A. Existing Conditions

A 2002 conditions assessment was conducted for the City Coos Bay for use as a basis of comparison for future transportation system plan development. This chapter summarizes existing traffic and transportation operations for all the major transport modes including:

- Motor vehicle,
- Transit,
- Pedestrian,
- Bicycle,
- Truck,
- Air, rail and pipeline.

System Inventory and Operational Evaluation

A physical and operational inventory of transportation system facilities in Coos Bay was conducted to provide a benchmark for future assessment of transportation performance in Coos Bay relative to desired policies.

The study area for the Transportation System Plan includes Coos Bay and portions of unincorporated Coos County as shown in Figure A-1.

Traffic Observations

Traffic volume data (vehicle, trucks, pedestrians, and bicycles) was collected during August 2002 at seventy-three intersections during the evening peak period and sixteen during the morning peak period. Agency staff and the consultant identified these locations as significant for monitoring system performance. Supplemental traffic data from recent transportation studies and state historical data also was applied in the base line evaluation.

Operational Analysis

Traffic data was analyzed to evaluate area traffic conditions including volumes and levels of service. Roadway performance was evaluated based on methods defined in the *Highway Capacity Manual*, Transportation Research Board, 2000 and other standards of engineering practice. Other transport systems were evaluated based on factors such as system continuity and general effectiveness.

Field observations at major roadways and intersections were conducted to observe actual traffic conditions, and to confirm analytical evaluations. Observations included videotaping using a 'floating car' technique along major and minor arterials in the study area. Refer to Appendix A for traffic count data.

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City of Coos Bay Transportation System Plan

Pacific Ocean

Coos Bay

Coos Bay

Lake Merrit

Upper Pony Creek Reservoir

Charleston

Lower Empire Lake

Upper Empire Lake

Legend

Coos Bay City Limits

Streets

Colorado Ave
Arthur St
Virginia Ave
Oak St
Maple St
Fenwick St
Lakeshore Dr
Morrison St
17th St
Empire Blvd
Pacific Ave
Morrison St
Ocean Blvd
Newmark Ave
Newmark St
Oak St
17th St
16th St
Broadway St
Pacific Ave
Crowell Ln
Meade Ave
Sherman Ave
Connecticut Ave
Sheridan Ave
Pony Creek Rd
Brussells St
Sherman Ave
US 101
Newmark St.
Woodland Dr
Thompson Rd
Koosbay Blvd
Ocean Blvd
East Bay Dr
10th St
Hillside Ct
Koosbay Blvd
Butler Rd
Juniper Ave
Hemlock Ave
Ocean Blvd
10th St
Broadway St
Bayshore Dr
Central Ave
Commercial Ave
Anderson Ave
10th St
Elrod Ave
11th St
7th St
4th St
2nd St
Broadway St
Bayshore Dr
Ingersoll Ave
1st St
7th St
5th St
4th St
2nd St
Front St
Newport Ave
Newport Ave
Lockhart Ave
Bunker Hill - Red Dike Rd
Ellen Rd
US 101
Southwest Blvd
Coos River H.V. Rd
6th Ave
Catching St
Libby Dr
Libby Dr

Source:
-ODOT
-City of Coos Bay
-City of North Bend

Figure A-1
Study Area

N

NOT TO SCALE

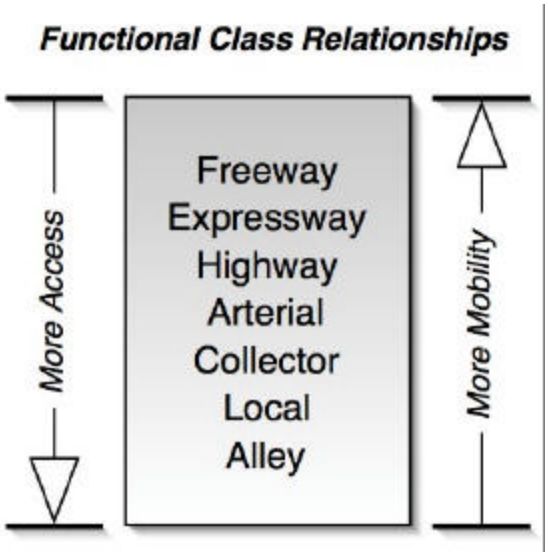
Motor Vehicle System

The motor vehicle system within the study area was reviewed as to their physical and operational characteristics. The following sections present:

- Definition of Functional Class
- A narrative description of key routes
- Street facility inventory
- Traffic Volumes
- Traffic Controls
- Level of Service Analysis
- Traffic Collision Analysis

Roadway Functional Classification

Roadways have two primary functions; to provide mobility and to provide access. From a design perspective, these functions can be polar opposites (see diagram below) since high or continuous speeds are desirable for mobility, while low speeds are more desirable for land access.



Arterials emphasize a high level of mobility for through movement; local facilities emphasize the land access function; and collectors offer a balance of both functions. Functional class also can be defined by connectivity. Without connectivity, neither mobility nor access can be served. Roadways that provide the greatest reach of connectivity are the highest-level facilities.

The Coos Bay functional classification system was assumed to be the same as the state designations since the City do not currently have their own adopted functional classification system. These function classes will be re-assessed through this study, and adjusted, as needed. Figure A-2 represents ODOT's functional classification of streets in Coos Bay. Any street not designated as either an arterial or collector is considered a local street.

Functional Class Definitions

Arterial streets interconnect and support the principal highway system. These streets link major commercial, residential, industrial and institutional areas. Arterial streets are typically spaced about one mile apart to assure accessibility and reduce the incidence of traffic using collectors or local streets in lieu of a well placed arterial street. Many of these routes connect to City surrounding Coos Bay. There are both major and minor arterial classifications in Coos Bay. Major arterial streets typically provide more connectivity and/or carry more traffic volume than minor arterial streets.

Collector streets provide both access and circulation within residential and commercial/industrial areas. Collectors differ from arterials in that they provide more of a citywide circulation function, do not require as extensive control of access and penetrate residential neighborhoods, distributing trips from the neighborhood and local street system.

Local Streets have the sole function of providing access to immediate adjacent land. Service to "through traffic movement" on local streets is deliberately discouraged by design.

Description of Arterial Routes

The following major routes in Coos Bay are described as to their functional classification, connectivity and roadway volumes. In all cases, the functional classifications noted are as designated by ODOT. These classes will be re-evaluated as a part of this study to determine appropriate classes for each of the City.

City of Coos Bay

US 101 (also called Newport Avenue, 1st Avenue, Bayshore Drive and Broadway Street) is classified as a Major Arterial. It is a regional route providing access to the rest of the coast, both north and south of Coos Bay. It provides access to arterial and collector streets within Coos Bay. At the south end of Coos Bay, US 101 (known in this area as Newport Avenue) is a two-way roadway with wide shoulders and intermittent sidewalks along its frontage. US 101 splits to a one-way couplet northbound at Front Street (changes names to Bayshore Drive) and southbound on Broadway Street. Highway US 101 carries about 24,000 ADT or about 12,000 ADT per direction in Coos Bay.

Coos River Highway (Newport Avenue) is classified as a Minor Arterial. It is a district level state highway. It is a two-lane, two-way roadway. It carries about 10,000 vehicles daily near the Isthmus Slough. Coos River Highway provides access to areas to the south and east of Coos Bay.

Commercial Avenue is a Major Arterial that runs east/west through Coos Bay, connecting US 101 with western parts of the City. It is a two-lane street with sidewalks along its frontage. It carries about 4,000 vehicles daily just west of US 101.

Anderson Avenue is a Major Arterial and was jurisdictionally transferred to the City. It runs east/west through Coos Bay, connecting US 101 with western parts of the City. It is two-lane, one-way street with sidewalks along its frontage. Commercial Avenue and Anderson Avenue form a one-way east-west couplet around Coos Bay's downtown core between U.S. 101 and 7th Street.

Central Avenue is a Major Arterial and was jurisdictionally transferred to the City. It runs east/west through Coos Bay, connecting downtown Coos Bay with western parts of the City. It is a two lane, two-way street with no on-street parking, occasional left turn lanes and sidewalks along its frontage. It has a posted speed of 25 miles per hour and carries about 13,000 vehicles daily just west of 10th Street.

Ocean Boulevard is a Major Arterial . It runs northwest to southeast through Coos Bay, connecting the downtown area with residential areas to the west. It is typically a four-lane, two-way street with occasional turn lanes at intersections. There are generally no bike lanes, but there are sidewalks along its frontage. Ocean Boulevard carries about 10,000 vehicles daily between LaClair Street and Woodland Drive.

Newmark Avenue is classified by ODOT as a Major Arterial west of Broadway Street. It has been jurisdictionally transferred to the City. It runs east and west through Coos Bay. Newmark is generally a

four-lane, two-way roadway between Broadway and Ocean Boulevard with sidewalks in some locations. There are striped shoulders in some locations on the roadway, but there are no dedicated bike lanes. Newmark Avenue carries about 14,000 vehicles daily near LaClair Street.

Empire Boulevard is a Major Arterial and is a district level state highway (Cape Arago Highway), but has been jurisdictionally transferred to the City within City limits. It generally runs along the ocean on the west side of Coos Bay, connecting to Newmark Avenue. It is a two-lane, two-way facility with shoulders, but no bike lanes or sidewalks. The posted speed is 35 miles per hour and the roadway carries about 10,000 vehicles daily near Pacific Avenue.

