision of parallel or diagonal on-street parking, as follows:

- Option 1: parallel parking on west side, diagonal parking on east side
- Option 2: parallel parking on both sides
- Option 3: diagonal parking on west side, parallel parking on east side
- Option 4: diagonal parking on both sides

Based on review by the PAC and the open house participants, Option 3 was selected as the preferred cross section. The option would include space for diagonal parking on the west side of the street and parallel parking on the east side of the street (see Figure 3-6). The mixture of diagonal and parallel parking was preferred because it provides more parking than is currently available, but it also strikes a balance with the other needs and uses of the streets. Diagonal parking was preferred on the west side because this is similar to the existing condition and because it would have fewer conflicts with residential driveways.

The street would have 10-foot-wide travel lanes in each direction, 5-foot-wide sidewalks, and 3-foot-wide sidewalk buffers on each side. The sidewalk buffers could consist of vegetation and appropriate street trees (with roots that would not break up the concrete). The buffer would provide physical separation between the roadway and sidewalk, thereby creating a more pleasant pedestrian environment.



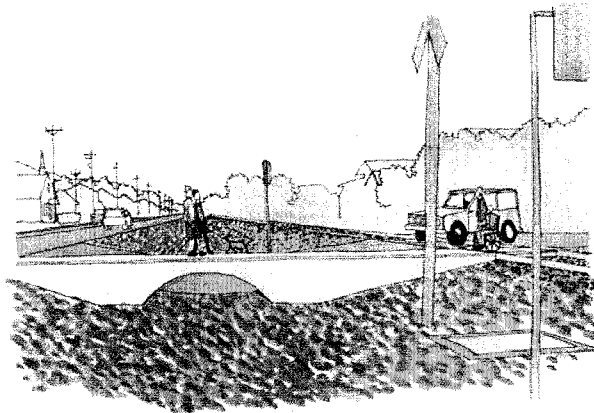
**FIGURE 3-6**  
Pacific Street Cross Section

### Recommendation

- Per the discussion above, Option 3 (two 10-foot-wide travel lanes, sidewalks on both sides, diagonal parking on the west side, parallel parking on the east side) is recommended.

## Railroad Crossings

Sidewalks at least 6 feet wide should be provided along the primary access roads that cross the railroad tracks at locations where the slope of the sidewalk would not exceed 5 percent (or rise-to-run ratio of 1:20). This new sidewalk would require coordination with and approval by ODOT's rail division. Where grade differences exceed 5 percent, a ramp or bridge may be required (see Figure 3-7). Because of the distance between crossings at North 3<sup>rd</sup> Avenue and South 1<sup>st</sup> Avenue, the possibility of an additional pedestrian crossing between these two locations should be explored with ODOT and POTB rail.



**FIGURE 3-7**  
Example Sidewalk Bridge at Railroad Crossing

As identified in Section 2, the railroad crossings do not have gated crossings and have steep vertical approaches on the roadways. Current ODOT standards recommend that an improved gated rail crossing be installed to provide for safe crossing across rails. A technical field survey and preliminary engineering should be performed to identify if any of the four crossings could be reconstructed with a gated rail crossing.

### Recommendation

- Provide sidewalks (and ADA-compliant ramp or bridge where required) on the four streets in the study area that cross the railroad. Further investigate whether any of the four can be reconstructed with a gated rail crossing, assuming that doing so would not interfere with preservation of on-street parking on U.S. 101.

## Parking Estimates

At the request of the city staff, the recommendations in the plan were reviewed to determine how they would affect parking in the downtown area (see Table 3-2). As part of this effort, the city staff suggested several locations where additional parking could be created. Table 3-2 indicates that although some of the recommendations would result in a loss of parking, others would create additional parking. The net change (with the addition of new parking areas) is an increase of approximately 73 parking spaces.

The parking estimates are based on approximate block length, with subtractions for driveways or other areas inappropriate for parking. The estimates assume standard parking dimensions (20-foot length for parallel parking space; 14-foot length for diagonal). Additional information on parking in the downtown area is the 2002 city hall traffic report prepared by CTS Engineers.

**TABLE 3-2**  
Estimate of Existing and Proposed Parking Spaces<sup>1</sup>

Location	Existing Parking Spaces		Proposed Parking Spaces		Notes
	Estimated Number	Type	Estimated Number	Type	
West side of U.S. 101 (North 3rd Avenue to Nehalem Avenue)	25	Parallel informal (unmarked)	22	Parallel (marked) with curb extensions	Loss of three spaces because of addition of curb extensions, which are integral part of pedestrian improvements.
West side of U.S. 101 (Nehalem Avenue to South 2nd Avenue)	36	Diagonal	22	Parallel (marked) with curb extensions	Loss of 11 spaces because of change from diagonal to parallel and 3 spaces from addition of curb extensions.
West side of U.S. 101 (South 2nd Avenue to South 3rd Avenue)	8	Parallel (unmarked)	6	Parallel (marked) with curb extensions	Loss of two spaces because of addition of curb extensions.
Pacific Street (South 1st Avenue to South 3rd Avenue)	88	Some parallel, some diagonal (unmarked)	106	Parallel on east side, diagonal on west side (marked)	Estimated addition of 18 spaces because of change from parallel to diagonal. Would require funds to pave and improve street.
Miller Street (South 1st Avenue to South 3rd Avenue)	48	Parallel on west side	40	Parallel on west side with landscaping islands	Loss of eight spaces because of addition of landscaping islands. Construct only after additional parking has been created elsewhere.
South 2nd Ave (U.S. 101 to Beacon Street)	6	Diagonal	4	Parallel	Loss of two spaces because of safety improvements at Anchor Street/U.S. 101 intersection.
Anchor Street (South 2nd Avenue to South 3rd Avenue)	25	Parallel, assume one side only (unmarked)	37	Parallel (two sides)	Estimated addition of 12 spaces by marking parallel parking on both sides of street (accounts for driveways). Low cost.
South Beacon Street (South 2nd Avenue to South 3rd Avenue)	0	(Unimproved street)	40	Parallel (west side only)	Unimproved street with 40-foot right-of-way. Consider one-way traffic northbound on Beacon Street.
Construct new parking lot at police station site after civic center constructed.	0	(Occupied by Police Station)	28	Parking lot	Estimate is from CTS Engineers city hall study.
South 2nd Avenue west of railroad tracks	12	Parallel (unmarked)	16	Diagonal	Addition of four spaces because of conversion from parallel to diagonal. Low cost.
<b>Total Estimated Spaces</b>	<b>248</b>		<b>321</b>		<b>Net increase of 73 spaces (estimated)</b>

<sup>1</sup> Estimates are based on block length, with subtractions for driveways. Assumes standard parking dimensions (20-foot length for parallel parking space; 14-foot length for diagonal).

## Evaluation Criteria and Results

As part of the alternatives development and review process, both the draft and preferred alternatives were qualitatively evaluated using criteria based on the plan goals and objectives (see Section 1). The criteria were developed by the consulting team, PMT and PAC.

The purpose of the evaluation was to document the features of the alternatives considered and to ensure that the recommended alternatives were consistent with the plan goals and objectives. Table 3-3 presents the evaluation criteria and results.

**TABLE 3-3**  
Evaluation Criteria and Results

**Goal 1: Mobility, Safety and Accessibility**

Improve mobility, safety and accessibility for all travel modes.

Objective	Rating*	Criterion	U.S. 101 West Side Parking and Sidewalk		U.S. 101/Anchor Street/South 2nd Avenue Intersection		Left-Turn Lanes on U.S. 101	Special Transportation Area on U.S. 101	Miller Street	Pacific Street				
			Option 1: Add sidewalk and parallel parking except maintain diagonal parking and no sidewalk from Nehalem Avenue to South 2nd Avenue	Option 2: Add sidewalk and parallel parking entire distance, curb extensions where feasible <b>RECOMMEND</b>	Option 1: Add turn lanes to South 2nd Avenue and add curb extension to Anchor Street to narrow intersection opening	Option 2: Same as Option 1 but add raised, landscaped crossing at Anchor Street to de-emphasize <b>RECOMMEND</b>				Add center left-turn lanes on U.S. 101 as indicated by ODOT warrant methodology	Pursue STA designation on a portion of U.S. 101 <b>RECOMMEND</b>	Rock Creek biking/walking bridge, biking/walking trail adjacent to wayside parking area, "slow street" concept between South 1st Avenue and South 3rd Avenue <b>RECOMMEND</b>	Option 1: Parallel parking on west side, diagonal parking on east side	Option 2: Parallel parking on both sides
<b>1. Accessibility</b>	+	Increases transportation service and accessibility for all members of the community while providing access management where indicated.												
	0	Does not change transportation service or accessibility or access management.	+	+	+	+	0	+	+	+	+	+	+	+
	-	Reduces or limits transportation service or accessibility or adversely affects access management.												
<b>2. Parking</b>	+	Increases net on/off street parking supply and/or future opportunities for parking.												
	0	Does not change net parking supply and/or future opportunities.	-	-	-	-	-	0	0	+	+	+	+	
		Decreases net parking supply and/or opportunities.												
<b>3. U.S. 101 Circulation, Safety and Operations</b>	+	Improves motor vehicle circulation, safety and/or operations on U.S. 101 or selected intersections with US 101.												
	0	Does not change motor vehicle circulation, safety and/or operations.	-	-	+	+	+	0	0	0	0	0	0	
		Adversely affects circulation, safety and/or operations.												
<b>4. U.S. 101 Gateway Treatments</b>	+	Adds gateway features or potential for them on U.S. 101 when entering city center.	+	+	0	0	0	0	0	0	0	0	0	

**TABLE 3-3**  
Evaluation Criteria and Results

**Goal 1: Mobility, Safety and Accessibility**

Improve mobility, safety and accessibility for all travel modes.

Objective	Rating*	Criterion	U.S. 101 West Side Parking and Sidewalk		U.S. 101/Anchor Street/South 2nd Avenue Intersection		Left-Turn Lanes on U.S. 101	Special Transportation Area on U.S. 101	Miller Street	Pacific Street			
			Option 1: Add sidewalk and parallel parking except maintain diagonal parking and no sidewalk from Nehalem Avenue to South 2nd Avenue	Option 2: Add sidewalk and parallel parking entire distance, curb extensions where feasible <b>RECOMMEND</b>	Option 1: Add turn lanes to South 2nd Avenue and add curb extension to Anchor Street to narrow intersection opening	Option 2: Same as Option 1 but add raised, landscaped crossing at Anchor Street to de-emphasize <b>RECOMMEND</b>	Add center left-turn lanes on U.S. 101 as indicated by ODOT warrant methodology	Pursue STA designation on a portion of U.S. 101 <b>RECOMMEND</b>	Rock Creek biking/walking bridge, biking/walking trail adjacent to wayside parking area, "slow street" concept between South 1st Avenue and South 3rd Avenue <b>RECOMMEND</b>	Option 1: Parallel parking on west side, diagonal parking on east side	Option 2: Parallel parking on both sides	Option 3: Diagonal parking on west side, parallel parking on east side <b>RECOMMEND</b>	
	0	Does not change gateway features or opportunities.											
	-	Adversely affects gateway treatments or potential.											
5. Public Transportation	+	Improves public transportation loading areas and/or circulation.											
	0	Does not change public transportation loading areas or circulation.	0	0	0	0	0	0	0	0	0	0	0
	-	Adversely affects public transportation loading or circulation.											
6. Emergency Vehicles	+	Allows for emergency vehicle access and circulation.											
	0	N/A	+	+	+	+	+	+	+	+	+	+	+
	-	Adversely affects emergency vehicle access or circulation.											

\*Rating: + = Positive 0 = Neutral - = Negative STA = special transportation area

### Goal 2: Pedestrians and Bicycles

Improve pedestrian and bicycle circulation and facilities.

Objective	Rating*	Criterion	U.S. 101 West Side Parking and Sidewalk		U.S. 101/Anchor Street/South 2nd Avenue Intersection		Left-Turn Lanes on U.S. 101	Special Transportation Area on U.S. 101	Miller Street	Pacific Street				
			Option 1: Add sidewalk and parallel parking except maintain diagonal parking and no sidewalk from Nehalem Avenue to South 2nd Avenue	Option 2: Add sidewalk and parallel parking entire distance, curb extensions where feasible <b>RECOMMEND</b>	Option 1: Add turn lanes to South 2nd Avenue and add curb extension to Anchor Street to narrow intersection opening	Option 2: Same as Option 1 but add raised, landscaped crossing at Anchor Street to de-emphasize <b>RECOMMEND</b>				Add center left-turn lanes on U.S. 101 as indicated by ODOT warrant methodology	Pursue STA designation on a portion of U.S. 101 <b>RECOMMEND</b>	Rock Creek biking/walking bridge, biking/walking trail adjacent to wayside parking area, "slow street" concept between South 1st Avenue and South 3rd Avenue <b>RECOMMEND</b>	Option 1: Parallel parking on west side, diagonal parking on east side	Option 2: Parallel parking on both sides
1. Pedestrian and Bicycle Linkages Across U.S. 101	+	Improves pedestrian and bicycle linkages across U.S. 101.												
	0	Does not change pedestrian or bicycle linkages across U.S. 101.	+	+	+	+	-	+	0	0	0	0	0	0
	-	Adversely affects pedestrian and bicycle linkages across U.S. 101.												
2. Streetscape Improvements	+	Enhance streetscape by providing for features such as landscaping, lighting, benches, street trees.												
	0	Does not change streetscape features.	+	+	0	+	0	+	+	+	+	+	+	+
	-	Adversely affects streetscape features.												
3. Bicycle and Pedestrian Safety and Comfort on U.S. 101 (west side)	+	Improves bicycle and pedestrian safety and comfort on U.S. 101, especially on the west side.												
	0	Does not change bicycle and pedestrian safety and comfort on U.S. 101.	+	+	0	0	-	+	+	0	0	0	0	0
	-	Adversely affects bicycle and pedestrian safety and comfort on U.S. 101.												
4. Pedestrian Travel	+	Provides facilities to improve safety and pleasantness of pedestrian travel.												
	0	Does not change safety or pleasantness of pedestrian travel.	+	+	+	+	-	+	+	+	+	+	+	+
	-	Adversely affects safety or pleasantness of pedestrian travel.												



Objective	Rating*	Criterion	U.S. 101 West Side Parking and Sidewalk		U.S. 101/Anchor Street/South 2nd Avenue Intersection		Left-Turn Lanes on U.S. 101	Special Transportation Area on U.S. 101	Miller Street	Pacific Street		
			Option 1: Add sidewalk and parallel parking except maintain diagonal parking and no sidewalk from Nehalem Avenue to South 2nd Avenue	Option 2: Add sidewalk and parallel parking entire distance; curb extensions where feasible <b>RECOMMEND</b>	Option 1: Add turn lanes to South 2nd Avenue and add curb extension to Anchor Street to narrow intersection opening	Option 2: Same as Option 1 but add raised, landscaped crossing at Anchor Street to de-emphasize <b>RECOMMEND</b>	Add center left-turn lanes on U.S. 101 as indicated by ODOT warrant methodology	Pursue STA designation on a portion of U.S. 101 <b>RECOMMEND</b>	Rock Creek biking/walking bridge, biking/walking trail adjacent to wayside parking area, "slow street" concept between South 1st Avenue and South 3rd Avenue <b>RECOMMEND</b>	Option 1: Parallel parking on west side, diagonal parking on east side	Option 2: Parallel parking on both sides	Option 3: Diagonal parking on west side, parallel parking on east side <b>RECOMMEND</b>
5. Off-Street Pedestrian and Bicycle Facilities	+	Provides facilities or opportunities to improve off-street pedestrian and bicycle travel.										
	0	Does not change facilities or opportunities for off-street pedestrian or bicycle travel.	0	0	0	0	0	0	+	0	0	0
	-	Adversely affects facilities or opportunities for off-street pedestrian or bicycle travel.										
6. Pedestrian Access Across Railroad Tracks	+	Provides improved pedestrian access across the railroad tracks.										
	0	Does not change pedestrian access across the railroad tracks.	+	+	0	0	0	0	+	0	0	0
	-	Adversely affects pedestrian access across the railroad tracks.										

