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## EXECUTIVE SUMMARY

### INTRODUCTION

This Refinement Plan details the transportation solutions for a 1.5 square mile area in the south end of the City of Bandon (City) where recent development and annexation activity has occurred. The recommended street improvements are primarily intended to serve new development in the study area while also working to reduce reliance on US 101 for local trips. The study area includes properties within the City and some properties in unincorporated Coos County (County) – refer to Figure 1 for details.

This refinement plan lays out a street and trail connectivity plan that is consistent with the initial concepts identified in the City's Transportation System Plan, and works around the known constraints (i.e., environmental and existing development) in this area. This plan also provides for changes to the Urban Growth Boundary (UGB), which will add land east of US 101 in the study area, while removing land south of the study area.

The Refinement Plan identifies improvements for mid-term and long-term growth, to allow the city, county and state to phase in improvements as needed. Two land use scenarios were evaluated: one for 2023 and one for full build-out of the study area.

The Refinement Plan will be incorporated into the Bandon Transportation System Plan (TSP) that was adopted in 2000. The amendments to City's development code and a funding program for the recommended improvements are also included in the Refinement Plan.

### RECOMMENDED IMPROVEMENTS

The planned roadways in the TSPs were found to not be adequate to serve the expected future traffic demand. Additional street network improvements were developed to help meet mobility standards with the traffic generated by the future development scenarios and promote bicycle and pedestrian travel.

The recommended future street network incorporates planned street projects in the TSPs and new street network extensions. Environmental constraints and existing development were considered, such as Johnson Creek and the existing Bandon Face Rock Golf Course. Wetlands were constraints in the northwest portion of the study area. New Developments will still be required to conduct a Traffic Impact Study to determine their individual impact and necessary mitigations.

The recommended future street network and functional classification designations are shown in Figure 2 and are summarized below. However, actual development could result in significant changes.

- Face Rock Drive (Collector) – Extend east to US 101 at 20<sup>th</sup> Street
- 20<sup>th</sup> Street (Collector) – Extend from US 101 to Rosa Road
- Doberman Lane (Collector) – Extend east to Fillmore Avenue and north to Rosa Road
- Franklin Avenue (Collector) – Extend Salty Dog Drive North to Cascara Avenue and Franklin Avenue
- Edna Street (Collector) – Extend west to Beach Loop Road
- Lincoln Way (Local) – Extend north to Jackson Avenue
- Spyglass Drive (Local) – Extend east to US 101
- Traffic signal (or roundabout) at Sea Bird Loop and US 101

Figure 1: Study Area Map



Figure 2: Future Street Network Classification



## FINANCING PROGRAM

The financing program reviewed the City's current transportation funding sources to determine if any of the recommended improvements would be reasonably funded by the planning horizon (year 2030) and to identify potential funding sources for any unfunded improvements.

The potential funding responsibilities for the improvements are \$20.4 million from private sources (development) and \$3.9 million from public sources (City of Bandon, ODOT).

The City's current funding sources for transportation improvements were reviewed to determine if any of the recommended improvements would be reasonably funded by the planning horizon (year 2030). The City collects system development charges (SDCs) from new development to fund projects needed to support future growth. The collected transportation SDC fees are used to fund a portion of the street system improvements identified on the City's transportation capital improvement (CIP) list.

The following projects are included on the CIP list and identified as fiscally constrained:

- Face Road Drive extension
- 20<sup>th</sup> Street extension
- Doberman Lane extension
- Franklin Avenue extension
- Intersection improvements

The remaining recommended improvements are considered unfunded and would require additional sources for funding beyond those currently set by the City.

Most of the recommended improvement projects will be unfunded in 2030 based on current revenue sources. The Financing Program chapter provides information on several funding options available for unfunded transportation improvement projects.

## IMPLEMENTATION

The Findings and Amendments chapter presents the proposed amendments to the City of Bandon Transportation System Plan and development code and also the related findings associated with the adoption of the proposed amendments.

The Findings and Amendments chapter also provides compliance findings for state and local land use policies, rules, and procedural requirements associated with the adoption of an amendment to the City of Bandon's Transportation System Plan for local circulation improvements in the southern part of the city. Findings also cover proposed amendments to the city's development code regulations that implement the TSP.

## GOALS AND POLICIES

### OVERVIEW

Since the city adopted their Transportation System Plan in 2000, Bandon moved ahead with more development through the central and north areas of the city. The city is about to make a significant adjustment to the Urban Growth Boundary, to remove Sunset City from UGB while adding a similar sized area east of Highway 101.

The primary purpose of this refinement plan is to provide clear direction and policies to complete an integrated local street network that was previously identified in the TSP, but is now essential with the pending UGB changes. The study area for the Refinement Plan covers roughly 1.5 square miles partially within the City of Bandon and partially within unincorporated Coos County. It is bounded by 18<sup>th</sup> Street to the North, Harlem Avenue to the east, Polaris Street to the south, and Beach Loop Road to the west. Transportation goals and objectives for the Refinement Plan study were developed from the adopted TSP, with additional specific policies added to address the focus of this new work.

A revised list of goals and policies appear in the following sections.

### GOALS AND OBJECTIVES

The goals and objectives adopted in three documents (City of Bandon TSP adopted in 2000, South Bandon: 13<sup>th</sup> Street to Kehl Road Access Management Plan, and South Bandon Refinement Plan) were reviewed and compiled to form the policy based for the Refinement Plan.

The City of Bandon's TSP lays out a policy framework regarding transportation services. Goals are defined as brief guiding statements that describe a desired result. Policies and strategies describe how to move the community in the direction of completing each goal. The policy element of the plan would generally be organized as follows:

- Goal Statement - A statement that describes an ideal condition that the city desires to attain over time for various aspects of the transportation system. For example, provide access to safe, affordable and reliable transportation choices for all Bandon residents and businesses;
- Policy Statements – One or more statements that are intended to help define positions, requirements, or rules that the city will use to achieve the goal; and
- Strategy statements – One or more statements that are intended to outline specific action steps that will be taken to achieve a policy or goal.

The following summarizes the proposed transportation policies and strategies. It includes specific language for modified and/or new policies that are proposed in response to local, regional or state regulations, such as the state Transportation Planning Rule and portions of the Oregon Transportation Plan.

**Transportation Goal:** A transportation system meeting the complete needs of individuals, businesses, and institutions for the transport of people and goods, by multiple means, in a safe, efficient and economical manner.

**Objectives:**

1. To develop a system of sidewalks, walking paths, and bicycle facilities linking major areas of the community.
  2. To minimize vehicular trips to the greatest extent possible, given the practical opportunities for demand reduction and alternate modes of travel.
  3. To complete the “backbone” bicycle system, as described in the TSP as soon as possible.
  4. To complete a collector street bicycle system which provides connections among all activity centers within ten years (from 2000 adoption date).
  5. To complete the “backbone” pedestrian system, as described in the TSP as soon as possible.
  6. To complete a collector street pedestrian system which provides connections among all activity centers within ten years (from 2000 adoption date).
  7. Reduce access points and turning movements onto Highway 101.
3. The City will coordinate with the Oregon Department of Transportation (ODOT) on access management along State Highways.
  4. The City shall ensure adequate pedestrian safety by continued development of sidewalks and alternate routes for pedestrian traffic.
  5. Development proposals shall be reviewed to assure the continuity of sidewalks, trails, bicycle facilities, and pedestrian ways with adjoining properties and rights-of-way.
  6. The City shall consider the impact of land use actions, including subdivisions and other land decisions, on existing or planned transportation facilities.
  7. In order to achieve a balance between roadway size and facilitating efficient transportation, the arterial and collector street network shall be designed to and maintained at the following levels:
    - a. Collectors will operate at the Highway Capacity Manual Level of Service (LOS) “D” standard during peak hours.
    - b. Arterials (State Highways) will operate at the volume-to-capacity (v/c) standards specified in the most recently adopted Oregon Highway Plan.

**Policies:**

1. All street improvements, with the exception of open, local access streets, shall comply with the Street Standards specified in Table 1 of Appendix B in the Bandon TSP.
2. The City will require limited or shared access points along arterials and collectors, as necessary, to preserve traffic-carrying capacity.
8. Direct access onto arterials and collectors shall be controlled. Access to

a state highway is subject to regulations of the Oregon Department of Transportation (ODOT) and reviewed with the City of Bandon. If regulations conflict, the more restrictive requirements apply.

9. The primary function of local access streets is to serve the circulation and access needs of adjacent and abutting properties. Through traffic on these streets shall be discouraged.
10. The City shall plan for, ensure development of, and maintain a local access street system at a service level and scale which:
  - a. Recognizes the multi-use functions of neighborhood streets for walking, bicycling, and social interaction, and which preserves the privacy, quiet, and safety of neighborhood living.
  - b. Provides safe access to abutting land.
  - c. Allows adequate and safe circulation from residential properties to the major street systems and neighborhood activity centers.
  - d. In residential areas of 20 or more units, ensures that a secondary access be provided for emergency vehicles.
11. Bicycle and pedestrian facilities shall be provided on, or nearby, new arterials and collectors.

12. All development proposals, Comprehensive Plan amendments, and zone changes shall conform to the adopted TSP.

#### NEW OBJECTIVES FOR THE STUDY AREA

Two additional objectives should be added that specifically address the needs of the Study Area. The TSP should be amended to include these objectives and policies.

1. Plan for needed north-south and east-west connectivity within the Study Area while reducing reliance on US 101 for local trips.
2. Plan for connections to key destinations outside the Study Area.

#### Policies:

1. The City shall develop a street network that parallels US 101 for local trips. The local street network shall provide for residential uses to use major existing routes, separate from commercial uses along US 101.
2. The City shall incorporate bicycle and pedestrian modal options with all improvements.
3. The City shall develop a trail and pathway network that connects neighborhoods and key designations outside of the Study Area.

## PLANS, POLICIES, AND STANDARDS

### INTRODUCTION

This chapter summarizes the plans, policies, and other pertinent background information at the state and local levels that affect transportation planning in the City of Bandon, and in particular the study area for this project. As stated in the scope, the study area includes about 1.5 square miles within the city, the city's Urban Growth Boundary (UGB), and Coos County. It is bounded approximately by 18<sup>th</sup> Street to the north, Harlem Avenue to the east, Polaris Street to the south, and Beach Loop Road to the west.

Although each document reviewed in this memorandum contains numerous policies and sets of information, the most pertinent policies and information are represented here in order to inform the Bandon Transportation System Plan (TSP) update of its local street network and bicycle and pedestrian planning.

The final section contains summaries of regulatory documents that contain information pertinent to the development and adoption of an updated TSP for the City of Bandon. The documents reviewed were specified in the project scope and are listed below.

### STATE/ODOT

- Transportation Planning Rule (OAR 660-012)
- Oregon Transportation Plan
- Oregon Highway Plan
- Oregon Bicycle and Pedestrian Plan
- Access Management Rule (OAR 734-051)
- 2008-2011 Statewide Transportation Improvement Program (STIP)
- Draft US 101 Access Management Plan

### COOS COUNTY

- Coos County Comprehensive Plan (1985)
- Coos County Transportation System Plan/Transportation Improvement Program

### CITY OF BANDON

- City of Bandon Residential Lands Inventory (2003)
- City of Bandon Comprehensive Plan (1991, amended 2003)
- City of Bandon Development Code (as of 06/01/2008)
- City of Bandon Transportation System Plan, Volume 2 (Existing Plans, Policies, and Standards) and Volume 6 (Implementing the Transportation System Plan: Goals, Objectives, and Policies) (2000)
- South Bandon Refinement Plan (1997)
- South Bandon (13<sup>th</sup> Street to Kehl Road) Access Management Plan (2003)

## SUMMARY OF FINDINGS

Key standards, policies and requirements pertinent to the Refinement Plan were summarized below. The full texts of the summary elements are presented in the following sections.

- Use 2008 Oregon Transportation System Planning Guidelines for overall transportation system planning assistance.
- Document the steps of the TSP update in a matrix to demonstrate TPR compliance.
- Address new TPR requirements (OAR 660-12-0050, -0055, and 0060) that direct the amendment of local TSPs when land use plan amendments are proposed.
- Comply with State access management standards for State Highway 101 as it travels through Bandon. Access spacing ranges from 520 feet (posted speed limit under 25 mph) to 1320 feet (posted speed limit of 55 mph or greater).
- Comply with the City of Bandon TSP for access spacing standards on collector and local roadways. Collector streets shall have a minimum spacing of 100 feet between driveways and 500 feet between intersections. Local residential streets shall allow driveway access to all lots, and shall have 250 feet between intersections.
- Follow the guidance of OHP policies related to:
  - Coordination of land use and transportation planning coordination between the City, County, and the State;
  - Off-system improvements, where the State may financially assist local jurisdictions in local road projects that are cost-effective improving conditions on state facilities.
  - Mobility standards on State Highway 101 and for signalized intersections of:
    - 0.85 v/c inside UGB where posted speed is 35 mph or less
    - 0.80 v/c inside UGB where posted speed is between 35 mph and 45 mph
    - 0.75 v/c inside UGB where posted speed is 45 mph or greater
    - 0.75 v/c outside the UGB
  - Mobility standards for unsignalized approaches to State Highway 101 of:
    - 0.90 v/c inside UGB where posted speed is 35 mph or less
    - 0.85 v/c inside UGB where posted speed is between 35 mph and 45 mph
    - 0.80 v/c inside UGB where posted speed is 45 mph or greater
    - 0.80 v/c outside the UGB
  - Based on the Bandon TSP adopted in 2000, collector streets will operate at a Level-of-Service D during peak hours.
  - Plan for multimodal transportation including bicycle and pedestrian access.
  - Account for the transportation impacts of proposed commercial and residential development developments in the city.

Appendix A contains the Plan and Policy Review section.

## LANDS INVENTORY

### INTRODUCTION

This chapter provides an inventory and assessment of existing land use conditions within the study area, including natural resources that may impact future development patterns. The existing conditions will be used in developing future land use scenarios and associated street networks in the project's next phase.

The study area includes about 1.5 square miles within the City of Bandon, Oregon, the city's Urban Growth Boundary (UGB), and Coos County. It is bounded approximately by 18<sup>th</sup> Street to the north, Harlem Avenue to the east, Polaris Street to the south, and Beach Loop Road to the west as shown in Figure 1.

Existing land conditions in the study area were assessed based on the following:

- A 2003 Bandon Buildable Lands Inventory<sup>1</sup>, updated using recent permitting activity;
- Coos County tax assessor data;
- City and county zoning maps;
- Location of wetlands identified on the Bandon Wetlands Inventory (PHA, 2003) and maps from the National Wetlands Inventory website;
- Hazardous material sites identified on the Oregon Department of Environmental Quality (DEQ)

Environmental Cleanup Site Information database;

- Sensitive threatened and endangered, species identified by the Oregon Natural Heritage Program.

### SUMMARY OF FINDINGS

Key findings pertinent to the Refinement Plan were summarized below. The full texts of the summary elements are presented in the following sections.

- Approximately one-quarter of the Bandon study area is under Coos County jurisdiction; the remaining three-quarters are either within the city limits or the city's Urban Growth Boundary (UGB).
- There are currently an estimated 348 dwelling units in the study area.

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<sup>1</sup> "City of Bandon Residential Lands Inventory", prepared by ECONorthwest, May 2003.



## ZONING

Approximately one-quarter of the Bandon study area is under Coos County jurisdiction; the remaining three-quarters are either within the city limits or the city's Urban Growth Boundary (UGB). Land that is within the Bandon city limits has city zoning designations, while land that is outside the city limits, including land within the UGB, has county zoning designations.

### CITY ZONING

Within the study area, there are four applicable city zoning designations: CD (Controlled Development Zone), R1 (Residential 1), C2 (General Commercial), and NR (Natural Resources and Open Space).

#### CD-1 (Controlled Development Zone 1).

The majority of city land in the study area – approximately 320 acres - is zoned CD-1, and it generally comprises the western edge of the study area. The purpose of the CD-1 zone is to protect and enhance Bandon's oceanfront by controlling the nature and scale of development. It allows a mix of uses, including residential, tourist commercial and recreational. Residential uses are limited to single-family and duplex structures; no multi-family development is permitted in this zone. Tourist commercial uses include hotel/motels, restaurants, gift shops and vacation rental dwellings. No structures are permitted in areas that have been designated as foredunes.

R1 (Residential 1) zone. The intent of the R1 zone is to provide sufficient and desirable space in appropriate locations for residential uses and to protect these areas against congestion, nuisance and objectionable uses which reduce the quality and value of these areas for residential purposes. There are two sections of R1 land near the center of the study area, north and south of Seabird Lane. They comprise approximately 47 acres. Single-family, duplex, and multifamily development is permitted in this zone, along with community service uses such as schools, parks, churches, hospitals, and community centers.

C2 (General Commercial) zone. There is a relatively small strip of C2 land within the study area that occupies approximately 42 acres of land on 14 parcels along the west side of Highway 101. The purpose of C2 zoning is to provide sufficient and appropriate space for the general shopping, business and commercial needs of the city and surrounding areas, and to encourage the development of such space in a pleasant and desirable manner. These areas are intended to encourage the continuing quality of business retail services and to protect these uses from other uses that would break up such continuity. Permitted uses within the C2 zone include a variety of commercial retail, limited manufacturing, some community services and recreational uses. Single-family dwellings also are allowed in the C2 zone.

NR (Natural Resource and Open Space) zone. Within the study area, there is one 1.3 acre parcel of land that is zoned NR. This parcel bi-sects Johnson Creek and extends from Beach Loop Drive at the west end to the Bandon city limits at the east end. The purpose of the NR zone is to protect important natural resources, such as open space areas, significant habitats, scenic views, and wetlands and watersheds. In the NR zone, permitted uses are limited to those uses that are consistent with protection of natural values, such as wildlife sanctuaries, parks, low-intensity residential, and limited recreational and agricultural uses.

## COUNTY ZONING

Coos County zoning designations found within the Bandon study area include UR-1 and UR-2 (Urban Residential), RR-2 and RR-5 (Rural Residential), EFU (Exclusive Farm Use), C-1 (Commercial), IND (Industrial), AO (Airport Operations), and F (Forest).

UR-1 and UR-2 (Urban Residential). These zones are used only within urban growth boundaries and unincorporated community boundaries. Development in the UR-1 zone is limited to detached single-family residences, while the UR-2 zone permits duplex and multi-family development. Some farm uses and limited recreational uses are also permitted in the UR zones. Generally, commercial uses are not permitted. Within the study area, the UR zones are located in the northwest quadrant, adjacent to the Bandon city limits.

RR-2 and RR-5 (Rural Residential). There are areas of RR-2 and RR-5 land located in the eastern half of the study area, both inside and outside the Bandon UGB. The purpose of these zones is to provide for small acreage home sites outside of urban growth boundaries, where a moderate intensity of land development is appropriate, but where urban services and facilities may not be available or necessary. They are intended to serve as transition areas between more urban development and exclusive farm uses. As such, farm and forest uses are permitted in the RR zones, along with single-family residential development and some limited community service uses. Most commercial uses are not permitted.

EFU (Exclusive Farm Use). The purpose of the EFU zone is to protect valuable farm land within Coos County and minimize conflict between farm and non-farm uses. There is EFU land located along the eastern edge of the Bandon study area. Uses permitted in this zone are limited to farm and farm-related activities, with some provisions for residential dwellings.

C-1(Commercial). Within the study area, there is C-1 land along both sides of Highway 101, both inside, and outside of, the Bandon UGB. The intent of the C-1 zone is to provide for commercial retail and service opportunities within urban growth boundaries and to recognize existing commercial uses outside urban growth boundaries. Some limited single-family residential development is permitted in the C-1

zone, along with a mix of commercial, retail, and community service uses.

**IND(Industrial).** The purpose of the "IND" district is to provide adequate land to meet industrial growth needs and to encourage diversification of the area's economy accordingly. The "IND" district may be located without respect to Urban Growth Boundaries, as consistent with the Comprehensive Plan. There is a small area of IND land in the northeast corner of the Bandon study area. The lots are relatively small and are inside the Bandon UGB.

**AO (Airport Operations).** The southeast corner of the study area is zoned AO. The purpose of this zone is to recognize those areas devoted to or most suitable for immediate operational facilities necessary for commercial and non-commercial aviation. Airports and airport-dependent uses are permitted

in this zone, along with limited agricultural uses. Generally, new residential and commercial development is not permitted.

**F (Forest).** The purpose of the "F" district is to designate forest lands and protect them for forest uses, except where findings establish that certain limited non-forest uses may be allowed. Some of the areas covered by the "F" zone are exclusive forest lands, while other areas include a combination of mixed farm and forest uses. There is one 18-acre parcel of Forest land within the Bandon study area.

Table 1 summarizes city and county zoning within the Bandon study area.

Table 1: City and County Zoning Summary within the Study Area

Zone	City or County	Acres
C2 (General Commercial)	City	42.29
CD (Controlled Development)	City	320.19
NR (Natural Resources Open Space)	City	1.34
R1 (Residential)	City	47.49
EFU (Exclusive Farm Use)	County	86.43
F (Forest)	County	18.21
IND (Industrial)	County	104.90
AO (Airport Overlay)	County	31.28
C-1 (Commercial)	County	61.39
RR-2 (Rural Residential)	County	91.98
RR-5 (Rural Residential)	County	29.54
UR-1 (Urban Residential)	County	63.70
UR-2 (Urban Residential)	County	68.38
	<b>Total Acres</b>	<b>967.10</b>

## BUILDABLE LANDS & HOUSING

The assessment of buildable lands in the Bandon study area was taken from the Buildable Lands Inventory and Residential Lands Inventory (ECONorthwest, May 2003) and from Coos County tax assessor data.

Table 2 summarizes the amount and type of buildable lands within the Bandon study area<sup>2</sup>.

Table 2: Bandon Study Area - Buildable Lands Summary

Zoning Designation	Total Land (acres)	Buildable Land* (acres)
CD (Controlled Development)	320	91
C-1 or C2 (Commercial)	103	42
IND (Industrial)	105	32
R1 (Residential)	47	33
RR-2 (Rural Residential)	92	17
RR-5 (Rural Residential)	30	5
UR-1 (Urban Residential)	64	18
UR-2 (Urban Residential)	68	54
<b>Total</b>		<b>292</b>

\*Land was assumed to be buildable if it was listed as “unimproved” per the county tax assessor data.

The amount of existing dwelling units within the study area was estimated using the existing land use data from the county. If a parcel was listed as “residential - improved”, it was assumed to contain one single-family dwelling. Accessory dwelling units, condominiums, and

attached dwellings were accounted for where that detail was provided. There was one 3.3-acre parcel listed as a mobile home park; however, no additional information was available and no assumptions were made regarding number of dwelling units for that parcel.

Based on the above assessment, there are an estimated 348 dwelling units in the study area. This includes approximately 60 condominiums, attached housing units (duplex or fourplex), and accessory apartments.