Koosbay Boulevard is a Minor Arterial. It is a two-lane, two-way street that carries about 7,000 vehicles daily near Thompson Road.

10th Street is a Minor Arterial. It is a two-lane, two-way street with left turn lanes at some locations, such as Central Avenue. It carries about 4,000 vehicles daily near Central Avenue. There are generally sidewalks, but no bike lanes.

Street Facility Inventory Listing

The street facility inventory for Coos Bay is summarized in the appendix. This table lists the physical features of the roadway facilities including:

- Functional classification according to ODOT's designation
- Paved width (distance between curbs or shoulders, as appropriate)
- Estimated average daily traffic volumes
- Posted speed limit
- Provision of pedestrian and bicycle facilities

The estimated traffic volumes were calculated by multiplying the p.m. peak hour two-way volume for a given street segment by 10 to represent average daily travel. Where traffic volume data was not available an entry of "N/A" is indicated.

The street inventory data was further refined to highlight the portion that provide bicycle and pedestrian facilities according to functional class. Table A-1 on the next page summarizes the findings.

Several general observations were made:

- Bike facilities generally are not provided on arterials and collector streets. Overall, bike lanes are present on 3% of the major arterials, 10% of the minor arterials, and 0% of collector streets.
- Sidewalks generally are provided along arterial streets, and generally are not provided along most collector streets. Overall, sidewalks are present on 41% of the major arterials, 0% of the minor arterials, and 5% of the collector streets.
- Collector streets typically have 36 feet paved width.
- Collector streets generally carry 1,000 to 4,000 vehicles daily with a maximum listed of 7,000 (4th Street in Coos Bay).
- Minor arterials streets carry 4,000 to 12,000 vehicles daily.
- Major arterial streets carry 8,000 to 23,000 vehicles daily.

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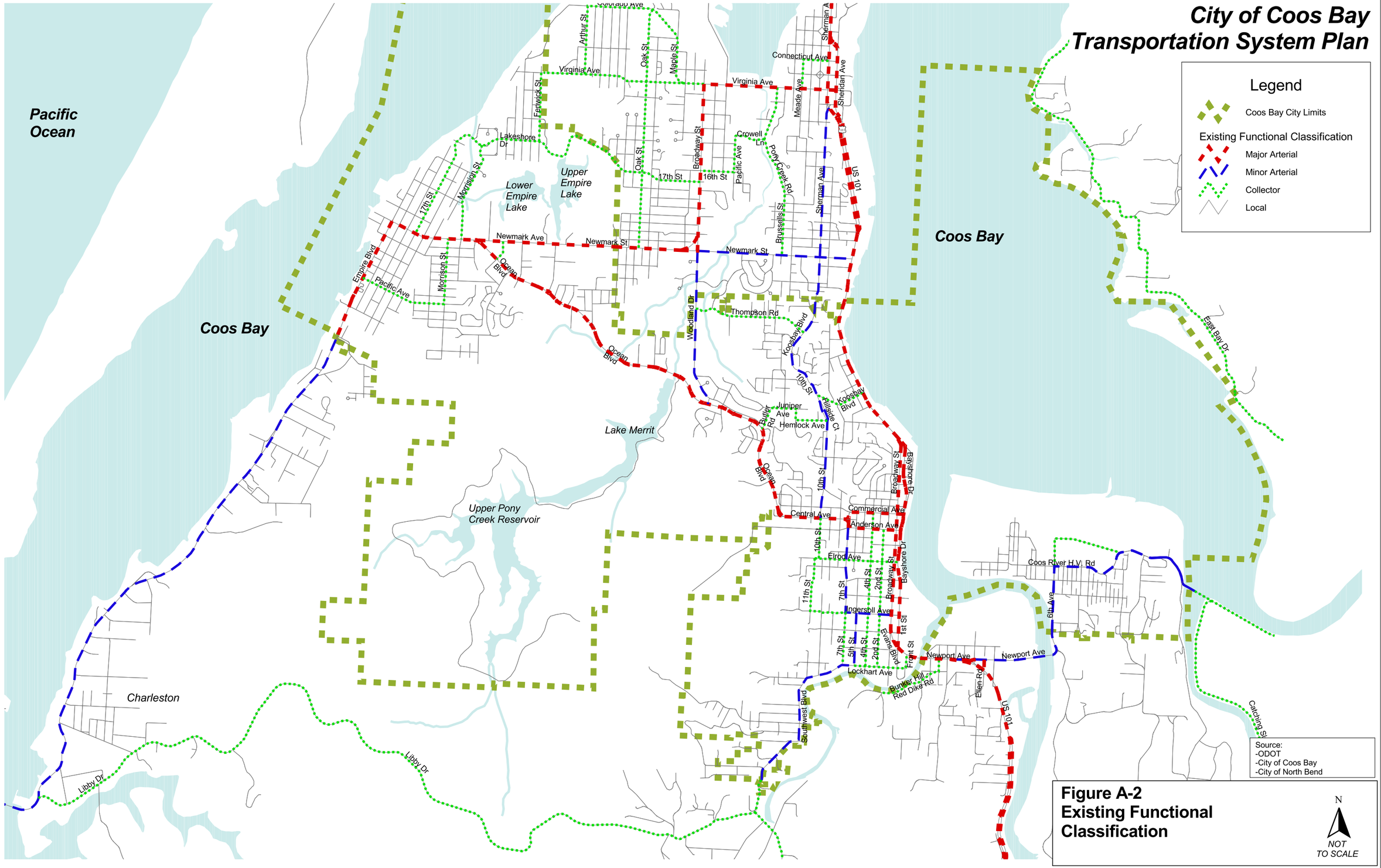
City of Coos Bay
Transportation System Plan



Legend

- Coos Bay City Limits

Existing Functional Classification

- Major Arterial
- Minor Arterial
- Collector
- Local

Source:
-ODOT
-City of Coos Bay
-City of North Bend

Figure A-2
Existing Functional Classification

N
NOT TO SCALE

Table A-1: Street Inventory Related to Bicycle and Pedestrian Facilities

	Miles of Roadway (Percent with Bike and Pedestrian Facilities on one or both sides)
Facility Description	*Coos Bay*
Major Arterial	10.35
With bike lanes/route	5%
With sidewalks	52%
Minor Arterial	12.53
With bike lanes/route	11%
With sidewalks	0%
Collector	17.47
With bike lanes/route	0%
With sidewalks	3%

Traffic Volume

A complete inventory of peak hour traffic conditions was performed in the summer of 2002. The traffic turn movement counts conducted as part of this inventory provide the basis for analyzing existing problem areas as well as establishing a base condition for future monitoring. Turn movement counts were conducted at 75 intersections during the evening (4-6 PM) peak period and at 16 intersections during the morning (7-9 AM) peak period to determine existing operating conditions. These intersections were chosen in coordination with the City of Coos Bay staff to evaluate the existing conditions.

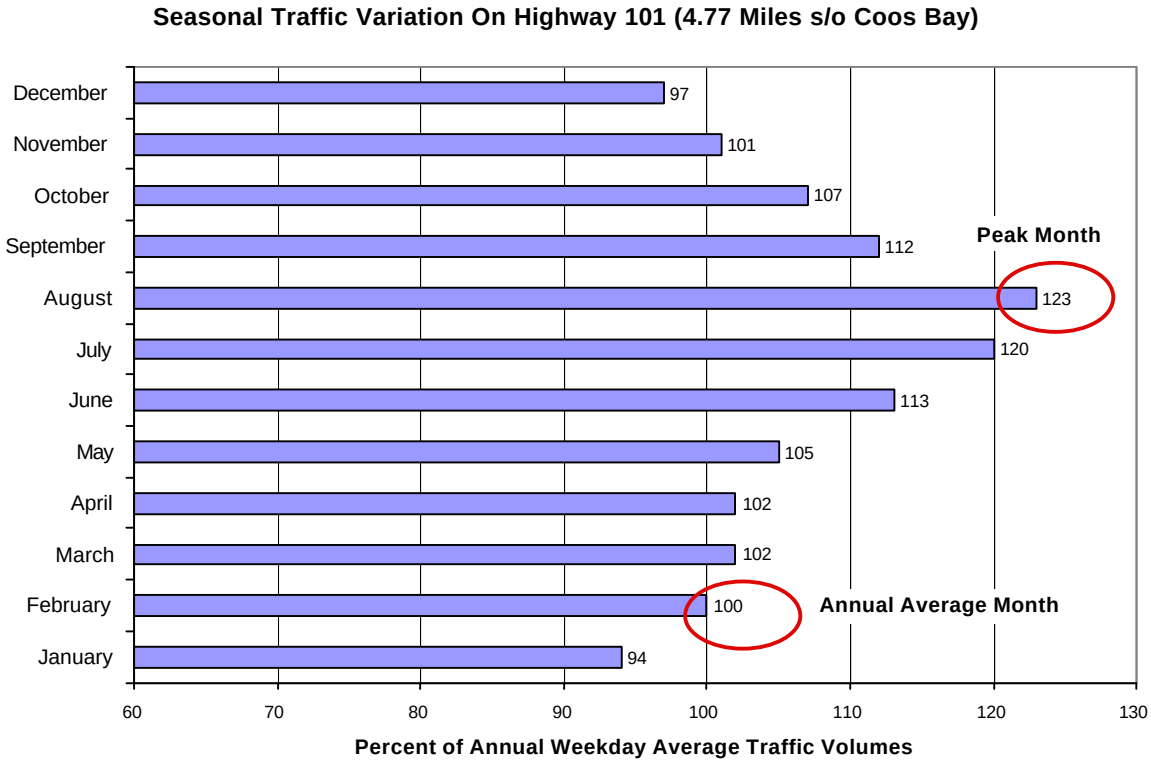


Figure A-3 shows two-way existing traffic volumes in the Coos Bay area based on August 2002 traffic counts. Figure A-4 shows hourly volume summaries, by direction, for three locations in the study area. The three selected locations each represent gateways into the communities. The hourly profiles vary over the day with the heaviest uses generally between noon and 6:00 PM. Also, the peak two-way volumes on Virginia Avenue near Harrison at over 1800 vehicles per hour are roughly two times the level observed on Empire Boulevard south of Newmark Avenue (Cape Arago Hwy.), which carried a peak hour volume of 1000 vehicles per hour.