\*Rating: + = Positive 0 = Neutral - = Negative STA = special transportation area

**Goal #3: Implementation**

Provide for improvements that are implementable and comply with applicable standards.

Objective	Rating*	Criterion	U.S. 101 West Side Parking and Sidewalk		U.S. 101/Anchor Street/South 2nd Avenue Intersection		Left-Turn Lanes on U.S. 101	Special Transportation Area on U.S. 101	Miller Street	Pacific Street			
			Option 1: Add sidewalk and parallel parking except maintain diagonal parking and no sidewalk from Nehalem Avenue to South 2nd Avenue	Option 2: Add sidewalk and parallel parking entire distance, curb extensions where feasible <b>RECOMMEND</b>	Option 1: Add turn lanes to South 2nd Avenue and add curb extension to Anchor Street to narrow intersection opening	Option 2: Same as Option 1 but add raised, landscaped crossing at Anchor Street to de-emphasize <b>RECOMMEND</b>	Add center left-turn lanes on U.S. 101 as indicated by ODOT warrant methodology	Pursue STA designation on a portion of U.S. 101 <b>RECOMMEND</b>	Rock Creek biking/walking bridge, biking/walking trail adjacent to wayside parking area, "slow street" concept between South 1st Avenue and South 3rd Avenue <b>RECOMMEND</b>	Option 1: Parallel parking on west side, diagonal parking on east side	Option 2: Parallel parking on both sides	Option 3: Diagonal parking on west side, parallel parking on east side <b>RECOMMEND</b>	Option 4: Diagonal parking on both sides
1. Street Design Standards	+	Proposed street design standards emphasize traffic calming, pedestrian and bicycle travel.											
	0	Does not change standards with respect to traffic calming, pedestrian and bicycle travel.	+	+	+	+	-	+	+	+	+	+	+
	-	Proposed standards adversely affect traffic calming, pedestrian and bicycle travel.											
2. Local Street Connectivity	+	Proposed designs improve local street connectivity as applicable.											
	0	Proposed designs do not change local street connectivity.	+	+	0	0	0	0	+	0	0	0	0
	-	Proposed designs adversely affect local street connectivity.											
3. Comply with Americans with Disabilities Act (ADA)	+	Proposed designs and facilities comply with the ADA.											
	0	N/A	+	+	+	+	0	+	+	+	+	+	
	-	Proposed designs and facilities do not comply with the ADA.											

Objective	Rating*	Criterion	U.S. 101 West Side Parking and Sidewalk		U.S. 101/Anchor Street/South 2nd Avenue Intersection		Left-Turn Lanes on U.S. 101	Special Transportation Area on U.S. 101	Miller Street	Pacific Street			
			Option 1: Add sidewalk and parallel parking except maintain diagonal parking and no sidewalk from Nehalem Avenue to South 2nd Avenue	Option 2: Add sidewalk and parallel parking entire distance, curb extensions where feasible <b>RECOMMEND</b>	Option 1: Add turn lanes to South 2nd Avenue and add curb extension to Anchor Street to narrow intersection opening	Option 2: Same as Option 1 but add raised, landscaped crossing at Anchor Street to de-emphasize <b>RECOMMEND</b>	Add center left-turn lanes on U.S. 101 as indicated by ODOT warrant methodology	Pursue STA designation on a portion of U.S. 101 <b>RECOMMEND</b>	Rock Creek biking/walking bridge, biking/walking trail adjacent to wayside parking area, "slow street" concept between South 1st Avenue and South 3rd Avenue <b>RECOMMEND</b>	Option 1: Parallel parking on west side, diagonal parking on east side	Option 2: Parallel parking on both sides	Option 3: Diagonal parking on west side, parallel parking on east side <b>RECOMMEND</b>	Option 4: Diagonal parking on both sides
4. Environmental Impacts	+	Proposed designs preserve or enhance environmentally significant areas or natural or historic features.											
	0	Proposed designs do not impact environmentally significant areas or natural or historic features.	0	0	0	0	0	0	0	0	0	0	0
	-	Proposed designs adversely affect environmentally significant areas or natural or historic features.											
5. Cost Effectiveness	+	Proposed designs are cost-effective and fundable.											
	0	N/A	+	+	+	+	+	+	+	+	+	+	
	-	Proposed designs are not cost-effective or fundable.											
6. Meet Applicable Plans, Standards, Criteria	+	Designs comply with applicable local, county, state and federal plans, standards and criteria.											
	0	N/A	+	+	+	+	+	+	+	+	+	+	
	-	Designs do not comply with applicable standards and/or criteria.											
7. Sufficient Detail for Funding	+	Proposed projects are developed to sufficient detail to qualify for funding of engineering and construction phases.											
	0	N/A	0	+	0	+	0	+	+	0	0	+	0
	-	Proposed projects are not developed to sufficient detail to qualify for funding of engineering and construction phases.											

\*Rating: + = Positive 0 = Neutral - = Negative STA = special transportation area

## Implementation

### Construction Cost Estimates

Costs to construct the various projects were estimated at a planning level (see Table 3-4). Based on the conceptual design of each project, a 60 percent contingency has been included in the estimate to account for potential unknowns typically identified during preliminary and final design. The estimates do not include right-of-way, major structures (for example, retaining walls), engineering, wetland or utility relocation costs.

**TABLE 3-4**  
Cost Estimates

Project	Additional Assumptions	Estimated Cost
U.S. 101: Add parking, sidewalk and crossing barrier railing or wall to west side (North 3rd Avenue to South 3rd Avenue).	Assumes project is 2,100 feet long = 0.40 mile. Project is asphalt overlay and new roadway to include two 12-foot-wide lanes, parallel parking on west side (new), 6-foot-wide shoulder on both sides. Includes 0.4 mile of landscaping with pedestrian protection along railroad. Includes curb, 6-foot-wide sidewalk and drainage on both sides of the road.	\$1.15 million
U.S. 101/South 2nd Avenue/Anchor Street Intersection: Reconstruct intersection per plan.	Assumes intersection reconfiguration and partial reconstruction. Raised decorative pavement on Anchor Street with landscaping on both sides. Extend sidewalk and curb on south side of intersection to narrow entrance throat.	\$120,000
Miller Street: Bridge over Rock Creek, pedestrian/bicycle path across wayside parking lot, "slow street" from South 1st Avenue to South 3rd Avenue.	Assumes project is 1,300 feet long = 0.25 mile. Project is decorative pavement roadway reconstruction to include 20 feet of pavement width, parallel parking on one side, shared bike/ped/vehicle facility. Pedestrian protection along railroad. Includes 0.28 mile of landscaping. Includes curb, 5-foot-wide sidewalk and drainage on both sides of the road. (Bridge = \$42,000; trail = \$6,000; "slow street" = \$862,000.)	\$910,000
Pacific Street: Reconstruct from South 1st Avenue to South 3rd Avenue to include diagonal parking on the west side, parallel parking on the east side and sidewalks on both sides.	Assumes project is 1,300 feet long = 0.25 mile. Project is asphalt overlay and new roadway to include two 10-foot-wide lanes, parallel parking on one side, diagonal parking on opposite side, no bike lanes. Includes 0.25 mile of landscaping. Includes curb, 5-foot-wide sidewalk and drainage on both sides of the road.	\$900,000

### Funding

A variety of local, state, and federal funding sources can be used to improve the transportation system. Most of the federal and state programs are competitive, and involve clear documentation of the project need, costs and benefits. Local funding for the projects in this transportation plan typically would come from the city, Tillamook County and/or potential future bond or other local revenues. Other local funding sources might include grants and private funds.

Table 3-5 summarizes some potential public funding sources for Rockaway Beach's pedestrian, bicycle and roadway improvements. Some of these funds are restricted to the type of improvements that qualify for assistance. Typically, state and federal funds require projects to comply with current ADA guidelines for accessibility.

It is recommended that Rockaway Beach explore an application to the Oregon Pedestrian and Bicycle Program for the Miller Street "slow street" project. It is also recommended that the city apply to the State Recreational Trails program for the Wayside Trail and Rock Creek Bridge. However, the city will need to find additional local funding to design the trail, because the funding is dedicated to construction. The state Transportation Enhancements Program (part of the federal TEA-21 legislation) also may be a source for a package of improvements that could include Miller Street, the trail, Pacific Street and U.S. 101. If these applications are unsuccessful, the city should consider local funds through bonds or other revenue.

**TABLE 3-5**  
Potential Funding Sources

Source	Description	Eligible Projects	Funding Cycle
Oregon State Transportation Improvement Program (STIP)	Administered by Oregon Department of Transportation (ODOT). The STIP provides funding for capital improvements on federal, state, county and city transportation systems. Projects must be regionally significant.	Roadway, public transportation, bicycle, pedestrian, air, freight, bridge	4 Years
Oregon Transportation Investment Act (OTIA)	Passed by the 2001 Oregon legislature. Projects were selected with extensive input from local communities and other stakeholders. Projects must be regionally significant.	Pavement conditions, lane capacity, bridges	N/A
Transportation Enhancements	Must serve transportation need.	Bike/pedestrian/trail	2 Years
Oregon Bike/Pedestrian Grants	Administered by ODOT's Pedestrian and Bicycle Program. Must be in public right-of-way.	Bike/pedestrian	2 Years
System Development Charges (SDCs)	Fees on new construction allocated for parks, streets and public improvements. Where available, funds can be used for right-of-way acquisition and trail construction.	Bike/pedestrian/roadway	Varies
Local/county bond measures approved by voters	Funds can be used for right-of-way acquisition, engineering, design and construction.	Bike/pedestrian/roadway	Varies
Local Improvement Districts	Districts typically are created by local property owners, imposing a "new tax" to fund improvements. Funds can be used for right-of-way acquisition and construction.	Bike/pedestrian/roadway	Varies
State Parks Recreational Trails Fund	Construction funds for trail projects	Off-roadway bike/pedestrian	Annual
Beach Access Fund	Construction funds for beach access improvements	Beach access	Varies

## **TSP Exemption**

Cities in Oregon are required under the state Transportation Planning Rule (TPR) to prepare and periodically update a transportation system plan (TSP). Because Rockaway Beach has not had the need or opportunity to conduct a full TSP and because this downtown transportation plan fulfills only some of the TPR requirements, documentation to aid in the city in requesting a TSP exemption from the state has been prepared as part of this plan and provided to the city.

APPENDIX A

# Public Involvement Documentation

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**Project Advisory Committee  
Meeting #1**

Rockaway Beach Downtown Transportation Plan

**Agenda**

Thursday, January 23, 2003, 4:00-6:00 P.M.

Rockaway Beach City Hall

- 4:00 Introductions, Review Agenda
- 4:10 Project Overview
- Purpose
  - Tasks and schedule
  - Roles and responsibilities
- 4:20 Documents for Review – Brief Discussion  
*(to be distributed prior to meeting; comments requested by February 3)*
- Goals and Objectives and Draft Evaluation Criteria
  - Existing Conditions and Future Opportunities Memo
- 4:40 Alternatives: Review and Comment on Draft Concepts
- Overall circulation and parking
  - Miller Street concepts
  - Pacific Street cross-sections
  - S. 2<sup>nd</sup> Street traffic operations
- 5:55 Next Steps
- Refine and evaluate draft alternatives
  - Input from broader community
- 6:00 Adjourn



## **PAC Meeting #1: Rockaway Beach Downtown Transportation Plan**

**ATTENDEES:** PAC members and other interested parties  
Kevin Greenwood, Rockaway Beach  
Tim Burkhardt, CH2M HILL  
Mia Birk, Alta Planning + Design  
Lidwien Rahman, ODOT  
Steve Jacobson, ODOT  
Bill Holmstrom, Tillamook County  
Aaron Suko, Tillamook County

**FROM:** Tim Burkhardt

**LOCATION:** Rockaway Beach Community Center

**DATE:** January 23, 2003

### **Introductions, Review Agenda**

The consultants and members of the PAC introduced themselves, as did the agency representatives and other attendees. Tim Burkhardt reviewed the agenda; no changes were made.

### **Project Overview**

Tim reviewed the project purpose, tasks and schedule and roles and responsibilities of the various entities involved, including the consultants (CH2M HILL and Alta Planning + Design), ODOT, the City and County, the PAC and the general public. The schedule for completing the project is June 30 (this is the ODOT deadline for project funding) but the goal is to complete the project before that time.

### **Documents for Review**

The PAC was provided two draft documents prior to the meeting: Goals and Objectives and the Existing Conditions and Future Opportunities memo. Tim briefly reviewed the Goals and Objectives document and also passed out a new document called Draft Evaluation Criteria. The goals and objectives document reflected the comments made by the group at their November meeting. The PAC had no further changes.

Tim briefly reviewed the Existing Conditions and Future Opportunities document and summarized the traffic analysis, which shows that a separated right and left turn lane would be needed in the future at south 2<sup>nd</sup> Avenue for traffic turning onto US 101.

There was a lengthy discussion about whether a Special Transportation Area (STA) could be designated in Rockaway Beach and the process and criteria for doing so. The PAC is very interested in an STA but is concerned about what the criteria are and whether ODOT would support it. Steve Jacobson indicated that Rockaway Beach was not eligible under the old criteria and maybe would be eligible under the new criteria. Besides determining eligibility,

the issue was raised that when an STA is established, it is usually for a relatively compact area of development and as a tradeoff, access management restrictions are placed on future development in the area immediately outside the STA. An STA in Rockaway likely would include only the most dense portion of the downtown; the rest of the city might have to live with access restrictions on future development. This may or may not be appropriate or supported by the city. Although the group was still interested in seeing whether Rockaway would qualify for an STA, a suggestion that interested the PAC was to use the downtown transportation plan to document and communicate the changes they would like to see on US 101 and have ODOT adopt it via an intergovernmental agreement (IGA). This would give the city assurance that from ODOT that the concepts would be supported by ODOT without having to go through the STA process.

## **Alternatives: Review and Comment on Draft Concepts**

### **Traffic**

- South 2<sup>nd</sup> Avenue: There was some discussion about how to improve the intersection with South 2<sup>nd</sup> Avenue and Anchor Street and US 101. The current configuration of Anchor is dangerous. There was no clear consensus on improvements but the group was not in favor of closing the street completely. The primary concern was whether closing the street would affect access to the fire station or emergency response times. Also, Anchor serves as an important parking area adjacent to US 101. Other options to explore include limiting turns into or out of S. 2<sup>nd</sup> and closing Anchor to emergency vehicles only.
- Turn lanes on US 101: The traffic impact study conducted for the City Hall project indicated turn lanes would be needed at South 2<sup>nd</sup> Avenue. Further analysis is needed to determine whether they would be needed (and when) without the project.

### **Illustrated Concepts A-E**

The group supported all of these proposed concepts. The following main items were discussed:

- Coordination with Port of Tillamook Bay (POTB): Many of the concepts would require making improvements on POTB right-of-way. The city must get the support of the POTB in order to move forward with these concepts and the POTB may want payment for use of their right-of-way. Input from and coordination with the POTB should be sought as part of this process (they were invited to the PAC meeting but unable to attend). It was suggested that the POTB's desire to close some of the railroad crossings could be a way to get their interest in the proposed concepts.
- On Concept E, it was noted that POTB had previously not allowed parking on the railroad side of Miller. The "slow street" could be designed to accommodate this, with parking only on the west side but landscaped areas on both side to still provide traffic slowing.
- Regarding Concept A, The group was initially in favor of maintaining the current diagonal parking area and adding a sidewalk, as shown in the ODDA plan. Tim explained that, according to the recent field measurements and considering the space requirements for these facilities, there was not enough space. This being the case, the

group agreed to the concept as illustrated which showed parallel parking instead of diagonal. There was discussion as to how much space was available for a bicycle facility on US 101 (shoulder? bike lane? put bike lane west of parking?). This will be clarified for the next meeting.