<sup>2</sup> Existing land use information was not available for approximately 60 parcels encompassing roughly 35 acres of land. Therefore, the estimates of buildable land and housing are likely low because any unimproved land or dwelling units in those 60 parcels were not accounted for.

## NATURAL RESOURCES

There are identified natural resources within the study area that may constrain future development in those areas. Information regarding natural resources was taken primarily from the 2003 Bandon Residential Lands Inventory.

**Wetlands.** An inventory of wetlands within the Bandon study area was conducted using a 2003 Local Wetlands Inventory and the U.S. Fish and Wildlife Service's National Wetlands Inventory<sup>3</sup>. See Appendix B for maps. The inventory shows a number of wetland areas within the study area, including Estuarine and Marine Deepwater and Freshwater Wetlands. It is possible that non-mapped wetlands also exist in the study area; development on properties with unmapped wetlands may be constrained as a consequence.

**Riparian vegetation.** Riparian vegetation surrounding wetlands is considered significant habitat and is identified on National Wetlands Inventory Maps. These areas must be protected and are not available for development.

**Estuarine Areas.** There are some areas within the study area that are identified as protected estuarine resources under Goal 16. Development is not explicitly prohibited in estuarine areas, but these areas may have lower development potential and/or carrying capacity.

**Coastal shorelands.** Many areas along the coast are protected as coastal shorelands under Goal 17. Development is not prohibited in these areas, but Bandon's policy is to conserve, protect and restore these areas whenever possible.

**Beaches and dunes.** Per the Bandon Comprehensive Plan, identified foredunes are not available for residential, commercial, or industrial development. There may be foredunes within the Bandon study area that would limit the amount of allowable development in those areas.

A detailed assessment of the amount of acreage that is constrained due to the presence of natural resources was not conducted. Therefore, the amount of buildable land within the study area, and the carrying capacity of that land, may be impacted as individual parcels are assessed for future development.

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## HAZARDOUS MATERIAL SITES

An assessment of hazardous material sites within the study area was conducted using the Environmental Cleanup Site Information (ESCI) database<sup>4</sup>. This database is maintained by the Oregon Department of Environmental Quality (DEQ) in order to track sites in Oregon with potential or known contamination from hazardous substances, and to document sites where DEQ has determined that no further clean-up action is required.

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<sup>3</sup> <http://www.fws.gov/wetlands/Data/Mapper.html>

<sup>4</sup> <http://www.oregondeq.com/lq/ecsi/ecsi.htm>

The ESCI database contained one site listing (Site ID 595, tax lot 28S 15W 36 0900) located along Highway 101 at Edna Street within the Bandon study area. Investigation of this site by DEQ revealed possible petroleum products in the ground. The amounts of petroleum product, and any associated hazard, were not known. The site is not designated as a Brownfield Site and DEQ determined that no further action was necessary.

It is possible that there are contaminated sites within the study area that have not been identified by DEQ and do not appear in the ESCI database. Conversely, because DEQ tracks *potential* contamination, the appearance of a site in the ESCI database does not necessarily mean the site is contaminated.

In addition, a search for sites on the Environmental Protection Agency's Superfund Sites<sup>5</sup> database was also conducted. No Superfund Sites have been identified within the city of Bandon or the study area.

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## ENDANGERED SPECIES

The assessment of endangered species that may be present within the Bandon study area was done using the Rare, Threatened and Endangered Species of Oregon list, compiled by the Oregon Natural Heritage Program (ONHP) in 2007. This list is available by county on the ONHP website<sup>6</sup>. It contains all plant and animal species that are listed as endangered or threatened under the federal Endangered Species Act (ESA), including those that have

been proposed, but not officially listed, for protection under the ESA. It also includes species that have been identified by the Oregon Fish and Wildlife Commission as Sensitive Species, which are native vertebrates that are likely to become endangered or threatened throughout their range in Oregon.

All animal and plant species that were identified for Coos County are shown in Appendix C and D respectively. Site-specific data for the study area is not available at this time. The presence of these species in Coos County does not necessarily imply their presence within the study area. However, it is important to note that if endangered species are found in the study area, it could impact the amount of developable land estimated in the Buildable Lands Inventory. The presence of endangered species on a site could limit the amount and type of development that may be permitted there.

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<sup>5</sup> <http://www.epa.gov/superfund/sites/index.htm>

<sup>6</sup>

[http://oregonstate.edu/ornhic/data\\_download.html](http://oregonstate.edu/ornhic/data_download.html)

## EXISTING TRANSPORTATION CONDITIONS

### INTRODUCTION

This chapter provides an inventory and assessment of transportation facilities and existing conditions within the study area. The existing conditions will be used to assess the transportation needs of the study area. The study area includes about 1.5 square miles within the City of Bandon, Oregon, the city's Urban Growth Boundary (UGB), and Coos County. It is bounded approximately by 18<sup>th</sup> Street to the north, Harlem Avenue to the east, Polaris Street to the south, and Beach Loop Road to the west as shown in Figure 1. An inventory of the existing street network, bicycle and pedestrian facilities for the study area is provided in the following sections.

Traffic operations were analyzed at three key intersections within the study area. The intersections selected for this study were based on input from city staff. The three locations selected for analysis of existing conditions are shown in the vicinity map in Figure 1 and listed below:

- US 101/Seabird Drive
- Beach Loop Road/Seabird Drive
- Beach Loop Road/Face Rock Drive

### SUMMARY OF FINDINGS

Key findings from the recent inventory of the study area are summarized below. The complete transportation assessment is presented in the following sections.

- Overall, the sidewalk system has gaps on arterials and collectors, such as Seabird Drive and Beach Loop Road. Sidewalks are provided on Highway 101 north of Seabird Drive and on at least one side of most local streets.
- Overall, the bike lane and bike route system is limited to only the state highway. On Highway 101, a bike lane is provided north of Seabird Drive and a bike shoulder is provided south of Seabird Drive. None of the city streets provide bicycle facilities.
- The roadway network provides poor connectivity. Some of the constraints for the roadway network are Johnson Creek, the Bandon Face Rock Golf Course and the unincorporated county land in the north part of the study area.
- Roadway connectivity north to the City of Bandon is provided by Highway 101 and Beach Loop Road only; no local streets connect north of the study area.
- The three study intersections currently operate with minimal delays for motorists.

## STREET NETWORK FACILITIES INVENTORY

An inventory of the existing street network facilities in the study area was conducted in December 2008. The inventory was used to determine if the existing needs of the study area are currently being met. The street network facilities inventory is included in the following sections.

### ROADWAY JURISDICTION

Highway 101, also known as the Oregon Coast Highway, connects the northern border of Washington with the southern border of California. Highway 101 is under the jurisdictional responsibility of the Oregon Department of Transportation (ODOT). Except for Highway 101, streets located within the city limits of Bandon are the responsibility of the city and streets located outside the city limits are the responsibility of Coos County.

### ROADWAY FUNCTIONAL CLASSIFICATION

Functional classification is designed to serve the transportation needs within the community. In general, arterials serve longer trips and through traffic, have limited access points, and are less desirable for pedestrian and bicycle trips. Local streets serve shorter trips with nearby destinations, have frequent access points and are ideal for pedestrian and bicycle trips. Collectors connect the arterial system to the local street system. The functional classifications for all roadways within the study area were obtained from the *Bandon*

*Transportation System Plan (TSP)*<sup>7</sup>. The functional classification for streets within the study area is shown in Figure 3 and Table 3. Highway 101 is classified as an arterial and Seabird Drive and Beach Loop Road are classified as collectors. The remaining roadways are classified as local streets.

The *1999 Oregon Highway Plan*<sup>8</sup> classifies Highway 101 as a Statewide Highway and Scenic Byway and is a part of the National Highway System. The *Oregon Highway Plan* defines the purpose of a Statewide Highway as a route that “typically provides inter-urban and inter-regional mobility and provides connections to larger urban areas, ports, and major recreation areas that are not directly served by Interstate Highways.”

### TRUCK ROUTES

Highway 101 is the only designated truck route within the study according to the *Oregon Highway Plan*<sup>8</sup>. The *Oregon Highway Plan* states “truck routes are important linkages in the movement of freight throughout the state.” Highway 101 serves regional truck traffic. Truck traffic on city streets within the study area is limited to local deliveries.

### STREET CHARACTERISTICS

The majority of roadways within the study area are two-way two-lane facilities. US 101 is a three-lane facility with two through lanes and one center lane. There are two one-lane

<sup>7</sup> *Bandon Transportation System Plan*, JRH Transportation Engineering, October 2000.

<sup>8</sup> *Oregon Highway Plan*, Oregon Department of Transportation, 1999.



roadways that are restricted to one-way southbound traffic, Colonial Circle and Pipit Way. Both of these one-way roads are located in residential areas. There are no roadways with three or more lanes. The number of lanes for study roadways is shown in Table 3.

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#### PAVEMENT WIDTH

An inventory was taken of the pavement width of roadways within the study area. The pavement width provided in Table 3 represents the typical width of the roadway as measured in the field. If the pavement width varied greatly block to block, a range was given. If there was a small variation in pavement width, the average was provided.

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#### RIGHT OF WAY WIDTH

The width of street right of ways was determined using the Oregon Department of Revenue Property Tax Division mapping website known as The Oregon Map<sup>9</sup>. The right of way widths for study area streets are shown in Table 3. The right of way width shown is the typical width and may vary depending on the location.

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<sup>9</sup> The Oregon Map, Oregon Department of Revenue, <http://www.ormap.org>. Accessed December 11, 2008.

Table 3: Street Network Inventory for the Study Area

Street*	Functional Classification	No. of Lanes	Pavement Width (ft)	Right of Way Width (ft)
<b>Oregon DOT Jurisdiction</b>				
Hwy 101 (Coast Hwy)	Arterial	2-3	34 - 46	60 - 100
<b>Coos County Jurisdiction</b>				
18th Street	Local	2	16	60
19th Street	Local	2	12	60
20th Street	Local	2	12	60
Allegheny Road	Local	2	12	60
Astor Lane	Local	2	16	60
Auction Barn Lane	Local	2	22	60
Columbia Ave	Local	2	12	70
Doberman Lane	Local	2	24	40
Johnson Creek Way	Local	2	14	40
Rosa Road	Collector	2	24	70
Vine Street	Local	2	12	60
<b>City of Bandon Jurisdiction</b>				
Avocet Avenue	Local	2	28	30
Beach Loop Drive	Collector	2	24	60
Carter Street	Local	2	28	60
Caryll Court	Local	2	26	50
Cascara Avenue	Local	2	28	50
Cedar Loop	Local	2	28	50
Colony Circle	Local	1 (SB)	18	27
Cutty Sark Lane	Local	2	16	60
Face Rock Drive	Local	2	28	60
Franklin Avenue	Local	2	28	50
Golf Links Road	Local	2	20	50
Grant Place	Local	2	24	50
Gretchen's Court	Local	2	28	50
Hailey Lane	Local	2	28	50
Harrison Avenue	Local	2	28	60
Lincoln Avenue	Local	2	28	60
Natalie Way	Local	2	24	50
Pelican Place	Local	2	26	50
Periwinkle Court	Local	2	28	50
Pipit Way	Local	1 (SB)	14	20
Polaris Street	Local	2	16	50
Rogers Place	Local	2	28	60
Ruby Court	Local	2	28	50
Salty Dog Drive	Local	2	28	50
Sandpiper Lane	Local	2	24	40

Street*	Functional Classification	No. of Lanes	Pavement Width (ft)	Right of Way Width (ft)
Seabird Drive	Collector	2	24 - 36	100
Seabird Lane	Local	2	22	40
Seacrest Drive	Local	2	28	60
Shearwater Circle	Local	2	22	30
Spinnaker Drive	Local	2	28	60
Spyglass Dr	Local	2	28	50
Strawberry Drive	Local	2	28	50
Three Wood Drive	Local	2	28	50
Tish-a-Tang Road	Local	2	20	40
Village Loop	Local	2	22	40
Wavecrest Lane	Local	2	20	40
Whale Watch Way	Local	2	24	40
Windcrest Drive	Local	2	28	60

\*Refer to Figure 3 for location and limits.

Figure 3: Street Network Classification



## COLLISION DATA

Collision data for the study area was reviewed for the most recent three years available (2005 through 2007). Collision data, provided by ODOT, was summarized by location and type. The only collision reported within the study area was a rear-end collision at the Seabird Drive/Beach Loop Drive intersection which resulted in property damage only. The collision data reviewed suggests there are no safety-related problems in the study area roadway system.

## BICYCLE AND PEDESTRIAN FACILITIES INVENTORY

A study area-wide inventory of all bicycle and pedestrian facilities was conducted. The inventory included the location of sidewalks, bike lanes, trails and activity centers. The bicycle and pedestrians facilities inventory is shown in Figure 4.

Within the study area, bicycle facilities are limited to the state highway. On Highway 101, a bike lane is provided north of Seabird Drive and a bike shoulder is provided south of Seabird Drive. None of the city streets provide bicycle facilities. The Oregon Coast Bike Route<sup>10</sup> travels through Bandon along Beach Loop Road. There are no bicycle facilities on Beach Loop Road, therefore cyclists must share the roadway with motor vehicles. The Oregon Coast Bike Route is a 370 mile long designated

bike route along the coast that primarily follows Highway 101 as a shoulder bikeway. Generally, bicycle lanes are recommended on streets that have an average daily traffic (ADT) volume of more than 3,000 vehicles or speeds greater than 25 mph.

Sidewalks within the study area are provided on Highway 101 north of Seabird Drive and on at least one side of most local streets. Seabird Drive provides two small sections of sidewalk resulting in large gaps in the pedestrian network. There are no sidewalks present on Beach Loop Road or Rosa Road.

Activity centers located near the study area are also shown in Figure 4. Activity centers are popular destinations for bicycle and pedestrian trips. They include schools, parks, commercial centers and neighborhood centers. Most activity centers in Bandon are located outside the study area.

Pedestrians and cyclists in the study area have two options when trying to reach many of the activity centers to the north. The first option is to use the bike lanes and sidewalks provided along Highway 101 north of Seabird Drive to reach their destination to the north. The second option is to travel along Beach Loop Road, which has no sidewalks or bike lanes. Both of these routes require most pedestrian and bicyclist trips to also use Seabird Drive, which connects the residential areas, but Seabird Drive does not provide bicycle facilities or consistent pedestrian facilities. The study area is limited to these two routes to reach activity centers and requires the pedestrians and bicyclists to use some of the busiest roads in the city.

<sup>10</sup> Oregon Coast Bike Route,  
<http://www.oregon.gov/ODOT/HWY/BIKEPED/docs>,  
Accessed December 18, 2008.

Figure 4: Pedestrian and Bicycle Facilities

There is an existing need to provide pedestrian and bicycle facilities, such as sidewalks, bicycle lanes, and multi-use paths, along Seabird Drive and Beach Loop Road to improve the connectivity between activity centers in Bandon and the study area. With a limited bicycle and pedestrian network, people traveling to and from the study area have few travel options other than using their vehicle.

### EXISTING CONDITIONS TRAFFIC OPERATIONS

Vehicle counts were conducted at the study intersections to determine existing traffic conditions. Traffic conditions were evaluated based on levels of service (LOS) and volume to capacity ratios (V/C) from the *2000 Highway Capacity Manual* methodology for unsignalized intersections.<sup>11</sup> Traffic counts were conducted during January 2009 for the weekday evening peak period (4:00 PM to 6:00 PM)<sup>12</sup>. The study intersections analyzed were:

- US 101/Seabird Drive
- Beach Loop Road/Seabird Drive
- Beach Loop Road/Face Rock Drive

### SEASONAL TRAFFIC VOLUMES

Because traffic volumes vary during different times of year, especially in areas like Bandon that experience significant volumes of recreational traffic, counts must be adjusted to represent the peak month by applying a seasonal factor. The seasonal factor was

calculated<sup>13</sup> by applying the results of the ODOT Automatic Traffic Recorder (ATR) data methodology. The ATR used is located on US 101 south of Seabird Drive (ATR o6-004)<sup>14</sup>. A comparison of the most recent five years (2002 through 2004, 2006 through 2007) ATR count data from January (count month) and July (peak month) resulted in the calculation of a seasonal factor of 1.37 for the ATR on Highway 101. The seasonal factor was applied to all January traffic volumes, increasing those volumes by 37 percent to represent the peak month of July. The traffic volumes adjusted for seasonal variation are also referred to as the 30<sup>th</sup> highest annual traffic volumes and are commonly used for traffic analysis on ODOT facilities.

The resulting 30<sup>th</sup> highest annual hour traffic volumes are shown in Figure 5. The raw traffic count sheets are attached in Appendix E. The existing average daily traffic (ADT), the amount of traffic that uses a roadway on a daily basis, was also estimated for US 101, Seabird Drive and Beach Loop Road and is shown in Figure 5. The ADT on Highway 101 ranges from 6,600 to 7,450 vehicles per day in the study area. Seabird Drive has an ADT of approximately 1,100 vehicles and the ADT on Beach Loop Road ranges from 750 to 850 vehicles in the study area. The study intersections lane geometries and intersection control is also shown in Figure 5. The three study intersections are currently unsignalized.

<sup>11</sup> *Highway Capacity Manual*, Transportation Research Board, 2000, Chapters 16 and 17.

<sup>12</sup> Intersection turn movement counts conducted by All Traffic Data on 1/07/09.

<sup>13</sup> ODOT *Analysis Procedures Manual* Chapter 4- Developing Design Hour Volumes.

<sup>14</sup> 2007 Transportation Volume Tables, ODOT Traffic Counting Programs, <http://www.oregon.gov/ODOT/TD/TDATA>

Figure 5: Existing Traffic Volumes, Lane Geometry and Traffic Control



## STUDY INTERSECTION OPERATIONS

Level of service is used as a measure of effectiveness for intersection operation. It is similar to a "report card" rating based upon average vehicle delay. Level of service A, B and C indicate conditions where vehicles can move freely. Level of service D and E are progressively worse. Level of service F represents conditions where traffic volumes exceed the capacity of a specific movement, in the case of unsignalized intersections, or an entire intersection, in the case of signalized control, resulting in long queues and delays. When LOS approaches E or F, motorist using the intersection will experience more delay to travel through the intersection.

The volume to capacity ratio is used as a measure of the adequacy of an intersection geometry and capacity. This volume to capacity ratio is a measure of the capacity sufficiency of the overall intersection and is a good indication of whether the physical geometry design features provide sufficient capacity for the intersection. A V/C ratio of 1.0 indicates that an intersection is operating at capacity.

An analysis was performed to identify existing operating conditions for comparison to adopted mobility standards. ODOT's adopted mobility standards, which are based on intersection volume to capacity ratios, are documented in the *Oregon Highway Plan*<sup>8</sup> and vary with highway classification, environment, and posted speed. The ODOT mobility standard for the US 101/Seabird Drive intersection is a V/C ratio of 0.75 for US 101 approaches and 0.80 for Seabird Drive. It should be noted that at unsignalized ODOT intersections, these standards are applicable only to minor street movements.

The City of Bandon does not have standards<sup>15</sup> for mobility. A minimal performance standard of LOS C was applied to the Beach Loop Road/Face Rock Drive intersection and Beach Loop Road/Seabird Drive intersection. Level of service C represents the threshold for stable flow.

Study area intersections were analyzed through the use of a Synchro traffic model that was created using field inventory data and the traffic volume data shown in Figure 5. From this analysis, intersection levels of service and V/C ratios were calculated using *Highway Capacity Manual* methodologies for unsignalized intersections. Table 4 summarizes the results of the operational analysis for the study intersections under existing conditions. Level of service descriptions and calculations are provided in Appendix F.

Table 4: Existing Conditions Capacity Analysis (30<sup>th</sup> Highest Hour)

Study Intersection	Level of Service	Volume to Capacity
US 101/Seabird Drive	A/C	0.19
Beach Loop Road/Seabird Drive	A/A	0.06
Beach Loop Road/Face Rock Drive	A/A	0.02

Based on ODOT mobility standards and a LOS C threshold used for this analysis, existing operations at all the study intersections meet performance standards. Based on the results, the study intersections are operating below capacity and motorists are not experiencing much delay when traveling through the intersections.

<sup>15</sup> Based on phone conversation with Steve Major, Bandon City Engineer, January 5, 2009.

## FUTURE LAND USE SCENARIOS

This chapter presents two future land use scenarios to be used in forecasting future transportation conditions and needs for the Study Area. The Study Area encompasses most of the southern part of the Bandon urban area (see Figure 1). The two land use scenarios are:

1. Expected development in 2023
2. Expected development at build-out.

We used the assumptions and methodology described below to estimate the number of new housing units and additional commercial and industrial development in the study area for both land use scenarios. Estimates of the new housing units and commercial and industrial growth associated with the two scenarios are summarized at the end of the chapter.

Data sources for the scenarios include Coos County Assessor taxlot files, the 2003 City of Bandon Residential Lands Inventory (RLI) prepared by ECONorthwest, the City of Bandon Planning Department, the Portland State University Population Research Center, and the 2000 Census. The vacant land inventory that we relied on to develop the land use scenarios was constructed using County Assessor taxlot files. The RLI and City Planning Department were relied on to fill in missing information on existing land uses in the taxlot files. Data was analyzed primarily in ArcGIS and in Excel spreadsheets. There is supplementary documentation of the methods used to assemble files for use in GIS analysis provided in Appendix G.

## LAND USE SCENARIO #1 – DEVELOPMENT IN 2023

For this scenario, we calculated the number of new housing units that we expect will be constructed in the study area. The scenario assumes that no significant new commercial or industrial development will occur in the study area; all additions to the city's employment land uses are anticipated to occur north of the study area. The estimate of new housing in the next 20 years uses the relative percentage of vacant residential land in the study area compared to vacant residential land in the entire urban growth boundary (UGB) as a proxy for the study area's ability to attract new housing development.

Ideally, calculating this proportion would compare not just vacant land but vacant *buildable* land, removing from the equation land that is in wetlands or is otherwise constrained. However, reliable data on constrained land is not readily available. One step taken to account for constrained land was removing land listed in the County Assessor records as "cranberry bogs" from the vacant land inventory in both this scenario and Land Use Scenario #2 (Development at Build-out). Aside from this adjustment, vacant land is used as the best estimate of available land and the analysis assumed new housing development would occur proportionally to the available urban land supply inside and outside the study area.

The total number of new houses developed by 2023 was calculated by applying the percentage of available land to the marginal increase in the city's urban population from 2003 to 2023. The change in population was converted to households using average

household size. The analysis accounted for vacancies by applying a vacancy factor in addition to estimated new households. Population forecast used the 2003 Portland State University Population Research Center estimate of population for Bandon plus and estimate for urban population outside the city but inside the UGB, multiplied by an average annual growth rate that the City and Coos County approved for long-range planning purposes. That compounding annual growth rate is 1.76%. Residents living outside the city but inside the UGB were estimated by multiplying Bandon's average household size from the 2000 Census by the number of dwellings outside city limits but inside the UGB. That housing count relied on data from the 2003 Bandon Residential Lands Inventory (RLI) prepared by ECONorthwest (Table 4-1). The City used this same method to estimate its service population for public facility master plans<sup>16</sup>.