Seasonal Traffic Variation – Traffic counts were conducted during August, which typically has about 120 percent of the annual average weekday volume on Highway 101 (see chart below from ODOT permanent count station recorder). This time frame was selected to be consistent with 30th highest annual hour standards for regional facility design.

Traffic Control

There are 27 existing traffic signals in the Coos Bay area. About half of these traffic signals, 14, are installed on Highway 101. The traffic signal locations and posted speed zones on select arterials and collectors, are shown in Figure A-5.

DKS *Associates*

City of Coos Bay
Transportation System Plan

Legend
- Coos Bay City Limits

Pacific Ocean
Coos Bay
Coos Bay
Lake Merrit
Upper Pony Creek Reservoir
Lower Empire Lake
Upper Empire Lake
Charleston

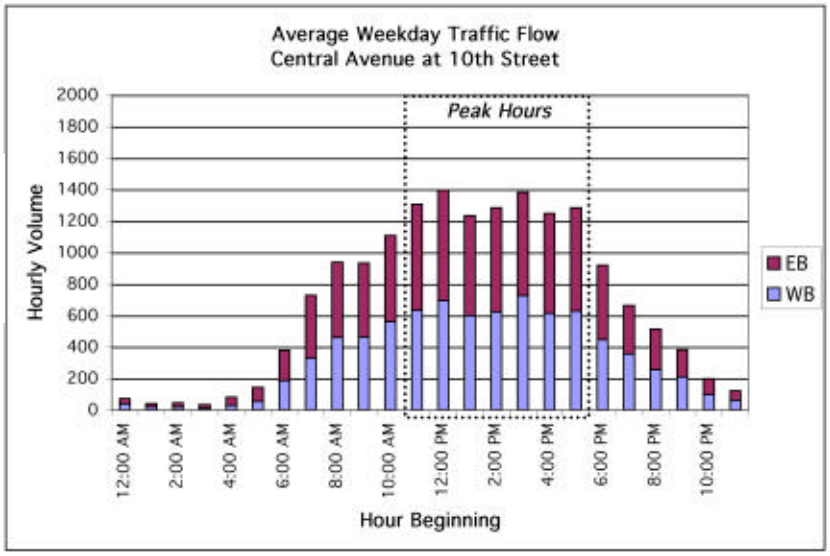
Virginia Ave 2,400
Virginia Ave 17,000
Connecticut Ave 7,600
Colorado Ave 1,700
Arthur St 300
Oak St 700
Maple St 3,000
Oak St 6,100
Fenwick St 1,200
1,900
Lakeshore Dr 1,800
Broadway St
Crowell Ln
Meade Ave 2,700
200
Sherman Ave
Sheridan Ave
16,700
US 101
Pacific Ave
Perry Creek Rd
17th St 900
16th St 2,100
Oak St
Morrison St
17th St
15,800
Newmark Ave
Newmark St 20,100
15,000
Newmark St. 10,000
Sherman Ave
Powells St
3,500
3,800
19,000
Empire Blvd
Morrison St 2,400
Ocean Blvd
9,600
Pacific Ave 500
10,100
9,200
5,900
Thompson Rd
22,800
Woodland Dr
Koosbay Blvd
Ocean Blvd
7,100
East Bay Dr
10th St
Hillside Ct
Koosbay Blvd
13,000
Butler Rd
Juniper Ave
Hemlock Ave
3,600
Ocean Blvd
10th St
Broadway St
Bayshore Dr
12,000
Central
Commercial Ave
11,000
Anderson Ave
10th St
7,700
1,600 Ave
Coos River H.V. Rd
11th St 1,500
7th St
4th St
5th St
Broadway St 5,100
17,000
Ingersoll Ave 1,200
1st St
Bayshore Dr
7,600
2,300
5th St
4th St
1,500
Front St
29,500
Newport Ave
Newport Ave 10,100
6,600
Lockhart Ave
Bunker Hill - Red Dike Rd
Ellen Rd
US 101
18,000
Southwest Blvd
Libby Dr 2,200
Libby Dr
Catching St

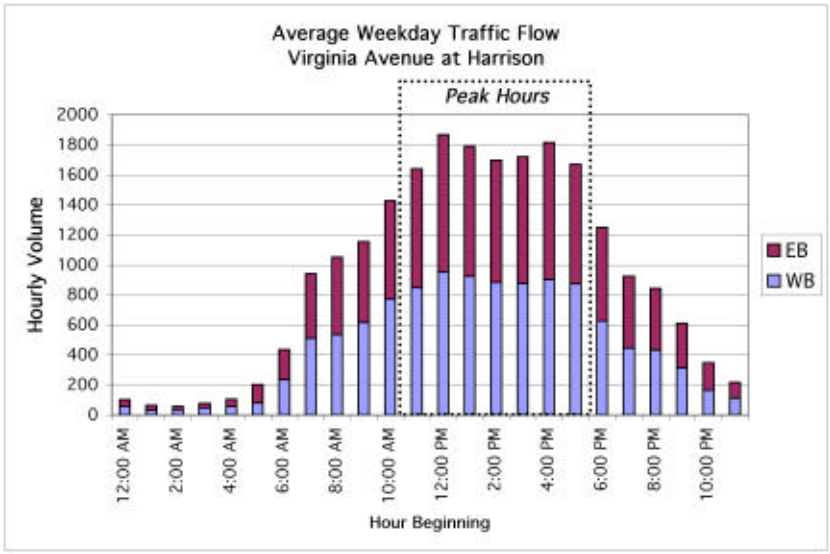
Source:
-ODOT
-City of Coos Bay
-City of North Bend

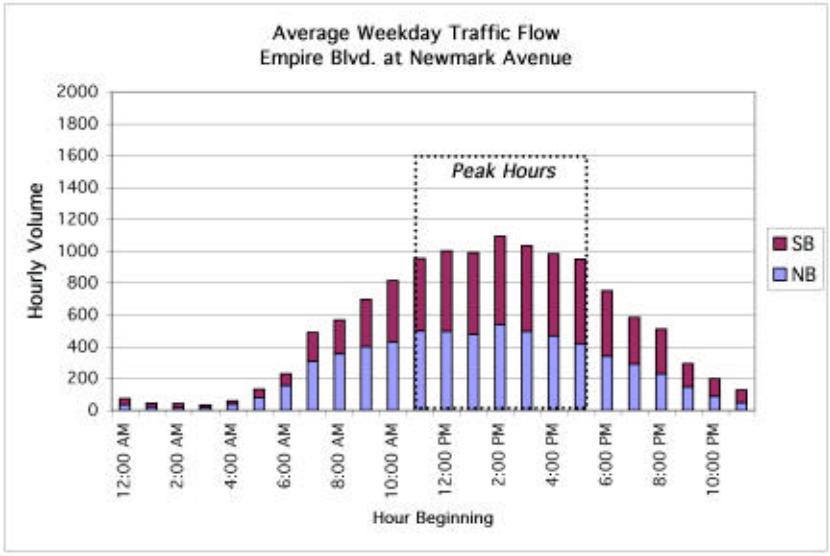
Figure A-3
Existing Daily Two-Way Traffic Volumes

N
NOT TO SCALE

Figure A-4: Average Weekday Hourly Volumes at Selected Locations







Traffic Levels of Service

Level of Service (LOS) 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 traffic moves without significant delays over periods of peak hour travel demand. Level of Service D and E are progressively worse peak hour operating conditions. Level of Service F represents conditions where average vehicle delay exceeds 80 seconds per vehicle entering a signalized intersection and demand has exceeded capacity. This condition is typically evident in long queues and delays. Level of service calculations were based on peak 15-minute volumes[1].

Level of service D or better is generally the accepted standard for signalized intersections in urban conditions. Coos Bay has not adopted a LOS standard. The appropriate standard will be selected as a part of this study process.

In addition, the Oregon Highway Plan sets maximum volume-to-capacity ratios (v/c) for peak hour operating conditions, based on ODOT's highway classification and other criteria. For statewide freight routes (i.e. US 101 through Coos Bay), intersections are required to operate at a v/c of 0.75 or better (for speeds <45 mph). All other state facilities in the study area are district level highways, which are required to operate at a v/c of 0.85 or better (for speeds < 45 mph). Under existing conditions, these criteria are met for all state facilities in the study area.

Intersections Without Traffic Signals – The level of service assessment for intersections without traffic signals is significantly different. The reported LOS applies only to the major and minor street turning movements, and are not representative of major street through movements. For this reason, LOS E and even LOS F can occur for a specific turning movement; however, the majority of traffic may not be delayed (in cases where major street traffic is not required to stop). LOS E or F conditions at unsignalized intersections generally provide a basis to study intersections further in order to determine availability of acceptable gaps, safety and traffic signal warrants.