### **Concept F (Pacific Street)**

- The group preferred the cross section in the lower left hand corner of the handout (sidewalks on both sides, diagonal parking on west side, parallel parking on east side) but would like to show all to the general public. The group confirmed that the right-of-way is 60 feet but agreed that much of the existing development has encroached into the right-of-way.

### **Next Steps**

The next steps for the consultant team include revising and refining the draft alternatives based on the input from today's meeting, and evaluating them using the criteria passed out at the meeting. This will include preparing a plan view map that will put all of the concepts together, including Miller, Pacific and US 101, and S. 2<sup>nd</sup>/Anchor.

After discussion, the group agreed that the next meeting should be another PAC meeting, where the draft plan will be presented and reviewed. Following that meeting, the document will be submitted for planning commission review and a public hearing. The hearing will take the place of and/or be combined with a public open house to present the draft plan to the broader community and get their input. In the meantime, the PAC will continue to coordinate with and keep informed the key stakeholders in the city. Kevin and Tim will work to identify the timing and schedule needed to complete the plan by June 30. The next PAC meeting will be in approximately one month.

## Rockaway Beach Downtown Transportation Plan: Public Open House Summary (April 2, 2003)

TO: File  
FROM: Tim Burkhardt  
DATE: April 4, 2003

### Summary

As part of the Rockaway Beach Downtown Transportation Plan, a public open house was held on Wednesday, April 2, 2003, from 6:00 – 8:00 p.m. at the Lion's Club in Rockaway Beach, Oregon. The open house was held as a special city council meeting. The transportation plan was the only item on the agenda.

The purpose of the open house was to present the draft concepts for the transportation plan to the general public and to receive comments on them. The concepts, which focus on pedestrian, bicycle and parking treatments on the west side of US 101, had previously been reviewed with the Project Advisory Committee (Downtown Development Committee) as well as with ODOT and the POTB railroad. The meeting was advertised by email and by city staff using flyers and word of mouth to businesses, elected officials and other interested parties.

The meeting consisted of brief presentation by consulting planners and engineers (Tim Burkhardt, CH2M HILL; Jim Wilburn, CH2M HILL; and Arif Khan, Alta Planning + Design) followed by discussion and questions and answers. About 35 people attended the meeting, including members of the city council, the planning commission, downtown development committee, and other members of the public. In addition to Joanne Dickinson and Kevin Greenwood from the City of Rockaway Beach, other agency representatives present included Pat Oakes, Tillamook County Public Works; Jack Crider, Port of Tillamook Bay; Steve Jacobson, ODOT; and a staff person from Tillamook County planning department.

### Key Comments

The following discussion points were noted from the meeting.

#### US 101 Parking and Sidewalks

- Support for parallel parking and sidewalk between Nehalem and N. 3<sup>rd</sup> and between S. 2<sup>nd</sup> and S. 3<sup>rd</sup>. Would help to have parking in this area formalized.
- After discussion, audience preferred parallel parking with sidewalk between Nehalem and S. 2<sup>nd</sup> over diagonal parking and no sidewalk, provided that any parking loss could be made up in other areas. Preference based largely on the overall value of a continuous sidewalk for pedestrian circulation and the traffic calming effects it would have on US 101.

- Strong preference to lose no parking and to increase parking if possible. Based on additional comments received after the meeting, net parking impacts of all proposed concepts will be estimated.
- Barriers at rail road tracks. Some concern that people would not want to go out of their way to get across, especially in bad weather, could hurt businesses. Generally, these concerns were outweighed by benefits of improved circulation by having new sidewalks.

#### **Miller Street**

- General support for the concept
- Interest in making sidewalk wider and moving street closer to tracks if possible

#### **Pacific Street**

- Support for preferred concept (diagonal parking on west, parallel on east)
- Some comments that formalizing parking here would increase total supply
- Concern about cost—would need to pave entire street. Could it be funded with Small Cities Allotment?

#### **Railroad Crossings**

- Suggestion to brick in area adjacent to tracks for aesthetic reasons and to improve pedestrian circulation.

#### **Anchor Street/S. 2<sup>nd</sup> Intersection**

- After discussion, audience preferred Concept #2 (raised intersection) over Concept #1 (curb extension only). Preferred both functional and aesthetic treatment.
- Also interest in having parallel parking on both sides of Anchor Street. Could sign for RV parking in this area to keep off of 101.
- Add arrow to drawing indicating that you can still go straight through on 2<sup>nd</sup> across 101.

#### **Turn Lanes on US 101**

- Group was adamantly against a center turn lane through the study area or any turn lanes that would take parking or increase traffic speeds or otherwise degrade conditions for pedestrians
- Steve Jacobson (ODOT) thought turn lane at 2<sup>nd</sup> might still be needed
- Presenters indicated they would recommend that alternative to turn lanes be studied and that parking/sidewalks along US 101 be implemented
- Need ODOT approval

## **STA**

- Audience, especially members of Downtown Development Committee/Planning Commission, very interested in pursuing STA. Want lasting agreement with ODOT.
- Lower speed to 25 mph. Why can't they when it's been done in other small cities on the coast?
- The Plan will include discussion of STA

APPENDIX B

**Plan and Policy Review  
Technical Memorandum**

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# City of Rockaway Beach Downtown Transportation Plan: Plan and Policy Review Summary

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## 1. Introduction

This document summarizes selected city, county, and state plans and policies relevant to the City of Rockaway Beach Downtown Transportation Plan. Relevant documents were reviewed for the jurisdictions that own, regulate, or provide public services on the roadways within the city and the plan area. These jurisdictions include the city itself plus Tillamook County, the Tillamook County Transportation District (TCTC), and the State of Oregon.

The following documents were reviewed:

### Rockaway Beach

- Comprehensive Plan (Adopted 1981; amendments through June 1992)
- Zoning Ordinance (Ordinance No. 143, Articles 1-11) and Subdivision Ordinance (Article 13)
- Resource Team Report (ODDA, January 2000)
- Rockaway Beach Transportation Study: US 101 and Railroad Improvement Project (ODOT, 1995)

### Tillamook County

- Draft Tillamook County Comprehensive Plan (Spring 2002)
- Tillamook County Zoning Ordinance (December 2002)
- Tillamook County Land Division Ordinance (December 2002)
- Tillamook County Public Road Improvement Ordinance (1999)
- Urban Growth Area Agreements between County and Cities (1996)
- Tillamook County Transportation District

### State of Oregon/ODOT

- State Planning Goals (1973)
- Transportation Planning Rule (OAR 660-012)
- Oregon Transportation Plan (1992)
- Oregon Highway Plan (1999)
- Draft Oregon Rail Plan (2001)
- Oregon Public Transportation Plan (1997)
- Oregon Bicycle and Pedestrian Plan (1995)
- Oregon Transportation Safety Action Plan (1995)
- Access Management Rules (OAR 734-051)



- Freight Moves the Oregon Economy (1999)
- Transportation System Planning Guidelines (2001)
- Proposed Oregon Coast Highway Corridor Master Plan (ODOT, 1995)
- Scenic Byway Management Plan for the Nehalem, Tillamook, and Nestucca Regions of the U.S. 101 Corridor in Oregon (ODOT, 1997)
- Pacific Coast Scenic Byway Corridor Management Plan for U.S. 101 in Oregon (ODOT, 1997)

### **United States**

- Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) and Implementing Regulations (23 CFR 450 and 49 CFR 613)

## **2. City Rockaway Beach**

### **2.1 Rockaway Beach Comprehensive Plan**

(Adopted 1981; amendments through June 1992)

#### **Summary and Relevance to Proposed Plan**

- Standard comprehensive plan. Themes include ensuring that development is appropriate for topography (steep slopes).
- Transportation section articulates policies and priorities (parking, access, pedestrian/bike issues) relevant to proposed downtown transportation plan. Refer to for baseline information.

#### **Relevant Policies and Recommendations**

- Transportation:
  - General: Public transportation includes twice daily commercial bus service; bus system for the elderly. (p.56)
  - Circulation: Policy 1: Pedestrian and bike needs should be considered in all proposed street construction and in improvements to existing streets (p56). Policy 10: City shall cooperate with ODOT regarding any major improvements on US 101 (p.57).
  - Street Standards: Table showing widths, volumes, etc by functional classification. Arterials should include curbs, shoulders, sidewalks, bike lanes. (p.59)
  - Parking: Parking needs are most severe during summer tourist season. Refers to plan to provide parallel parking adjacent to US 101 (see figures following page 49). (p.59)
  - Special Transportation Needs: Policy 1: Sidewalks should be constructed along US 101. ODOT should be encouraged to provide a sidewalk on east side of Hwy from S. 3<sup>rd</sup> to S. Stark Street. Policy 2: Pedestrian crosswalks across US 101 should be clearly marked and defined with devices such as pedestrian refuges and curbside islands. Policy 3: Beach access should be made as easy as possible. City should construct or maintain accesses where necessary to insure persons of limited mobility can get to the beach. Policy 4: City should consider placing wheelchair ramps at key points downtown. Policy 5: Possibility of constructing bus shelters for Tillamook County special bus service should be considered. (p. 60)

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- Land Use:
    - Downtown Commercial Area (“C” designation): Policy 1: City and downtown property owners should work together to increase the supply of off-street parking. (p.40)
    - City’s basic land use philosophy: there is little land available in the city that does not pose limitations to development; areas where development can occur should be used more intensely. (p.39)

### **Data Gaps and Policy Issues**

- Verify/clarify relation of policies proposals in Comprehensive Plan (esp. downtown parking plan) to anticipated outcomes from downtown transportation plan.

## **2.2 Rockaway Beach Zoning and Subdivision Ordinances**

The zoning ordinance is divided into 11 Articles. Relevant information was identified in the Articles summarized below. The Subdivision Ordinance is Article 13.

### **Article 1. Introductory Provisions**

Article 1 includes definitions of terms relevant to transportation facilities including: access, parking space, recreational vehicle, sidewalk, street.

### **Article 2. Basic Provisions**

Article 2 divides land in Rockaway Beach into the following use zones:

- Single Family (R-1)
- Residential (R-2, R-3)
- Resort Residential (R-R)
- Special Resort Residential (SRR)
- Commercial (C-1)
- Waterfront Development (WD)
- Special Area Wetland (SA)
- Residential Manufactured dwellings (RMD)
- Flood Hazard Overlay (FHO)
- Hazards Overlay (HO)
- Open Space (OS)
- Wetland Notification Overlay

### **Article 3. Use Zones**

The code section for each use zone in Article 3 was reviewed for provisions directly relating to transportation standards, facilities, circulation, safety, etc. No such provisions were identified.

### **Article 4. Supplementary Provisions**

The supplementary provisions were reviewed for text directly affecting transportation standards, facilities, circulation, safety, etc. The following provisions were identified:

- Section 4.010. Access Requirement. Requires every lot to abut a street or alley for at least 25 feet or have vehicular access by means of an easement.
- Section 4.020. Clear Vision Areas. Requires a clear vision area at the corner of properties at the intersection of two streets or a street and a railroad.
- Section 4.060. Off-Street Parking and Off-Street Loading Requirements. Establishes requirements enforceable when a new structure is erected or an existing structure enlarged. Includes dimensions, design details, ratios. Exemptions for some uses in C-1 zone.
- Section 4.065. Street and Drainage Standards. Establishes typical cross sections for lanes, residential streets, primary collectors (Figures A, B, C).
- Section 4.150. Riparian Vegetation. Establishes areas of riparian protection adjacent to lakes and streams in Rockaway Beach.

### **Article 13. Subdivision Ordinance**

- Section 4 (Definitions): Includes definitions right-of-way, roadway, sidewalk, streets (including alley, arterial, collector).
- Section 33 (Major Land Partition, Streets): For new streets, includes provisions for widths, alignments, future street extensions, intersection angles, grades and curves.

## **2.3 Resource Team Report for Rockaway Beach**

(ODDA, January 2000)

### **Summary and Relevance to Proposed Plan**

- A substantial part of this report is devoted to existing issues and proposed changes regarding market dynamics, business mix, and clustering. Also includes recommendations for design changes to public space (including transportation) and private space. Extensive appendix material is devoted to storefront/façade improvements (design, funding, etc.). Includes many architectural concept drawings but also a "Town Center Plan" illustrating transportation features.

### **Relevant Policies and Recommendations**

- Strengthening the Sense of Place and Community:
  - Improved business climate would compound the need for safe pedestrian pathways on and between Main Street, Mill Street and the beach. (p. 4)
- Design Recommendations: Public Space:
  - Pedestrian-Bike Issues: An opportunity exists to create better pedestrian and bike linkages along and across US 101 and the community, linking parks, beach access, and motels to downtown. (Illustrated in Appendix A.) p.4 Specifically, replace existing bike lane on US 101 with a mountable curb and sidewalk. Pedestrian access across RR tracks should be provided for and marked clearly to ensure safe pedestrian flow between east and west. (p.25) Southbound bike lane should be relocated from US 101 west side to east side of Miller Street. (p.25) Propose Miller Street be primarily a pedestrian street (see Appendix B). Pedestrian friendly

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- streetscapes with traffic calming features are crucial to the success of the downtown area along US 101 (see Appendix B). (p. 4)
- Special Transportation Area (STA): ODOT and community should undertake study to explore designation of STA for the four blocks between SW 3<sup>rd</sup> and N 8<sup>th</sup>. Would allow City and ODOT to maintain traditional main street character and improve pedestrian access. (p. 4-5) specifically, would allow keeping on-street parking on US 101, reduce US speed, articulate more clearly defined pedestrian crosswalks and street lighting. (p.26)
  - Design Recommendations: Private Space:
    - None relevant. Generally has to do with façade and other architectural improvements to private properties.
  - Appendix A: Conceptual Town Center Plan:
    - Illustrates pedestrian, bike, parking, RR crossing improvements.
  - Appendix B: Conceptual Cross Section Looking North:
    - Cross section of town center concept
  - Other Information:
    - Traffic volumes are very high (in terms of market/business potential): 1998 ADT in downtown on US 101 were 6,700. (p.11)
    - Downtown's location on US 101 adjacent to the ocean beaches and with exposure to thousands of vehicles per day is a plus for encouraging business development. (p.13)
    - Long narrow district makes it especially challenging to market the district as a unified place. Significant physical separation between east and west sides of the district is especially severe due to the presence of the rail line and the US. (p.14)

### **Data Gaps and Policy Issues**

- Clarify/validate level of public acceptance and technical feasibility of these concepts (ODDA plan is not an officially adopted document).

## **2.4 Rockaway Beach Transportation Study: US 101 and Railroad Improvement Project**

(ODOT, 1995)

### **Summary and Relevance to Proposed Plan**

- Evaluates effect of closing railroad crossings on vehicle circulation and traffic safety. Study identifies public crossings to remain open and those to be closed. Also evaluates using Miller, Breaker and Pacific Streets as a parallel frontage road system to US 101. Discusses adding turn lanes and other traffic operations changes to US 101. Summarizes existing conditions (roadway design, traffic counts, safety data, parking inventory).
- Some existing conditions information may still be valid; traffic counts are dated. Study overlaps with several goals of downtown design plan (US 101, relation to railroad, parking, pedestrian/bike issues). Some of this can be used as baseline information for project.

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## Relevant Policies and Recommendations

- Railroad Crossing Improvements
  - Uses five criteria to evaluate closing crossings: 1) Crossings that have to be open (public safety). 2) Crossings that should be retained because of high traffic volumes. 3) Crossings important for east-west connectivity and accessibility. 4) Crossings that are unsafe. 5) Can use of crossing be replaced by providing parallel roads or improving other nearby crossings. (p.3-4)
  - Twenty-two crossings in study area; eight recommended for closing: North 21st, 13th, 9th, 8th, 7th, and 5th Streets; South 7th and Minnehaha Streets. Fourteen recommended to be improved: North 23rd; 19th, 11th, 9th, 6th, and 3rd Streets; South 1st, 2nd, 3rd, 4th, 6th, Washington, Pansy, and Shand Streets. (p.4-5)
- Public Road Improvements
  - Widen Miller Street to improve circulation among the remaining crossings; add turning and storage lanes to US 101; remove on-street parking from US 101 and replace it in off-site locations; provide marked and striped bike lanes; provide sidewalks in the downtown portion of US 101; other system wide improvements to improve traffic circulation and parking. (p6-7)
- Public Involvement
  - Contains table listing preferences for closings indicated by those attending a public meeting. Preferences generally agree with recommendations; however, represents only small, nonrandom population.