For a vacancy factor, the analysis assumed a vacancy rate of 10%. The vacancy rate in Bandon in the 2000 Census was approximately 16%. We assumed this rate would fall because areas of the city that are most suitable for vacation housing (i.e. near the beach, the river, and the downtown) are largely built out, so future residential growth is expected to be comprised of fewer vacation homes and more year-round homes.

For a vacancy factor, the analysis assumed a vacancy rate of 10%. The vacancy rate in Bandon in the 2000 Census was approximately 16%. We assumed this rate would fall because

areas of the city that are most suitable for vacation housing (i.e. near the beach, the river, and the downtown) are largely built out, so future residential growth is expected to be comprised of fewer vacation homes and more year-round homes.

Using these values, the number of new housing units that will be developed in study area by 2023 is estimated as follows.

- Percentage of vacant land in Bandon UGB that is in the study area:  $(350/499) * 100 = 70.1\%$
- Marginal increase in population from 2003 to 2023:  $5,064 - 3,572 = 1,492$
- Average household size: 2.1
- New Households:  $(1,492 * 70.1\%) / 2.1 = 498$  households
- Vacancy Rate: 10%
- Estimated new dwellings:  $498 * 1.1 = 547$  units

#### LAND USE SCENARIO #2 – DEVELOPMENT AT BUILD-OUT

For this scenario, the number of new housing units that may be developed on all vacant residential land as well as the total area of new commercial and industrial development were calculated. In terms of housing, the estimate relies on taxlot data from the Coos County Assessor's Office. Vacant residential land in the study area included land in the city that is zoned CD (Controlled Development) or R-1 (Residential) and land outside the city that is zoned RR-2 (Rural Residential), RR-5 (Rural Residential), UR-1 (Urban Residential), UR-2 (Urban Residential), EFU (Farm), and F (Forest).

The analysis assumed that all land in the study area would become part of the Bandon UGB regardless of its current land use status. This assumption is predicated on the City and Coos County successfully executing a land swap

<sup>16</sup> Personal communication with City Planner Michelle Hampton

involving land in the UGB south of the study area and county land not in the UGB but inside the study area. It is also assumed that county land in the study area that is currently zoned EFU, with the exception of lots identified as having cranberry bogs, will be developed for residential uses.

Density assumptions were applied to the acres of vacant and mostly vacant residential land in the study area to determine the number of new units expected at build-out. The density assumptions listed below are based on development practices observed by the City of Bandon, by the maximum density allowed by city zoning, and by density assumptions used in the 2003 RLI by ECONorthwest.

The City stated that parcels of land above three acres tend to be developed using the City's subdivision rules and parcels less than three acres tend to be developed by partition<sup>17</sup>. The minimum lot size, and therefore maximum density, allowed for single-family residential uses in all the City's residential zones is 5,400 square feet, or 8.1 units/net acre. In order to account for road dedication and other development requirements for subdivisions, this density is achieved using a gross-to-net factor of 75%. In other words, we assumed that parcels greater than 3 acres would have development on 75% of the parcel size at an average density of 8.1 units/net acre.

In its 2003 RLI, ECONorthwest estimated the development capacity of residential land in the Bandon UGB by assuming one dwelling unit would be constructed on tax lots less than two acres and, for taxlots larger than two acres,

they assumed an average density of 4.5 units/net acre. The analysis results in an average density that represents a compromise between the existing density in the city (3.4 units/net acre) and the maximum allowed density (8.1 units/net acre). This approach demonstrated that there was a sufficient vacant residential land inventory in Bandon's UGB to accommodate its forecast population in the year 2023. The Study Area analysis, however, is focused on the build-out capacity of the residential land supply. In that regard, the analysis concluded that property owners would not develop vacant land at roughly half allowed density. Property owners will tend to take advantage of the economic opportunity that local regulations provide. The analysis modified the ECONorthwest density assumptions somewhat to account for this economic opportunity in calculating residential build-out conditions. Details of the analysis are shown in Appendix H.

- Acres of vacant/mostly vacant land in the study area: 350
- Residential density at build-out:
  - Lots > 3 acres - 8.1 units/net acre
  - Lots 1-3 acres - 4.5 units/net acre
  - Lots < 1 acre - 1 unit/tax lot
- Number of new dwellings in the study area at build-out: 1,426 units

The build-out condition allows for 2.6 times the number of units estimated for the interim 2023 condition. The resulting density on vacant lots less than one-acre averaged around 5 units/acre. This occurs because many of the vacant lots are subdivided building lots that conform to city lot size minimums. Overall, average densities under build-out conditions in the study area are expected to be higher than are found in Bandon today. While the resulting

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<sup>17</sup> Ibid

density may seem high side compared to existing densities, it seems reasonable to assume that property owners will seek to maximize the development potential of their land holdings. The resulting increase in average residential densities at build-out also helps ensure that the improvements recommended in the local street plan are not under-sized and rendered ineffective before the end of the planning horizon.

For commercial and industrial development, the amount of new development is estimated as a function of developed floor area compared with lot size, or the floor area ratio (FAR). The assumed FAR for commercial and industrial development (see below) is typical for small cities. ODOT's Transportation Planning Analysis Unit (TPAU) supports using these ratios. The remnant lot area is reserved for non-structural uses on a building site, including landscaping, parking, stormwater management, and public easements. For example, a 0.30 FAR means that a one-story building would cover 30% of the site; a two-story building would cover half as much area, or 15% of the site.

Given these assumptions, the following areas of new commercial and industrial development at build-out were estimated. Details of the analysis are shown in Appendix H.

- FAR for commercial development in study area at build-out: 0.30
- Vacant commercial land in study area: 41.85 acres
- Developed commercial acreage at build-out: 12.55 acres
- FAR for industrial development in study area 0.25
- Vacant industrial land in study area: 31.87 acres
- Developed industrial acreage at build-out: 7.97 acres

The future land use methodology and assumptions were reviewed by TPAU and determined to be generally consistent with land use modeling assumptions commonly used for predicting future traffic conditions in developing areas.

## FUTURE TRANSPORTATION CONDITIONS

This chapter provides an assessment of future transportation facilities within the study area. The future conditions assessment included two development scenarios applied to the study area for the year 2030. The impacts of the development scenarios were evaluated and roadway improvements were recommended to meet mobility standards. The following sections describe the development scenarios, including trip generation and distribution, the expected impacts of the future development and recommended street network improvements.

## FUTURE DEVELOPMENT SCENARIOS

This section summarizes the two future land development scenarios used in evaluating future transportation conditions. The scenarios apply future growth anticipated within the study area, which encompasses most of the southern part of the Bandon urban area (see Figure 1). The level of development assumed for each scenario is described in Chapter 5.

The two development scenarios are:

- 2030 Approved Growth - growth in the study area through 2030 would only include approved developments

- 2030 Full Buildout - all vacant land within the study area would build out fully by 2030

To complete the analysis of the scenarios, the land use data from Chapter 5 was aggregated into transportation analysis zones (TAZs). A map showing the location of each TAZ in the study area is shown in Figure 6. The TAZs were developed based on current zoning designations, transportation facilities, topography, and environmental constraints. The amount of residential, commercial, and industrial growth in each TAZ for each development scenario is summarized in Table 5. The 2030 Approved Growth scenario is comprised of growth in residential development only. The 2030 Full Buildout scenario is comprised of growth in residential, commercial and industrial development.

Table 5: Long-Range (2030) Land Development Summary

Land Use	Approved Growth	Buildout
Residential (units)	547	1,426
Commercial (square feet)	-	546,678
Industrial (square feet)	-	347,173

## TRIP GENERATION AND DISTRIBUTION

To determine the impact of each land use scenario on the transportation system, the amount of motor vehicle traffic generated by each scenario was determined. Trip generation was estimated based on average rates provided by the Institute of Transportation Engineers<sup>18</sup> (ITE) for similar land use types. The residential land use trip generation estimate was based on Single Family Detached Housing (ITE Code 210). This assumption was based on the current type of residential units in the study area neighborhoods and the expected future development. The industrial land use trip generation estimate was based on General Light Industrial (ITE Code 110).

The commercial land use trip generation estimate was separated to account for two types of future commercial development. The property on the southwest corner of US 101/Seabird Drive is expected to develop with a large retail business. Therefore, Shopping Center (ITE Code 820) was assumed to estimate the trip generation for a portion of the commercial development in TAZ 4. The trip generation estimate for the remaining commercial development along US 101 was based on Special Retail (ITE Code 814). This assumption was based on the type of commercial development expected, such as neighborhood and tourist retail shops.

The PM peak hour trip generation estimate for each scenario is summarized in Table 6. The

<sup>18</sup> *Trip Generation Manual, 8<sup>th</sup> Edition*, Institute of Transportation Engineers, 2008.

2030 Approved Growth scenario included trip generated by residential growth. The 2030 Full Buildout scenario included trips generated by residential, commercial and industrial growth. The 2030 Approved Growth scenario is estimated to generate 553 PM peak hour trips. The 2030 Full Buildout scenario is estimated to generate 2,548 PM peak hour trips.

The trip generation estimate is based on the land use quantities for each TAZ shown in Table 5 and the trip generation rates described above. Passby trip reductions were applied to the commercial land uses. Pass-by activity accounts for traffic that currently or in the future would exist on the adjacent roadways to the proposed project that would stop into the development as part of their trip. A passby trip reduction of 50 percent was applied to the commercial trip generation estimate.

Table 6: 2030 Trip Generation Summary (PM Peak Hour)

Land Use	Approved Growth	Full Buildout		
	Trips	Total Trips	Pass-By Trips*	Net New Trips
Residential	553	1,441	-	1,441
Commercial	-	1,538	768	770
Industrial	-	337	-	337
<b>Total Trips</b>	<b>553</b>	<b>-</b>	<b>-</b>	<b>2,548</b>

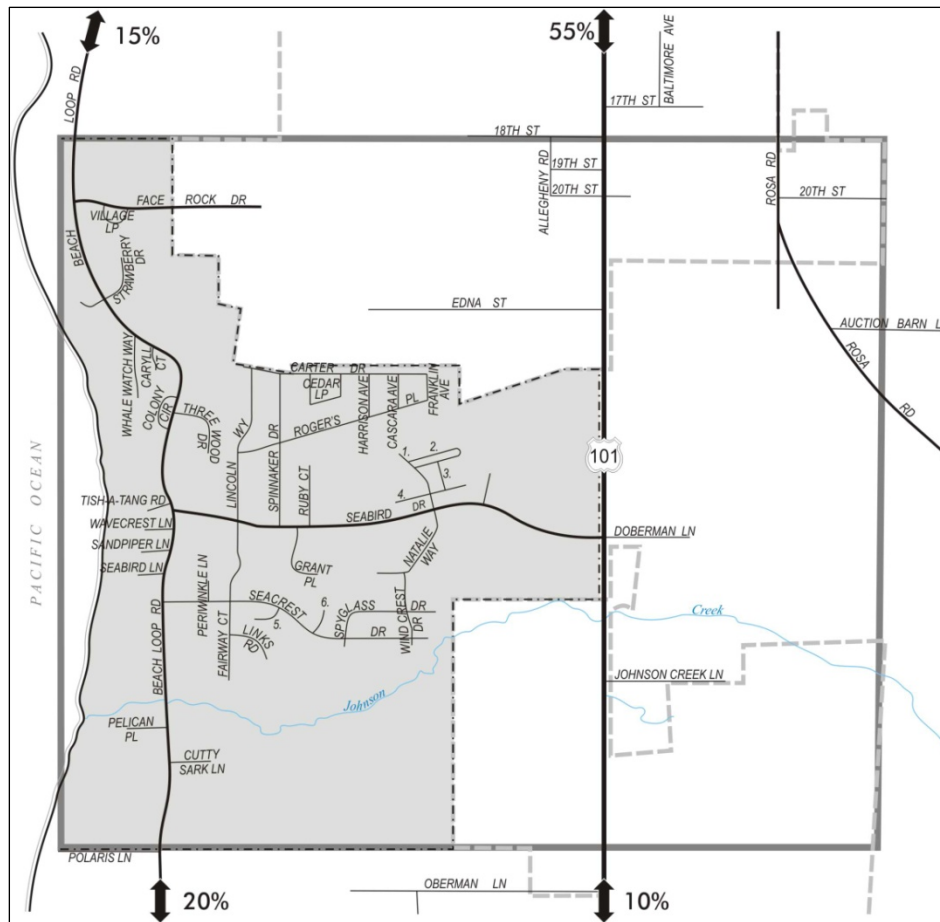
\*A 50% passby trip reduction was applied to the commercial land use.

Figure 6: TAZ Map



The vehicle trips generated by the two development scenarios were distributed through the study roadways network based on existing traffic count data and forecasted travel patterns. The trip distribution assumed for development scenarios are shown in Figure 7. The trip distribution was approved<sup>19</sup> by the Oregon Transportation Planning Analysis Unit (TPAU). The majority of new trips would use US 101 to access the study area. Seabird Drive and Beach Loop Road would provide secondary access to the study area.

Figure 7: Future Traffic Distribution



FUTURE INTERSECTION OPERATIONS

The future operating conditions of the study intersections were evaluated to determine the potential impacts of each development scenario on the roadway network. The following sections describe the 2030 traffic forecasts and the resulting study area capacity analysis.

2030 TRAFFIC FORECASTS

Future 2030 traffic forecasts for each development scenario were developed to

evaluate the study intersections. The existing traffic volumes along US 101 were factored with an annual growth rate of 0.8 percent over 21 years to account for background growth outside the study area for the 2030 horizon year. The annual traffic growth rate for US 101 was based on the ODOT 2027 Highway Future Volume Table<sup>20</sup>. The trip generation estimates (Table 6) were layered onto the 2030 base traffic forecasts to develop the future 2030 traffic

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<http://www.oregon.gov/ODOT/TD/TP/docs/TADR/2027FV T.pdf>

<sup>19</sup> Email from Peter Schuytema, TPAU, May 1, 2009.

forecasts for each development scenario (Figures 8 and 9).

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#### FUTURE PERFORMANCE ANALYSIS

A capacity analysis of the study intersections was performed to identify future 2030 operating conditions for comparison to adopted mobility standards. The capacity analysis was conducted using *Highway Capacity Manual* methodologies for unsignalized intersections. The ODOT mobility standard for the US 101/Seabird Drive and US 101/Face Rock Drive intersections is a V/C ratio of 0.75 for US 101 and 0.80 for the Face Rock Drive and Seabird Drive approaches. The City of Bandon does not have performance standards<sup>21</sup>. A minimal performance standard of LOS C was applied to the Beach Loop Road/Face Rock Drive intersection and Beach Loop Road/Seabird Drive intersection.

The Coos County and Bandon TSPs and the Statewide Transportation Improvement Program (STIP) were reviewed and no funded roadway improvements were identified. Therefore, the future capacity analysis was based on the existing roadway network. The lack of future improvements to the roadway network would result in high turn movement volumes at the US 101/Seabird Drive intersection, as shown in Figures 8 and 9.

US 101/Seabird Drive would not meet mobility standards under each scenario. Beach Loop Road/Seabird Drive would not meet mobility standards under the 2030 Approved Growth scenario. Table 7 summarizes the results of the

operational analysis for the study intersections under each development scenario. The detailed level of service descriptions and operation calculations are provided in Appendix I.

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<sup>21</sup> Based on phone conversation with Steve Major, Bandon City Engineer, January 5, 2009.

Table 7: Future 2030 Capacity Analysis (30<sup>th</sup> Highest Hour)

Study Intersection	Minimum Standard	Approved Growth		Full Buildout	
		LOS	V/C	LOS	V/C
US 101/Seabird Drive	$V/C \leq 0.75/0.80$	A/F	<b>1.10</b>	C/F	<b>&gt;2.00</b>
Beach Loop Road/Seabird Drive	LOS C	A/B	0.12	A/F	<b>1.63</b>
Beach Loop Road/Face Rock Drive	LOS C	A/A	0.03	A/C	0.23

LOS = Level of Service for Major Street LOS/Minor Street LOS

V/C = Critical Movement Volume-to-Capacity Ratio

Figure 8: 2030 Approved Traffic Volumes and Lane Geometry

Figure 9: 2030 Buildout Traffic Volumes and Lane Geometry



Traffic signal warrants<sup>22</sup> were evaluated at the substandard study intersections for each of the development scenarios. The traffic signal warrant assessment applied the Eight Hour Vehicular Warrant (Warrant 1) using the 2030 future volumes factored to represent the future eighth highest hour of the day. The detailed signal warrant sheets are provided in the appendix.

The assessment found a traffic signal is warranted at the US 101/Seabird Drive intersection under both scenarios and at the Beach Loop Road/Seabird Drive intersection under the 2030 Full Buildout scenario. The traffic signal warrant assessment findings are summarized in Table 8. This analysis is not sufficient to justify the installation of a traffic signal. A full warrant analysis and approval of the State Traffic Engineer would be required for installation of a traffic signal. A review of the future 2030 volumes for each scenario suggested that a roundabout would be a feasible option for intersection control and should be considered further.

Table 8: Future Traffic Signal Warrant Assessment (Eight Hour Vehicular Warrant)

Study Intersection	Approved Growth	Buildout
	Warrant Met?	
US 101/Seabird Drive	YES	YES
Beach Loop Road/Seabird Drive	NO	YES

<sup>22</sup> *Manual on Uniform Traffic Control Devices (MUTCD), FHWA, 2003.*

#### TRAFFIC SIGNAL WARRANT ASSESSMENT BASED ON MUTCD EIGHT HOUR VEHICULAR WARRANT.

An analysis of the 2030 future volumes was conducted to estimate the year the traffic signals would be triggered by the growth in each scenario. The analysis assumed the growth in traffic would occur linearly from 2009 through 2030. In the 2030 Approved Growth scenario, a traffic signal at US 101/Seabird Drive would be warranted in year 2025. In the 2030 Full Buildout scenario, a traffic signal at US 101/Seabird Drive and Beach Loop Road/Seabird Drive would be warranted in year 2013.

#### RECOMMENDED STREET NETWORK IMPROVEMENTS

The existing street network in the study area was evaluated to identify future street extensions and roadways that would improve local connectivity and reduce future traffic demands on US 101. Future street network improvements identified in the Coos County and Bandon TSPs were reviewed to determine if the planned roadways were appropriate based on the 2030 street network needs from the development scenarios. The planned roadways in the TSPs were found to be needed but would not be sufficient to serve the expected future traffic demand.

Additional street network improvements were developed to help the study intersections meet mobility standards with the traffic generated by the future development scenarios and promote bicycle and pedestrian travel. North-south roadways in the study area would be recommended to relieve future traffic demand

from local development on US 101 and provide an alternative route to US 101 for pedestrian and bicycle trips. East-west roadways in the study would divert traffic demand from local development at the US 101/Seabird Drive intersection. Overall, a well connected street network would provide for shorter local trips for motor vehicles, pedestrian and bicycles.

The recommended future street network incorporates planned street projects in the TSPs and new street network extensions and roadways. Environmental constraints and existing development were considered in the development of the recommended street network. Johnson Creek and the existing Bandon Face Rock Golf Course were constraints in the south portion of the study area. Identified wetlands were constraints in the northwest portion of the study area. The recommended street network was contained within the urban growth boundary.

The recommended future street network and functional classification designations are shown in Figure 10 and summarized below.

- Face Rock Drive (Collector) – Extend east to US 101 at 20<sup>th</sup> Street
- 20<sup>th</sup> Street (Collector) – Extend from US 101 to Rosa Road
- Doberman Lane (Collector) – Extend east to Fillmore Avenue and north to Rosa Road
- Franklin Avenue (Collector) – Extend Salty Dog Drive North to Cascara Avenue and Franklin Avenue
- Edna Street (Collector) – Extend west to Beach Loop Road
- Lincoln Way (Local) – Extend north to Jackson Avenue
- Spyglass Drive (Local) – Extend east to US 101

The Face Rock Drive collector extension would reduce traffic demand from the US 101/Seabird

Drive intersection and provides a much needed east-west route in the north section of the study area. The local street extension of Edna Street would provide better connectivity to the area between Face Rock Drive and Seabird Drive via several routes including US 101 and Beach Loop Road. The Doberman Lane extension as a collector to Fillmore Avenue and Rosa Road would provide a parallel route to US 101 and access to the east section of the study area. The Lincoln Way and Franklin Avenue extensions would also provide parallel routes and alleviate some traffic demand on US 101 while providing access to the area north of Seabird Drive.

The recommended streets and extensions will have to meet the City's applicable street design standards for the appropriate roadway classification. Some existing streets that are being extended (e.g., Face Rock Drive, Doberman Lane, and 20<sup>th</sup> Street) may have to be improved from their current conditions to meet the City's street design standards. The recommended future street network should include bike lanes on collector roadway and sidewalks on collector and local roadways.

The recommended streets and extensions should meet ODOT spacing standards for US 101 which require<sup>23</sup> a minimum of 990 feet between access points. The proposed spacing on US 101 between Seabird Drive and Face Rock Drive/20<sup>th</sup> Street is approximately 1,000 feet. OAR 734-051 treats all access points to a highway the same and, while the spacing between Seabird Drive and Face Rock would be

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<sup>23</sup> 1999 Oregon Highway Plan, Appendix C, Access Management Standard for a Statewide Highway, 45 mile per hour posted speed limit in an urban area.

good for signals, the other approaches violate the standard and should be closed as alternative connections are developed.



Figure 10: Future Street Network Classification

### 2030 TRAFFIC FORECASTS WITH RECOMMENDED STREET NETWORK

Future 2030 traffic forecasts for each development scenario with the recommended street network in place were developed to evaluate the study intersections. The resulting future 2030 traffic volume forecasts for each development scenario are shown in Figures 11 and 12.

With the recommended street network, the future traffic volumes are more balanced in the study area. The estimated the Buildout scenario daily traffic volumes on selected study roadways are shown in Figure 13. The north-south Lincoln Way, Franklin Avenue and Doberman Lane extensions are forecasted to carry approximately 4,200 vehicles per day which would travel on US 101 without the improvements. The east-west Face Rock Drive, Edna Street, and Spyglass Drive extensions are forecasted to carry approximately 6,000 vehicles per day west of US 101. US 101 is forecasted to serve approximately 19,000 vehicles per day just north of the study area. This section of US 101 provides a three lane cross-section and may require additional capacity to adequately serve future demand.