A summary of the descriptions for level of service for signalized and unsignalized intersections is provided in the Level of Service Descriptions in the Coos Bay Transportation System Plan technical appendix.

Intersection turn movement counts were conducted during the evening peak periods to determine the existing 2002 LOS based on the *2000 Highway Capacity Manual* methodology for signalized and unsignalized intersections[2] (see Appendix for descriptions). Traffic counts and level of service calculation sheets can be found in the appendix.

The following sections describe existing conditions along several key corridors in Coos Bay. Tables A-3 and A-4 provide a summary of the PM peak hour levels of service for the study intersections in Coos Bay. Most intersections operate at LOS D or better, with some exceptions.

Coos Bay

A total of 13 signalized intersections and 23 unsignalized intersections were analyzed within Coos Bay.

All of the signalized intersections operate at LOS C or better. All but five of the unsignalized intersections operate at a LOS of C or better for the minor street left turns. Table A-4 shows the existing intersection levels of service within Coos Bay. Additionally, all intersections on state highways operate at acceptable levels according to the OHP v/c standards in Coos Bay.

[1] Peak 15-minute volumes were multiplied by four, as discussed in the *2000 Highway Capacity Manual*, in lieu of using a peak hour factor, to arrive at hourly volumes required for Highway Capacity Manual intersection analysis.

[2] *2000 Highway Capacity Manual*, Transportation Research Board, 2000.

Table A-2: Intersection Level of Service

Intersection	*Level of Service*	*Average Delay*	*Volume / Capacity*
Signalized Intersections			
10th Street/Central Avenue	C	21.9	0.60
1st Sreet/Hall Avenue	A	3.7	0.36
Broadway/Hall Avenue	A	6.7	0.48
Broadway/Johnson Avenue	B	17.3	0.57
Broadway/Market Avenue	B	10.3	0.51
Central Avenue/7th Street	B	7.3	0.60
Commercial Avenue/Broadway	B	11.7	0.53
Johnson Avenue/Bayshore Drive	B	19.3	0.64
Newmark Avenue/Ocean Boulevard	B	14.3	0.52
Ocean Boulevard/Butler Road	A	3.7	0.31
Ocean Boulevard/Woodland Drive	B	19.8	0.47
US 101/Koosbay Boulevard	B	12.5	0.56
Unsignalized Intersections			
11th Street/Elrod Avenue	A/A		
2nd Street/Ingersoll Avenue	A/B		
6th Street/D Street	A/B		
Bayshore Drive/Alder Avenue	A/C		0.18*
Bayshore Drive/Birch	A/B		0.10*
Bayshore Drive/Cedar Avenue	A/B		0.02*
Bayshore Drive/Commercial Avenue	A		—
Bayshore Drive/Fir Street	A/B		0.01*
Bayshore Drive/Market Avenue	A/D		0.09*
Broadway/Alder Avenue	A/C		0.29*
Broadway/Fir Street	A/C		0.12*
Empire Boulevard/Pacific Avenue	A/C		0.10*
Lockhart Avenue/2nd Street	A/B		
Lockhart Avenue/7th Street	A/B		
Newmark Avenue/LaClair Street	A/C		0.29*
Newmark Avenue/Morrison Street	B/C		0.32*
Ocean Avenue/LaClair Street	A/B		
Ocean Boulevard/Radar	A/B		
Thompson Road/Koosbay Boulevard	A/C		
US 101/1st Street	C/D		0.44*
US 101/S. Front Street	C/F		0.31*
Woodland Drive/Thompson Road	A/B		
All-Way Stop Controlled Intersections			
4th Street/Elrod Avenue	B	11.3	0.41
7th Street/Ingersoll Avenue	A	8.7	0.33
Broadway/Lockhart Avenue	A		

*Controlling movement v/c. Used for determining compliance with ODOT's OHP v/c ratio thresholds.

Coos County

Two signalized and seven unsignalized intersections were analyzed in the County outside of Coos Bay. Two intersections currently operate at LOS E. The other intersections operated at a LOS of D or

better. All of the study intersections in Coos County meet ODOT's v/c standards. Table A-6 shows the existing conditions at the study intersections in the County.

Table A-3: Intersection Level of Service in Coos County (PM Peak Hour)

Intersection	*Level of Service*	*Average Delay*	*Volume / Capacity*
Signalized Intersection			
US 101/Flanagan	B	10.4	0.64
Unsignalized Intersection			
Coos River Highway/Edwards	A/B	—	0.01*
Coos River Highway/Mullen	A/D	—	0.07*
Coos River Highway/Olive Barber	A/C	—	0.33*
Libby/Wilshire	A/A	—	—
US 101/Edwards	A/E	—	0.21*

*Controlling movement v/c. Used for determining compliance with ODOT's OHP v/c ratio thresholds.

Figure A-6 provides a summary of intersections operating at or near capacity based on level of service calculations. The majority of the study intersections are currently operating at capacity levels of LOS D or better.

Morning Peak Hour Levels of Service

Level of service calculations were made for the several selected intersections where morning volumes were to be monitored. Table A-7 summarizes the results of this analysis.

Table A-4: Intersection Level of Service (AM Peak Hour)

Intersection	*Level of Service*	*Average Delay*	*Volume / Capacity*
Coos Bay			
Signalized Intersections			
10th Street/Central Avenue	C	21.4	0.46
Commercial/Broadway	B	14.4	0.34
Newmark Avenue/Ocean Boulevard	B	13.1	0.22
Ocean Boulevard/Woodland Avenue	B	18.3	0.38
Unsignalized Intersections			
6th Street/D Street	A/F	—	—
US 101/1st Street	B/B	—	0.12*
Bayshore/Commercial	A/A	—	—
Bayshore/Fir Street	A/A	—	—
Broadway/Fir Street	A/B	—	0.02*

*Controlling movement v/c. Used for determining compliance with ODOT's OHP v/c ratio thresholds.

Typically peak traffic volumes occur in the evening peak period (4-6 PM). However, on occasion, there are instances where some intersections operate at a poorer level of service in the morning than the evening due to commuting patterns. The primary purpose in calculating morning level of service is to make sure that any of these problems are identified and analyzed.

All of the study intersections selected for morning analysis operate at level of service C or better, with the exception of 6th Street/D Street in Coos Bay. All study intersections meet ODOT's v/c criteria during the morning peak hour. Peak hour signal warrants were calculated for this intersection using AM volumes and were not met.

Traffic Signal Warrants

Peak hour signal warrants (MUTCD Warrant 3—Peak Hour Volume Warrant) were checked for all study area unsignalized intersections to determine whether traffic signals were warranted at any of the

study intersections under existing traffic volume conditions. The results of this warrant analysis is shown in Table A-8.

Table A-5: Peak Hour Signal Warrant Analysis

Intersection	*Peak Hour Warrant Met?*
Lakeshore Drive/Crocker Street	N
Libby/Wilshire	N
Coos River Highway/Olive Barber	N
Coos River Highway/Edwards	N
Coos River Highway/Mullen	N
US 101/Edwards	N

Two intersections meet peak hour signal warrants under existing traffic volume conditions. They are the two driveways for the Pony Village shopping center onto Virginia Avenue. Further analysis should be conducted (examination of further traffic signal warrants) to determine whether or not a traffic signal is currently warranted at one or both of the driveways. None of the other surveyed intersections without traffic signals met this first tier warrant. ODOT only recognizes Warrant 1 for preliminary signal warrant purposes. This warrant is evaluated in the Future Needs section of this TSP.