## Data Gaps and Policy Issues

- Addition of left turn lanes would remove on-street parking which is inconsistent with city's goals
- Traffic count data (maps) are outdated

## 3. Tillamook County

### 3.1 Draft Tillamook County Comprehensive Plan

#### (Spring 2002 draft) Summary and Relevance to Proposed Plan

Standard comprehensive plan organized according to the statewide planning goals. Relevant information from Goal 12 (Transportation) is summarized below.

#### Relevant Policies and Recommendations

- Transportation (Goal 12):
  - Provide additional through traffic lanes and left turn "refuge" lanes in areas with existing strip development (p. 5)
  - Encourage public transportation use (p. 5)
  - Arterial road networks should be given preferential treatment over collector and local roads (p. 6)
  - Establish road improvement standards (p. 9)

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- Identifies functional classification and intended purpose of numerous roads in county (p. 9-14)
  - Existing driveways along arterial roads should be minimized and consolidated (p. 15)
  - Designated spacing distances for access cross streets, driveways, and intersections (p. 15)
  - Disapprove establishment of State Coast Highway bike route until improvements made to increase safety, develop County-wide Bikeway Plan (p. 17)
  - Road improvements will include provisions for pedestrian safety near school, parks and playgrounds (p. 18)
  - Roadway and Traffic Safety Management Plan (1981) identifies improvement projects for County (p. 19)
  - Encourage maintenance and expansion of existing intercity bus service (p. 26)
  - Adopt County airport overlay zones and zoning compatible with air service (p. 27)
  - County support of navigation and jetty improvements in Tillamook Bay and Nehalem Bay (p. 28)
  - County support of rail transportation to Wheeler, Rockaway, Garibaldi, Bay City and Tillamook (p. 28)

#### **Data Gaps and Policy Issues**

- Tillamook County is currently updating their Transportation System Plan (TSP). This update likely will result in changes to the transportation section of the Comprehensive Plan.
- Verify that roadway functional classifications from the County plan are incorporated into city plan with the same identity, future use, and priority for improvement.
- Are access spacing distances in plan in agreement with ODOT specifications and recommendations?

### **3.2 Tillamook County Zoning Ordinance**

(December 2002)

The Tillamook County Zoning Ordinance contains the following sections: Article I, Introductory Provisions; Article II, Provisions for Zones; Article III, Zone Regulations; Article IV, Supplementary Regulations; Article V, Property Use Requirements and Exceptions; Article VI, Conditional use Procedures and Criteria; Article VII, Nonconforming Uses; Article VIII, Variance Procedure and Criteria; Article IX, Amendment; Article X, Administrative Provisions; Article XI, Compliance and Penalties; Article XII, Miscellaneous Provisions; Article 16, 17 & 18, Nehalem Ordinances.

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## **Article 1. Introductory Provisions**

Definitions are provided for the following transportation-related terms: Access; Alley; Development, Parking Space, Road, Road, County, Road, Public, Roadway, Street, Street line.

## **Article 3. Zone Regulations**

Lands in the County are classified into a large number of use or intensity zones, including some specific zones for the unincorporated area of Pacific City/Woods. Article III describes regulations and permitted uses for each zone.

## **Article 4. Supplementary Regulations**

Transportation related uses or standards are addressed as follows in this section of the code.

- Section 4.030, Off-Street Parking and Off-Street Loading Requirements describes the off-street parking requirements for development within Tillamook County.
- Sections 4.040-065 address the standards and procedures for review of manufactured and mobile homes and home parks.
- Section 4.080, Requirements for Protection of Water Quality and Streambank Stabilization. This section establishes areas for riparian vegetation. Transportation-related standards in this section include the requirement that all development shall be located outside of the areas, but allows for development of bridge crossings or direct water access in conjunction with a water dependent use. In addition, vegetation may be removed for construction of a "minor highway" within an existing right-of-way.

## **Article 5. Property Use Requirements and Exceptions**

Sub section 5.060, Access includes the following standard: "Every lot and parcel shall abut a street other than an alley, an approved private way or an approved private access easement for at least 25 feet." No other transportation related policies are included in this Article.

## **Article 6. Conditional Use Procedures and Criteria**

Article 6 addresses Conditional Use Procedures and Criteria. Transportation facilities are addressed as follows:

- Section 6.040, Review Criteria includes adequacy of public facilities and services as a criteria when reviewing conditional use permits.
- Section 6.060, Conditions of Approval, includes controlling the location and number of access points as a potential condition of approval.

## **Article 7. Non Conforming Uses and Structures**

Article 7 addresses the standards and review procedures for non conforming uses. Transportation related facilities are addressed during a Minor Review land use application. Specifically, Section 7.020.10 identifies an application criteria as "A request for the number and types of vehicle trips to the site."

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## **Article 8. Variance Procedures and Criteria**

Article 8 includes the standards and review process for variances to Tillamook County's code. Transportation facilities are not addressed as part of the review process or criteria.

## **Article 9. Amendments**

Article 9 describes the process and criteria for map amendments to Tillamook County's zoning map. Review of traffic circulation and the availability of public facilities and services are included as criteria for the land use review.

## **3.3 Tillamook County Land Division Ordinance**

(December 2002)

The Tillamook County Land Division Ordinance establishes standards for the division of land and the development of public facilities improvements outside of Urban Growth Boundaries of cities within Tillamook County. Sections of the ordinance relevant to transportation are summarized as follows.

### **Section 2. Definitions**

The following transportation-related definitions are used within the ordinance: access; alley; pedestrian way; private street or road; right-of-way; road; road, County; road, public; roadway; street; street functional classification; arterial; collector; local street; turnaround.

### **Section 40. Improvement Procedures**

This section identifies the process for approving improvements in conjunction with the Public Works Department.

### **Section 41. Improvement Requirements**

- Section 41 (1) (c) and (d) specify that the developer is responsible for street construction, that improvements shall be made to the specifications of the Public Works Department and that all parcels or lots shall obtain access by abutting a street other than an alley for a minimum of 25 feet at a point which can be developed for safe access.
- Section 41 (3) states that, when required by the density or the character of the development, developments may be required to install "pedestrian ways" which are defined as a sidewalk not less than five feet wide.

### **Section 42. Improvement Standards**

- Section 42 (A) Streets, reviews the general standards for development of streets; Section (2) Roadway Width and Alignment Standards, reviews the standards for ADT (Average Daily Traffic); that roadways other than Minimum Local Streets and Minor Local Streets shall be paved. Roadway standards generally follow AASHTO guidelines. Section (3) Minimum Right-of-Way widths are based on the functional classification of the roadways as follows:

Arterials and Collectors---Width of 60 feet

Major Local--- Width of 60 feet

Minor Local---Width of 50 feet



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Minimum Local--Width of 25 feet

- Section 42 also contains the standard that any right-of-way width less than 50 feet wide shall be a private street and be dedicated as an easement. Section (4) Dead End Streets, allows dead end streets if the following conditions are met: the street is a Minor Local Street or a Minimum Local Street and the street is not more than 2,000 feet in length and the street serves no more than 18 dwellings. Section (5) through (11) discuss standards for future extension of streets, intersections, improvements to existing streets, street names, frontage streets, alleys and features prohibited in public streets.
- Section 42 B, Blocks, contains a block size standard of no greater than 1,000 feet in length between street corner lines unless it is adjacent to an arterial street or unless topography or the location of other streets require other connections. The recommended minimum length of blocks along an arterial is 2,000 feet.

### **Section 43. Improvement Specifications**

This section specifies that the County Public Works Department shall prepare specifications to supplement the standards in this ordinance. (See Tillamook County Public Road Improvement Ordinance.)

## **3.4 Tillamook County Public Road Improvement Ordinance**

(1999)

The purpose of the Tillamook County Public Road Improvement Ordinance is to provide standards for road development located outside of established Urban Growth Boundaries but within Tillamook County. The Ordinance identifies the following documents as reference documents:

- County Road Acceptance Ordinance
- Regulations for Utilities in Tillamook County Public Road Rights-of-Way
- Road Approach Ordinance

Relevant sections of the ordinance are summarized as follows:

### **Section 2. Definitions**

This section includes definitions related to transportation facilities and improvements as the following: Average Daily Traffic (ADT); Private Road or Street; Public Road; Right-of-Way; Road (including street, highway, lane, alley, place, way, avenue or similar designation); road approach; roadway; sidewalk.

### **Section 11. Standards**

This section specifies standards for development of roadways identified in the Road Improvement Standard Roadway Section, including the standards for Average Daily Traffic per roadway type, Minimum Roadway Section, Materials Specifications, Signage, Drainage,

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Road Approach standards, Future Land Divisions, Utilities, Acceptance as a County Maintained Road, City limits and Urban Growth Boundaries and Additional Standards.

### **Section 12. Variance**

Describes criteria for a variance from the roadway standards.

### **Exhibits A and B. Roadway Section**

Exhibits A and B of this Ordinance are illustrations of a "Standard Roadway Section" and a "Minimum Roadway Section," respectively. The Standard Roadway Section would be constructed to the standards of the AASHTO (American Association of State Highways and Transportation Officials) Manual.

## **3.5 Tillamook County Urban Growth Management Agreements**

(Adopted December 1996)

### **Summary and Relevance to Proposed Plan**

Tillamook County has adopted Urban Growth Management Agreements with each of the seven incorporated cities in the County. The purpose of the agreements are to provide for coordination of services in the City-County "mutual interest area," defined as the unincorporated lands within the each city's urban growth boundary. These are "urbanizable" lands located in unincorporated Tillamook County. By definition, these lands are: 1) determined to be necessarily and suitable for future urban area; 2) can be served by public facilities and services; and 3) are needed for the expansion of the urban area.

### **Relevant Policies and Recommendations**

- Section 4(A): County Actions. The County shall coordinate with and seek comments from the City regarding the following items, for which the County has ultimate decision making authority and which affect land use within the Mutual Interest Area:
  - Major improvement projects sponsored by the County for transportation, drainage or solid waste improvements.
  - County road vacations
- Section 4(B): City Actions. The City shall coordinate with and seek comments from the County regarding the following items, for which the City has ultimate decision making authority, and which affect land use within the Mutual Interest Area.
  - Major improvement projects sponsored by the City for transportation, drainage or solid waste improvements.
  - Proposal for the extension of any City service, utility or facility or their respective service areas.
- Section 6: City Annexations.

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- B. Upon annexation the County shall retain jurisdiction of the County road unless jurisdiction is transferred under a separate road transfer agreement between the City and County.
  - Section 10: Issues to Be Evaluated.
    - The County and the City agree to evaluate the following issues by June 1996: A. The respective City and County road, street and storm drainage standards to determine the feasibility of adopting either: 1) A common policy about which standards (City or County) will be used under different circumstances; or 2) A common set of road, street and storm drainage standards to be used within the Mutual Interest Area.

### **Data Gaps and Policy Issues**

- Determine whether there are updated agreements for the other six cities and to what extent the road standards issue was further evaluated as called for in the ordinance.
- Clarify how these agreements do or don't affect connectivity standards

### **3.6 Tillamook County Transportation District (TCTD)**

TCTD provides bus service to the incorporated cities in Tillamook County. Bus route, schedule and facilities information will be reviewed as part of the development of the transportation plan. However, TCTD does not currently have a master plan or similar document available for review.

## **4. State of Oregon/ODOT**

State plans relating to transportation planning are summarized below, along with notes on their relevance to the downtown transportation plan. The relevance of the state plans to the local plans relates primarily to the presence of state owned facilities (such as US 101) in each of the cities.

### **4.1 State Planning Goals (1973)**

#### **Summary**

Since 1973, Oregon has maintained a strong statewide program for land use planning. The foundation of that program is a set of 19 statewide planning goals. The goals address citizen involvement, land use planning, agriculture, natural resources and open space, economic development, public facilities and services, transportation, energy conservation, and urbanization. The statewide goals are achieved through local comprehensive planning, of which transportation system plans must be made a part.

#### **Relevance**

The Transportation Planning Rule and the transportation system plans identified therein are results of implementation of the transportation goal (Goal 12), which reads: "Provide and encourage a safe, convenient and economic transportation system."

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## 4.2 Transportation Planning Rule (OAR 660-012, adopted 1991)

### Summary

OAR 660 Division 12, the Transportation Planning Rule (TPR), implements Oregon's Statewide Planning Goal 12 (Transportation) and promotes the development of safe, convenient, and economic transportation systems that reduce reliance on the automobile. The TPR requires the preparation of regional transportation systems plans by metropolitan planning organizations (MPOs) or counties and local TSPs by counties and cities. TSP requirements vary by type (regional vs. local) and community size. Through TSPs, the TPR provides a means for regional and local jurisdictions to identify long-range (20-year) strategies for the development of local transportation facilities and services for all modes, to integrate transportation and land use, to provide a basis for land use and transportation decision-making, and to identify projects for the State Transportation Improvement Program. TSPs need to be consistent with the State Transportation Plan and its modal and multimodal elements.

### Relevance

The downtown transportation plans will be generally consistent with the TPR. These plans are being prepared in lieu of full transportation system plans (TSPs), focusing instead on the most critical issues for each city. Because of their small size, each of the cities is eligible for an exemption from preparing a TSP. TSP exemptions will be prepared as part of each plan.

## 4.3 Oregon Transportation Plan (1992)

### Summary

The Oregon Transportation Plan (OTP) is a policy document developed by ODOT in response to federal and state mandates for systematic planning for the future of Oregon's transportation system. It recognizes the need to integrate all modes of transportation and encourages the use of the mode that is the most appropriate for each type of travel. The Plan defines goals, policies and actions for the state for the next 40 years. The Plan's System Element identifies a coordinated multimodal transportation system, to be developed over the next 20 years, which is intended to implement the goals and policies of the Plan. The goals and policies of the OTP cover a broad range of issues. The goals and policies are as follows:

- Goal 1: Characteristics of the System
  - Policy 1A – Balance
  - Policy 1B – Efficiency
  - Policy 1C – Accessibility
  - Policy 1D – Environmental Responsibility
  - Policy 1E – Connectivity among Places
  - Policy 1F – Connectivity among Modes and Carriers
  - Policy 1G – Safety
  - Policy 1H – Financial Stability
- Goal 2: Livability
  - Policy 2A – Land Use

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- Policy 2B – Urban Accessibility
  - Policy 2C – Relationship of Interurban and Urban Mobility
  - Policy 2D – Facilities for Pedestrians and Bicyclists
  - Policy 2E – Minimum Levels of Service
  - Policy 2F – Rural Mobility
  - Policy 2G – Regional Differences
  - Policy 2H – Aesthetic Values
  - Goal 3: Economic Development
    - Policy 3A – Balanced and Efficient Freight System
    - Policy 3B – Linkages to Markets
    - Policy 3C – Expanding System Capacity
    - Policy 3D – Intermodal Hubs
    - Policy 3E – Tourism
  - Goal 4: Implementation
    - Policy 4A – Adequate Funding
    - Policy 4B – Efficient and Effective Improvements
    - Policy 4C – Cost and Benefit Relationships
    - Policy 4D – Flexibility
    - Policy 4E – Achievement of State Goals
    - Policy 4F – Equity
    - Policy 4G – Management Practices
    - Policy 4H – Research and Technology Transfer
    - Policy 4I – State Responsibilities
    - Policy 4J – MPO and Other Regional Responsibilities
    - Policy 4K – Local Government Responsibilities
    - Policy 4L – Federal and Indian Tribal Governmental Relationships
    - Policy 4M – Private/Public Partnership
    - Policy 4N – Public Participation
    - Policy 4O – Public Information and Education

### **Relevance**

The primary relevance of the OTP to local plans is consistency. This is stated in Policy 4K – Local Government Responsibilities as follows:

- Local governments shall define a transportation system of local significance adequate to meet identified needs for the movement of people and goods to local destinations within their jurisdictions; and
- Local government transportation plans shall be consistent with regional transportation plans and adopted elements of the state transportation system plan.