### FUTURE PERFORMANCE ANALYSIS WITH RECOMMENDED STREET NETWORK

An initial review of the 2030 traffic operations with the recommended street network in place found intersection improvements would be needed to meet mobility standards. Based on

the 2030 forecasts, traffic signal warrants<sup>24</sup> were evaluated at the US 101 intersections with Seabird Drive and Face Rock Drive for each of the development scenarios. The traffic signal warrant assessment applied the Eight Hour Vehicular Warrant (Warrant 1) using the 2030 future volumes with the recommended street network (Figures 11 and 12) factored to represent the future eighth highest hour of the day. The assessment found traffic signal warrants were met at US 101/Seabird Drive for both scenarios and at US 101/Face Rock Drive for the Buildout scenario. The detailed signal warrant sheets are provided in the appendix.

All of the study intersections were evaluated under each development scenario to determine if separate turn lanes would be required to meet mobility standards. The recommended study intersection improvements are summarized in Table 9 and shown in Figures 11 and 12.

The existing conditions inventory identified a lack of pedestrian and bicycle facilities in the study area. Several existing roadways should be improved to provide a well connected pedestrian and bicycle network. The Oregon Coast Bike Route<sup>25</sup> travels through Bandon along Beach Loop Road which currently has no sidewalks or bike lanes. Seabird Drive has a few sections of unconnected sidewalk. The recommended sidewalk and bike lane improvements are summarized in Table 9.

<sup>24</sup> *Manual on Uniform Traffic Control Devices (MUTCD)*, FHWA, 2003.

<sup>25</sup> Oregon Coast Bike Route, <http://www.oregon.gov/ODOT/HWY/BIKEPED/docs>, Accessed December 18, 2008.

Table 9: Future 2030 Improvements with Recommended Street Network

Location	Approved Growth	Buildout
US 101/Seabird Drive	Traffic signal control Southbound left turn lane	Traffic signal control Protected southbound left turn lane and right turn lane Eastbound left turn lane
Beach Loop Road / Seabird Drive	No improvements needed	Westbound left turn lane
Beach Loop Road / Face Rock Drive	No improvements needed	No improvements needed
US 101 / Face Rock Drive	Northbound left turn lane Southbound left turn lane	Traffic signal control Northbound left turn lane Southbound left turn lane and right turn lane Eastbound left turn lane
Seabird Drive	Infill sidewalk gaps Bike lanes	Infill sidewalk gaps Bike lanes
Beach Loop Road	Sidewalks and bike lanes OR Multi-use trail along one side of street	Sidewalks and bike lanes OR Multi-use trail along one side of street

A capacity analysis of the study intersections was performed to identify future 2030 operating conditions with the recommended street network in place. The future intersection improvements shown in Table 9 were assumed in the future capacity analysis with recommended street network.

Table 10 summarizes the results of the operational analysis for the study intersections under each development scenario. The detailed level of service descriptions and operation calculations are provided in Appendix J. With the recommended street network improvements and intersection improvements, all study area intersections would meet mobility standards.

Table 10: Future 2030 Capacity Analysis - Recommended Street Network (30<sup>TH</sup> Highest Hour)

Study Intersection	Standard	Approved Growth		Buildout	
		Level of Service	Volume to Capacity Ratio	Level of Service	Volume to Capacity Ratio
US 101/Face Rock Drive	$V/C \leq 0.75/0.80$	A/D	0.22	B	0.70
US 101/Seabird Drive	$V/C \leq 0.75$	A	0.47	C	0.73
Beach Loop Road/Seabird Drive	LOS C	A/A	0.09	A/C	0.65
Beach Loop Road/Face Rock Drive	LOS C	A/A	0.02	A/B	0.15

Figure 11: 2030 Scenario 1 with Improvements Traffic Volumes and Lane Geometry

Figure 12: 2030 Scenario 2 with Improvements Traffic Volumes and Lane Geometry



Figure 13: 2030 Scenario 2 Future Daily Traffic Volumes

## FINANCING PROGRAM

This chapter presents the financing program for the recommended improvements to accommodate future growth in the study area. The recommended improvement plan cannot be implemented until the funding portion of the plan is evaluated. The financing program reviewed the City's current transportation funding sources to determine if any of the recommended improvements would be reasonably funded by the planning horizon (year 2030) and to identify potential funding sources for any unfunded improvements. The financing program is discussed in the following sections.

## RECOMMENDED IMPROVEMENT COST ESTIMATES

The first step in the financing program is to determine the cost estimate for each of the recommended improvements (shown in Table 11). The projects represent the identified needs for the 2030 Full Buildout scenario. The cost estimates for the roadway extension projects reflect the roadway improvements needed within the study area and do not include the cost to complete the street network outside the study area. For example, the cost estimate for the Lincoln Way extension would build the roadway north to 18<sup>th</sup> Street (north study area boundary). However, the roadway is planned to extend to Jackson Avenue. The roadway extension projects would likely be constructed with future development, therefore no right of way expenses were included.

The intersection improvement cost estimates represent planning level approximations with general costs for right of way. The future construction of a traffic signal or roundabout

control on US 101 at Seabird Drive and Face Rock Drive will require further detailed traffic analysis to determine which, if any, improvement would be appropriate and would meet ODOT requirements. The sidewalk, bike lane and multi-use trail cost estimates were based on a planning level unit cost approximation for each of the project types. General right of way expenses were included in the pedestrian and bicycle improvements.

The potential funding source for each project was determined based on the type of improvement. The roadway extension projects would likely be constructed with private funds as a City condition of approval for future development. The intersection improvements would also likely be a City condition of approval to mitigate an identified impact of future development. The majority of the pedestrian and bicycle improvements would likely be constructed with public funds. A small portion of the sidewalk infill project on Seabird Drive may be constructed by future fronting development. The traffic signal or roundabout improvements would like be constructed with private and public funds.

As shown in Table 11, the potential funding responsibilities for the improvements are \$21.4 million from private sources (development) and \$2.9 million from public sources (City of Bandon, ODOT).

Table 11: Planning Level Cost Estimates – Recommended Improvements

Project	Description	Cost Estimate (\$1,000s)	Potential Funding Source
<b>Roadway Extensions</b>			
Face Rock Drive	Construct a three lane collector extension east to US 101 at 20 <sup>th</sup> Street	\$3,601	Private
20 <sup>th</sup> Street	Construct a three lane collector extension from US 101 to Rosa Road	\$1,637	Private
Doberman Lane	Construct a three lane collector extension east to Fillmore Avenue and north to Rosa Road	\$5,402	Private
Franklin Avenue	Construct a three lane collector extension of Salty Dog Drive north to Cascara Avenue and north study area boundary (18 <sup>th</sup> Street)	\$2,865	Private
Edna Street	Construct a three lane collector extension west to Beach Loop Road	\$2,742	Private
Lincoln Way	Construct a two lane local extension to north study area boundary (18 <sup>th</sup> Street)	\$1,583	Private
Spyglass Drive	Construct a two lane local extension east to US 101	\$552	Private
<b>Intersection Improvements</b>			
US 101/Seabird Drive	Traffic signal or roundabout control	\$1,000	Public/Private
	Southbound left turn lane	\$250	Private
	Southbound right turn lane	\$250	Private
	Eastbound left turn lane	\$250	Private
Beach Loop Rd/Seabird Dr	Westbound left turn lane	\$250	Private
US 101/Face Rock Drive	Traffic signal or roundabout control	\$1,000	Public/Private
	Northbound left turn lane	\$250	Private
	Southbound left turn lane	\$250	Private
	Southbound right turn lane	\$250	Private
	Eastbound left turn lane	\$250	Private
<b>Pedestrian/Bicycle Improvements</b>			
Seabird Drive	Infill sidewalk gaps	\$483	Public
	Bike lanes	\$488	Public
Beach Loop Road	Multi-use trail along one side of street	\$953	Public
Private Contribution			\$21,382
Public Contribution			<b>\$2,924</b>



## FISCALLY CONSTRAINED PROJECTS

The City's current funding sources for transportation improvements were reviewed to determine if any of the recommended improvements would be reasonably funded by the planning horizon (year 2030). The City collects system development charges (SDCs) from new development to fund projects needed to support future growth. The collected transportation SDC fees are used to fund a portion of the street system improvements identified on the City's transportation capital improvement (CIP) list.

The following projects are included on the CIP list and identified as fiscally constrained:

- Face Rock Drive extension
- 20<sup>th</sup> Street extension
- Doberman Lane extension
- Franklin Avenue extension
- Intersection improvements

The remaining recommended improvements are considered unfunded and would require additional sources for funding beyond those currently set by the City.

## NEW FUNDING SOURCES AND OPPORTUNITIES

Most of the recommended improvement projects will be unfunded in 2030 based on current revenue sources. This section provides information on several funding options available for transportation improvements. In most cases, these funding sources, when used efficiently and collectively, are sufficient to

fund transportation improvements for local communities.

## TRANSPORTATION UTILITY FEE REVENUE

A number of Oregon cities supplement their street funds with transportation utility fees. Local cities with adopted street utility fees include Bay City, Eagle Point and Grants Pass. Establishing user fees to fund transportation activities and/or capital construction ensures that those who use the transportation system pay proportionate to their use. The transportation utility fees are recurring monthly or bi-monthly charges that are paid by all residential, commercial, industrial, and institutional land uses. The fees are charged proportionate with the amount of traffic generated, so a retail commercial user pays a higher rate than a residential user. Typically, there are provisions for reduced fees for those that can demonstrate they use less than the average rate implies, for example, a resident that does not own an automobile or truck.

The City should consider establishing a transportation utility fee in the near future to increase capital funding citywide. Transportation utility fees can provide a reliable, dedicated source of revenue useable for transportation system operations and maintenance and/or capital construction. A street utility can be formed by Council action and does require a public vote. The fee can be easily billed through the City utility billing system.

## URBAN RENEWAL DISTRICT

An Urban Renewal District (URD) would be a tax-funded district within the City. The URD

would be funded with the incremental increases in property taxes that result from construction of applicable improvements. This type of tax increment financing has been used in Oregon since 1960. Uses of the funding include, but are not limited to, transportation. It is tax-increment funded rather than fee funded and the URD could provide for improvements that includes, but is not limited to, transportation projects.

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#### LOCAL IMPROVEMENT DISTRICT ASSESSMENT REVENUE

The City can set up a Local Improvement Districts (LIDs) to fund specific capital improvement projects within a specific geographic area. The benefit of a LID is the funding is provided by the local users of the improvements. The projects could include all or just some of the recommended improvements (Table 11). The LID could cover the entire study area or a focused smaller section of the study area. A LID would impose fee assessments on properties within the area. They require separate accounting, and the fee assessments collected may only be spent on the identified capital projects (no maintenance projects) within the area. Citizens representing 33% of the assessment can terminate a LID and overturn the planned projects so projects and costs of a LID must meet with broad approval of those within the study area boundaries of the LID.

## FINDINGS AND AMENDMENTS

This chapter presents the proposed amendments to the City of Bandon Transportation System Plan and development code and also the related findings associated with the adoption of the proposed amendments.

## PROPOSED AMENDMENTS

This section presents a series of proposed amendments to the City of Bandon's Transportation System Plan and Development Code. These amendments have been prepared in order to demonstrate compliance with implementing the Transportation Planning Rule (TPR) pursuant to OAR 660-012-0045, as well as to support and implement improvements to the local road network and pedestrian and bicycle facilities recommended in the City of Bandon Local Circulation Plan. The recommended improvements and amendments focus on strengthening connection of local roads, paths, and other facilities in the City's transportation network, as well as generally strengthening support for walking and bicycling in the city.

The following sections are presented in order of planning document – the City of Bandon Transportation System Plan (TSP), Land Division Ordinance, and Zoning Ordinance. The sections begin with issues of TPR compliance, followed by issues related to the objectives and recommendations of the Local Circulation Plan. Language that is proposed to be added to a planning document is indicated by underlined text, and language that is proposed to be deleted is indicated in ~~strike-through~~ text.

## CITY OF BANDON TRANSPORTATION SYSTEM PLAN

### MOBILITY STANDARDS

OAR 660-012-0045

2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:

*(b) Standards to protect the future operations of roadways and transit corridors;*

There are mobility standards established for state roadways in the Oregon Highway Plan. Otherwise, local jurisdictions must adopt their own standards for local roadways pursuant to OAR 660-012-0045(2)(b). Complying with this provision also requires a process for systematically applying the standards, which is addressed later in this memorandum in proposed amendments to the City's Zoning Ordinance.

Both Level of Service and Volume-to-Capacity (v/c) Ratio standards are used to evaluate mobility. State mobility standards are presented in terms of v/c ratios. The City of Keizer TSP provides a useful example of how both sets of standards may be used in a city, and it is recommended that the City of Bandon adopt an adaptation of those standards as part of its TSP.

### **Level of Service Standard**

Level of service (LOS) represents ranges in the average amount of delay that motorists experience when at an intersection. LOS is measured on an a scale of "A" to "F", from the least to most average delay at signalized or all-way- stop-controlled intersections for all vehicles entering the intersection. At two-way-stop-controlled intersections, LOS is based on the average delay experienced by the worst movement at the intersection, typically a left turn from the stop-controlled street.

For signalized intersections in the City of Bandon, LOS "D" (representing no more than 55 seconds of average delay) is considered to be the minimum acceptable operational level. For unsignalized intersections LOS "E" (representing no more than 50 seconds of average delay) is considered to be the minimum acceptable level.

### **Volume-to-Capacity Standard**

The volume-to-capacity (v/c) ratio is a measure of how close an intersection is operating to its theoretical capacity. The theoretical capacity of an intersection is the number of vehicles that can travel through in a given period of time. A v/c ratio of 1.00 or more indicates that more traffic is traveling through the intersection per hour than the theoretical capacity of the intersection.

The City of Bandon has established a v/c ratio standard for intersections of arterials because the operation of these

intersections is critical to the operation of the network as a whole. Therefore an intersection of two arterial roadways must have a v/c ratio of 0.95 or less to be operating acceptably. When these arterial roadways are State facilities, State v/c ratio standards apply. For all other intersection types, only the LOS is used for determining intersection operation.

## CONNECTIVITY AND CIRCULATION FOR ALL MODES

Existing policies in the Bandon Transportation System Plan (TSP) address access management, connections to city activity centers, and bicycle and pedestrian facilities. Policies on access management call for limited access along arterials and collectors, and coordination with ODOT on access management along state highways. In order to strengthen language related to non-motorized modes of transportation and connectivity of the City's transportation system that are the objectives of this project, the following policy amendments are recommended.

### *Policy 11:*

The City shall encourage pedestrian and bicyclist safety by continued development of sidewalks, bike lanes and in-road bike facilities, multi-use paths and alternate routes for foot and bicycle traffic.

## CITY OF BANDON LAND DIVISION CODE

## CONNECTIVITY AND CIRCULATION FOR ALL MODES

*Policy 15:*

*Development proposals shall be reviewed to assure the continuity of sidewalks, trails, bicycle paths, ~~and~~ pedestrian ways, and roadways that meet adopted transportation standards for access spacing and connectivity.*

*Policy XX:*

*The City shall improve the connectivity of its transportation system. Approved transportation projects shall promote a grid system through measures such as reducing block lengths, limiting cul-de-sacs, and requiring developers to make street and pathway connections between their development and adjacent development.*

## OAR 660-012-0045

(6) In developing a bicycle and pedestrian circulation plan as required by 660-012-0020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.

Site plans for partitions in Bandon must show streets and pedestrian ways. There are additional application requirements for commercial and industrial subdivisions pursuant to which pedestrian circulation plans and traffic plans showing coordination of internal and external networks including bikeways (Section 16.12.080). However, transportation plan requirements for all tentative subdivision plans should be enhanced in order to meet the provisions of OAR 660-012-0045(6). Furthermore, subdivision plan requirements should be amended to implement and reinforce the policy about improved connectivity that is recommended as a TSP amendment above. The proposed amendments address ideas of connecting proposed development to surrounding development, making this the developer's responsibility, and restricting the use of cul-de-sacs to promote a more gridded street system.

## 16.12.060 Application Requirements

*B. Tentative Subdivision Plan*

*19. Proposed Transportation: Location, names, surface types, grades, pavement dimensions of public and private streets, pedestrian ways, driveways, alleys, any off-street parking and rights-of-way on and providing service for the direct benefit of the proposed land division, including approximate radius of curves and grades. Include entry and exit points for motor vehicles and pedestrians using off-street parking areas, and internal circulation patterns, and location of any street plugs required to direct future street extensions. Proposed streets must connect to existing stubbed streets in*

adjacent development or establish a planned street pattern that also will serve adjacent properties.

20. A Future Transportation Plan: The pattern of future transportation routes from the boundaries of ~~the~~ a proposed land division to include other ~~tracts~~ properties that lie within two hundred (200) feet of the proposed land division and properties to each side of a an existing or proposed major street route ~~which will~~ that primarily will benefit the proposed subdivision. Transportation routes shall include roadways, bikeways, and pedestrian sidewalks or pathways.

a. A future transportation plan is not required for properties ~~any portion of the area~~ for which a proposed future street layout has been established by a transportation ~~system~~ plan previously approved by the City governing body.

b. A future transportation plan shall demonstrate how access can be provided to adjacent parcels. The Director may require that a traffic study be submitted where access to the land division includes streets that are classified as a collector or a higher functional classification. ~~To~~ Furthermore, in order to promote and increase community connectivity, the plan shall not include cul-de-sacs unless severe topographic or other physical constraints make them necessary.

~~c.~~ The planning commission may adopt a future transportation plan submitted by an applicant, provided ~~the transportation plan~~ it does not conflict with a transportation plan previously approved by the governing body ~~and contains only local streets.~~ This includes plans approved by the governing body for an adjacent land division regardless of whether the transportation facilities in those plans have been constructed. Proposed roads in the future transportation plan must connect with existing and planned roads on adjacent properties.

~~d.~~ If a future transportation plan submitted by an applicant ~~does~~ conflicts with a transportation plan previously approved by the City governing body, or contains ~~other than local~~ higher order streets not listed in the City's adopted Transportation System Plan, review and adoption of the future transportation plan by the city council ~~will be~~ is required before a tentative plan can be approved.

16.12.080 Additional requirements for commercial and industrial proposals.

C. Traffic Plan. A traffic plan that provides adequate vehicle circulation in the vicinity of and within the project. The traffic plan must coordinate internal and external transportation networks, including bikeways and mass transit to extent possible. The traffic plan must show how internal circulation connects with existing and planned transportation

facilities on adjacent properties. Traffic noise must be minimized.

Standards for new streets and blocks are established in Chapter 16.40 (Improvements) in the Bandon land division code. These provisions should be amended to implement the policy that calls for improved connectivity in the city, emphasizing the need to connect new streets to planned and existing streets in the surrounding development, reducing barriers to connectivity such as large blocks and cul-de-sacs, and lowering the trigger for improving streets to city standards.

#### 16.40.050 Streets

*D. Alignment.* As far as is practical, proposed streets other than minor streets shall be in alignment with existing and planned streets by continuations of the center lines thereof. Staggered street alignment resulting in "T" intersections shall, wherever practical, leave a minimum distance of two hundred (200) feet between the center lines of streets ~~having~~ running in approximately the same direction, and in no case shall be less than one hundred twenty-five (125) feet.

*E. Future Extensions of Streets.* Where necessary to ~~give~~ provide access to or permit a satisfactory future division of adjoining land, or as identified in the Transportation System Plan or approved land division plans for adjacent property, streets shall be extended to the boundary of the subdivision or partition, ~~and the potentially~~ Resulting dead-end streets may be approved without a turnaround with the understanding that those streets will be continued when

adjacent properties develop. Reserve strips and street plugs may be required to preserve the objectives of street extension. Cul-de-sacs may be allowed where topographic or other physical barriers exist.

#### 16.40.060 Blocks.

*A. General.* The length, width and shape of blocks shall take into account the need for adequate building site size and street width and shall recognize the limitations of the topography.

*B. Size.* When conditions allow, block lengths shall be XXX feet long in the north-south direction and XXX feet long in the east-west direction. Developers shall make concerted efforts to attain this standard. No block shall be more than one thousand (1,000) feet in length between street corner lines unless it is adjacent to an arterial street or unless the topography or the location of adjoining streets justifies an exception. The recommended minimum length of blocks along an arterial street is one thousand eight hundred (1,800) feet. A block shall have sufficient width to provide for two tiers of building sites unless topography or the location of adjoining streets justifies an exception.

#### C. Easements.

*3. Pedestrian and Bicycle Ways.* For ~~public~~ convenience and connectivity, a pedestrian or bicycle way ~~may~~ shall be required to serve a cul-de-sac, to pass through an unusually long or oddly shaped block, or to facilitate public circulation unless topography or other severe



*constraints are present. Planned pedestrian or bicycle ways as identified in the transportation system plan shall be required to be constructed as part of the subdivision or partition. (Ord. 1471 (part), 2001)*

*16.40.140 Improvements in developments.*

*The following improvements shall be installed at the expense of the developer and at the time of development.*

*A. Streets. Public streets, including alleys within the development and public streets adjacent but only partially within the sub-division, shall be improved.*

*Private streets proposed in the development shall also be constructed in accordance with city street standards.*

*Catch basins shall be installed and connected to drainage tile leading to storm sewers or drainage ways. Upon completion of the street improvement, monuments shall be reestablished and protected in monument boxes at every public street intersection and all points of curvature and points of tangency of their center lines.*

*16.40.160 Improvements on substantial developments.*

*B. Street Standards. Any development which contains buildings or structures or a combination of both which totals more than **ten thousand (10,000) square feet** on one or more contiguous parcels of land shall be required to improve or construct the abutting streets to city standards.*

## CITY OF BANDON ZONING CODE

### PERMITTING TRANSPORTATION FACILITIES

OAR 660-012-0045

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

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

The City of Bandon's Zoning Ordinance does not establish transportation facilities as allowed uses in its zoning districts. There is the option of specifying transportation facilities as permitted uses in each district in order to comply with OAR 660-012-0045(1)(b). However, there is also the option of creating a separate section for generally permitted uses, as is done by the City of Keizer (Section 2.203).

#### **17.XXX Generally Permitted Uses**

*The following uses and activities are permitted in all zones:*

*A. Utility Facilities. Placement and maintenance of underground or above ground wires, cables, pipes, guys, support structures, pump stations, drains, and detention basins within rights-of-ways by public agencies and utility companies for telephone, TV*



cable, or electrical power transmission, or transmission of natural gas, petroleum products, geothermal water, water, wastewater, sewage and rainwater.

B. Railroad Tracks. Railroad tracks and related structures and facilities located within rights-of-ways controlled by railroad companies.

C. Street Improvements. Surfaced travel lanes, curbs, gutters, drainage ditches, sidewalks, transit stops, landscaping and related structures and facilities located within rights-of-ways controlled by a public agency.)

D. Public Right-of-way Expansion. Expansion of public right-of-way and widening or adding improvements within the right-of-way, provided the right-of-way is not expanded to more width than prescribed for the street in the Public Facilities or Transportation System segment of the Comprehensive Plan.

## COORDINATED REVIEW OF TRANSPORTATION FACILITIES

OAR 660-012-0045

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

*(c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is*

*consistent with 660-012-0050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.*

The City's Zoning Ordinance includes notice provisions. It is recommended that these provisions be enhanced in order to more clearly comply with OAR 660-012-0045(1)(c).