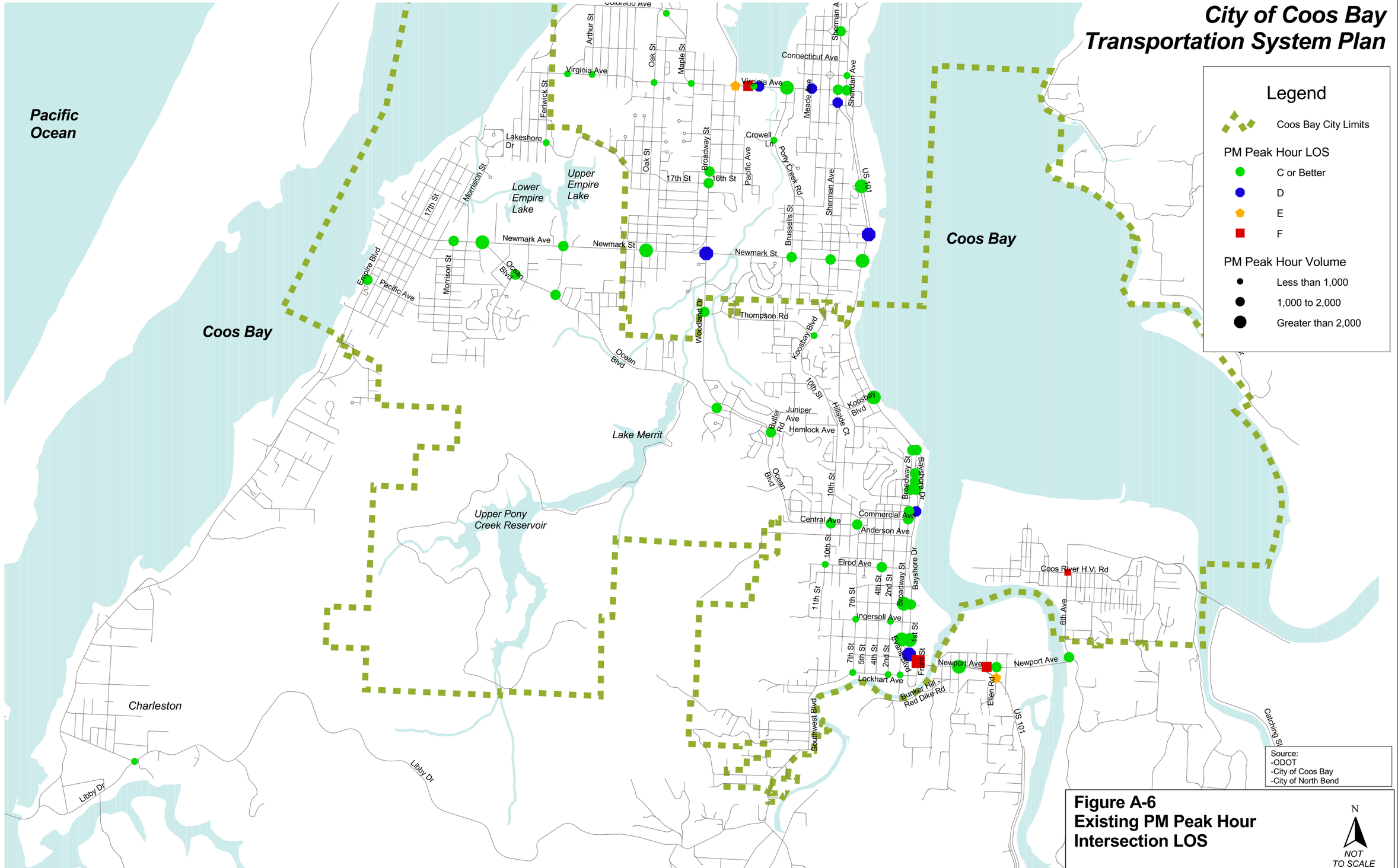
Other Traffic Operational Issues

Several notes were made during field observations that add to the technical analysis based above. These issues include:

- Absence of separate left-turn lanes on arterial facilities reduces facility capacity (vehicles per hour) and inhibits traffic safety. A prime example is Highway 101 at East Bay Drive immediately north of the McCullough Bridge. Other examples are on Ocean Boulevard and Virginia Avenue.
- Traffic signal coordination in downtown Coos Bay on Highway 101 should be reviewed. Rolling vehicle queues in the southbound direction were observed extending several blocks north of Commercial Avenue.
- High frequency of driveway cuts along arterials increases vehicle conflict potential. Prime examples along Newmark Street near the Bi-Mart Shopping Center.

DKS *Associates*

City of Coos Bay
Transportation System Plan



Legend

- Coos Bay City Limits

PM Peak Hour LOS

- C or Better
- D
- E
- F

PM Peak Hour Volume

- Less than 1,000
- 1,000 to 2,000
- Greater than 2,000

Source:
-ODOT
-City of Coos Bay
-City of North Bend

Figure A-6
Existing PM Peak Hour Intersection LOS

N

NOT TO SCALE

Collisions

Vehicle, pedestrian, and bicycle collision data was obtained from ODOT and used to develop the high collision intersection and segment lists for the Coos Bay Transportation System Plan. Table A-9 shows crash locations within Coos Bay at intersections where traffic count data was available and where at least one accident per year was reported. The number of collisions within 200 feet of an intersection were included in the total. Locations approaching or above a crash rate of 1.00 per MEV are considered significant and should be investigated. The highest rate location in Coos Bay is 2nd Street at Ingersoll Avenue is a relatively low volume intersection. The next three locations, 10th/Central, Thompson/Woodland, and Woodland/Ocean each are arterial intersections with much higher volumes and crash frequencies. The highest number of crashes and the highest crash rate intersection in North Bend is Newmark Avenue at Broadway.

There are some locations that had more than three crashes over the three-year period, but traffic volume data was not available to calculate a crash rate. For those locations, traffic volumes were estimated based on similar intersections and an estimated crash rate was calculated. These estimated crash rates are shown in Table A-10 on the next page.

Table A-6: Coos Bay High Collision Locations (1999-2001)

Street	*Cross Street*	*Number of Collisions (1999-2001)*	*Collision Rate (Collisions per MEV*)*
Coos Bay			
2nd Street	Ingersoll Avenue	4	1.57/MEV
10th Street	Central Avenue	19	0.98/MEV
Thompson Road	Woodland Drive	10	0.90/MEV
Woodland Boulevard	Ocean Boulevard	15	0.86/MEV
Ocean Boulevard	Butler Avenue	9	0.59/MEV
4th Street	Elrod Avenue	4	0.39/MEV
US 101	Koosbay Boulevard	9	0.36/MEV
Ocean Boulevard	Cape Arago Highway	8	0.36/MEV
LaClair Street	Ocean Boulevard	4	0.34/MEV

* MEV=million entering vehicles

Table A-7: Coos Bay Estimated High Accident Locations (1999-2001) -- Estimated Volumes

Street	*Cross Street*	*Number of Collisions (1999-2001)*	*Est. Accident Rate (Collisions per MEV*)*
Coos Bay			
Golden	2nd Street	8	3.14/MEV
Kruse Avenue	4th Street	5	1.05/MEV
Woodland	Inland	8	0.87/MEV
Hall Avenue	4th Street	4	0.84/MEV
Koosbay Boulevard	10th Street	5	0.51/MEV
Elrod Avenue	2nd Street	5	0.49/MEV
10th Street	Anderson Avenue	6	0.46/MEV

* MEV=million entering vehicles

Crash rates for segments on the state highway system in the study area (SPIS[3] data) were also obtained from ODOT for the years 1999-2001. Those segments with accident rates in the top 15 percent of all state highways are listed in Table A-11. SPIS values above 45.47 are in the top 10 percent for Oregon. Figure A-7 shows the location of the high accident intersections and segments on the study area map. The safety at these intersections and segments should be addressed in this TSP. The potential safety elements to be considered for the locations listed below are: absence of separate left-turn lanes, provision of on-street parking, and high frequency of driveway access from adjoining properties.

Table A-8: State Highway Segments with Crash Rates Above Statewide Facility Average

Street	*From*	*To*	*Average SPIS Score*
Coos Bay			
US 101	Koosbay Boulevard	Just south of Koosbay Boulevard	46.32
US 101	Market Avenue	South of Anderson Avenue	43.23
US 101	Curtis Avenue	Elrod Avenue	46.95
US 101	Golden Avenue	Hall Avenue	48.07
US 101	Ingersoll Avenue	Johnson Avenue	42.03
US 101	Harriet Street	Flanagen Avenue	50.17

* MEV=million entering vehicles

Existing collision data was plotted on an intersection by intersection basis to determine where potential safety issues may exist. While no conclusions can be drawn at many of the intersections, there are some issues that should be noted at the following locations:

- **Newmark between Oak and Broadway Streets**: Multiple crashes are reported in the areas near Cedar and Ash Streets. In particular, many of the crashes involve vehicles either crossing Newmark Street or making left or right turns onto Newmark Street
- **Broadway Street at Newmark Street**: Multiple rear-end type crashes for vehicles traveling southbound and northbound on Broadway/Woodland.
- **Sherman Avenue at Virginia Avenue**: A number of crossing collisions for vehicles traveling eastbound on Virginia and southbound on Sherman. This is likely due to vehicles running red lights.
- **10th Street/Central Avenue**: A few crossing collisions, similar to Sherman/Virginia, likely due to red light running.
- **2nd Street/Golden Avenue**: A large number of crossing collisions, indicating that drivers are ignoring stop signs in one or both directions. This is not a study intersection, so intersection geometry and traffic count data were not available, but it is a very low volume intersection for such a high number of collisions.

[3] Safety Priority Indexing System.

DKS *Associates*

City of Coos Bay Transportation System Plan

Legend

- 1999-2001 SPIS Locations
- High Incident Rate Intersections
- Coos Bay City Limits

Pacific Ocean

Coos Bay

Coos Bay

Lake Merrit

Upper Pony Creek Reservoir

Charleston

Lower Empire Lake

Upper Empire Lake

Arthur St
Virginia Ave
Fenwick St
Oak St
Maple St
Connecticut Ave
Sheridan Ave
Meade Ave
Lakeshore Dr
Morrison St
17th St
Empire Blvd
Pacific Ave
Newmark Ave
Newmark St
Ocean Blvd
Broadway St
16th St
Crowell Ln
Porty Creek Rd
Brussells St
Sherman Ave
US 101
Thompson Rd
Woodland Dr
Koosbay Blvd
East Bay Dr
Juniper Ave
Hemlock Ave
Cutler Rd
Hillside Ct
10th St
Bayshore Dr
Commercial Ave
Anderson Ave
Central Ave
Elrod Ave
4th St
2nd St
1st St
11th St
7th St
5th St
3rd St
Ingersoll Ave
Front St
Lockhart Ave
Bunker Hill
Red Dike Rd
Newport Ave
Ellen Rd
Coos River H.V. Rd
6th Ave
8th Ave
Catching Slough
Southwest Blvd
Libby Dr

Source:
-ODOT
-City of Coos Bay
-City of North Bend

Figure A-7
High Collision Rate Locations 1999-2001

N
NOT TO SCALE

Transit

Federal funding for the fixed-route transit services that did exist in Coos Bay was terminated and service ceased operation as of the end of December 2002. The CCTA has applied for federal grants from the Federal Transit Authority to extend these basic operations. Currently, only the dial-a-ride service is operational. The discussion below is written assuming that funding and service is restored to previous levels.