## **4.4 Oregon Highway Plan (1999)**

### **Summary**

The 1999 Oregon Highway Plan (OHP) is the highway modal element of the Oregon Transportation Plan. The OHP defines the policies and investment strategies for Oregon's

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state highway system over the next 20 years. Regional and local transportation system plans (TSPs) must be consistent with the State Transportation System Plan, which includes the OHP. Goal 1 addresses System Definition, Goal 2 System Management, Goal 3 Access Management, and Goal 4 Travel Alternatives. OHP policies under each of these Goals, potentially applicable to the downtown transportation plans, are as follows:

- **Policy 1A: State Highway Classification System.** The state highway classification system includes six classifications: Interstate, Statewide, Regional, District, Local Interest Roads, and Expressways. US 101 is designated a Statewide NHS highway.
- **Policy 1B: Land Use and Transportation.** This policy recognizes the role of both state and local governments regarding the state highway system and calls for a coordinated approach to land use and transportation planning. The policy identifies the designation of highway segments as Special Transportation Areas (STAs), Commercial Centers, and Urban Business Areas (UBAs). Within STAs and UBAs, highways may be managed to provide a greater level of access to businesses and residences than might otherwise be allowed. Commercial Centers encourage clustered development with limited access to a state highway.
- **Policy 1C: State Highway Freight System.** This policy calls for balancing the need to move freight with other highway users by minimizing congestion on major truck routes. US 101 is not a designated State freight route.
- **Policy 1D: Scenic Byways.** This policy promotes the preservation and enhancement of scenic byways by considering aesthetic and design elements along with safety and performance considerations on designated byways. US 101 is a National Scenic Byway.
- **Policy 1F: Highway Mobility Standards Access Management Policy.** This policy provides specific mobility standards for the state highway sections, signalized intersections, and interchanges. Alternative standards are provided for certain locations and under certain conditions. Inside Urban Growth Boundaries, maximum Volume to Capacity (V/C) Ratios for US 101, a Statewide non-freight route, are 0.90 within a designated STA, 0.80 where the speed limit is under 45 mph, and 0.75 where the speed limit is over 45 mph.
- **Policy 1G: Major Improvements.** This policy identifies the state's priorities for responding to highway needs: protect the existing system and improve efficiency and capacity of existing system before adding capacity to the existing system.
- **Policy 2B: Off-System Improvements.** This policy recognizes that the state may provide financial assistance to local jurisdictions to make improvements to local transportation systems if the improvements would provide a cost-effective means of improving the operations of the state highway system.
- **Policy 2F: Traffic Safety.** This policy emphasizes the state's efforts to improve safety of all users of the state highway system. Action 2F.4 addresses the development and implementation of the Safety Management System to target resources to sites with the most significant safety issues.

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- **Policy 2G: Rail and Highway Compatibility.** This policy emphasizes increasing safety and efficiency through reduction and prevention of conflicts between railroad and highway users. Action items call for eliminating or reducing at grade rail crossings.
  - **Policy 3A: Classification and Spacing Standards.** This policy addresses the location, spacing and type of road and street intersections and approach roads on state highways. It includes standards for each highway classification, including specific standards for Special Transportation Areas (STAs) and Urban Business Areas (UBAs).
  - **Policy 3B: Medians.** This policy establishes the state's criteria for the placement of medians.
  - **Policy 4A: Efficiency of Freight Movement.** This policy emphasizes the need to maintain and improve the efficiency of freight movement on the state highway system.
  - **Investment Policy:** This policy identifies ODOT's priority to invest in managing and preserving the existing highway system and maintaining its safety.

A separate document, the Oregon Highway Plan Implementation Handbook, contains information interpreting the application of policies and actions in the OHP, particularly relating to land use and transportation policy. It includes tables and figures illustrating the OHP access management policies and the Access Management Rule (OAR 734-051). The Handbook does not provide any policy direction not contained in other plans, policies, or rules.

### **Relevance**

Any proposed changes to US 101 must be consistent with the OHP. As noted above, the OHP describes requirements and process for establishing STAs and other special highway designations on state facilities, and sets forth standards for the performance, design, and access management of State Highways.

## **4.5 Draft Oregon Rail Plan (2001)**

### **Summary**

The 2001 Draft Oregon Rail Plan identifies federal and state policies applicable to passenger and freight rail planning. However, the plan does not identify any additional policies specific to the plan. The freight element describes existing conditions in the different regions of the state and improvements that are needed. It also identifies issues that should be considered in rail planning during local land use and transportation planning, such as preparation of Comprehensive Plan policies to support a Transportation System Plan.

The passenger element identifies the need or feasibility of certain passenger and commuter rail improvements. The plan identifies the following funding needs for the Port of Tillamook Bay rail line: tunnel repair, bridge repair, rail renewal, locomotive acquisition, debt refinancing, maintenance equipment acquisition. The plan also suggests criteria for determining if an area could support a commuter rail line.

### **Relevance**

Where rail lines are possibly affected, the downtown plans should reflect the importance of maintaining the freight and passenger rail system.

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## **4.6 Oregon Public Transportation Plan (1997)**

### **Summary**

The Oregon Public Transportation Plan (OPTP) forms the transit modal plan of the Oregon Transportation Plan. The vision guiding the plan is as follows:

- A comprehensive, interconnected and dependable public transportation system, with stable funding, that provides access and mobility in and between communities of Oregon in a convenient, reliable and safe manner that encourages people to ride
- A public transportation system that provides appropriate service in each area of the state, including service in urban areas that is an attractive alternative to the single-occupant vehicle, and high-quality, dependable service in suburban, rural, and frontier (remote) areas
- A system that enables those who do not drive to meet their daily needs
- A public transportation system that plays a critical role in improving the livability and economic prosperity for Oregonians.

The plan contains goals, policies, and strategies relating to the whole of the state's public transportation system. The plan is intended to provide guidance for ODOT and public transportation agencies regarding the development of public transportation systems. The OPTP also identifies minimum levels of service, by size of jurisdiction, for fulfilling its goals and policies.

### **Relevance**

Transit service in Tillamook County is provided by the Tillamook County Transportation District; the level of service of this system will be addressed at the County level (e.g., in the County Transportation System Plan). Public transportation facilities (i.e., bus stops) will be reviewed for each of the downtown plans.

## **4.7 Oregon Bicycle and Pedestrian Plan (1995)**

### **Summary**

The Oregon Bicycle and Pedestrian Plan provides guidance to regional and local jurisdictions for the development of safe, connected bicycle and pedestrian systems. The plan is a modal element of the Oregon Transportation Plan. The plan includes two major sections: policies and implementation strategies; and design, maintenance and safety information. The plan also outlines the elements of the bicycle and pedestrian plan required for transportation system plans. The goal of the plan is "To provide safe, accessible and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking."



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## **Relevance**

This Bicycle and Pedestrian Plan applies to state-owned facilities in Tillamook County, such as US 101, which is a designated State Bike Route. Any changes to the state bike route must be consistent with ODOT policies.

## **4.8 Oregon Transportation Safety Action Plan (1995)**

### **Summary**

The Oregon Transportation Safety Action Plan forms the safety element of the Oregon Transportation Plan (OTP). The intent of the plan is to improve safety on Oregon's highways for all users. The plan was prepared in response to the safety policy (Policy 1G) in the OTP: "It is the policy of the State of Oregon to improve continually the safety of all facets of statewide transportation for system users including operators, passengers, pedestrian, recipients of goods and services, and property owners."

The plan contains 70 actions that form a 20-year safety agenda. Many of the actions are programmatic in nature and may not be reasonably addressed through local transportation plans.

### **Relevance**

The following actions potentially could be relevant to the downtown transportation plans:

- Action 19 – Safety Considerations in Transportation Planning Documents
- Action 20 – Access Management
- Action 64 – Rail Crossing Safety
- Action 66 – Pedestrian Safety

## **4.9 Access Management Rules (OAR 734-051)**

### **Summary**

The stated purpose of these rules is to govern the issuance of permits for approaches onto state highways. The rules promote the protection of emerging developed areas rather than the retrofit of existing built-up roadways. The rules also provide access management spacing standards for approaches for various types of state roadways and for interchanges. OAR 734-051-0190 specifies that these standards are to be used in planning processes involving state highways, including corridor studies, refinement plans, state and local TSPs, and local comprehensive plans. The access management rules also include provisions for UBAs, and STAs, as discussed in the OHP. The access management rules describe the development of access facility management plans and interchange area management plans.

### **Relevance**

Because these rules apply to all roadways under state jurisdiction, they are of critical importance for the downtown plans, all of which include US 101 in their study areas. Any changes to access onto US 101 (including consideration of STAs) must be consistent with the Access Management Rules. These plans should include measures to implement the Access Management Rule.

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## 4.10 Freight Moves the Oregon Economy (1999)

### Summary

This plan's stated purpose is to demonstrate the importance of freight to the Oregon economy and identify concerns and needs regarding the maintenance and enhancement of current and future mobility in the state of Oregon. The plan discusses the relationship among freight, the economy, and transportation planning, as well as road, rail, waterway, and pipeline facilities, and intermodal facilities. It does not identify specific freight policies to be addressed by transportation system plans or facility plans.

### Relevance

The primary north-south through freight route in Oregon is I-5. US 101 serves regional and local freight needs. This plan suggests the importance of maintaining efficient through traffic movement on US 101.

## 4.11 Proposed Oregon Coast Highway Corridor Master Plan

(ODOT, January 1995)

### Summary and Relevance to Proposed Plan

- A vision to develop an aesthetic corridor with utilitarian purposes. A route to be admired by tourists and recreational users, while remaining the principle route for commercial and industrial traffic along the coast.
- Goals of the plan include:
  - Develop a plan that integrates interests of ODOT, communities, and other jurisdictions
  - Manage future transportation needs and useful life of the highway
  - Incorporate inherent scenic resources of the area with the highway
  - Support individual character of communities adjacent to the highway
  - Support sustainable economic diversity and responsibility

### Relevant Policies and Recommendations

- The following are corridor-wide recommendations:
  - Intercity Services: commercial bus service provided to all cities with a population over 2,500, or a group of communities located within five miles of one another and a combined population greater than 2,500, with at least one daily stop in each direction (p. II 1-2)
  - Intermodal Services: direct connections between inter-city buses and air service; provide natural gas every 100-150 miles to support alternative fuel use (p. II 2-3)
  - Road Capacity: manage capacity through access management and lane construction; provide additional capacity in urban areas of population growth; in designated Special Highway Landscape areas construct only if project has a positive impact on scenic resources; operate at level of service B or better in off-peak periods (p. II 4)
  - Access Management: motorists should be made aware of the most efficient route between the coast and inland destinations; better informing of travel distances and speeds to motorists (p. II 7-8)

- 
- Resources: Resources: development of a vegetation management plan; include vegetation to enhance community streetscapes; develop "gateways" to each city (p. II 8-9)
  - Bicycle and Pedestrian Facilities: future projects should have a bike lane in each direction; integrate bicycle facilities with community systems; improve pedestrian access (p. II 10-11)
  - Other Improvement Activities: bypasses/alternative routes; parking plans; interpretive centers; scenic overlooks/loops; exploring transit, rail, and air services (p. II 15-23)
  - The following are recommendations for Tillamook County:
    - Manzanita to Wheeler: improve safety of Manzanita junction; improve local parallel street system; improve transit system; develop access management plan; develop a plan to incorporate parking, pedestrian, landscape, and signage needs (p. II 39-40)
    - South Wheeler, Rockaway, and Garibaldi: develop access management plan; identify scenic areas; improve Brighton slide area stability; develop a plan to incorporate parking, pedestrian, landscape, bicycle, and signage needs; use frontage road in Rockaway as additional travel lanes; improve transit system; in Garibaldi investigate Miami River Road as a possible bypass and access management (p. II 41-42)
    - South Garibaldi, Bay City, and north Tillamook: identify passing lane locations; investigate access management, turn lanes, and local street system improvements in Bay City; improve transit system; incorporate pedestrian and bicycle use (p. II 43)
    - Tillamook: investigate access management; incorporate pedestrian and bicycle use; create Coast Highway interpretive center; develop byway to the east; develop frontage road system; develop a plan to incorporate parking, pedestrian, landscape, bicycle, and signage needs; improve junction of US 101 and Highway 6 (p. II 44-45)
  - The following are implementation strategies for the plan:
    - Bicycle and pedestrian improvements will be included with all capacity improvements (p. III 2)
    - ODOT will prepare a Visual Resource Plan, identifying potential scenic features and signing programs (p. III 2)
    - Improvements will enhance the environment adjacent to the highway (p. III 3)

#### **Data Gaps and Policy Issues**

- For each city, identify priorities among the following common themes:
  - Parking, pedestrian, bicycle, landscaping, and signage needs
  - Investigation of access management
  - Improved transit system

## **4.12 Pacific Coast Scenic Byway Corridor Management Plan for US 101 in Oregon**

(ODOT, December 1997)

### **Summary and Relevance to Proposed Plan**

- Benefits of the plan include:

- Improved coordination between agencies working to improve visitor experience and quality of life
- Identification and prioritization of improvement projects
- Utility as a resource for information
- Serve as an application for designation as a National Scenic Byway
- Mission to develop a community-based plan that will maintain or enhance characteristics that are essential to the Pacific Coast Scenic Byway experience
- This document is the guidance manual for separate regional management plan documents

### **Relevant Policies and Recommendations**

- Nehalem Region (p. 47-52):
  - Nine *defining features* that are valued most while travelling the corridor
  - Eleven *contributing features* that significantly add to the regional experience
  - Six *recognized features* that enhance the overall regional experience
- Tillamook Region (p. 53-58):
  - Seven *defining features*
  - Twelve *contributing features*
  - Sixteen *recognized features*
- The features described for each region are described in greater detail in the regional management plan discussed below.

### **Data Gaps and Policy Issues**

- None identified

## **4.13 Scenic Byway Management Plan for the Nehalem, Tillamook, and Nestucca Regions of the U.S. 101 Corridor in Oregon**

(ODOT, December 1997)

### **Summary and Relevance to Proposed Plan**

- Presents detailed descriptions of the features outlined in the *Pacific Coast Scenic Byway Corridor Management Plan for U.S. 101 in Oregon*
- Management strategies and suggested projects are described
- Identification of priority projects

### **Relevant Policies and Recommendations**

The following recommendations are associated with the *defining features* within the city limits for the cities addressed by these projects. Many of the features identified in the scenic byway plan are state or county parks; it is assumed that recommendations in the plan for these facilities are generally outside the city's jurisdictions.

- Nehalem Region
  - City of Nehalem (p. 32-33):
    - Provide signage and tourist documents
    - Inventory, document, and develop interpretive panels for historic sites

- 
- View at Nehalem River Bridge (p. 34-35):
    - Provide signage and turnouts
  - City of Rockaway Beach (p. 41-44):
    - Selectively remove vegetation to improve view and implement streetscape plan
    - Identify roadway runoff problems
    - Improve public amenities
    - Reduce US 101 speed in town and improve north-south streets for local traffic
    - Design roadway features (lighting, retaining walls, guard rails) consistent with community
    - Designate US 101 from south Garibaldi to Nehalem Bridge as natural corridor
    - Design interpretive signs and kiosks with interpretive trails
    - Provide off-highway parking, pedestrian access, and turnoffs for resources
  - Nehalem bay and estuaries wildlife viewing (p. 55-56)
    - Provide parking and turnout areas
    - Provide interpretive signs or kiosks
  - Priority or selected projects (p. 65-67):
    - Nehalem bay and estuary wildlife viewing improvements
    - Nehalem River Bridge viewing improvements
  - Tillamook Region
    - Tillamook County Pioneer Museum and Cultural Center, Bay City site (p. 94-96)
      - Provide parking facilities and signage
      - Develop turning lane over railroad tracks

### **Data Gaps and Policy Issues**

As previously indicated, only *defining features* are discussed above. Other *contributing* or *recognized features* exist in the area and although their contribution to scenic qualities of US 101 is less significant, they are additional resources to consider in policy development.