*17.120.090 Notice of public hearing.*

*A. Notice for a quasi-judicial land use hearing for a zone change or permit or an appeal of a decision of the planning director or planning commission shall be provided to (where applicable):*

*1. The public via a legal notice published in a newspaper of general circulation in the city at least ten (10) days prior to the hearing;*

*2. The applicant (and/or appellant, if applicable);*

*3. Participants in the hearing;*

*4. Owners of record on the most recent property tax assessment roll of property with-in two hundred fifty (250) feet of the property which is the subject of the notice; and*

*5. Public agencies, when applicable.*

Agencies could include the Department of Environmental Quality (DEQ), the Oregon Department of Transportation (ODOT), and Coos County. When the proposal includes a new transportation facility or improvement, and where these facilities or improvements include or may impact a

collector or arterial street, notice will be sent to and review of the proposal will be coordinated with ODOT. Notices will also be sent to affected neighborhood and homeowner associations.

TRANSPORTATION IMPACT STUDIES

OAR 660-012-0045

*(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:*

*(e) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;*

The City’s Zoning Ordinance does allow for conditions related to transportation facilities to be applied to the approval of conditional uses (Section 17.92.020). However, a mechanism – namely a transportation impact analysis (TIA) or study (TIS) – for determining these conditions is not specified. So, using mobility standards recommended earlier in this memorandum, following are two options from the City of Tigard and the City of Keizer for establishing these study standards in Bandon.

CITY OF TIGARD:

17.104.XXX. Traffic study.

1. A traffic study shall be required for all new or expanded uses or developments

under any of the following circumstances:

a. when they generate a 10% or greater increase in existing traffic to high collision intersections identified by [agency].

b. Trip generations from development onto the City street at the point of access and the existing ADT fall within the following ranges:

Table 12: Tigard ADT Trip Generation TIS Guidelines

<u>Existing ADT</u>	<u>ADT to be added by development</u>
<u>0-3,000 vpd</u>	<u>2,000 vpd</u>
<u>3,001-6,000 vpd</u>	<u>1,000 vpd</u>
<u>&gt;6,000 vpd</u>	<u>500 vpd or more</u>

c. If any of the following issues become evident to the City engineer:

(1) High traffic volumes on the adjacent roadway that may affect movement into or out of the site

(2) Lack of existing left-turn lanes onto the adjacent roadway at the proposed access drive(s)

(3) Inadequate horizontal or vertical sight distance at access points

(4) The proximity of the proposed access to other existing drives or intersections is a potential hazard

(5) The proposal requires a conditional use permit or involves a drive-through operation

(6) The proposed development may result in excessive traffic volumes on adjacent local streets.

2. In addition, a traffic study may be required for all new or expanded uses or developments under any of the following circumstances:

a. when the site is within 500 feet of an ODOT facility, and/or

b. trip generation from a development adds 300 or more vehicle trips per day to an ODOT facility, and/or

c. trip generation from a development adds 50 or more peak hour trips to an ODOT facility.

#### **CITY OF KEIZER:**

17.104.XXX Traffic Impact Analysis (TIA).

A. Purpose. The purpose of this section of the code is to implement Section 660-012-0045 (2) (e) of the State Transportation Planning Rule that requires the City to adopt a process to apply conditions to development proposals in order to minimize adverse impacts to and protect transportation facilities. This section establishes the standards for when a proposal must be reviewed for potential traffic impacts; when a

Traffic Impact Analysis must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; what must be in a Traffic Impact Study; and who is qualified to prepare the Study.

B. Typical Average Daily Trips. The latest edition of the Trip Generation manual, published by the Institute of Transportation Engineers (ITE) shall be used as standards by which to gauge average daily vehicle trips.

C. When Required. A Traffic Impact Analysis shall be required to be submitted to the City with a land use application, when the following conditions apply:

1. The development application involves one or more of the following actions:

a. A change in zoning or a plan amendment designation; or

b. The development shall cause one or more of the following effects, which can be determined by field counts, site observation, traffic impact analysis or study, field measurements, crash history, Institute of Transportation Engineers Trip Generation manual; and information and studies provided by the local reviewing jurisdiction and/or ODOT:

(i.) An increase in site traffic volume generation by 250 Average Daily Trips (ADT) or more (or as required by the City Engineer); or

(ii.) An increase in use of adjacent streets by vehicles exceeding the 20,000 pound gross vehicle weights by 10 vehicles or more per day; or

(iii.) The location of the access driveway does not meet minimum intersection sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate, creating a safety hazard; or

(iv.) The location of the access driveway does not meet the access spacing standard of the roadway on which the driveway is located; or

(v.) A change in internal traffic patterns that may cause safety problems, such as back up onto the highway or traffic crashes in the approach area.

D. Traffic Impact Analysis Requirements.

1. Preparation. A Traffic Impact Analysis shall be prepared by a professional engineer in

accordance with OAR 734-051-180. The traffic analysis will be paid for by the applicant.

2. Pre-application Conference. The applicant will meet with Bandon Public Works prior to submitting an application that requires a Traffic Impact Analysis. The City has the discretion to determine the required elements of the TIA and the level of analysis expected.

E. Approval Criteria.

1. Criteria. When a Traffic Impact Analysis is required, approval of the development proposal requires satisfaction of the following criteria:

a. The Traffic Impact Analysis was prepared by a professional engineer in accordance with OAR 734-051-180; and

b. If the proposed development shall cause one or more of the effects in Section 2.301.03.C, above, or other traffic hazard or negative impact to a transportation facility, the Traffic Impact Analysis shall include mitigation measures that meet the City's Level-of-Service and Volume/Capacity standards and are satisfactory to the City Engineer, and ODOT when applicable; and

c. The proposed site design and traffic and circulation design

and facilities, for all transportation modes, including any mitigation measures, are designed to:

- (i.) Have the least negative impact on all applicable transportation facilities; and
- (ii.) Accommodate and encourage non-motor vehicular modes of transportation to the extent practicable; and
- (iii.) Make the most efficient use of land and public facilities as practicable; and
- (iv.) Provide the most direct, safe and convenient routes practicable between on-site destinations, and between on-site and off-site destinations; and
- (v.) Otherwise comply with applicable requirements of the City of Bandon Development Code.

F. Conditions of Approval. The City may deny, approve, or approve a development proposal with appropriate conditions.

1. Where the existing transportation system will be impacted by the proposed development, dedication of land for streets, transit facilities, sidewalks, bikeways, paths, or accessways may

be required to ensure that the transportation system is adequate to handle the additional burden caused by the proposed use.

2. Where the existing transportation system is shown to be burdened by the proposed use, improvements such as paving, curbing, installation or contribution to traffic signals, construction of sidewalks, bikeways, accessways, paths, or streets that serve the proposed use may be required.

#### TRANSPORTATION CRITERIA FOR LEGISLATIVE AMENDMENTS AND PLANNED UNIT DEVELOPMENT

OAR 660-012-0045

(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:

(g) Regulations assuring amendments to land use designations, densities, design standards are consistent with the function, capacities, and levels of service of facilities designated in the TSP.

The City's approval criteria for tentative subdivision plans (Section 16.12.240) and planned unit development (Section 17.100.060) require that sufficient public facilities, including transportation facilities, be present at the time of development. Approval criteria for partitions do not include specific transportation criteria, yet they do allow the Planning Commission to

establish conditions of approval including dedications and improvements.

However, these provisions do not fully address OAR 660-012-0045(2)(g) in terms of potential amendments to density regulations and design standards- in essence legislative land use changes. Zoning changes are addressed in Section 17.116.030, and this section could be expanded to account for other types of amendments and their impacts on transportation facilities.

*17.116.030 Conditional zone amendment.*

*The purpose of the conditional zone amendment provision is to enable the city council to attach specific conditions to a request for a zone boundary change where it finds that such conditions are necessary to achieve a stated public purpose.*

*A. The city council shall have the authority to attach conditions to the granting of amendments to a zone boundary. These conditions may relate to any of the following matters:*

- 1. The uses permitted;*
- 2. Public facility improvements such as street improvements, dedication of street right[-]of-way, sewer, storm drainage, and water;*
- 3. That all or part of the development or use be deferred until certain events, such as the provision of certain public facilities to the property, occur;*
- 4. The time frame in which the proposed use associated with the zone boundary change is to be initiated.*

*17.116.XXX Plan and code amendments.*

*The purpose of the plan and code amendments provision is to enable the city council to attach specific conditions to legislative amendments to its comprehensive plan or development code language, where it finds that such conditions are necessary to achieve a stated public purpose.*

*A. The city council shall have the authority to attach conditions to the granting of amendments to the city's comprehensive plan or development code. These conditions may relate to any of the following matters:*

- 1. The uses permitted;*
- 2. Public facility improvements such as street improvements, dedication of street right-of-way, sewer, storm drainage, and water;*
- 3. That all or part of the development or use affected by the amendment be deferred until certain events, such as the provision of certain public facilities to the property, occur;*

*B. Conditions attached to a plan or code amendment shall be completed within the time limitations set forth. If no time limitations are set forth, the conditions shall be completed within two years from the effective date of the ordinance enacting the plan or code amendment.*

*C. The city council may require a bond from the property owner or contract purchasers in a form acceptable to the city in such amount as to assure compliance with the conditions imposed on the change. Such a bond shall be posted prior to the issuance of the appropriate development permit.*



D. Conditions shall not be imposed which would have the effect of limiting use of the property to one particular owner, tenant or business. Conditions may limit the subject property as to use, but shall not be so restrictive that they may not reasonably be complied with by other occupants who might devote the property to the same or a substantially similar use.

E. Conditions that are imposed under the provisions of this section shall be construed and enforced as provisions of this zoning code relating to the use and development of the subject property. The conditions shall be enforceable against the applicant as well as their successors and assigns.

F. Requests for modification of conditions shall be considered by the amendment application and review procedure of this chapter.

G. Failure to fulfill any condition attached to a plan or code amendment within the specified time limitations shall constitute a violation of this section and may be grounds for the city to initiate a change in the plan or code amendment pursuant to the procedures of this chapter.

Provisions in the City's Zoning Ordinance address local circulation and bicycle and pedestrian facilities needs. Section 17.100.060 requires that sufficient transportation facilities be in place at the time of development for PUDs. However, these provisions should be amended to better meet needs for parking, circulation and connectivity.

#### 17.100.060 Criteria for Approval

In granting approval for a PUD, the Planning Commission shall make its decision based on the following:

B. The proposal complies with transportation and public utilities requirements that are relevant to the property or properties upon which that development proposal is located and to the offsite facilities and services which are affected by the proposal, and all implementing ordinances of the city in terms of location and general development standards, except those for which a specific deviation has been approved under Section 17.100.080.

D. The project will satisfactorily take care of the traffic it generates by means of adequate off-street parking, access points and ~~additional~~ off-site street rights-of-way improvements.

#### BICYCLE PARKING

OAR 660-012-0045

(3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids

wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.

(a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park-and-ride lots;

Currently, the City's off-street parking and loading regulations (Section 17.96) do not include provisions for bicycle parking. However, bicycle parking space requirements were proposed in Table 4 of Section 3, Bicycle Plan, of the Bandon TSP, Volume 6, Implementing the TSP (2000). (See Appendix K) Therefore, it is recommended that these proposed requirements be adopted and incorporated into Section 17.96 of the City's Zoning Ordinance.

However, additional specifications are needed for bicycle parking in addition to parking space requirements. Recommended provisions, adapted from parking requirements from the State's Model Development Code for Small Cities (2<sup>nd</sup> Edition), are presented below.

**17.96.XXX Bicycle Parking Requirements**

All uses shall provide bicycle parking according to the bicycle parking space requirements in Table X and in conformance subsections A-H, below.

A. Minimum Required Bicycle Parking Spaces. Uses shall provide covered spaces as specified in Table X. Where two options are provided, the option resulting in more bicycle parking is used.

B. Exemptions. This Section does not apply to single-family and two-family housing (attached, detached, or manufactured housing).

C. Location and Design. Bicycle parking should be no farther from the main building entrance than the distance to the closest vehicle space, or 50 feet, whichever is less. Long-term (i.e., covered) bicycle parking should be incorporated whenever possible into building design. Short-term bicycle parking, when allowed within a public right-of-way, should be coordinated with the design of street furniture, as applicable.

D. Visibility and Security. Bicycle parking for customers and visitors of a use shall be visible from street sidewalks or building entrances, so that it provides sufficient security from theft and damage;

E. Options for Storage. Long-term or covered bicycle parking requirements for multiple family uses and employee parking can be met by providing a bicycle storage room, bicycle lockers, racks, or other secure storage space inside or outside of the building;

F. Lighting. For security, bicycle parking shall be at least as well lit as vehicle parking..

G. Reserved Areas. Areas set aside for bicycle parking shall be clearly marked and reserved for bicycle parking only.

H. Hazards. Bicycle parking shall not impede or create a hazard to pedestrians. Parking areas shall be



located so as to not conflict with vision clearance standards.

## FINDINGS

This section provides compliance findings for state and local land use policies, rules, and procedural requirements associated with the adoption of an amendment to the City of Bandon's Transportation System Plan for local circulation improvements in the southern part of the city. Findings also cover proposed amendments to the city's development code regulations that implement the TSP. Findings are organized by statute and rule.

Findings are presented in the following tables that cite relevant requirements and respond in narrative statements that summarize how the requirement is met. The findings address the Oregon Transportation Planning Rule (OAR 660-012), the Oregon Highway Plan, the Statewide Planning Goals, the Bandon Comprehensive Plan, and the Bandon Development Code.

<p style="text-align: center;"><b>OAR 660-012-0045</b></p> <p style="text-align: center;"><b>Implementation of the TSP</b></p>	<p style="text-align: center;"><b>Response</b></p>
<p><i>(1) Each local government shall amend its land use regulations to implement the TSP.</i></p>	
<p><i>(b) To the extent, if any, that a transportation facility, service, or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment.</i></p>	<p>The City's Zoning Ordinance did not establish transportation facilities, services, or improvements as allowed uses in its residential, commercial, and industrial land use districts. Proposed amendments to the zoning code add these provisions.</p>
<p><i>(c) In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with 660-012-0050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.</i></p>	<p>Section 17.120 addresses administration of the code, and specifies that applicable public agencies must be contacted about public hearings for discretionary land use applications that require hearings.</p> <p>These provisions have been expanded in the proposed amendments to more clearly refer to coordination with ODOT and under what circumstances.</p>

<p align="center"><b>OAR 660-012-0045</b></p> <p align="center"><b>Implementation of the TSP</b></p>	<p align="center"><b>Response</b></p>
<p><i>(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:</i></p>	
<p><i>(a) Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities;</i></p>	<p>Access is controlled by the OHP for statewide facilities in Bandon.</p> <p>The City's TSP (Volume 6, Table 5) includes access spacing guidelines for local roads—collectors and local residential streets.</p> <p>Minimizing access to arterials and highways is established in the City's off-street parking and loading provisions (Section 17.96.070) and in supplementary provisions (Section 17.104.080) in its Zoning Ordinance.</p> <p>Furthermore, pursuant to Section 17.92.020, conditional use provisions authorize the City to impose conditions on the approval of conditional uses including controlling the location and number of vehicle access points.</p>
<p><i>(b) Standards to protect the future operations of roadways and transit corridors;</i></p>	<p>The City's TSP and Development Code have not included mobility standards to gauge roadway operations. Therefore, mobility standards are included in the proposed amendments.</p> <p>In order to protect future operations, these standards must be applied systematically in transportation analyses. Transportation analysis requirements are part of the proposed amendments, and are also addressed in the findings for OAR 660-012-0045(2)(e).</p>
<p><i>(d) A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;</i></p>	<p>As with the findings for OAR 660-012-0045(1)(c), provisions in Section 17.120 have been expanded in the proposed amendments to more clearly refer to coordination with ODOT</p>

<p align="center"><b>OAR 660-012-0045</b></p> <p align="center"><b>Implementation of the TSP</b></p>	<p align="center"><b>Response</b></p>
	<p>and under what circumstances.</p>
<p><i>(e) A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;</i></p>	<p>The City's zoning code does provide authorization for the City to impose conditions on approval of conditional uses in order to protect transportation facilities (Section 17.92.020). However the code has not included a process for systematically evaluating transportation impacts. The transportation impact analysis provisions included in the proposed amendments address this need.</p>
<p><i>(f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of: land use applications that require public hearings, subdivision and partition applications, other applications which affect private access to roads, and other applications within airport noise corridors and imaginary surfaces which affect airport operations.</i></p>	<p>Section 17.120 addresses administration of the code, and specifies that applicable public agencies must be contacted about public hearings for discretionary land use applications that require hearings.</p>
<p><i>(g) Regulations assuring amendments to land use designations, densities, design standards are consistent with the function, capacities, and levels of service of facilities designated in the TSP.</i></p>	<p>Criteria for approval of Planned Unit Developments (PUDs) and land divisions require that there be adequate transportation facilities to serve the development. Approval criteria for tentative subdivision plans (Section 16.12.240) and PUDs (Section 17.100.060) require that sufficient public facilities, including transportation facilities, be present at the time of development. Approval criteria for partitions do not include specific transportation criteria,</p>

<p align="center"><b>OAR 660-012-0045</b></p> <p align="center"><b>Implementation of the TSP</b></p>	<p align="center"><b>Response</b></p>
	<p>yet they do allow the Planning Commission to establish conditions of approval including dedications and improvements.</p> <p>Zoning changes are addressed in Section 17.116.030, and this section is augmented in the proposed amendments to account for other legislative land use amendments, including changes to density and design standards, and their impacts on transportation facilities.</p>
<p><i>(3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.</i></p>	
<p><i>(a) Bicycle parking facilities as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park-and-ride lots;</i></p>	<p>The City's zoning code has not included bicycle parking requirements, however parking space guidelines are provided in the City's TSP (Volume 6, Section 3, Table 4). These parking space guidelines have been combined with other new bicycle parking provisions in the proposed amendments, to be incorporated into the City's off-street parking and</p>

<p align="center"><b>OAR 660-012-0045</b></p> <p align="center"><b>Implementation of the TSP</b></p>	<p align="center"><b>Response</b></p>
	<p>loading regulations (Section 17.96).</p>
<p><i>(b) On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single-family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways.</i></p>	<p>Required development improvements include planned streets, sidewalks, and bicycle routes pursuant to Section 16.40.140 of the City's land division code.</p> <p>Application requirements for tentative subdivision plans make it necessary for the applicant to show proposed transportation facilities on the subdivision plan, including access points and internal circulation routes (Section 16.12.060(B)(19)). The future transportation plan, also a part of tentative subdivision plans pursuant to Section 16.12.060(B)(20), pushes this further by requiring that the system of proposed transportation improvements connect with transportation facilities of surrounding lots. Additional requirements for commercial and industrial development proposals include a pedestrian circulation plan showing access and connections within the site and to locations surrounding the site, and similarly a traffic plan showing access and connections of roadways and bikeways.</p>
<p><i>(c) Where off-site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors;</i></p>	<p>The City's zoning code authorized the City to impose conditions on conditional uses pursuant to Section 17.92.020. Conditions may include the location and number of access points for motorists, additional right-of-way or street width, and public improvements such as streets, sidewalks, and bike paths.</p> <p>City street standards would regulation off-site improvements. The street standards, presented in Appendix B of the City's TSP require sidewalks on both sides of all streets, except for local streets where they are required on just one side. Bike lanes are generally</p>

<p align="center"><b>OAR 660-012-0045</b></p> <p align="center"><b>Implementation of the TSP</b></p>	<p align="center"><b>Response</b></p>
	<p>required on arterials and collectors, except for commercial streets (60'-80' right-of-way, functionally classified between an arterial and collector) and 28-foot-wide collectors. (They are required on 34-foot-wide collectors.)</p>
<p><i>(e) Internal pedestrian circulation within new office parks and commercial developments shall be provided through clustering of buildings, construction of accessways, walkways and similar techniques.</i></p>	<p>The City's land division code establishes additional requirements for commercial and industrial subdivision proposals (Section 16.12.080). The tentative subdivision plan must include a pedestrian circulation plan showing access and connections within the site and to locations surrounding the site.</p>
<p><i>(6) In developing a bicycle and pedestrian circulation plan as required by 660-012-0020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.</i></p>	<p>As cited in the findings above, proposed transportation plans required as part of tentative subdivision plans must show internal circulation systems for pedestrians, cyclists, and motorists. Site plans for land partition applications must also show the system of roadways and pedestrian accessways, pursuant to Section 16.32.060(B). Proposed code amendments strengthen allowances for access between parcels.</p> <p>Provisions for the creation of blocks specify that easements may be required to serve a cul-de-sac or otherwise provide access in areas with limited access (Section 16.40.060).</p>
<p><i>(7) Local governments shall establish standards for local streets and accessways that minimize</i></p>	<p>The City's street standards (TSP, Appendix B) approximate the guidelines for local streets and narrow streets established by the Department of Land Conservation and Development</p>

<p align="center"><b>OAR 660-012-0045</b></p> <p align="center"><b>Implementation of the TSP</b></p>	<p align="center"><b>Response</b></p>												
<p><i>pavement width and total right-of-way consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets and accessways in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation. Notwithstanding section (1) or (3) of this rule, local street standards adopted to meet this requirement need not be adopted as land use regulations.</i></p>	<p>(DLCD). The DLCD Neighborhood Street Width Guidebook suggests the following local street standards.</p> <table border="0" data-bbox="823 410 1365 548"> <thead> <tr> <th></th> <th align="center">Pavement</th> <th align="center">Right of-Way</th> </tr> </thead> <tbody> <tr> <td>No On-Street Parking</td> <td align="center">20'</td> <td align="center">42-48'</td> </tr> <tr> <td>Parking on One Side</td> <td align="center">24'</td> <td align="center">47-52'</td> </tr> <tr> <td>Parking on Two Sides</td> <td align="center">28'</td> <td align="center">52-56'</td> </tr> </tbody> </table> <p>Bandon local street standards allow for 28' of pavement with parking on one side (20' for travel lanes and 8' for parking).</p>		Pavement	Right of-Way	No On-Street Parking	20'	42-48'	Parking on One Side	24'	47-52'	Parking on Two Sides	28'	52-56'
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<p align="center"><b>OAR 660-012-0060</b></p> <p align="center"><b>Plan and Land Use Regulation Amendments</b></p>	<p align="center"><b>Response</b></p>
<p><i>(1) Where an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation would significantly affect an existing or planned transportation facility, the local government shall put in place measures as provided in section (2) of this rule to assure that allowed land uses are consistent with the identified function, capacity, and performance standards (e.g. level of service, volume to capacity ratio, etc.) of the facility. A plan or land use regulation amendment significantly affects a transportation facility if it would:</i></p> <p><i>(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);</i></p> <p><i>(b) Change standards implementing a functional classification system; or</i></p> <p><i>(c) As measured at the end of the planning period identified in the adopted transportation system plan:</i></p> <p><i>(A) Allow land uses or levels of development that would result in types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;</i></p> <p><i>(B) Reduce the performance of an existing or</i></p>	<p>The proposed amendment to the City's Transportation System Plan (TSP) that adoption of the Local Circulation Network represents does not include any changes to land use designations that would intensify land uses adjacent to statewide facilities.</p> <p>Furthermore, the projects in the proposed Local Circulation Plan create more local roads and connections, including improved walking and bicycling conditions, which are intended to alleviate traffic and improve performance on statewide facilities in the study area.</p> <p>As such, the adoption of the Local Circulation Plan does not change the functional classification of an existing or planned transportation facility nor change the standards for implementing a functional classification system.</p> <p>Therefore, the proposed plan does not impose a significant affect pursuant to OAR 660-012-0060(1).</p>