Transit service is provided by Coos County Area Transit (CCAT). Figure A-8 shows current CCAT fixed bus routes and the location of current bus stops and shelters throughout the study area There are six covered shelters in the transit system today with the remainder having combinations of benches or posted signs only.

Weekday bus boarding information was reported by CCAT for the current 2000 census. Table A-12 shows the ridership for the routes serving Coos Bay over the past two years. The fixed route loop services have grown about 20 percent and the dial-a-ride service has grown almost 50 percent in the past year. Table A-13 reports the frequency of service for the various fixed route and express route operations. Dial-a-ride services are scheduled by appointment on an as needed basis.

Note: Since this chapter of the TSP was written, all federal funding for CCAT has been withdrawn.

Table A-9: Average Weekday Boarding Rides on CCAT Routes on Coos Bay & North Bend

	Loops	*Dial-a Ride**
2000-2001		
Seniors	4,675	3,991
Disabled	--	3,848
Public	17,289	2,781
Total	21,964	10,620
2001-2002		
Seniors	3,131	4,842
Disabled	--	4,400
Public	23,104	6,467
Total	26,235	15,709
% Growth	20%	48%

Table A-10: Transit Boarding Service in Study Area

Route	*Approximate Frequency*
Bay Area Loop Service	90 minutes
Myrtle Point Bus	Twice Daily + Dial-A-Ride
Coquille Bus	Twice Daily + Dial-A-Ride
Bandon Bus	Dial-A-Ride
CB/NB Bus #1	Twice in AM Peak Twice in PM Peak + Dial-A-Ride
CB/NB Bus #2	Twice in AM Peak Twice in PM Peak + Dial-A-Ride
Coastal Express (Bay Area)	Hourly
Coastal Express	Twice in AM Peak Twice in PM Peak

Porter Stage Lines, Greyhound and Coos County Area Transit (CCAT) combine to provide the transit options for individuals in the Coos Bay/ North Bend area. Porter Stage Lines has 7 buses that can carry between 11 and 47 passengers each and provide service twice a day to Eugene/Bend/Ontario. Likewise, Greyhound provides inter-jursidictional connectivity thorough routes that provide access to many areas of the State including Eugene/Portland/Medford and other large cities in Oregon.

The majority of intra-jursidictional transit trips are provided by CCAT, which has ten service vehicles (5 in good condition, 4 in fair condition, and 1 in poor condition) that are all ADA accessible and has annual operating expenses over $200,000. Currently, the service is provided on a demand responsive basis and focuses mainly on the transportation disadvantaged population, such as the handicapped, elderly and economically disadvantaged. Two dial a ride buses operate Monday-Friday in the Coos Bay/North Bend area, another in Coquille and a fourth in Bandon. Approximately 37,000 trips well be provided system wide this year, with 15,000 of those trips occurring in Coos Bay/North Bend. This does not begin to meet demand, however, as over 90,000 unlinked trips were provided system wide before the fixed route service was discontinued.

Since a fixed route service was originally operational in Coos Bay/North Bend, much of the infrastructure is still present. The City has identified bus stop locations, and signs and shelters are in place. The opportunity for increasing transit modal share is large as is shown in both revealed preference actions such as the ridership numbers before fixed routes were discontinued, and in stated preference assertions such as the opinion survey prepared for the 1995 STIP plan that indicated considerable support for expanded service. Additionally some of the capital costs associated with the implementation of route start-up have already been provided. The largest obstacle to the provision of fixed route service is the identification of a funding mechanism required for operation costs, as fare box recovery is expected to be a very small percentage of total operating costs.

Bicycle

Bicycle counts were conducted during the evening peak period (4:00 to 6:00 PM) at the study intersections in Coos Bay and are shown in Figure A-9, along with the existing bike lanes, designated bikeways and off-street bike pathways. There is only one small section of US 101 that has designated bike lanes in the entire Coos Bay study area. There are a number of roadways that have paved shoulders that could be used for bicyclists. A specific inventory of these wide shoulder locations was not undertaken.

A Bikeway Master Plan for the Coos Bay Bay Area and Coos County Parks was completed in 1991.[4] As part of this plan, use patterns were determined based on public input. Within the City, bicycle trips are typically made for utility purposes between core areas such as US 101, Ocean, Newmark and other arterial and collector streets. Outside the City, trips are more recreational in nature.

The Oregon Coast Bike Route (OCBR) is the only marked bike route in the area. It is a combination of shared roadway, shoulder and bike lane types. As mentioned previously, the only designated bike lanes exist on US 101.

Due to the lack of bike lanes and sporadic paved shoulders (less than 10 percent of arterials and collectors have bike facilities), there is limited connectivity for bicyclists traveling to activity centers in Coos Bay. Bicycles are permitted on all roadways in the both City. Bicycle use in Coos Bay is generally for recreational, school and commuting purposes.

[4] *Bikeway Master Plan for Coos Bay Bay Area and Coos County Parks*, Gary L. Dyer, June, 1991.

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City of Coos Bay
Transportation System Plan

Pacific Ocean

Coos Bay

Coos Bay

Lake Merrit

Upper Pony Creek Reservoir

Charleston

Lower Empire Lake

Upper Empire Lake

Colorado Ave
Arthur St
Virginia Ave
Oak St
Maple St
Fenwick St
Lakeshore Dr
Morrison St
17th St
Empire Blvd
Pacific Ave
Newmark Ave
Newmark St
Ocean Blvd
Broadway St
16th St
17th St
Crowell Ln
Pacific Ave
Pony Creek Rd
Brussells St
Sherman Ave
Meade Ave
Connecticut Ave
Sheridan Ave
US 101
Thompson Rd
Woodland Dr
Kingsbay Blvd
10th St
Juniper Ave
Hemlock Ave
Butler Rd
Hillside Ct
Bayshore Dr
Central Ave
Commercial Ave
Anderson Ave
Elrod Ave
11th St
7th St
4th St
2nd St
Ingersoll Ave
Front St
Newport Ave
Lockhart Ave
Bunker Hill - Red Dike Rd
Southwest Blvd
Ellen Rd
Coos River H.V. Rd
6th Ave
Catching St
Libby Dr

Legend

Public Places
- Library
- Hospital
- School
- Shopping
- Parks
- Transit Route
- Transit Stop
- Coos Bay City Limits

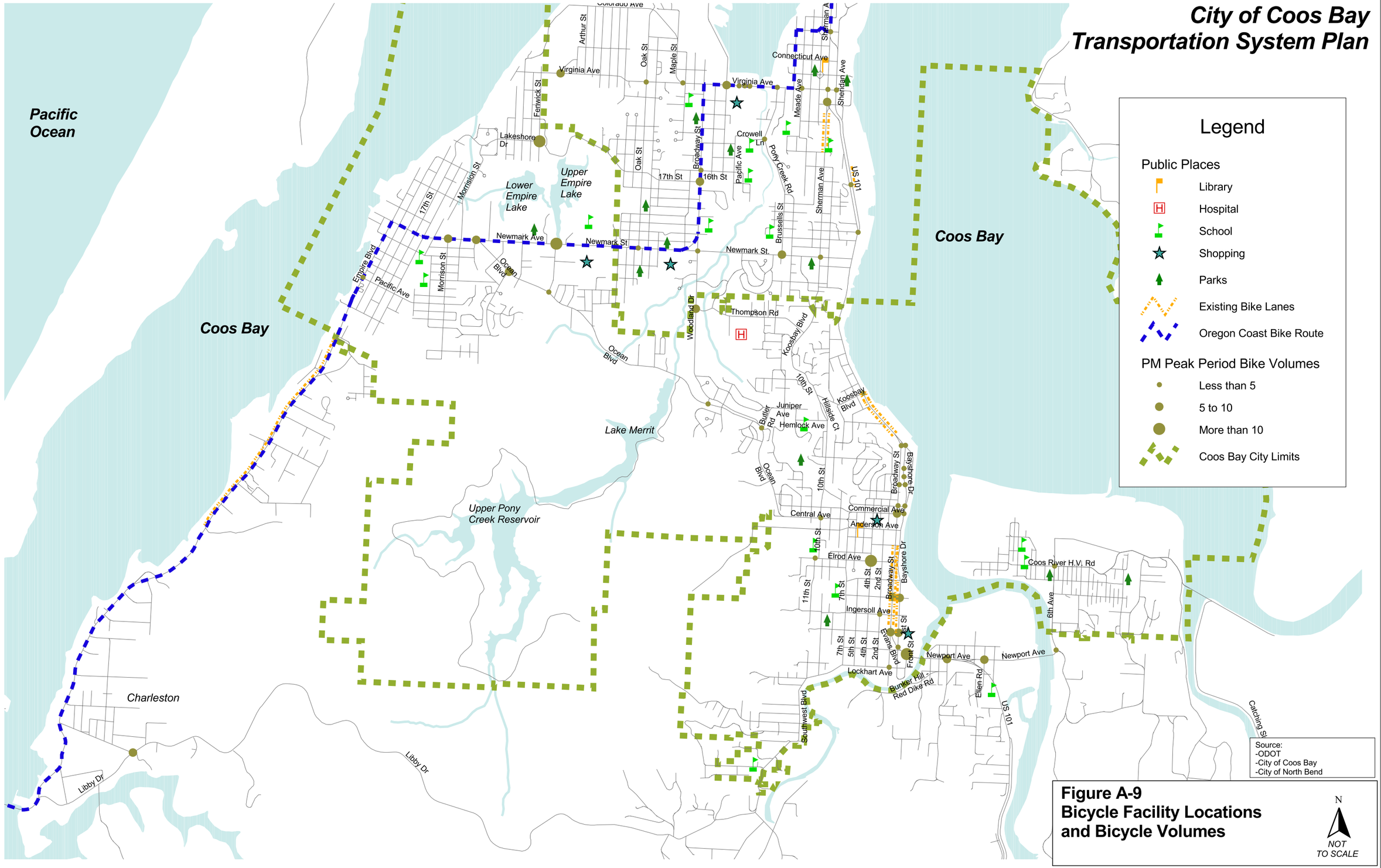
Source:
-ODOT
-City of Coos Bay
-City of North Bend