## **5. United States**

### **5.1 Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) and Implementing Regulations (23 CFR 450 and 49 CFR 613)**

Federal transportation planning requirements, such as those in the TEA-21 and its implementing regulations, are addressed through state and local plans (see above).

APPENDIX C

**Existing Conditions and Traffic Data**

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**Part 1**  
**Field Measurements**

# Rockaway Beach Field Measurements

## Field Measurements: Rockaway Beach

### STREETS

Street	Cross Street	Roadway Cross Section				Edge of Pav. to Rail (ft)	Pedestrian Amenities			Notes
		Parking Lane (ft)	Northbound Lane (ft)	Southbound Lane (ft)	Paved Shoulder (ft)		Type of Xing	Side-walks	Curb Ramps-ADA Comp.?	
<b>US 101</b>										
	N 3rd	8	11.5	12	7	31	parallel lines	yes with curb ext.	yes	post office on east side, beach access
	N 2nd	8	13	11	8	30.5	parallel lines	yes with curb ext.	yes	gas station between 2nd and 1st
	N 1st	8	10	11	13	28.5	parallel lines	yes, curb ext on s. side only	s. side only	diagonal off-street parking on west side
	Nehalem	8	12	12	7		parallel lines	yes, curb ext on s. side only	s. side only	entrance to off-street parking
	S 1st	8	12	12.5	7	35.5	parallel lines	yes	yes	main beach access, parking lot, US Bank on east side
	S 2nd	8	12	12.5	7.5	34.5	parallel lines	yes, curb ext on n. side only	n. side only	end of off-street parking area, diagonal service road (Anchor Rd.) on east side.
	S 3rd	8	12	12.5	5.5	31	parallel lines	yes, curb ext on n. side only	yes	beach access, / RR Xing, on west side: Lions Club, Senior Center, bus stop.
<b>Pacific St.</b>										60' ROW
<b>Miller Rd.</b>		none	18		none	10	none	none	n/a	

### Parking Areas (off-street)

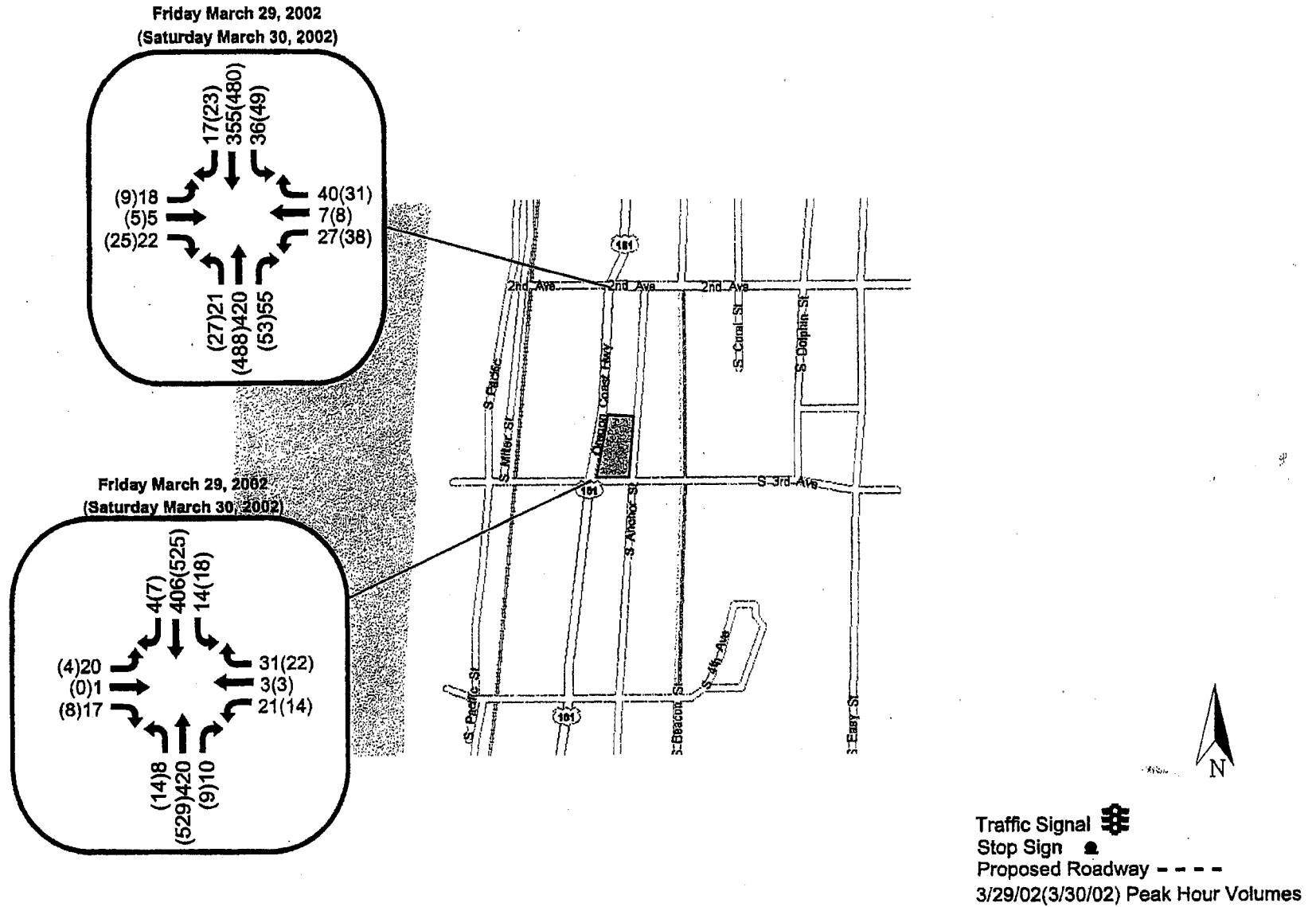
Parking Areas	Number of stalls	Stall depth (ft)	Stall width (ft)	Curb to RR track (ft)
Nehalem to S. 1st	14	18.5	8.5	36
S. 1st to S. 2nd	22	18.5	8.5	36

### Other Measurements



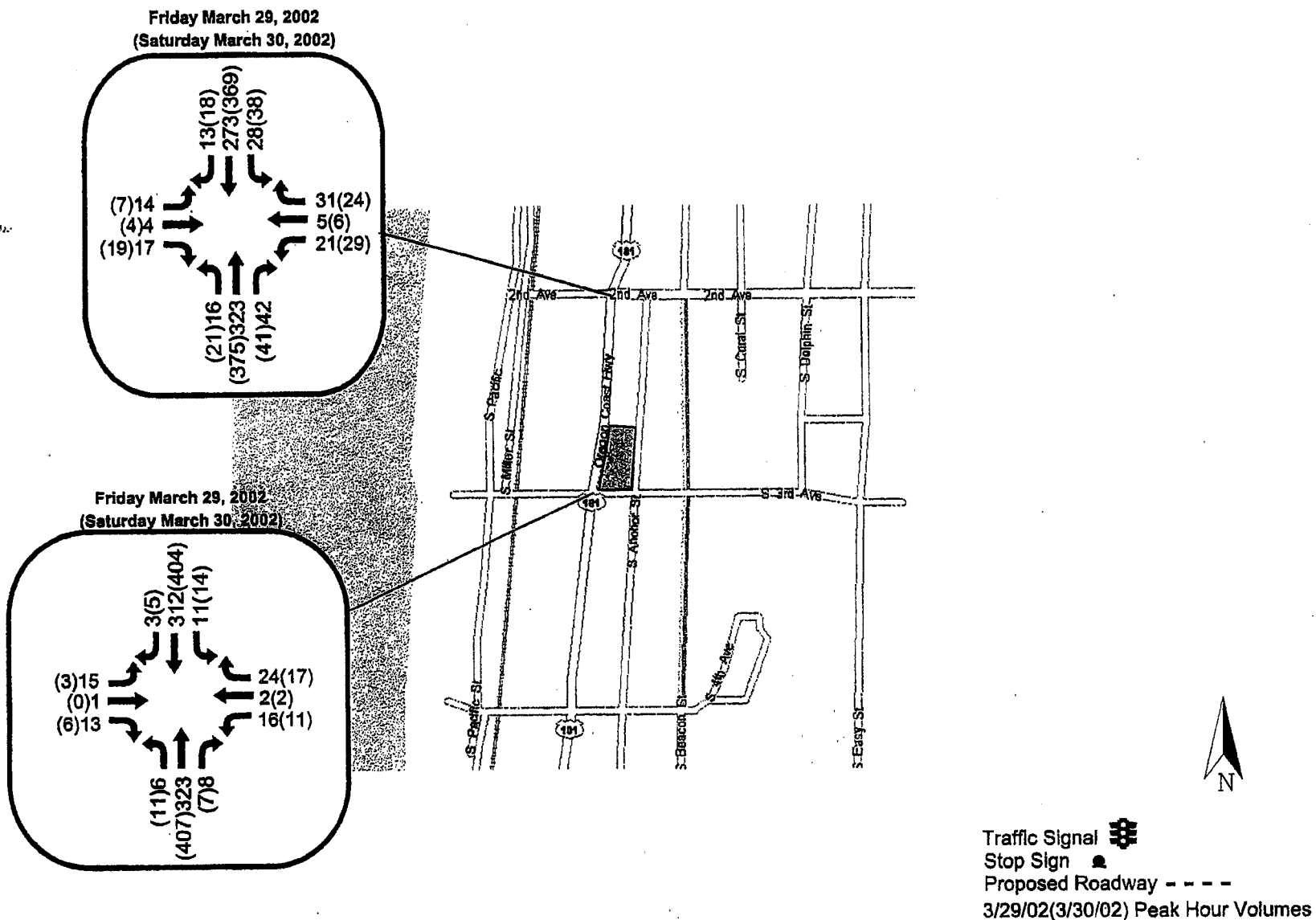
**Part 2**  
**Raw Traffic Counts**

**Figure 3B: Adjusted Peak Hour Traffic Volumes to 30th Hour Design Volumes (+30%)**



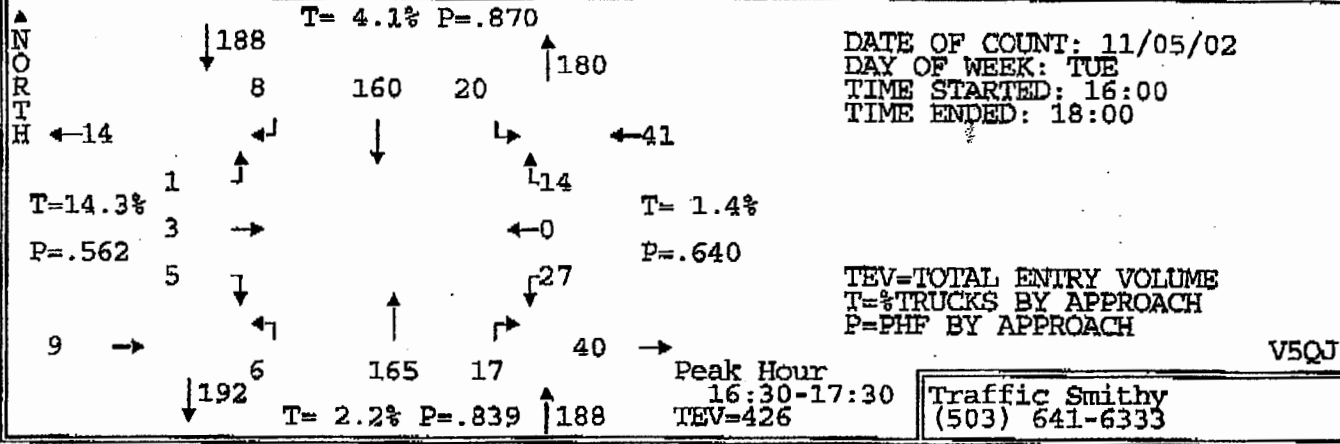
Drawing not to scale.

**Figure 3: Recent Peak Hour Traffic Volumes in The Vicinity of The Rockaway Beach City Hall**



Drawing not to scale.

INTERSECTION TURN MOVEMENT COUNT SUMMARY REPORT  
HIGHWAY 101 @ 3RD STREET



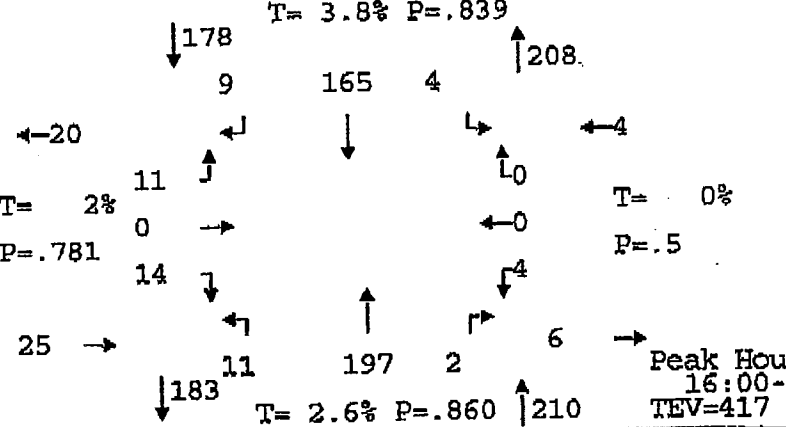
TIME PERIOD FROM - TO	EAST BOUND			SOUTH BOUND			NORTH BOUND			WEST BOUND			ALL
	↓	→	↑	←	↓	↘	↙	↑	↗	↖	↑		
16:00-16:05	1	0	1	0	7	1	0	16	4	1	0	1	32
16:05-16:10	1	0	0	0	17	5	0	16	1	1	0	5	46
16:10-16:15	0	0	0	1	20	0	0	7	0	0	0	1	29
16:15-16:20	1	0	0	0	11	2	2	14	5	3	1	1	40
16:20-16:25	0	0	0	0	6	3	0	14	0	0	0	1	25
16:25-16:30	0	0	0	0	7	1	0	17	1	3	1	0	30
16:30-16:35	1	1	0	0	13	0	0	24	0	3	0	1	43
16:35-16:40	1	0	0	0	13	0	2	11	1	1	0	0	29
16:40-16:45	0	1	0	0	14	1	1	14	3	0	0	0	36
16:45-16:50	1	0	0	0	13	2	1	19	1	4	0	0	41
16:50-16:55	0	0	0	0	13	2	0	6	1	6	0	1	29
16:55-17:00	1	0	0	0	13	5	0	16	3	0	0	3	39
17:00-17:05	0	0	0	0	12	0	1	10	3	5	0	3	34
17:05-17:10	0	1	0	7	16	1	0	9	0	1	0	4	39
17:10-17:15	0	0	0	0	15	2	0	15	1	1	0	1	35
17:15-17:20	0	0	0	0	11	2	0	17	1	1	0	0	32
17:20-17:25	1	0	0	1	13	2	0	8	2	3	0	1	31
17:25-17:30	0	0	1	0	14	2	1	16	1	2	0	1	38
17:30-17:35	0	0	0	0	16	2	0	14	1	1	0	2	36
17:35-17:40	0	0	0	0	8	0	0	17	4	0	0	1	30
17:40-17:45	1	0	0	0	12	2	0	8	0	0	0	3	26
17:45-17:50	0	0	0	0	8	1	0	9	5	0	0	0	23
17:50-17:55	0	0	0	0	12	0	0	13	5	3	0	1	34
17:55-18:00	0	0	0	0	8	0	0	6	0	1	0	1	16

Total Survey	9	3	2	9	292	37	8	316	43	41	2	31	793
PHF	.63	.38	.25	.29	.93	.56	.38	.84	.61	.61	0	.44	.950
% Trucks	11.1	33.3	0	0	4.5	2.7	0	2.5	0	0	0	3.2	3.2
Stopped Buses	1	0	0	0	0	0	0	0	0	0	0	0	0
Peds	0	4	0	0	6	0	0	2	0	0	1	0	0