<p style="text-align: center;"><b>OAR 660-012-0060</b></p> <p style="text-align: center;"><b>Plan and Land Use Regulation Amendments</b></p>	<p style="text-align: center;"><b>Response</b></p>
<p><i>planned transportation facility below the minimum acceptable performance standard identified in the TSP or comprehensive plan; or</i></p> <p><i>(C) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the TSP or comprehensive plan. Planned transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the TSP or comprehensive plan.</i></p>	
<p><i>(2) Where a local government determines that there would be a significant effect, compliance with section (1) shall be accomplished through one or a combination of the following:</i></p> <p><i>(a) Adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.</i></p> <p><i>(b) Amending the TSP or comprehensive plan to provide transportation facilities, improvements or services adequate to support the proposed land uses consistent with the requirements of this division; such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation finance</i></p>	<p>Adoption of the proposed Bandon Local Circulation Plan does not pose a significant effect on the transportation system pursuant to OAR 660-012-0060(1). Therefore, the compliance measures in this section do not apply.</p>

<b>OAR 660-012-0060</b> <b>Plan and Land Use Regulation Amendments</b>	<b>Response</b>
<p><i>plan so that the facility, improvement, or service will be provided by the end of the planning period.</i></p> <p><i>(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes.</i></p> <p><i>(d) Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.</i></p> <p><i>(e) Providing other measures as a condition of development or through a development agreement or similar funding method, including transportation system management measures, demand management or minor transportation improvements. Local governments shall as part of the amendment specify when measures or improvements provided pursuant to this subsection will be provided.</i></p>	



# APPENDIX A: PLAN AND POLICY REVIEW

## PLAN &amp; POLICY REVIEW

## STATE

## TRANSPORTATION PLANNING RULE (TPR)

Statewide Planning Goal 12, Transportation, requires cities, counties, metropolitan planning organizations, and ODOT to provide and encourage a safe, convenient, and economic transportation system. This is accomplished through development of Transportation System Plans (TSPs) based on inventories of local, regional and state transportation needs. Goal 12 requirements state that transportation plans shall:

- consider all modes of transportation, including pedestrian, bicycle, highway, rail, mass transit, air, water, and pipeline
- be based upon an inventory of local, regional, and state transportation needs
- consider the differences in social consequences that would result from utilizing differing combinations of transportation modes
- avoid principal reliance on any one mode of transportation
- minimize adverse social, economic, and environmental impacts and costs and conserve energy
- meet the needs of the transportation disadvantaged
- facilitate the flow of goods and services so as to strengthen the local and regional economy
- conform with local and regional comprehensive land use plans
- be developed, adopted, amended and implemented in accordance with the standards set out in OAR 660, Division 12

In 1991, the Land Conservation and Development Commission (LCDC), with concurrence from ODOT, adopted the Transportation Planning Rule, OAR 660 Division 12, to implement Statewide Planning Goal 12, Transportation (amended in May and September 1995, and March 2005). The TPR requires cities with a population of 2,500 or greater to prepare and adopt a TSP. All counties are also required to prepare and adopt a TSP. According to OAR 660-012, in a non-MPO area under 25,000 people, a TSP must include the following elements:

- A determination of transportation needs (per OAR 660-012-030);
- A road plan of arterial, collector, and local streets, standards for each functional classification, and between functional classifications in local, regional, and state transportation plans. The road plan and standards must show connections of existing and planned streets, and connections to community destinations;
- A public transportation plan;
- A bicycle and pedestrian plan;
- An air, rail, water, and pipeline transportation plan;
- Policies and land use regulations for TSP implementation (per OAR 660-012-045);

- A transportation financing program.

This project constitutes an amendment of the City's adopted TSP (2000). It is scoped to address TSP elements including the road plan, bicycle and pedestrian plan, implementation policies and land use regulations, and a financing program.

OAR Section 660-12-0045, Implementation of the TSP, requires local governments to adopt land use regulations consistent with state and federal requirements "to protect transportation facilities, corridors, and sites for their identified functions (OAR 660-012-0045(2))." Requirements from Section - 0045 are paraphrased below:

- Amend land use regulations to reflect and implement the Transportation System Plan.
- Adopt land use or subdivision ordinance measures, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions, to include the following topics:
  - access management and control;
  - standards to protect future road and transit operations;
  - protection of public use airports;
  - coordinated review of land use decisions potentially affecting transportation facilities;
  - conditions to minimize development impacts to transportation facilities;
  - regulations to provide notice to public agencies providing transportation facilities and services of land use applications that potentially affect transportation facilities;
  - regulations assuring that amendments to land use applications, densities, and design standards are consistent with the Transportation System Plan.
- Adopt land use or subdivision regulations for urban areas and rural communities to provide safe and convenient pedestrian and bicycle circulation and bicycle parking, and to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel.
- Identify improvements to facilitate bicycle and pedestrian trips in developed areas, which provide safer and more direct access within and between residential areas and neighborhood activity centers such as constructing walkways between cul-de-sacs and adjacent roads, walkways between buildings, and access between adjacent lots and uses.
- Establish street standards that minimize pavement width and total right-of-way.

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## OREGON TRANSPORTATION PLAN

Originally adopted in 1992, the Oregon Transportation Plan (OTP) is a policy document developed by ODOT in response to federal and state mandates for planning for the future of Oregon's transportation system. The OTP is intended to meet statutory requirements (ORS 184.618(1)) to develop a state transportation policy and comprehensive long-range plan for a multi-modal transportation system that

addresses economic efficiency, orderly economic development, safety, and environmental quality. The 2006 OTP expands on the policy objectives of the 1992 plan, with an emphasis on maintaining assets<sup>26</sup> in place, optimizing existing system performance through technology and better system integration, creating sustainable funding, and investing in strategic capacity enhancements.

The OTP's goals, policies, and strategies guide the development of state multimodal, modal/topic<sup>27</sup> and facility plans and regional and local transportation system plans. The OTP provides the framework for prioritizing transportation improvements and funding, but it does not identify specific projects for development.<sup>28</sup> As required by Oregon and federal statutes, the OTP guides development and investment in the transportation system through:

- Transportation goals and policies,
- Transportation investment scenarios and an implementation framework, and
- Key initiatives to implement the vision and policies.

Goals in the OTP include: Mobility and Accessibility; Management of the System; Economic Vitality; Sustainability; Safety and Security; Funding the Transportation System; and Coordination, Communication and Cooperation. Policies and strategies under many of these goals emphasize increasing coordination and cooperation among federal and state agencies, regional and local governments and private entities to achieve these goals.

The Implementation Framework section of the OTP describes the implementation process and how state multimodal, modal/topic plans, regional and local transportation system plans and master plans will further refine the OTP's broad policies and investment levels. Local TSPs can further OTP implementation by defining standards, instituting performance measures, and requiring that operational strategies be developed.<sup>29</sup>

The Implementation section also describes three investment levels, examples of the investment priorities for each level of investment, and their impacts on the transportation system. These levels are described as "flat funding" (Level 1), "maintaining and improving existing infrastructure" (Level 2), and "expanding facilities and services and services" (Level 3). The recommendation in the OTP is for the

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<sup>26</sup> The OTP defines "asset management" as a "systematic process of maintaining, upgrading and operating physical assets cost-effectively. It combines engineering principles with sound business practices and economic theory, and it provides tools to facilitate a more organized, logical approach to decision-making. Asset management provides a framework for handling both short- and long-range planning."

<sup>27</sup> Modal or topic plans, as developed by ODOT and other state agencies, include plans for aviation, bicycle and pedestrian facilities, highways, marine ports and waterways, public transportation and rail.

<sup>28</sup> Projects are identified through facility plans and regional and local transportation system plans, and sometimes through modal plans.

<sup>29</sup> As stated in the Implementation section of the OTP, requirements for regional and local transportation system plans (TSPs) are found in the Transportation Planning Rule (OAR 660-012). Regional and local TSPs must be consistent with the state TSP (the OTP), state multimodal, modal/topic and transportation facility plans.



State to invest at levels closer to Level 3 “in order to be competitive economically and to have the transportation infrastructure and services that allow communities to function well.”

Finally, a list of “key initiatives” describes the OTP’s implementation priorities. The key initiatives are intended to help frame plan implementation and reflect the directions of the OTP including system optimization, integration of transportation modes, integration of transportation, land use, the environment and the economy, and the need to make strategic investments using a sustainable funding structure. The key initiatives envision creating the sustainable funding plan using both traditional and new revenue sources. This should be reflected in the drafting of a financing program in Task 6 of this project.

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## OREGON HIGHWAY PLAN

The Oregon Highway Plan (OHP), an element and modal plan of the state’s comprehensive transportation plan (OTP), guides the planning, operations, and financing of ODOT’s Highway Division. Policies in the OHP emphasize the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. OHP policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems.

The OTC adopted the OHP on March 18, 1999. ODOT posts amendments on the OHP website, which currently include amendments into 2008, although these amendments are sometimes facility plans particular to a region or jurisdiction in Oregon and not applicable statewide.

The Bandon Local Circulation Plan and Bicycle/Pedestrian Plan will need to be consistent with the OHP with regards to US 101 and facilities that connect with or otherwise impact US 101 in the study area. The policies found within the OHP that apply to the Bandon TSP project include:

- Policy 1A: State Highway Classification System;
- Policy 1B: Land Use and Transportation;
- Policy 1D: Scenic Byways;
- Policy 1F: Highway Mobility Standards;
- Policy 1G: Major Improvements;
- Policy 2B: Off-System Improvements;
- Policy 2F: Traffic Safety;
- Policy 3A: Classification and Spacing Standards;
- Policy 4A: Efficiency of Freight Movement.
- Policy 4B: Alternative Passenger Modes.
- Policy 4D: Transportation Demand Management

Policy 1A: State Highway Classification System. The state highway classification system includes five classifications: Interstate, Statewide, Regional, District, and Local Interest Roads. In addition, there are

four special purpose categories that overlay the basic classifications: special land use areas, statewide freight route, scenic byways, and lifeline routes. These special designations supplement the highway classification system and are used to guide management, needs analysis, and investment decisions on the highway system.

In terms of classifications, US 101 in the study area is part of the National Highway System (NHS). The federal Intermodal Surface Transportation Efficiency Act of 1991 required that states establish a National Highway System to provide an interconnected system of principal arterial routes that will serve "interstate and inter-regional travel." In Oregon the National Highway System includes most Statewide Highways and intermodal connectors, and routes designated as Interstates. US 101 in the study area is not designated as a freight route, but is designated as a truck route. The highway is also a scenic byway. No special land use/transportation designations apply, as is discussed in the next section.

Policy 1B: Land Use and Transportation. Policy 1B calls for the coordination between ODOT, local jurisdictions, and other applicable agencies to manage land use and transportation decisions on state highways. These decisions must balance objectives such as the mobility of through traffic on state highways with the accessibility, livability, and economic vitality of the communities through which these highways pass. The policy offers special state designations for highway segments where the balance between through-traffic mobility and local access and circulation varies. These designations allow for flexibility of access management, traffic management, and design standards for the highway segments to which they apply.

Special land use/transportation designations for US 101 through Bandon are not being sought as part of this project. This then qualifies US 101 as a Non-designated Urban Highway according to Policy 1B, defined as a Statewide Highway within an urban growth boundary that is not otherwise designated as a Interstate Highway, Expressway, Special Transportation Area, Urban Business Area, or Commercial Center. The objective of the Non-designated Urban highway segment is: "to efficiently move through traffic while also meeting the access needs of nearby properties...Transit turnouts, sidewalks, and bicycle lanes are accommodated." According to Policy 1B, the ODOT Highway Design Manual specifies design standards for a variety of land use areas along Non-designated Urban highways, and OAR 734-051 provides spacing standards for Non-designated highway segments.

Policy 1D: Scenic Byways. Policy 1D recognizes that some state highways in Oregon possess exceptional scenic value. In order to protect these assets, the policy requires that ODOT develop design guidelines for the right-of-way in Scenic Byways. The policy also recognizes that protecting the scenic value may have to be balanced with safety and performance improvements.

Policy 1F: Highway Mobility Standards Access Management Policy. This policy addresses state highway performance expectations for planning and plan implementation or amendment, as well as providing guidance for managing access and traffic control systems. For the Study Area, this policy pertains to US 101. Action 1F.1 states that highway mobility standards apply to all state highway sections; for areas outside of the Portland Metro area, the maximum volume to capacity ratios for peak hour operating conditions in Table 6 apply. According to Table 6, inside the Urban Growth Boundary (UGB)

Highway 101 has a maximum v/c ratio of 0.75 where the non-freeway speed limit is 45mph or greater, 0.80 where the non-freeway speed is between 35 and 45 mph, and 0.85 where the non-freeway speed limit is less than 35 mph. Outside the UGB Highway 101 has a maximum v/c ratio of 0.75 in unincorporated communities. Action 1F.5 states that within transportation system plans, where the volume-to-capacity (v/c) ratio is worse than the identified standards in the OHP and transportation improvements are not planned, the performance standard for the highway shall be to improve performance as much as feasible and to avoid further degradation of performance.

Policy 1G: Major Improvements. This policy requires maintaining performance and improving safety by improving efficiency and management before adding capacity.

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 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.

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. The adopted standards can be found in Appendix C of the Oregon Highway Plan; generally, the minimum access spacing distance increases as either the highway's importance or posted speed increases. The access management spacing standards established in the OHP are implemented by OAR 734, Division 51.<sup>30</sup>

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. While US 101 through Bandon is not a designated freight route, which would place primary emphasis on maintaining mobility for freight movement, the highway is the principal north/south commercial artery for the southern Oregon Coast. As such, consideration for freight traffic is an important issue that needs to be addressed when balancing local traffic circulation and system improvements against impacts to the movement of goods on the highway.

Policy 4B: Alternative Passenger Modes. This policy encourages the development of alternative passenger services and systems as part of broader corridor strategies and promotes the development

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<sup>30</sup> Oregon Revised Statute (OAR) 734, Division 51, was amended in September 2005 to be consistent with August 2005 OHP revisions to Policy 1B. Specifically, the spacing standards in OAR 734-051 were amended to be consistent with the OHP tables in Appendix C, Access Management Standards.

of alternative passenger transportation services located off the highway system to help preserve the performance and function of the state highway system.

Policy 4D: Transportation Demand Management. This policy establishes the state's interest in supporting demand management strategies that reduce peak period single occupant vehicle travel, thereby improving the flow of traffic on the state highway system.

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## OREGON BICYCLE AND PEDESTRIAN PLAN

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. It contains the standards used on State Highway projects and provides guidance to cities in establishing facilities on local transportation systems. These standards are recommended but are not required for use by local jurisdictions in Oregon.

The plan includes two parts: the Policy and Action Plan, and Planning, Design, Maintenance, and Safety. The policy section provides background information, including relevant state and federal laws, and contains the goals, actions, and implementation strategies proposed by ODOT to improve bicycle and pedestrian transportation. The stated bicycle and pedestrian transportation vision is as follows:

*Oregon envisions a transportation system where walking and bicycling are safe and convenient transportation modes for urban trips.*

The plan states that bikeway and walkway systems will be established on rural highways by widening shoulders as part of modernization projects, as well as on many preservation overlays, where warranted. For urban highways, implementation may take place:

- As part of modernization projects (bike lanes and sidewalks will be included);
- As part of preservation projects, where minor upgrades can be made;
- By restriping roads with bike lanes;
- With minor betterment projects, such as completing short missing segments of sidewalks;
- As bikeway or walkway modernization projects;
- By developers as part of permit conditions, where warranted.

The second part ("Part Two") of the Oregon Bicycle and Pedestrian Plan governs the design of bicycle and pedestrian facilities on state-owned facilities. ODOT is currently updating the design section of the Oregon Bicycle and Pedestrian Plan. The final document is expected to be adopted by the Oregon Transportation Commission in 2008. Many new pedestrian and bicycle treatments have been developed and incorporated into the update. Once adopted, the Oregon Bicycle and Pedestrian Plan Design Standards and Guidelines 2008 will be referenced where bicycle or pedestrian facilities are planned as part of planned improvements within the US 101 corridor. The Design Standards and Guidelines may also be helpful in planning for bicycle and pedestrian access in the study area.

This plan affects bicycle and pedestrian facilities on state-owned transportation facilities within the Cities, including US 101. The Oregon Bicycle and Pedestrian Plan considers rural highways and county roads suitable for cycling if they have paved shoulders or relatively low traffic volumes. Map 1, Conditions for Bicyclists on Rural Highways, shows that US 101 in the Study Area has four-foot or greater shoulders and traffic volumes under 1000 ADT. Table 7, Standard Rural Highway Shoulder Widths, provides shoulder width recommendations based on roadway type (Rural Arterials, Rural Collectors, Rural Local Routes) and ATD.

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#### ACCESS MANAGEMENT RULE (OAR 734-051)

Oregon Administrative Rule 734-051 defines the State's role in managing access to highway facilities in order to maintain functional use and safety and to preserve public investment. The provisions in the OAR apply to all roadways under Oregon State jurisdiction within the City of Bandon. The access management rules include spacing standards for varying types of state roadways.<sup>31</sup> It also lists criteria for granting right of access and approach locations onto state highway facilities.

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#### COUNTY

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#### COOS COUNTY COMPREHENSIVE PLAN (1985)

The Comprehensive Plan establishes goals and objectives for a variety of factors that influence community development such as sewer and water, transportation, housing, commerce, industry, public facilities and services, land use, recreation, and natural resources. The goals and policies recognize and plan for the interrelationships and interactions of these factors. The transportation section was last updated with the adoption of the County TSP in 1999. The transportation element of the Comprehensive Plan includes the following goal statement:

*Coos County shall strive to provide and encourage a transportation system that promotes safety and convenience for citizens and travelers and that strengthens the local and regional economy by facilitating the flow of goods and services. (p. 5-59)*

The transportation element also states that the County may help defray local road and street improvement costs by issuing Bancroft bonds, and will continue to entertain requests for establishment of Local Improvement Districts to upgrade deficient roads and streets. Whether this objective is still applicable within the study area likely depends on the county's financial health and current county board policy.

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<sup>31</sup> "Spacing Standards" mean Access Management Spacing Standards as set forth in OAR 734-051-0115 and specified in Tables 1, 2, and 3, adopted and made a part of division 51 rules and Access Management Spacing Standards for Approaches in an Interchange Area as set forth in OAR 734-051-0125 and specified in Tables 5, 6, 7, and 8 and Figures 1, 2, 3, and 4, adopted and made a part of Division 51 rules (734-051-0040(62)).

The County Land Use Plan for the study area shows most properties as exception land planned for rural residential use. Most of the Study Area lies inside the city of Bandon Urban Growth Boundary and as such over time it is expected to annex to the city and urbanize. The area land use would be expected to intensify as that transition occurs. Maps showing existing county zoning for the study area are located in Appendix B.

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#### COOS COUNTY TRANSPORTATION SYSTEM PLAN/TRANSPORTATION IMPROVEMENT PLAN (1999)

The Coos County Transportation System Plan (TSP) is a transportation plan for all rural County transportation facilities outside the urban growth boundaries of the cities within Coos County, addressing expected trends and needs through the year 2015. Transportation issues located within urban areas are addressed in individual city plans.

The first two sections of the TSP note the key role that the highway system plays in mobility within the county, and establish the goal of partnership between the County and the Cities, ODOT, and the public.

Section IV describes the existing transportation system within the county. It notes that "US 101 is a primary arterial of statewide importance along the Oregon coastline and forms the north/south spine of the county transportation system" and that Highway 42S (which enters Bandon north of the Study Area) "is a narrow two-lane minor arterial, with minimal shoulder width. This road links Bandon and Coquille, and provides for I-5 bound traffic from the southwestern part of the County."

Section VII is the local street system element, and contains two policies on access management: (1) *Coos County will be consistent with State and local access management plans for the major street system within the region.* (2) *The primary function of local/minor streets is to serve the circulation and access needs of residents adjacent to and abutting these streets. Through traffic on these streets shall be discouraged.*

Section IX covers the bicycle and pedestrian transportation element. It references a 1991 bicycle master plan for Coos County, which suggested upgrades and improvements to the County bicycle network. These include two segments within the study area: Beach Loop Drive (which is part of the Oregon Coast Bike Route), and Seabird Lane. The section states that "the County should work bicycle improvements into needed repairs as possible" (p. 86), generally by improving or widening the shoulder. Pedestrian planning is also briefly addressed in this section. The plan notes that the Transportation Planning Rule requiring pedestrian facilities in areas where walking is likely to occur is most important for areas under County jurisdiction within urban growth boundaries: *These areas are required to determine the appropriateness of sidewalks and the type of standard to be developed.*

Section XI contains the finance element, which notes the need for a collector road east of US 101 in Bandon and lists its general timing as 10-20 years from the plan date (see Table 20).

Section XII summarizes the street standards for county roads, but notes that the standards are detailed in Section VII of the County's Subdivision Ordinance. The standards generally recommend travel lane widths of 10-12 feet and require paved shoulders, with shoulder widths varying by functional classification and expected traffic volumes. The standards do not distinguish between areas within or outside an urban growth boundary.

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## CITY

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### CITY OF BANDON COMPREHENSIVE PLAN (1991, LAST AMENDED 2003)

This document is reviewed in detail in the Bandon Transportation System Plan, Volume 2: Plan & Policy Review. The Comprehensive Plan provides guidance on the desired direction and character of future development in the City of Bandon, informing land use decision-making within the City. The plan identifies policies in a number of topic areas, some of which are relevant to this project.

- **Land use:** It is the City's policy to provide appropriate, well-integrated, non-conflicting and orderly areas to accommodate present and future needs of the community.
- **Environmental Quality and Quality of Life:** Resource conservation and conflict resolution – It is the City of Bandon's policy to protect natural resources by encouraging the conservation of significant natural areas, open space, non-estuarine water areas, fish/wildlife habitat, and recreation trails. These resources shall be protected to the maximum extent feasible providing no conflicting uses are identified. When conflicting uses are identified, the City shall consider the economic, social, environmental, and energy consequences of the conflicting use and take appropriate action.
- **Recreation:** In order to satisfy the recreation needs of the citizens of Bandon the City shall: [...] 4. consider the continued development of bicycle paths as may be financially feasible.
- **Urbanization:** Lands within urban growth boundaries shall be available for urban development concurrent with the provision of key urban facilities and services in accordance with locally adopted development standards.