Figure A-8
Existing Transit Routes and Stop Locations

N
NOT TO SCALE

DKS *Associates*

City of Coos Bay
Transportation System Plan



Legend

Public Places
- Library
- Hospital
- School
- Shopping
- Parks
- Existing Bike Lanes
- Oregon Coast Bike Route

PM Peak Period Bike Volumes
- Less than 5
- 5 to 10
- More than 10
- Coos Bay City Limits

Source:
-ODOT
-City of Coos Bay
-City of North Bend

Figure A-9
Bicycle Facility Locations and Bicycle Volumes

N
NOT TO SCALE

Pedestrians

Figure A-10 shows the existing sidewalks on arterial and collector streets in Coos Bay. A majority of arterial and collector streets in Coos Bay have sidewalks on at least one side of the street. There are some locations where sidewalks are not connected; however, connectivity and pedestrian linkages are relatively good. In addition, besides the facilities that are shown on this map, many residential streets also have sidewalks.

Pedestrian counts were conducted in conjunction with the intersection PM peak turn movement counts. The pedestrian movement counts are also shown in Figure A-10. The most significant pedestrian volumes in the Coos Bay area are in the city's respective downtown's and near the Southwest Oregon Community College, which are large pedestrian generators. The most significant pedestrian movements occur in the Coos Bay downtown area on Broadway, Commercial and Elrod Avenue and in the North Bend downtown area on Virginia Avenue at Sherman Avenue. The intersection of Newmark Avenue at LaClair Street in Coos Bay had the single highest one-hour pedestrian volume, 108 persons.

Based on the street inventory, most major arterials facilities have sidewalks (84%) while minor arterial and collector streets have very limited existing sidewalk facilities (less than 10%) Sidewalks at least five feet wide are required in all new development. All newly constructed sidewalks include wheelchair ramps at intersections to permit easy ingress/egress for wheelchairs. The most important needs are to fill in the gaps on the arterial system such as on Newmark Avenue and Bayshore Drive. However, the City of Coos Bay should work to continue increasing the sidewalk coverage on all arterials, collectors, and residential streets in the Coos Bay area.

Parking

Downtown parking studies were conducted in both Coos Bay in 1997[5]. Existing on-street parking locations for both City are shown in Figure A-11 for arterial and collector streets. In Coos Bay, several parking-related issues were identified through the public involvement process and included the following:

- Convenient parking is difficult to find
- Some off-street parking lots are perceived as unsafe at night
- On-street parking isn't readily available for patrons and visitors to downtown
- Parking system is confusing
- Abuses of on-street parking supply limits customer access

Meetings, stakeholder surveys and public open houses were conducted to determine the key issues in the parking situation in downtown Coos Bay. The following was concluded:

- Most parking (both on and off-street) is underutilized in the peak hour (based on parking surveys conducted by both the City and the Consultant)
- There is a sense that the parking system is not easily understood or convenient
- There are complaints that 1 hour meters (or controlled areas) are not sufficient to support short term access requirements.

An inventory was taken to determine the relationship between supply and demand. Overall utilization was determined to be about 44 percent of the available supply. This does not indicate an existing parking supply deficiency.

In North Bend, parking inventory and demand studies were conducted. There were a total of 1,633 parking spaces in the downtown area (including 597 on-street spaces and 1,036 off-street spaces).

[5] *City of Coos Bay Downtown Parking and Circulation Study*, Kittelson & Associates, Inc., September 1997. *City of North Bend Downtown Parking Study*, David Evans and Associates, Inc., December 1997.

Parking occupancies were observed for three weekday time periods (7-9 AM, 11:30 AM-1:30 PM and A-5 PM) and on Saturday from 12:00-1:30 PM. The occupancy surveys were conducted in April, which may be lower than in the summer, which is peak season along the coast. According to ODOT traffic counts, average daily traffic (ADT) in April represents about 94% of normal. Occupancies ranged from about 28 percent occupancy on Saturday to 45 percent occupancy in the weekday evening peak period. This does not indicate an overall parking deficiency.

The above occupancy survey findings contrast sharply with opinions expressed by the general public and local merchants regarding the availability of parking. The quantitative studies do not support the reported view that parking is limited. It is apparent that the parking surveys identified 'available parking' outside of the walking distance many of the patrons or merchants desire. A more focused assessment that separated parking availability relative to ranges of walking distances may be more revealing.

Trucks

The truck (heavy vehicle) volumes as well as percentages as a portion of through traffic at the study intersections were collected with the current turn movement counts. The current truck percentages, which range from 0 to 9 percent, are shown on Figure A-12. US 101 through Coos Bay is the only designated freight route in the study area[6]. Existing through truck routes and intermodal connectors are also shown in Figure A-12.

The 1999 Oregon Highway Plan designates a State Highway Freight System. The OHP can be found at http://www.odot.state.or.us/tdb/planning/highway/highway_plans.htm. A map of the State Highway Freight System can be viewed at http://www.odot.state.or.us/intermodal-freight/Maps/web_page_pdf_maps/corridors,volumes,routes/1freight_rts.pdf. The State Highway Freight System is based on freight volume, connectivity and linkages to major intermodal facilities. US 101 through Coos Bay is designated as part of the State Highway Freight System.

Efforts to improve truck freight mobility and capacity within the planning area should first focus on the roadways comprising the local freight system. Other truck freight concerns that should be investigated are lack of turning lanes, narrow lanes, narrow shoulders, difficulties in accessing business sites, turning radii at intersections or bridges with weight or height concerns.

Some freight-related provisions in the Highway Plan include policies and actions relating to access from highways to adjacent properties. The Highway Plan's discussion of access management is intended to balance access to developed properties while ensuring the safe and efficient movement of through traffic and local traffic. The plan identifies a range of policies, actions, and standards pertaining to interchange development, driveway and roadway spacing and design, traffic signal location, median design and spacing of openings, and other factors associated with managing access along various types of urban and rural highways. Managing access includes providing for through truck movements as well as for the pick up and delivery of goods and materials to and from adjacent

[6] 1999 Oregon Highway Plan, The Oregon Department of Transportation, Appendix D: Highway Classification by Milepoint.

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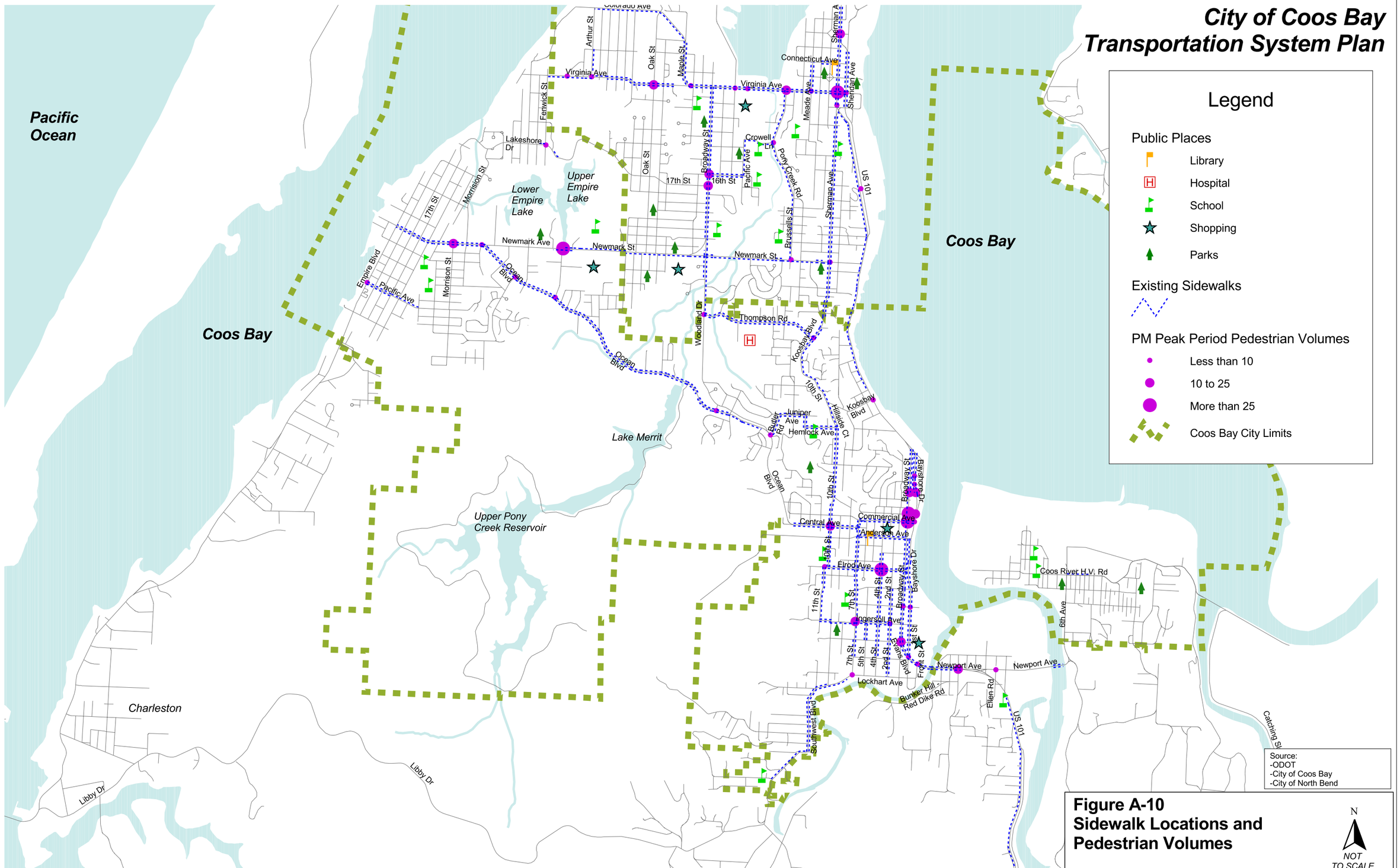
City of Coos Bay
Transportation System Plan