Hourly Totals	↓	→	↑	←	↓	↘	↙	↑	↗	↖	↑	ALL	
16:00-17:00	7	2	1	1	147	23	6	174	20	23	2	13	419
16:15-17:15	5	3	0	7	146	20	7	169	19	28	2	14	420
16:30-17:30	5	3	1	8	160	20	6	165	17	27	0	14	426
16:45-17:45	4	1	1	8	156	22	3	155	18	24	0	18	410
17:00-18:00	2	1	1	8	145	14	2	142	23	18	0	18	374

**INTERSECTION TURN MOVEMENT COUNT SUMMARY REPORT**  
**HIGHWAY 101 @ 1ST STREET**

↑  
N  
O  
R  
T  
H



DATE OF COUNT: 11/05/02  
 DAY OF WEEK: TUE  
 TIME STARTED: 16:00  
 TIME ENDED: 18:00

TEV=TOTAL ENTRY VOLUME  
 T=%TRUCKS BY APPROACH  
 P=PHF BY APPROACH

V5QH

Traffic Smithy  
 (503) 641-6333

TIME PERIOD FROM - TO	EAST BOUND			SOUTH BOUND			NORTH BOUND			WEST BOUND			ALL
	↓	→	↑	←	↓	↘	←	↑	↗	↓	←	↑	
16:00-16:05	1	0	2	2	13	0	0	20	0	1	0	0	39
16:05-16:10	1	0	1	0	15	0	2	17	0	1	0	0	37
16:10-16:15	1	0	1	0	19	0	2	7	1	0	0	0	31
16:15-16:20	0	0	1	1	14	2	1	20	0	0	0	0	41
16:20-16:25	0	0	1	1	10	0	1	15	0	0	0	0	30
16:25-16:30	2	0	1	0	6	0	1	20	0	0	0	0	28
16:30-16:35	2	0	0	3	16	0	0	23	1	1	0	0	45
16:35-16:40	2	0	0	3	13	0	0	12	0	1	0	0	27
16:40-16:45	1	0	2	0	10	1	1	18	0	1	0	0	34
16:45-16:50	2	0	1	1	17	1	0	18	0	0	0	0	40
16:50-16:55	2	0	0	0	19	0	0	11	0	0	0	0	30
16:55-17:00	2	0	1	1	14	0	1	16	0	0	0	0	35
17:00-17:05	2	0	1	1	16	0	0	15	0	0	0	0	35
17:05-17:10	2	0	2	2	17	0	0	8	0	0	0	0	39
17:10-17:15	1	0	2	1	11	1	0	16	0	0	0	0	32
17:15-17:20	1	0	1	2	12	0	5	18	0	0	0	0	39
17:20-17:25	1	0	0	1	18	0	1	9	0	0	0	1	31
17:25-17:30	3	0	2	2	11	0	0	16	0	0	0	1	35
17:30-17:35	1	0	2	2	21	0	2	17	0	0	0	0	45
17:35-17:40	0	0	0	0	8	0	0	21	0	0	0	0	29
17:40-17:45	0	0	2	2	12	0	0	11	0	0	0	0	25
17:45-17:50	1	0	2	0	7	0	0	12	0	0	0	0	22
17:50-17:55	0	0	1	2	8	1	0	18	0	0	0	0	30
17:55-18:00	2	0	0	0	8	0	0	6	0	1	0	0	17
<b>Total Survey</b>	<b>26</b>	<b>0</b>	<b>24</b>	<b>24</b>	<b>314</b>	<b>6</b>	<b>19</b>	<b>364</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>786</b>
PHF	.7	0	.69	.56	.82	.5	.39	.85	.5	.5	0	0	.956
% Trucks	0	0	4.2	4.2	3.8	0	0	2.7	0	0	0	0	3.1
Stopped Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds	0	6	0	0	0	0	0	0	0	0	0	0	0
<b>Hourly Totals</b>													
16:00-17:00	14	0	11	9	165	4	11	197	2	4	0	0	417
16:15-17:15	14	0	12	11	162	5	7	192	1	2	0	0	406
16:30-17:30	17	0	12	14	173	3	8	180	1	2	0	2	412
16:45-17:45	13	0	12	15	176	2	9	176	0	0	0	2	405
17:00-18:00	12	0	13	15	149	2	8	167	0	0	1	2	369





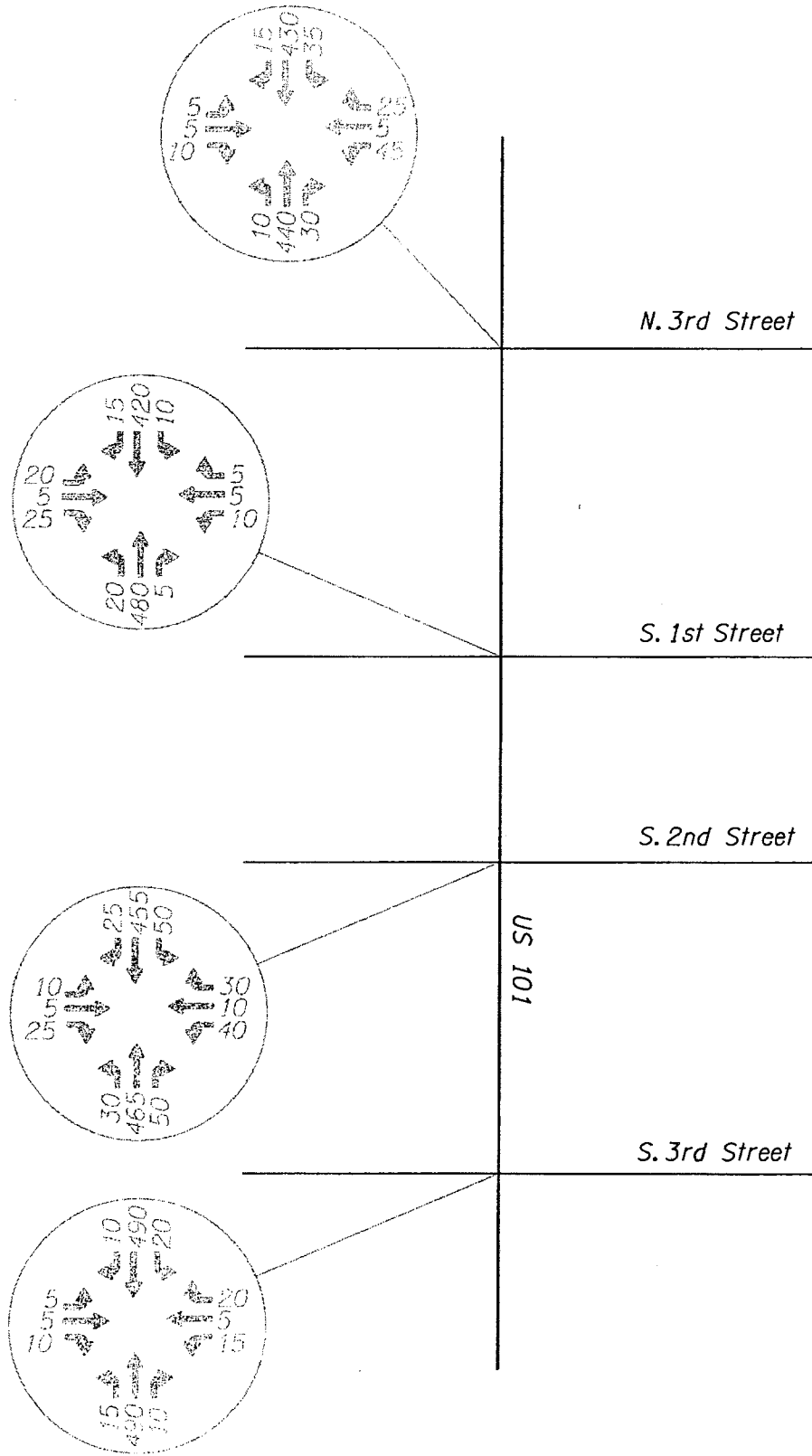




TRAFFIC VOLUME WORKSHEET													
INTERSECTION:		US 101 at S. 3rd											
FILE NO:		CTS Rockaway Beach City Hall Study											
Linear Growth Rate - Hwy 101		1.3%											
Count Date Seasonal Factor		1.18											
30th Highest Hour Seasonal Factor		0.74											
Factor to Apply to Count		1.60											
Growth Rate Factor to arrive at year 2022 volumes		1.26											
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND		
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT
<b>TRAFFIC COUNTS</b>													
3/30/02, Saturday		11	407	7	14	404	5	3	0	6	11	2	17
3/29/02, Friday		6	323	8	11	312	3	15	1	13	16	2	24
30th Highest Hour Volume		13	491	8	17	487	6	4	0	7	13	2	20
2002 30th Highest Hour Rounded Volumes		15	490	10	20	490	10	5	5	10	15	5	20
2022 30th highest hour volumes		17	619	11	21	615	8	5	0	9	17	3	26
Final 2022 30th Highest Hour Rounded Volumes		20	620	15	25	615	10	5	5	10	20	5	30
3/30/02, Saturday - US 101 Hourly Volumes		846			850								
3/29/02, Friday - US 101 Hourly Volumes		678			688								
Year 2001 US 101 30th Highest Hourly Volumes		1024			1024								
Saturday Factor btwn 30th highest and measured volumes		1.21			1.21								
Friday Factor btwn 30th highest and measured volumes		1.51			1.49								

**Part 3**  
**Existing 2002 30th-Highest-Hour Traffic Volumes**

Rockaway Beach Downtown Plan  
Existing 2002 30th Highest  
Hour Traffic Volumes



**Part 4**  
**Turn Lane Warrant Analysis**

## Left and Right Turn Lane Criteria - 30th Highest Hour Volumes

Project: Rockaway Beach Downtown Plan

Major Street/Minor Street	Direction	Left Turn Lane Analysis		Right Turn Lane Analysis	
		Warrant Met 2002	Warrant Met 2022	Warrant Met 2002	Warrant Met 2022
US 101/N. 3rd Street	Northbound US 101	Y	Y	N	Y
	Southbound US 101	Y	Y	N	N
US 101/S. 1st Street	Northbound US 101	Y	Y	N	N
	Southbound US 101	Y	Y	N	N
US 101/S. 2nd Street	Northbound US 101	Y	Y	Y	Y
	Southbound US 101	Y	Y	N	N
US 101/S. 3rd Street	Northbound US 101	Y	Y	N	N
	Southbound US 101	Y	Y	N	N

Major Street/Minor Street	Speed	Direction	Year	Left Turn Lane Analysis				Right Turn Lane Analysis	
				Advancing Volume	Opposing Volume	Y-Axis	X-Axis	Total Volume	Right Turn Volume
US 101/N. 3rd Street	55 kph	Northbound US 101	2002	480	445	925	10	470	30
		Southbound US 101		465	470	935	35	445	15
US 101/N. 3rd Street	55 kph	Northbound US 101	2022	Not Conducted - Meets Criteria in 2002				<b>590</b>	<b>35</b>
		Southbound US 101		Not Conducted - Meets Criteria in 2002				565	20
US 101/S. 1st Street	55 kph	Northbound US 101	2002	505	435	940	20	485	5
		Southbound US 101		445	485	930	10	435	15
US 101/S. 1st Street	55 kph	Northbound US 101	2022	Not Conducted - Meets Criteria in 2002				615	5
		Southbound US 101		Not Conducted - Meets Criteria in 2002				550	20
US 101/S. 2nd Street	55 kph	Northbound US 101	2002	535	480	1025	30	<b>515</b>	<b>50</b>
		Southbound US 101		530	515	1045	50	480	25
US 101/S. 2nd Street	55 kph	Northbound US 101	2022	Not Conducted - Meets Criteria in 2002				<b>650</b>	<b>65</b>
		Southbound US 101		Not Conducted - Meets Criteria in 2002				605	30
US 101/S. 3rd Street	55 kph	Northbound US 101	2002	515	500	1015	15	500	10
		Southbound US 101		520	500	1020	20	500	10
US 101/S. 3rd Street	55 kph	Northbound US 101	2022	Not Conducted - Meets Criteria in 2002				635	15
		Southbound US 101		Not Conducted - Meets Criteria in 2002				625	10

**Part 5**  
**Level of Service Definitions**

# Level-of-Service Definitions

Level of Service, based on average control delay, is defined for the intersection as a whole. Control delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the deceleration and acceleration delay, the stopped delay, the green ratio, and the v/c ratio for the lane group or approach in question. See below for traffic flow characteristics and delay ranges for each LOS.

Level of Service	Traffic Flow Characteristics
A	Level of service A describes operations with very low delay. This occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Level of service B describes operations with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	Level of service C describes operations with slightly higher delays that may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Level of service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
F	Level of service F is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios (those over 1.00) with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

**Part 6**  
**Existing Conditions Operational Analysis (Year 2002)**



HCM Unsignalized Intersection Capacity Analysis  
 7: N. 3rd Street & US 101 (Rockaway Beach)

12/03/02



Lane Configurations	↕		↕		↕		↕					
Sign Control	Stop		Stop		Free		Free					
Grade	0%		0%		0%		0%					
Volume (veh/h)	5	5	10	45	5	25	10	440	30	35	430	15
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 (low rate) (veh/h)	5	5	11	49	5	27	11	478	33	38	467	16
Pedestrians	10		10									
Lane Width (ft)	12.0		12.0									
Walking Speed (ft/s)	4.0		4.0									
Percent Blockage	1		1									
Right turn flare (veh)												
Median type	None		None									
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1108	1104	486	1092	1096	505	494				521	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1108	1104	486	1092	1096	505	494				521	
c, single (s)	7.1	6.5	6.2	7.4	6.5	6.2	7.1				7.1	
tC, 2 stage (s)												
f (s)	3.5	4.0	3.3	3.5	4.0	3.0	2.2				2.2	
p0 queue free %	97	97	98	72	97	95	99				96	
cV capacity (veh/h)	165	198	577	171	200	566	1061				1087	
Volume Total	22	82	522	322								
Volume Left	5	49	11	38								
Volume Right	11	27	33	16								
cSH	274	229	1061	1037								
Volume to Capacity	0.08	0.36	0.01	0.04								
Queue Length (ft)	6	38	1	3								
Control Delay (s)	19.3	29.2	0.3	1.0								
Lane LOS	C	D	A	A								
Approach Delay (s)	19.3	29.2	0.3	1.0								
Approach LOS	C	D										
Average Delay			3.0									
Intersection Capacity Utilization			76.2%									
IOU Level of Service			C									

HCM Unsignalized Intersection Capacity Analysis  
 9: S. 1st Street & US 101 (Rockaway Beach)

12/03/02



Lane Configurations	↕		↕		↕		↕					
Sign Control	Stop		Stop		Free		Free					
Grade	0%		0%		0%		0%					
Volume (veh/h)	20	5	25	10	5	5	20	430	5	10	420	15
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 (veh/h)	22	5	27	11	5	5	22	522	5	11	457	16
Pedestrians	10		10									
Lane Width (ft)	120		120									
Walking Speed (ft/s)	4.0		4.0									
Percent Blockage	1		1									
Right turn flare (veh)												
Median type	None		None									
Median storage (veh)												
Upstream signal (t)												
pX, platoon unblocked												
Conflicting Volume	1073	1077	475	1094	1082	534	483	537	507			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1073	1077	475	1094	1082	534	483	537				
C, Stage (s)	71	65	62	71	65	162	41	41				
tC, 2 stage (s)												
fFS	85	40	33	35	40	33	22	22				
p0 queue free %	88	97	95	94	97	99	98	99				
CM capacity (veh/h)	184	209	585	171	207	541	1071	1071				1022
Volume total	54	22	54	48								
Volume Left	22	11	22	11								
Volume Right	27	5	5	16								
cSH	285	218	1071	1022								
Volume to Capacity	0.19	0.10	0.02	0.01								
Queue Length (ft)	17	8	2	1								
Control Delay (s)	20.6	23.4	0.6	0.3								
Lane LOS	C	C	A	A								
Approach Delay (s)	20.6	23.4	0.6	0.3								
Approach LOS	C	C										
Average Delay											1.9	
Intersection Capacity Utilization											53.6%	
ICU Level of Service											A	