The urbanization policies also include policies guiding decisions on annexation including a requirement for sufficiency of existing infrastructure, and requirements for street paving. This section also identifies priorities for annexation. The "Donut Hole" area, from roughly 13<sup>th</sup> Street to the City limits north of Seabird Drive and from the City limits east of Beach Loop Drive to Highway 101, is listed as the "First Highest Priority" for annexation.

The Comprehensive Plan also includes a variety of inventories. An inventory of park and recreational facilities lists a beach access point just north of Seabird Drive providing public parking (p.49). An assessment of natural resources includes the Face Rock Golf Course and scenic view points along Beach Loop Road, as well as many others outside the Study Area. It also notes that because there are abundant open space areas within the City, and because the most significant are already protected,

“the undeveloped areas of the City, except those specifically provided in the plan, or below, are not considered to be land needed or desirable for open space.” (p.65)

Chapter 3: Natural, Scenic and Cultural Resources was adopted by ordinance in 2003 as an update to the Comprehensive Plan. Section 1 of this chapter includes a Scenic Resources Inventory that describes the Bluff/Beach Loop viewshed, which includes the entire length of Beach Loop Drive. Implementation measures for the identified Scenic Resources include development of a master plan for trails within each viewshed as part of the Parks Master Plan, and restrictions on vacating City rights-of-way. The plan developed for this project should be consistent with those policies. Section 2 of the chapter includes a local wetland inventory, shown in Figure 2, and recommendations for adoption of wetlands regulations in the City’s Municipal Code. The plan developed for this project should be consistent with those policies and regulations.

Chapter 14 of the Comprehensive Plan was adopted by ordinance in 2002 as an update, and includes a section providing guidelines for amending the Comprehensive Plan. The standards and process given in this section will need to be followed for any amendments resulting from this planning effort.

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#### CITY OF BANDON TRANSPORTATION SYSTEMS PLAN (2000)

The City of Bandon’s Transportation Systems Plan (TSP) was adopted in 2000. Volume 2 contains a review of existing plans, policies, and standards. Many of the plans and policies reviewed have since been updated, and are reviewed again in this document. Where they are covered in greater depth in Volume 2, it has been noted in the appropriate section. There are several portions of Volume 2 that are relevant to this project that are not directly addressed by the other sections of this document. There is a lengthy discussion of jurisdiction for county roads within City limits, the end result of which is that all county roads within the City limits as of 1997 were transferred to City jurisdiction at that time or when required maintenance was completed (note: confirmed by personal communication with City staff). A section on annexations (p. 38) contains a discussion of jurisdiction for roads when land is annexed into the City, and concludes:

*The City and County should clearly establish jurisdictional responsibility in each specific annexation agreement. In addition, the agreement should clarify the City’s position on improvement, repair, and maintenance issues for streets to be included in the annexed area.*

Volume 2 also contains as an appendix the Coos County UGB Street Standards from the Coos County Zoning and Land Development Ordinance. It is assumed that the City reviewed these standards for consistency with City standards as part of this TSP update process (note: to be confirmed).

Volume 6 covers Implementing the Transportation System Plan: Goals, Objectives, and Policies. Section 1 lists the goals, objectives, and policies. Relevant objectives include developing a bicycle and pedestrian system that connects activity centers and reducing vehicular trips to the greatest extent possible. The TSP lists policies on access management along arterials and collectors, and coordination with ODOT on access management along state highways. A mobility standard listed with the policies states that collectors will operate at a Highway Capacity Level of Service “D” during peak hours, and



arterials (State Highways) will operate at the v/c standards specified in the most recently adopted Oregon Highway Plan. Another policy supports direct, convenient access ways to major activity centers. The policy statements also express support for developing bicycle and pedestrian facilities and provide several mechanisms, including providing sidewalks as new arterials and collectors (and some local streets) are built or reconstructed, requirements for sidewalk and trail continuity and bicycle parking for certain development proposals, and incorporation of trail planning in the City's parks and recreation Master Plan.

Section 2 identifies proposed street improvements and additions. A number of collector streets within the study area are identified for widening, including Beach Loop Drive, Seabird Drive, Face Rock Drive, Rosa Road, and Franklin Avenue. The full list is given in Table 2. Potential intersection improvements are indicated for several locations within the study area, as shown in Figure 5 and described in Table 3. There are also new street segments proposed within the study area, which are shown in Figure 6. These segments include connecting Franklin Avenue to Seabird Drive, extending Face Rock Drive to 20<sup>th</sup> or 21<sup>st</sup> Street, and extending Fillmore Avenue to the south to connect with Seabird Drive via Doberman Lane.

Section 3 describes the bicycle plan, noting that the City is required to provide for bicycles on new collector streets, and that bicycle lanes are likely to be a better solution than un-striped shoulders in the long run on these streets. This section highlights the importance of connecting activity centers, and proposes a system of bicycle lanes and bicycle parking to accomplish that task. The planned bicycle system is shown in Figure 10. Extending bike lanes on Highway 101 is identified as one of the top priorities within the bicycle plan section.

Section 4 contains the pedestrian plan, which states that, in spite of poor pedestrian infrastructure, many people in Bandon do walk, and recommends prioritizing pedestrian infrastructure improvements over bicycle improvements based on the apparent local preference for walking. The plan focuses on providing sidewalks on arterial and collector streets. Within the study area, the plan calls for off-road paths. The recommended facilities are shown in Figure 11.

Section 7 addresses access management. Table 5 provides access management guidelines for use in Bandon. Collector streets with a posted speed limit of 25 to 40 mph should have a minimum spacing of 100 feet between driveways and 500 feet between intersections. Local residential streets with a minimum posted speed of 25 mph shall allow driveway access to all lots, and shall have 250 feet between intersections. The section identifies two road segments within the study area as priorities for access management: Highway 101 from 13<sup>th</sup> Street south to the UGB, and Seabird Drive from Highway 101 to Beach Loop Drive, and states that the city will initiate corridor planning for those areas during the Comprehensive Plan update process.

The Implementation Plan is contained in Section 8. Available funding measures listed include State Street Taxes, the General Fund, Systems Development Charges, the Capital Improvement Fund, and State Revenue Sharing. The two most likely sources of new revenue for street improvements are General Obligation Bonds and new Systems Development Charges.

Appendix A lists project priorities for street system and intersection improvements, prioritized by time frame, with capital improvement costs. One of these projects is listed in the final 2008-2011 Statewide Transportation Improvement Plan (STIP), and additional projects may have been constructed since the TSP was last updated, therefore it is recommended that the project list be updated to remove any constructed projects. Appendix B contains street standards and construction “typicals” that include provisions for bike lanes and sidewalks.

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#### CITY OF BANDON DEVELOPMENT CODE

This document is reviewed in detail in the Bandon Transportation System Plan, Volume 2: Plan & Policy Review. The review also discusses the City’s Subdivision Ordinance.

The Development Code establishes the zoning for land use in the City, the uses permitted under each zoning category, and the regulations that apply in each zone. The Bandon Development Code is comprised of Title 16 (Land Divisions) and Title 17 (Zoning). There is not a section for street standards in the Zoning Code. However, off-street parking regulations (Section 17.96) sufficient transportation facilities for Planned Unit Developments at the time of development (Section 17.100.060), and site access (Section 17.104.080) are addressed in the Zoning Code.

The City’s Land Division code requires preparation of existing, proposed and future transportation plans for all tentative subdivision plans (Section 16.12.060(B)), and further requires individual traffic plans, pedestrian plans, parking plans, and loading plans for proposed commercial and industrial development (Section 16.12.080). Approval criteria for tentative subdivision plans direct applicants to demonstrate that sufficient transportation facilities will exist to serve the proposed development (Section 16.12.240). The Land Division code also provides general standards for new streets and blocks (Sections 16.40.050 and .060). This part of the Development Code also specifies that streets, street lighting, sidewalks, and bicycle routes shall be constructed with new development in land divisions at the developer’s expense (16.40.140), although does not include the design standards and guidelines itself but refers to the City TSP and construction “typicals” adopted by City Council resolution.

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#### SOUTH BANDON REFINEMENT PLAN (1997)

The South Bandon Refinement Plan covers an area that overlaps with the study area of the current project, extending roughly from 13<sup>th</sup> St on the North to Seabird Drive on the South, and from Beach Loop Drive on the East to Highway 101 on the West. The Plan includes study area background and inventories, such as wetlands studies and a survey of the existing built environment, which feed into an analysis of opportunities and constraints and inform the concept plan and platting recommendations that follow. (Existing transportation conditions were described separately in the TSP update.) The plan also includes Community Design Principles, Neighborhood Character Concepts, Recommendations, and a framework for creating an integrated city/county Growth Management Plan (GMP).

Among the Community Design Principles are several of relevance for this project. The plan calls for an “Accessible, Connected Interior” – a system of connected streets and paths that accommodate all

forms of circulation and make use of traffic calming measures, making walking and biking comfortable and efficient, and encouraging the use of local roads for local trips and higher-capacity roads outside the neighborhood for through trips. It also envisions streets, alleys, and walkways as important public spaces, recommending buffering sidewalks through landscaped strips and on-street parallel parking, and designing adjacent buildings so that they look out onto the public street and are oriented towards it. It also suggests providing alley access to garages to allow for on-street parking and to prevent driveways from crossing sidewalks. The plan notes the potential for riparian corridors and wetlands areas to provide routes for off-street pedestrian trails alongside buffer zones that could provide alternative pedestrian routes to neighborhood destinations as well as serving a recreational purpose. Future circulation in areas with large lots is addressed through the shadow plot concept, so that if future infill development occurs, public street and utility connections can be made to the new lots. A Community Design Charrette Workshop resulted in policy themes supporting a connected network of streets and pedestrian paths, siting homes with windows that look out over streets and paths, and requiring new developments to construct necessary roads and utilities.

The plan makes recommendations for inclusion into the new TSP, including:

- *Introduce Continuity Breaks* (as a traffic calming measure)
- *Avoid or Reduce Natural Area/Wetland Impacts* (reducing street crossings of wetlands, and locating crossings at narrow points to minimize impacts)
- *Reduce Access Points and Turning Movements on Highway 101* (creating a network of local streets and alleys to allow for local circulation and focusing crossings on a few local collectors)
- *Adopt Requirements for Pedestrian Paths Adjacent to Greenway Buffers* (adopting an ordinance identifying locations, width standards, and dedication requirements)

Figure 12 illustrates a conceptual circulation system in the study area.

The plan also includes plat studies of several neighborhoods, including the Central/Seabird Transition Area and the Seabird/Beach Loop Transition Area, both within the Study Area for this project, illustrating planning and circulation concepts. The plat studies are shown in Figures 14 and 15, respectively, and the concepts that inform them are listed on pages 29 and 30, respectively.

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#### CITY OF BANDON RESIDENTIAL LANDS INVENTORY (2003)

In 2003, ECONorthwest conducted a study of residential buildable lands in the City of Bandon, and concluded that:

*Bandon probably has sufficient land zoned for residential purposes to meet the overall housing demand for the next 20 years. A more careful analysis of demographic and socio-economic trends would help determine if the City has sufficient land zoned for different housing types to meet housing needs over the next 20 years. (p. 5-2).*

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#### SOUTH BANDON: 13<sup>TH</sup> ST TO KEHL ROAD ACCESS MANAGEMENT PLAN (2003)

The document describes the potential impacts of access management activities on bicyclists and pedestrians, freight/trucks, economic development, and safety, asserting that there are potential benefits for all from appropriate access management strategies. It also presents traffic volume and crash data for the Access Management Plan (AMP) area. Crash rates in the AMP area are roughly even with the state average for rural statewide highways, and below average for urban statewide highways, but roughly 69% of classified reported crashes were access related between 1997 and 2001. Private driveways within the AMP area are spaced much more closely than allowed by current access management spacing standards. The study identifies a total of 78 approaches to Highway 101 in the AMP area, of which 54 are within the study area of the current project. The recommended strategies for these 54 approaches are summarized in Table 1.

Table A-1: Recommended Strategies from the Kehl Road Access Management Plan

Strategy	Approaches	Percent of Study Area Approaches
Minor Modification	17	31%
Redesign	5	9%
Consolidation	6	11%
Closure	6	11%
Long-term Consolidation	3	6%
Long-term Closure	8	15%
Long-term	9	17%
<b>Total</b>	<b>54</b>	<b>100%</b>

Of those recommended for redesign, three (in the study area) require narrowing, in some cases substantially. The approaches proposed for closure provide access to industrial properties and vacant lots. As stated in the report: *Undeveloped parcels with approaches to US 101 will be closed. When the affected parcel is developed, the property owner(s) must request and negotiate an approach permit from ODOT. The remaining approaches to be closed are to properties that have alternate access to either US 101 or to a local street.* Those recommended for consolidation access commercial and residential properties. *The approaches to be consolidated will be brought into compliance when redevelopment of the property occurs or when the sidewalks and curbs are reconstructed, whichever comes first.* The report notes that ODOT has not acquired access rights along this stretch of Highway 101, and that access is controlled by permit. Many of the private approaches may need permits to be brought into compliance.

Long-range strategies call for closing additional approaches, including a number of residential and commercial properties and public roads at 18<sup>th</sup> (both directions), 19<sup>th</sup> (west side only) 20<sup>th</sup> (both directions) and 24<sup>th</sup> (west side – road does not extend across Highway 101). Although the report notes that most public road approaches in the AMP area do not meet current ODOT spacing standards, “the AMP Sub-team determined that in order to maintain a well-connected local road system, none of the public road connections would be closed in the short-term” (p. 31-32). The AMP calls for development of appropriate local system access and parallel roads, including frontage roads for new large

developments. It also recommends constructing sidewalks as part of highway modernization and re-locating utilities underground where possible.

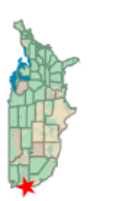
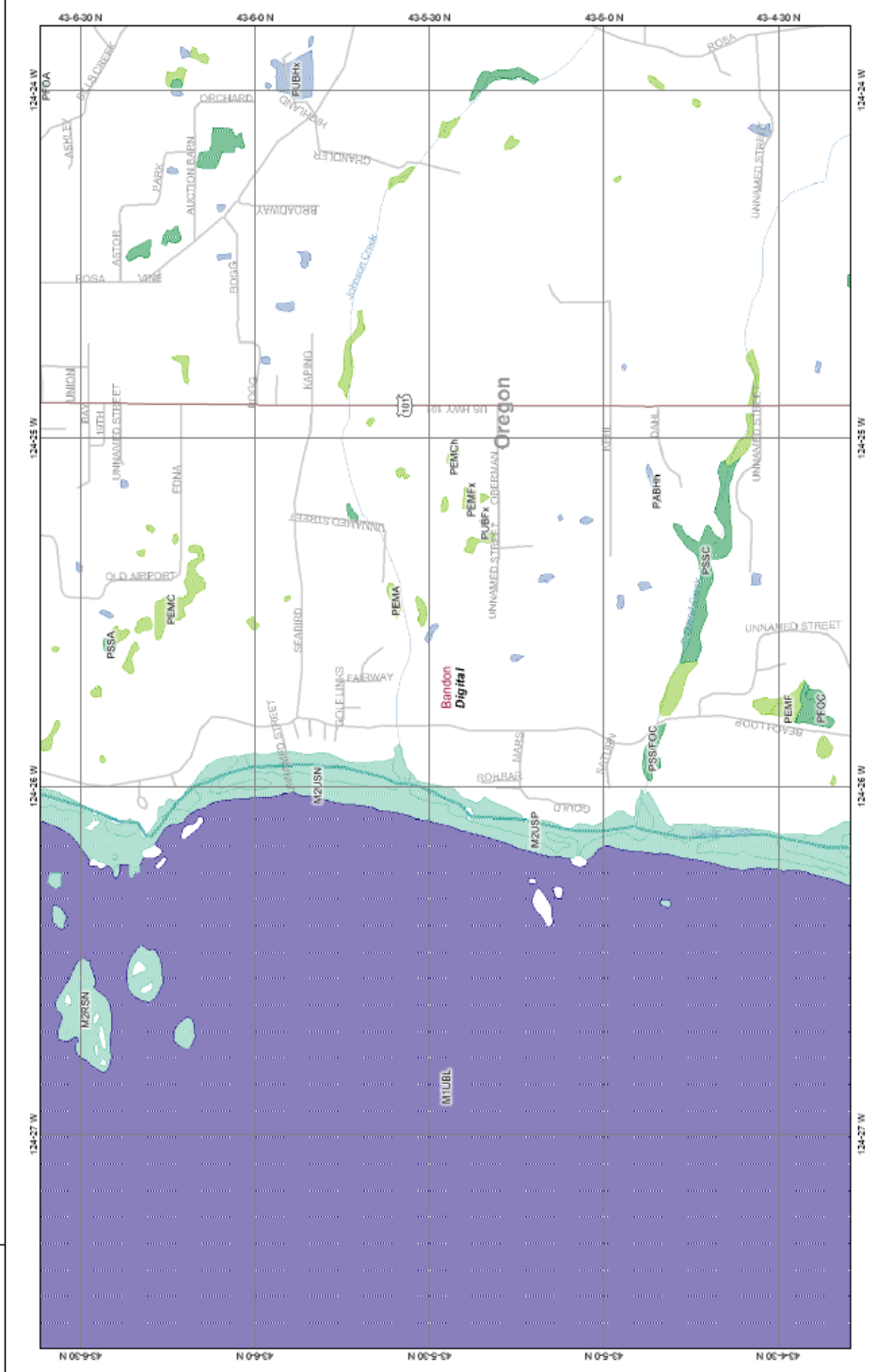
These proposed access modifications represent a significant shift in the management of that stretch of Highway 101.

<p><b>TPR Requirement (OAR Section 660-12-0020)</b></p>
<p>(1) A TSP shall establish a coordinated network of transportation facilities adequate to serve state, regional and local transportation needs.</p> <p>(2) The TSP shall include the following elements:</p>
<p>(a) A determination of transportation needs as provided in OAR 660-012-0030;</p>
<p>(b) A road plan for a system of arterials and collectors and standards for the layout of local streets and other important non-collector street connections. Functional classifications of roads in regional and local TSPs shall be consistent with functional classifications of roads in state and regional TSPs and shall provide for continuity between adjacent jurisdictions. The standards for the layout of local streets shall provide for safe and convenient bike and pedestrian circulation necessary to carry out OAR 660-012-0045(3)(b). New connections to arterials and state highways shall be consistent with designated access management categories. The intent of this requirement is to provide guidance on the spacing of future extensions and connections along existing and future streets that are needed to provide reasonably direct routes for bicycle and pedestrian travel. The standards for the layout of local streets shall address:</p> <ul style="list-style-type: none"> <li>(A) Extensions of existing streets;</li> <li>(B) Connections to existing or planned streets, including arterials and collectors; and</li> <li>(C) Connections to neighborhood destinations.</li> </ul>
<p>(c) A public transportation plan which:</p> <ul style="list-style-type: none"> <li>(A) Describes public transportation services for the transportation disadvantaged and identifies service inadequacies;</li> <li>(B) Describes intercity bus and passenger rail service and identifies the location of terminals;</li> <li>(C) For areas within an urban growth boundary which have public transit service, identifies existing and planned transit trunk routes, exclusive transit ways, terminals and major transfer stations, major transit stops, and park-and-ride stations. Designation of stop or station locations may allow for minor adjustments in the location of stops to provide for efficient transit or traffic operation or to provide convenient pedestrian access to adjacent or nearby uses.</li> <li>(D) For areas within an urban area containing a population greater than 25,000 persons, not currently served by transit, evaluates the feasibility of developing a public transit system at buildout. Where a transit system is determined to be feasible, the plan shall meet the requirements of paragraph (2)(c)(C) of this rule.</li> </ul>
<p>(d) A bicycle and pedestrian plan for a network of bicycle and pedestrian routes throughout the planning area. The network and list of facility improvements shall be consistent with the requirements of ORS 366.514;</p>

<b>TPR Requirement (OAR Section 660-12-0020)</b>
(e) An air, rail, water and pipeline transportation plan which identifies where public use airports, mainline and branchline railroads and railroad facilities, port facilities, and major regional pipelines and terminals are located or planned within the planning area. For airports, the planning area shall include all areas within airport imaginary surfaces and other areas covered by state or federal regulations;
(f) For areas within an urban area containing a population greater than 25,000 persons a plan for transportation system management and demand management;
(g) A parking plan in MPO areas as provided in OAR 660-012-0045(5)(c);
(h) Policies and land use regulations for implementing the TSP as provided in OAR 660-012-0045;
(i) For areas within an urban growth boundary containing a population greater than 2,500 persons, a transportation financing program as provided in OAR 660-012-0040.
(3) Each element identified in subsections (2)(b)–(d) of this rule shall contain:
(a) An inventory and general assessment of existing and committed transportation facilities and services by function, type, capacity and condition:
(A) The transportation capacity analysis shall include information on: <ul style="list-style-type: none"> <li>(i) The capacities of existing and committed facilities;</li> <li>(ii) The degree to which those capacities have been reached or surpassed on existing facilities; and</li> <li>(iii) The assumptions upon which these capacities are based.</li> </ul>
(B) For state and regional facilities, the transportation capacity analysis shall be consistent with standards of facility performance considered acceptable by the affected state or regional transportation agency;
(C) The transportation facility condition analysis shall describe the general physical and operational condition of each transportation facility (e.g., very good, good, fair, poor, very poor).
(b) A system of planned transportation facilities, services and major improvements. The system shall include a description of the type or functional classification of planned facilities and services and their planned capacities and levels of service;
(c) A description of the location of planned facilities, services and major improvements, establishing the general corridor within which the facilities, services or improvements may be sited. This shall include a map showing the general location of proposed transportation improvements, a description of facility parameters such as minimum and maximum road right-of-way width and the number and size of lanes, and any other additional description that is appropriate;
(d) Identification of the provider of each transportation facility or service.