HCM Unsignalized Intersection Capacity Analysis  
 11: S. 2nd Street & US 101 (Rockaway Beach)

12/03/02



Lane Configurations	↕		↕		↕		↕	
Sign Control	Stop		Stop		Free		Free	
Grade	0%		0%		0%		0%	
Volume (veh/h)	10	5	25	40	10	30	60	455
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	11	5	27	43	11	33	63	495
Pedestrians	10		10					
Lane Width (ft)	12.0		12.0					
Walking Speed (ft/s)	4.0		4.0					
Percent Blockage	1		1					
Right turn flare (veh)								
Median type	None		None					
Median storage (veh)								
Upstream signal (ft)								
pX, platoon unblocked								
vC, conflicting volume	1263	1262	518	1255	1248	543	532	570
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1263	1262	518	1255	1248	543	532	570
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4.1
tC, 2 stage (s)								
fT (s)	3.5	4.0	3.8	3.5	4.0	3.8	2.2	2.2
p0 queue free %	91	96	95	65	93	94	97	95
CM capacity (veh/h)	119	153	336	126	156	335	1027	994
Volume total	48	87	82	573				
Volume Left	11	43	33	54				
Volume Right	27	38	54	27				
cSH	248	183	1027	994				
Volume to Capacity	0.18	0.48	0.68	0.05				
Queue Length (ft)	16	57	2	4				
Control Delay (s)	22.6	41.4	50.9	1.3				
Lane LOS	C	E	A	A				
Approach Delay (s)	22.6	41.4	50.9	1.3				
Approach LOS	C	E						
Average Delay			4.6					
Intersection Capacity Utilization			81.3%				D	

HCM Unsignalized Intersection Capacity Analysis  
 13: S. 3rd Street & US 101 (Rockaway Beach)

12/03/02



Lane Configurations	↕		↕		↕		↕	
Sign Control	Stop		Stop		Free		Free	
Grade	0%		0%		0%		0%	
Volume (veh/h)	5	5	10	15	5	20	15	490
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	5	5	11	16	5	22	16	533
Pedestrians	10		10					
Lane Width (ft)	12.0		12.0					
Walking Speed (ft/s)	4.0		4.0					
Percent Blockage	1		1					
Right turn flare (veh)								
Median type	None		None					
Median storage (veh)								
Upstream signal (ft)								
pX, platoon unblocked								
vC, controlling volume	1187	1178	548	1176	1178	548	553	553
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1187	1178	548	1176	1178	548	553	553
tC, single (s)	7.1	6.9	6.2	7.1	6.5	6.2	4.1	4.1
tC, 2 stage (s)								
P (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2
p0 queue free %	96	97	98	89	97	96	98	98
MC capacity (veh/h)	177	161	592	153	181	592	1008	1008
Volume Total	22	16	560	36				
Volume Left	5	16	16	22				
Volume Right	11	22	11	11				
cSH	249	245	1008	1008				
Volume to Capacity	0.09	0.18	0.02	0.02				
Queue Length (ft)	7	16	1	2				
Control Delay (s)	20.9	22.3	0.5	0.6				
Lane LOS	C	C	A	A				
Approach Delay (s)	20.9	22.3	0.5	0.6				
Approach LOS	C	C						
Average Delay			1.7					
Intersection Capacity Utilization			55.0%				ICU Level of Service	
							A	

**Part 7**  
**Growth Rate Calculations**

Growth Rate Calculations - Source: ODOT Website Transportation Volume Tables

**Hwy 101 - Manzanita**

MP	1997 ADT	2019 ADT	Number of years	Factor for 22 years	1 year growth
43.08	4600	6600	22	1.43	0.020
43.19	5800	9600	22	1.66	0.030
<b>Average Growth Rate</b>					<b>0.025</b>

**Hwy 101 - Nehalem**

MP	1997 ADT	2019 ADT	Number of years	Factor for 22 years	1 year growth
44.73	5800	9500	22	1.64	0.029
44.97	5900	8900	22	1.51	0.023
44.99	5900	8800	22	1.49	0.022
45.53	5500	7400	22	1.35	0.016
<b>Average Growth Rate</b>					<b>0.023</b>

**Hwy 101 - Rockaway Beach**

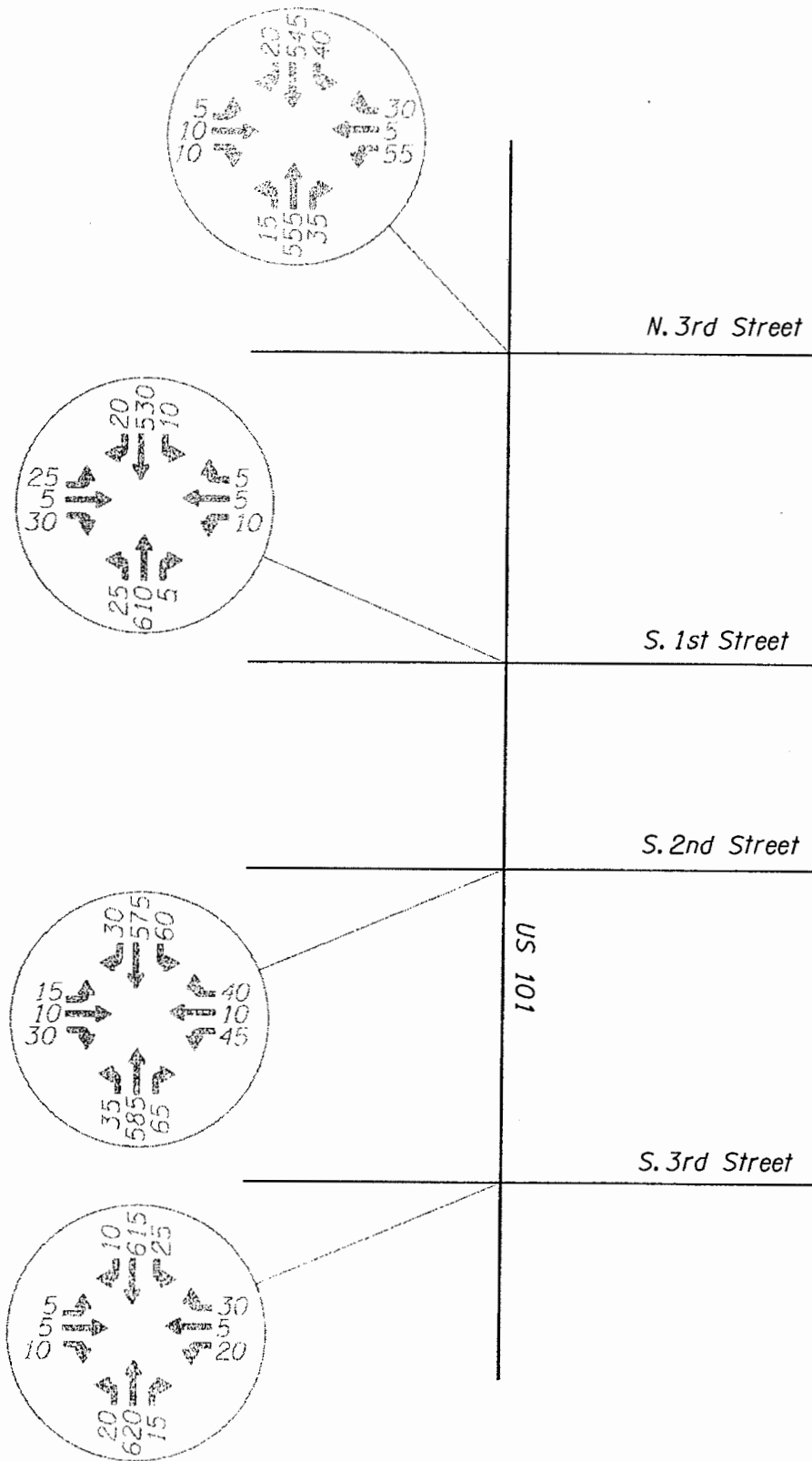
MP	1997 ADT	2019 ADT	Number of years	Factor for 22 years	1 year growth
49.26	4900	5500	22	1.12	0.006
50	5300	7000	22	1.32	0.015
50.86	6100	8400	22	1.38	0.017
50.88	6700	8700	22	1.30	0.014
51.77	6500	8600	22	1.32	0.015
<b>Average Growth Rate</b>					<b>0.013</b>

**Hwy 101 - Bay City**

MP	1997 ADT	2019 ADT	Number of years	Factor for 22 years	1 year growth
59.21	8800	14800	22	1.68	0.031
59.89	8700	14200	22	1.63	0.029
60.08	8800	14100	22	1.60	0.027
60.1	9900	11800	22	1.19	0.009
60.34	9800	13300	22	1.36	0.016
61.07	9800	14000	22	1.43	0.019
<b>Average Growth Rate</b>					<b>0.022</b>

**Part 8**  
**Forecasted 2022 30th-Highest-Hour Traffic Volumes**

# Rockaway Beach Downtown Plan Forecasted 2022 30th Highest Hour Traffic Volumes





**Part 9**  
**Future Conditions Operational Analysis (2022)**

HCM Unsignalized Intersection Capacity Analysis  
 7: N. 3rd Street & US 101 (Rockaway Beach)

12/03/2002



Intersection													
Lane Configurations	↕			↕			↕			↕			
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Volume (veh/h)	5	10	10	85	5	10	16	355	35	40	545	20	
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 (veh/h)	5	11	11	60	5	11	16	603	38	43	592	22	
Pedestrians	10			10									
Lane Width (ft)	24			24									
Walking Speed (ft/s)	4.0			4.0									
Percent Blockage	1			1									
Right turn flare (veh)													
Median type	None			None									
Median storage (veh)													
Upstream signal (ft)													
pX, platoon unblocked													
VC conflicting volume	1390	1384	613	1371	1376	632	624				651		
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1390	1384	613	1371	1376	632	624				651		
IC, stage 1 (s)	7.1	6.5	6.2	7.1	6.5	6.2	7.1				7.1		
IC, 2 stage (s)													
IC (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.2				3.2		
p0 queue free %	95	92	98	43	96	93	98				95		
SM capacity (veh/h)	101	132	488	105	134	476	949				927		
Approach													
Volume Total	27	98	658	651									
Volume Left	5	60	16	43									
Volume Right	11	38	38	22									
cSH	171	145	949	927									
Volume to Capacity	0.16	0.68	0.02	0.05									
Queue Length (ft)	14	95	1	4									
Control Delay (s)	29.9	70.6	0.5	1.2									
Lane LOS	D	F	A	A									
Approach Delay (s)	29.9	70.6	0.5	1.2									
Approach LOS	D	F											
Intersection Summary													
Average Delay				6.1									
Intersection Capacity Utilization				92.2%									

HCM Unsignalized Intersection Capacity Analysis  
 9: S. 1st Street & US 101 (Rockaway Beach)

12/03/2002



Lane Configurations	↕		↕		↕		↕					
Sign Control	Stop		Stop		Free		Free					
Grade	0%		0%		0%		0%					
Volume (veh/h)	25	15	30	10	5	5	25	610	5	10	580	20
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 (veh/h)	27	5	33	11	5	5	27	668	5	11	575	22
Pedestrians	10		10									
Lane Width (ft)	12.0		12.0									
Walking Speed (ft/s)	4.0		4.0									
Percent Blockage	1		1									
Right turn flare (veh)												
Median type	None		None									
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
Upstream flow volume	1347	1352	597	1374	1360	676	608	678				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1347	1352	597	1374	1360	676	608	678				
tC, single (s)	7.1	6.5	6.2	6.5	6.2	6.1	6.1	6.1				
tC, 2 stage (s)												
t (s)	3.5	4.0	3.3	3.5	4.0	3.3	3.2	3.2				
p0 queue free %	77	96	93	90	96	99	97	99				
CM capacity (veh/h)	117	142	499	106	140	450	962	906				
Volume to a	65	22	696	609								
Volume Left	27	11	27	11								
Volume Right	38	5	5	22								
cSH	194	142	962	906								
Volume to Capacity	0.94	0.15	0.03	0.01								
Queue Length (ft)	35	13	2	1								
Control Delay (s)	32.7	35.0	0.7	0.3								
Lane LOS	D	E	A	A								
Approach Delay (s)	32.7	35.0	0.7	0.3								
Approach LOS	D	E										
Average Delay			2.6									
Intersection Capacity Utilization			75.3%		CU Level of Service		C					

HCM Unsignalized Intersection Capacity Analysis  
 11: S. 2nd Street & US 101 (Rockaway Beach)

12/03/2002



Lane Configurations	↕				↕				↕				↕			
Sign Control	Stop				Stop				Free				Free			
Grade	0%				0%				0%				0%			
Volume (veh/h)	15	10	30	45	10	40	35	585	65	60	575	30				
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 (veh/h)	16	11	33	49	11	43	38	636	71	65	625	33				
Pedestrians	10				10											
Lane Width (ft)	12.0				12.0											
Walking Speed (ft/s)	4.0				4.0											
Percent Blockage																
Right turn flare (veh)																
Median type	None				None											
Median storage (veh)																
Upstream storage (ft)																
pX, platoon unblocked																
vC, conflicting volume	1578	1574	651	1567	1555	681	668					717				
vC1, stage 1 conf vol																
vC2, stage 2 conf vol																
vCu, unblocked vol	1578	1574	651	1567	1555	681	668					717				
tC, single (s)																
tC, 2 stage (s)																
lT (s)	3.5		1.6	3.5	4.0	3.3	2					2				
p0 queue free %	75	89	93	29	89	90	96					93				
CM capacity (veh/h)	166	95	164	169	98	147	94					877				
Volume Total	60	103	745	723												
Volume Left	16	49	38	65												
Volume Right	39	45	71	33												
cSH	138	112	914	877												
Volume to Capacity	0.43	0.92	0.04	0.07												
Queue Length (ft)	48	142	3	6												
Control Delay (s)	49.5	136.0	1.1	1.9												
Lane LOS	E	F	A	A												
Approach Delay (s)	49.5	136.0	1.1	1.9												
Approach LOS	E	F														
Average Delay	11.8															
Intersection Capacity Utilization	101%				101%				101%				101%			
Level of Service	F				F				F				F			

HCM Unsignalized Intersection Capacity Analysis  
 13: S. 3rd Street & US 101 (Rockaway Beach)

12/03/2002



Lane Configurations	↕		↕		↕		↕	
Sign Control	Stop		Stop		Free		Free	
Grade	0%		0%		0%		0%	
Volume (veh/h)	5	5	10	20	5	30	20	620
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	5	5	11	22	5	39	22	674
Pedestrians	10		10					
Lane Width (ft)	12.0		12.0					
Walking Speed (ft/s)	4.0		4.0					
Person Blockage	1		1					
Right turn flare (veh)								
Median type	None		None					
Median storage (veh)								
Upstream signal (ft)								
pX, platoon unblocked								
vC, conflicting volume	1499	1482	684	1477	1479	692	689	700
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1499	1482	684	1477	1479	692	689	700
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4.1
tC, 2 stage (s)								
f (s)	3.5	4.0	3.9	6.5	4.0	3.9	2.2	2.2
p0 queue free %	94	95	98	76	95	93	98	97
cm capacity (veh/h)	84	116	445	92	117	440	398	889
Volume Total	22	60	712	707				
Volume Left	5	22	22	27				
Volume Right	11	38	76	71				
cSH	160	167	898	889				
Volume to Capacity	0.14	0.36	0.02	0.03				
Queue Length (ft)	11	37	2	2				
Control Delay (s)	30.9	38.0	0.6	0.8				
Lane LOS	D	E	A	A				
Approach Delay (s)	30.9	38.0	0.6	0.8				
Approach LOS	D	E						
Average Delay			2.6					
Intersection Capacity Utilization			75.8%		ICU Level of Service		C	