# APPENDIX B: BANDON LOCAL WETLANDS MAPS

# Bandon Wetlands



**Legend**

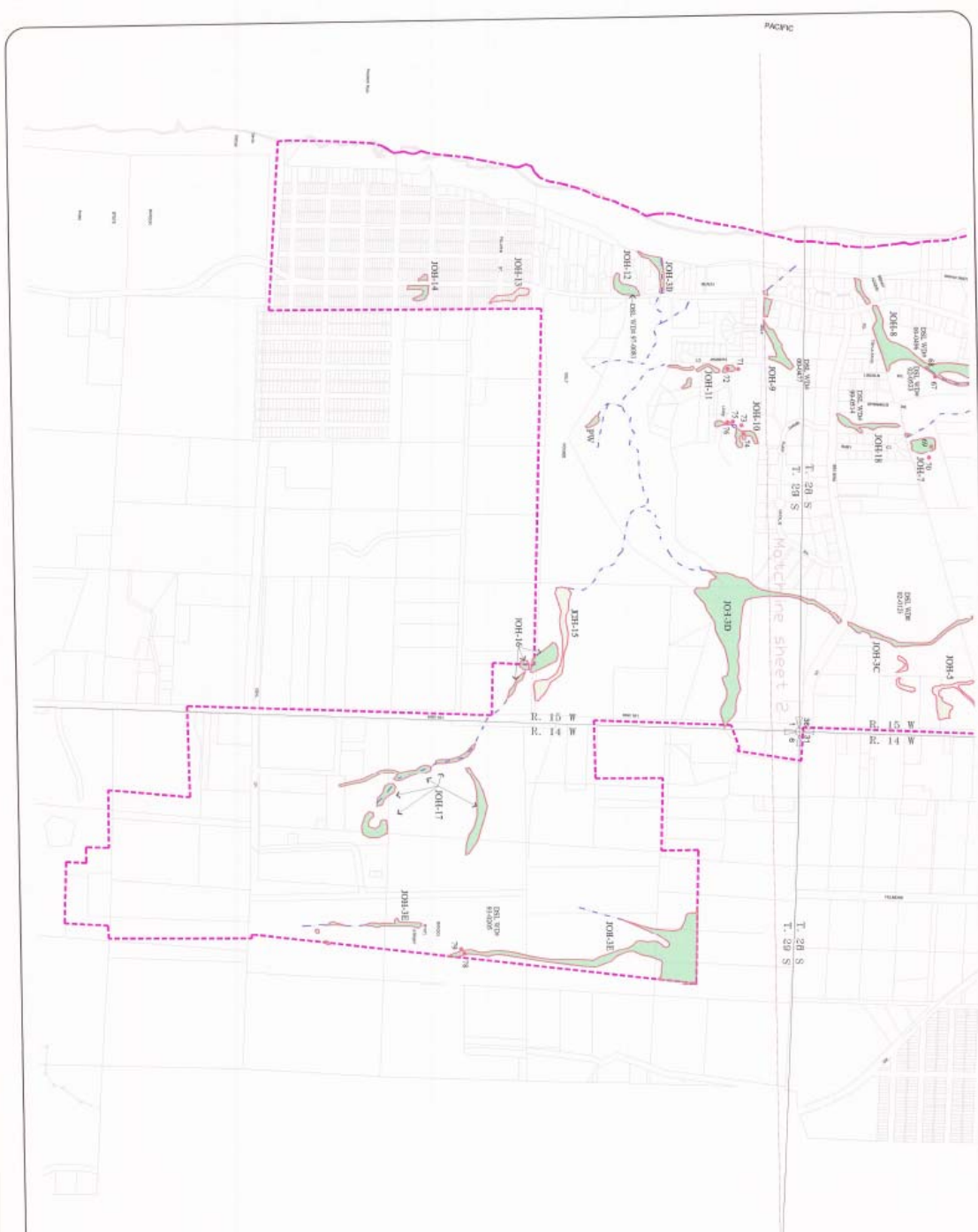
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- Other Road
- State Highway
- US Highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deposition
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Intertidal Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Original
- Revised
- No Data
- Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America

Scale: 1:20,029

Map center: 43° 5' 27" N, 124° 25' 43" W

This map is a computer-generated output from an internet mapping site and is for general informational purposes only. It is not intended for navigation. This map is NOT TO BE USED FOR NAVIGATION.





Wetland Boundary  
 Project Boundary/USF  
 Potentially Jurisdictional  
 Creeks/Outcrops  
 Wetland Code  
 TWP-1

Potentially Jurisdictional Wetland  
 (see Field Worksheet)  
 Potentially Jurisdictional Wetland  
 (Field Worksheet)  
 Potentially Jurisdictional  
 Other Wetland  
 Potentially Wetland  
 PW



Funding for this project was provided by the Oregon Division of State Lands, Wetland program. This graphic program was supported by funding from the Oregon Wetland Enhancement Board.

THIS MAP IS FOR PLANNING PURPOSES ONLY  
 WETLAND BOUNDARIES ARE APPROXIMATE  
 AND SUBJECT TO CHANGE  
 This map has NOT been approved by the wetland regulatory agencies for permitting purposes. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions. There may be additional wetlands within the study area that have not been identified. All wetlands, whether mapped or not, may be subject to Federal and State permit requirements. There may also be areas of non-wetland within areas identified as wetlands on this map. In all cases, Federal and State agencies will use actual field conditions, rather than this map, to determine wetland boundaries.

DATE: March, 2007  
 BAC MAP INFO: Supplied by City of Bandon  
 JOB NO.: 2395

# Bandon Local Wetlands Inventory



Sheet: 3  
 of: 3

APPENDIX C: THREATENED,  
ENDANGERED, AND SENSITIVE ANIMAL  
SPECIES IN COOS COUNTY

**Table C-1: Threatened, Endangered, and Sensitive Animal Species in Coos County**

Scientific Name	Common Name	Category
<b>Vertebrate Species</b>		
<i>Bufo boreas</i>	Western toad	Amphibians
<i>Chordeiles minor</i>	Common nighthawk	Birds
<i>Falco peregrinus anatum</i>	American peregrine falcon	Birds
<i>Haliaeetus leucocephalus</i>	Bald eagle	Birds
<i>Melanerpes lewis</i>	Lewis's woodpecker	Birds
<i>Oreortyx pictus</i>	Mountain quail	Birds
<i>Sialia mexicana</i>	Western bluebird	Birds
<i>Canis lupus</i>	Gray wolf	Mammals
<i>Myotis yumanensis</i>	Yuma myotis	Mammals
<i>Ursus arctos horribilis</i>	Grizzly bear	Mammals
<i>Contopus cooperi</i>	Olive-sided flycatcher	Birds
<i>Myotis evotis</i>	Long-eared myotis	Mammals
<i>Myotis volans</i>	Long-legged myotis	Mammals
<i>Lampetra tridentata</i>	Pacific lamprey	Fish
<i>Myotis thysanodes</i>	Fringed myotis	Mammals
<i>Lasionycteris noctivagans</i>	Silver-haired bat	Mammals
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	Mammals
<i>Icteria virens</i>	Yellow-breasted chat	Birds
<i>Accipiter gentilis</i>	Northern goshawk	Birds
<i>Martes americana</i>	American marten	Mammals
<i>Sturnella neglecta</i>	Western meadowlark	Birds
<i>Bucephala albeola</i>	Bufflehead	Birds
<i>Martes pennanti</i>	Fisher	Mammals
<i>Myotis californicus</i>	California myotis	Mammals
<i>Ascaphus truei</i>	Coastal tailed frog	Amphibians
<i>Aneides ferreus</i>	Clouded salamander	Amphibians
<i>Strix occidentalis caurina</i>	Northern spotted owl	Birds
<i>Progne subis</i>	Purple martin	Birds
<i>Rana aurora aurora</i>	Northern red-legged frog	Amphibians
<i>Patagioenas fasciata</i>	Band-tailed pigeon	Birds
<i>Empidonax traillii brewsteri</i>	Little willow flycatcher	Birds
<i>Arborimus longicaudus</i>	Red tree vole	Mammals
<i>Sciurus griseus</i>	Western gray squirrel	Mammals
<i>Actinemys marmorata marmorata</i>	Northern Pacific pond turtle	Reptiles
<i>Poocetes gramineus affinis</i>	Oregon vesper sparrow	Birds
<i>Rana pretiosa</i>	Oregon spotted frog	Amphibians
<i>Melanerpes formicivorus</i>	Acorn woodpecker	Birds
<i>Arborimus albipes</i>	White-footed vole	Mammals
<i>Oncorhynchus clarkii</i>	Coastal cutthroat trout	Fish
<i>Oncorhynchus kisutch</i>	Coho salmon	Fish
<i>Oncorhynchus mykiss</i>	Steelhead	Fish
<i>Oncorhynchus mykiss</i>	Steelhead	Fish
<i>Elanus leucurus</i>	White-tailed kite	Birds

Scientific Name	Common Name	Category
<i>Brachyrhamphus marmoratus</i>	Marbled murrelet	Birds
<i>Branta hutchinsii leucopareia</i>	Aleutian Canada goose	Birds
<i>Rhyacotriton variegatus</i>	Southern torrent salamander	Amphibians
<i>Histrionicus histrionicus</i>	Harlequin duck	Birds
<i>Aechmophorus occidentalis</i>	Western grebe	Birds
<i>Aechmophorus clarkii</i>	Clark's grebe	Birds
<i>Acipenser medirostris</i>	Green sturgeon	Fish
<i>Lampetra ayresii</i>	River lamprey	Fish
<i>Oncorhynchus mykiss</i>	Steelhead	Fish
<i>Podiceps auritus</i>	Horned grebe	Birds
<i>Charadrius alexandrinus nivosus</i>	Western snowy plover	Birds
<i>Podiceps grisegena</i>	Red-necked grebe	Birds
<i>Cerorhinca monocerata</i>	Rhinoceros auklet	Birds
<i>Pelecanus occidentalis californicus</i>	California brown pelican	Birds
<i>Fratercula cirrhata</i>	Tufted puffin	Birds
<i>Haematopus bachmani</i>	Black oystercatcher	Birds
<i>Ptychoramphus aleuticus</i>	Cassin's auklet	Birds
<i>Eumetopias jubatus</i>	Northern sea lion	Mammals
<i>Oncorhynchus keta</i>	Chum salmon	Fish
<i>Batrachoseps attenuatus</i>	California slender salamander	Amphibians
<i>Plethodon elongatus</i>	Del Norte salamander	Amphibians
<i>Bassariscus astutus</i>	Ringtail	Mammals
<i>Rana boylei</i>	Foothill yellow-legged frog	Amphibians
<i>Rhinichthys cataractae</i> ssp.	Millicoma dace	Fish
<b>Invertebrate Species</b>		
<i>Callophrys johnsoni</i>	Johnson's hairstreak (butterfly)	Insecta
<i>Anodonta oregonensis</i>	Oregon floater (mussel)	Bivalvia
<i>Margaritifera falcata</i>	Western pearlshell	Bivalvia
<i>Megomphix hemphilli</i>	Oregon megomphix (snail)	Gastropoda
<i>Prophysaon vanatta</i> pop. 1	Spotted tail-dropper	Gastropoda
<i>Anodonta californiensis</i>	California floater (mussel)	Bivalvia
<i>Bembidion tigrinum</i>	Cryptic beach carabid beetle	Insecta
<i>Saldula villosa</i>	Hairy shore bug	Insecta
<i>Teratocoris paludum</i>	Pale plant bug	Insecta
<i>Monadenia fidelis beryllica</i>	Green sideband (snail)	Gastropoda
<i>Pomatiopsis californica</i>	Pacific walker	Gastropoda
<i>Cicindela hirticollis siuslawensis</i>	Siuslaw sand tiger beetle	Insecta
<i>Algamorda newcombiana</i>	Newcomb's littorine snail	Gastropoda
<i>Nabucula propinqua</i>	Marsh damsel bug	Insecta

APPENDIX D: THREATENED,  
ENDANGERED, AND SENSITIVE PLANT  
SPECIES IN COOS COUNTY

**Table D-1: Threatened, Endangered, and Sensitive Plant Species in Coos County**

Scientific Name	Common Name
<b>Non-Vascular Plant Species</b>	
<i>Usnea longissima</i>	Lichen
<i>Platismatia lacunosa</i>	Lichen
<i>Bryoria subcana</i>	Lichen
<i>Phaeocollybia pseudofestiva</i>	Fungus
<i>Gomphus kauffmanii</i>	Fungus
<i>Phaeocollybia piceae</i>	Fungus
<i>Phaeocollybia scatesiae</i>	Fungus
<i>Usnea hesperina</i>	Lichen
<i>Phaeocollybia radicata</i>	Fungus
<i>Arcangeliella camphorata</i>	Fungus
<i>Cladonia norvegica</i>	Lichen
<i>Sulcaria badia</i>	Lichen
<i>Phaeocollybia attenuata</i>	Fungus
<i>Pseudocyphellaria perpetua</i>	Lichen
<i>Phaeocollybia spadicea</i>	Fungus
<i>Ramaria aurantiisiccescens</i>	Fungus
<i>Calyptogeia sphagnicola</i>	Liverwort
<i>Leptogium rivale</i>	Lichen
<i>Stropharia albovelata</i>	Fungus
<i>Usnea rubicunda</i>	Lichen
<i>Amanita novinupta</i>	Fungus
<i>Phaeocollybia oregonensis</i>	Fungus
<i>Encalypta brevipes</i>	Moss
<i>Bryoria pseudocapillaris</i>	Lichen
<i>Pyrrhospora querneae</i>	Lichen
<i>Ramalina pollinaria</i>	Lichen
<i>Diplophyllum plicatum</i>	Liverwort
<i>Hypotrachyna revoluta</i>	Lichen
<i>Kurzia makinoana</i>	Liverwort
<i>Caloplaca stantonii</i>	Lichen
<i>Albatrellus avellaneus</i>	Fungus
<i>Ramaria concolor</i>	Fungus (forma tsugina)
<i>Ramaria rainierensis</i>	Fungus
<i>Encalypta brevicollis</i>	Moss
<i>Anaptychia setifera</i>	Lichen
<i>Heterodermia leucomela</i>	Lichen
<i>Niebla cephalota</i>	Lichen
<i>Erioderma soledatum</i>	Lichen
<i>Teloschistes flavicans</i>	Lichen

Scientific Name	Common Name
<i>Bryoria spiralifera</i>	Lichen
<i>Glomus pubescens</i>	Fungus
<i>Cudonia monticola</i>	Fungus
<i>Ramaria rubribrunnescens</i>	Fungus
<i>Leioderma solediatum</i>	Lichen
<i>Rickenella swartzii</i>	Fungus
<i>Arcangeliella crassa</i>	Fungus
<i>Limbella fryei</i>	Moss
<i>Ramaria conjunctipes</i> var. <i>sparsiramosa</i>	Fungus
<i>Pannaria rubiginosa</i>	Lichen
<i>Platyhypnidium riparioides</i>	Moss
<i>Tuber pacificum</i>	Fungus
<i>Metzgeria violacea</i>	Liverwort
<i>Catathelasma ventricosum</i>	Fungus
<i>Pannaria rubiginella</i>	Lichen
Vascular Plant Species	
<i>Cypripedium montanum</i>	Mountain lady's-slipper
<i>Ophioglossum pusillum</i>	Adder's-tongue
<i>Utricularia minor</i>	Lesser bladderwort
<i>Hierochloe odorata</i>	Holy grass
<i>Poa laxiflora</i>	Loose-flowered bluegrass
<i>Erythronium revolutum</i>	Pink fawn-lily
<i>Hydrocotyle verticillata</i>	Whorled marsh pennywort
<i>Utricularia gibba</i>	Humped bladderwort
<i>Carex leptalea</i> ssp. <i>leptalea</i>	Flaccid sedge
<i>Euonymus occidentalis</i>	Western wahoo
<i>Lycopodiella inundata</i>	Northern bog clubmoss
<i>Abronia latifolia</i>	Yellow sandverbena
<i>Abronia umbellata</i> ssp. <i>breviflora</i>	Pink sandverbena
<i>Carex brevicaulis</i>	Short-stemmed sedge
<i>Carex macrocephala</i>	Bighead sedge
<i>Samolus parviflorus</i>	Water-pimpernel
<i>Triglochin striata</i>	Three-ribbed arrow-grass
<i>Artemisia pycnocephala</i>	Coastal sagewort
<i>Brodiaea terrestris</i>	Dwarf brodiaea
<i>Cochlearia officinalis</i>	Spoonwort
<i>Lilium occidentale</i>	Western lily
<i>Phacelia argentea</i>	Silvery phacelia
<i>Senecio triangularis</i> var. <i>angustifolius</i>	Bog groundsel
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Coast checker bloom
<i>Triteleia hendersonii</i> var. <i>leachiae</i>	Leach's brodiaea
<i>Cypripedium californicum</i>	California lady's-slipper
<i>Iliamna latibracteata</i>	California globe-mallow

Scientific Name	Common Name
<i>Adiantum jordanii</i>	California maiden-hair
<i>Bensoniella oregana</i>	Bensonia
<i>Schoenoplectus subterminalis</i>	Water clubrush
<i>Darlingtonia californica</i>	California pitcher-plant
<i>Carex gynodynamis</i>	Hairy sedge
<i>Polystichum californicum</i>	California sword-fern
<i>Hesperovax sparsiflora</i> var. <i>brevifolia</i>	Short-leaved evax
<i>Poa piperi</i>	Piper's bluegrass
<i>Microseris bigelovii</i>	Coast microseris
<i>Viola langsdorfii</i>	Aleutian viola
<i>Pellaea andromedifolia</i>	Coffee fern
<i>Sidalcea cusickii</i>	Cusick's mallow
<i>Phacelia verna</i>	Spring phacelia
<i>Cicendia quadrangularis</i>	Timwort
<i>Puccinellia pumila</i>	Dwarf alkali grass
<i>Cardamine nuttallii</i> var. <i>dissecta</i>	Dissected toothwort
<i>Piperia candida</i>	White piperia
<i>Eriophorum chamissonis</i>	Russet cotton-grass
<i>Atriplex leucophylla</i>	Beach saltbush
<i>Limonium californicum</i>	Western marsh-rosemary
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	Pt. Reyes bird's-beak
<i>Plantago eriopoda</i>	Hairy-foot plantain



# APPENDIX E: STUDY AREA TRAFFIC COUNTS

APPENDIX F: CAPACITY ANALYSIS  
WORKSHEETS FOR EXISTING  
CONDITIONS

# APPENDIX G: METHODS USED TO ASSEMBLE GIS FILES

## METHODS USED TO ASSEMBLE GIS FILES

How parcel data for the study area was extracted:

Original data sources:

- County GIS data:
  - Parcels (without assessors data) – “*county parcels*”
  - Subset of parcels with assessors data, joined by the city/county January 2009 – “*county parcels with assessors data*”
- Buildable Lands Inventory (BLI) data:
  - Parcels with assessors data (don’t align well with county GIS data due to projection and/or digitizing issues; less up-to-date than county data) – “*BLI parcels*”
  - City limits
  - UGB
  - Zoning (city & county)

Process:

1. digitized study area boundary
2. selected *county parcels with assessors data* with centroid inside the study area
  - ⇒ StudyAreaParcels\_county\_assessorjoin.shp
3. selected *county parcels* with centroid inside study area that were not included in *county parcels with assessors data*
4. selected *BLI parcels* that roughly aligned with *county parcels* selected in step 3
5. used a spatial join to give attributes from *BLI parcels* selected in step 4 to corresponding *county parcels* selected in step 3
  - ⇒ StudyAreaParcels\_County\_BLIjoin.shp

6. selected *county parcels* not included in *county parcels with assessors data* and not picked up in step 5 (those still without any assessors data)
7. calculated area of shape
8. spatial join to zoning layer
  - ⇒ StudyAreaParcels\_County\_ZoneAreaOnly.shp
9. selected *BLI parcels* in study area not covered by county parcels
  - ⇒ StudyAreaParcels\_BLI\_FillIn.shp

APPENDIX H:

LAND USE SCENARIOS SPREADSHEETS

APPENDIX I:  
CAPACITY ANALYSIS WORKSHEETS FOR  
FUTURE 2030 CONDITIONS

APPENDIX J:  
CAPACITY ANALYSIS WORKSHEETS FOR  
FUTURE 2030 CONDITIONS  
WITH RECOMMENDED IMPROVEMENTS



APPENDIX K:  
BICYCLE PARKING SPACE  
REQUIREMENTS

From Volume 6 (Implementing the Transportation System Plan), Section 3 (Bicycle Plan) of the Bandon Transportation System Plan (TSP)

TABLE 4 - RECOMMENDED BICYCLE PARKING SPACES

Note: This table is to be used as a general guide in determining the number of bicycle parking spaces necessary to support various uses. The actual requirements for each use will be determined on a case-by-case basis, depending on the actual needs of that particular development.

LAND USE CATEGORY	MINIMUM REQUIRED BICYCLE PARKING SPACES	MINIMUM COVERED AMOUNT
<b>Residential</b>		
Multi-family residential, general	1 space per unit	100%
Multi-family residential, seniors or with physical disabilities	4, or 1 space per 5 units, whichever is greater	100%
<b>Institutional</b>		
Schools - Elementary	4 spaces per classroom	100%
Schools - Jr. Hi or Middle School	4 spaces per classroom	100%
Schools - Sr. High	8 spaces per classroom	100%
College	1 space per 4 students (plus 1 space per student housing room/unit)	100%
Transit Centers/Park & Ride Lots	5% of auto spaces (or 100% of demand, depending on accessibility to bicyclists)	100%
Religious Institutions	1 space per 40 seat capacity	25%
Hospitals	1 space per 5 beds	75%
Doctor, Dentist Offices	2, or 1 space per 1000 ft <sup>2</sup> , whichever is greater	25%
Libraries, Museums, etc.	2, or 1 space per 1000 ft <sup>2</sup> , whichever is greater	25%
<b>Commercial</b>		
Retail Sales	0.33 space per 1000 ft <sup>2</sup>	50%
Auto-oriented Services	2 or 0.33 space per 1000 ft <sup>2</sup> , whichever is greater	10%
Groceries/Supermarkets	0.33 space per 1000 ft <sup>2</sup>	10%
Office	2, or 1 space per 1000 ft <sup>2</sup> , whichever is greater	10%
Restaurant	1 space per 1000 ft <sup>2</sup>	25%
Drive-in Restaurant	1 space per 1000 ft <sup>2</sup>	25%
Shopping Center	0.33 space per 1000 ft <sup>2</sup>	50%
Financial Institutions	2, or 0.33 space per 1000 ft <sup>2</sup> , whichever is greater	10%
Theaters, Auditoriums, etc.	1 space per 30 seats	10%
<b>Industrial</b>		
Industrial Park	2, or 0.1 space per 1000 ft <sup>2</sup> , whichever is greater	100%
Warehouse	2, or 0.1 space per 1000 ft <sup>2</sup> , whichever is greater	100%
Manufacturing, etc.	2, or 0.15 space per 1000 ft <sup>2</sup> , whichever is greater	100%
<b>Notes:</b>		
<i>Each individual use needs to be evaluated for bicycle parking - e.g. a commercial accessory use in an industrial district may have different requirements than the industrial uses around it. Similarly, in mixed-use developments, the amount of each use and required bicycle parking needs evaluation. Finally, within each use category one needs to consider the different user categories - residents, employees, customers, etc. - and parking requirements for each.</i>		
<i>Jurisdictions may wish to develop provisions to allow requirement of additional bicycle parking exceeding these minimums where it is appropriate.</i>		