Legend

Public Places
- Library
- Hospital
- School
- Shopping
- Parks

Existing Sidewalks

PM Peak Period Pedestrian Volumes
- Less than 10
- 10 to 25
- More than 25

Coos Bay City Limits

Source:
-ODOT
-City of Coos Bay
-City of North Bend

Figure A-10
Sidewalk Locations and Pedestrian Volumes

N
NOT TO SCALE

DKS *Associates*

City of Coos Bay Transportation System Plan

Pacific Ocean

Coos Bay

Coos Bay

Lake Merrit

Upper Pony Creek Reservoir

Charleston

Upper Empire Lake

Lower Empire Lake

Colorado Ave
Arthur St
Virginia Ave
Oak St
Maple St
Fenwick St
Lakeshore Dr
Morrison St
17th St
Empire Blvd
Pacific Ave
Newmark Ave
Newmark St
Ocean Blvd
Woodland Dr
Thompson Rd
Koosbay Blvd
10th St
Juniper Ave
Hemlock Ave
Butler Rd
Hillside Ct
Connecticut Ave
Sherman Ave
Meade Ave
Crowell Ln
Pony Creek Rd
Broadway St
Pacific Ave
16th St
Brussells St
Newmark St.
US 101
Bayshore Dr
Commercial Ave
Anderson Ave
Central Ave
Elrod Ave
11th St
7th St
4th St
2nd St
Ingersoll Ave
Front St
Bay St
Evans St
Lockhart Ave
Bunker Hill - Red Dike Rd
Southwest Blvd
Libby Dr
Coos River H.V. Rd
6th Ave
Newport Ave
Ellen Rd
Catching Slough

Legend

Public Places
- Library
- Hospital
- School
- Shopping
- Parks
- On-Street Parking
- Coos Bay City Limits

Source:
-ODOT
-City of Coos Bay
-City of North Bend

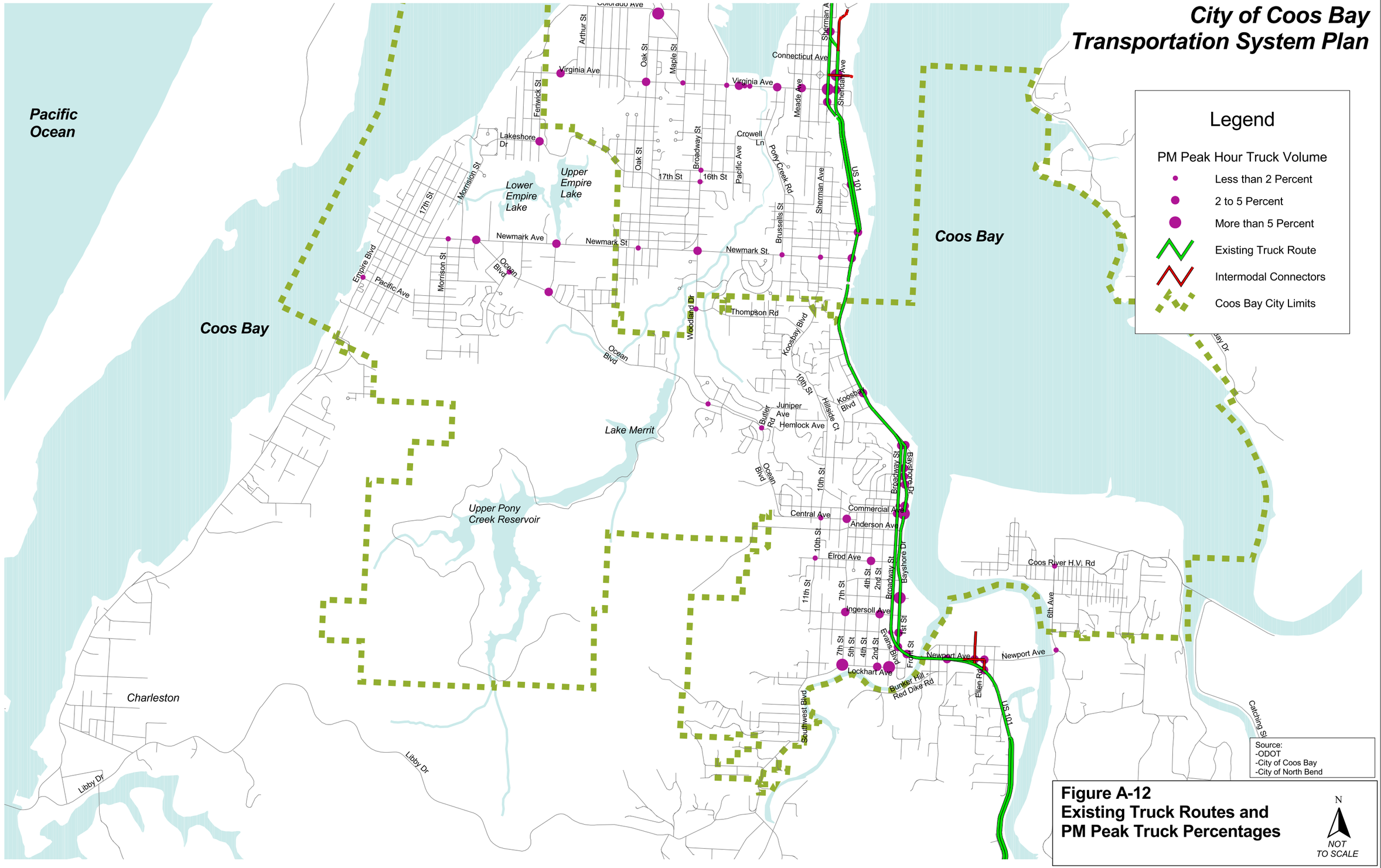
Figure A-11
Existing On-Street Parking

N

NOT TO SCALE

DKS *Associates*

City of Coos Bay Transportation System Plan



Legend

PM Peak Hour Truck Volume

- Less than 2 Percent
- 2 to 5 Percent
- More than 5 Percent
- Existing Truck Route
- Intermodal Connectors
- Coos Bay City Limits

Source:
-ODOT
-City of Coos Bay
-City of North Bend

Figure A-12
Existing Truck Routes and PM Peak Truck Percentages

N

NOT TO SCALE

commercial and industrial properties. The Coos Bay roadway system includes several intermodal connectors. An intermodal connector is a road connecting an intermodal freight or passenger facility through which goods or people move between modes. Some intermodal connectors are part of the National Highway System (NHS). Intermodal freight movements, for example, involve the movement of goods and materials by road, rail, water, air, and pipeline through truck-rail facilities, marine terminals, airports, and pipeline terminals. Most intermodal connectors are local roads, not state highways. Intermodal connectors in Coos Bay serve primarily marine facilities and are shown in Figure A-12.

The purpose of this section of the TSP is to identify the major routes (and shippers) associated with the movement of freight by truck in Coos Bay. A few of the concerns and needs about maintaining and enhancing current truck freight mobility are also mentioned. Some of the motor vehicle needs identified in the TSP will also improve truck freight mobility.

As in other cities, freight moves primarily by trucks in the Coos Bay area. Truck tractor-trailer combinations are the most common type of freight carrier and move the greatest variety of goods and commodities, ranging from low-value bulk commodities to high-value, time-sensitive commodities. The major commodities moved by truck in Coos Bay are wood chips, logs, plywood, particle board, petroleum products, seafood and general merchandise. Trucks, along with intercity buses, have the greatest locational mobility among freight modes in that they can go, subject to size and weight limitations, wherever roads go.

The closest ODOT ATR (automatic traffic recorder) is located approximately 5 miles south of Coos Bay on US 101 (mp 243.99). In 2002, the average daily traffic (ADT) was approximately 15,000 vehicles, with 16 percent truck traffic. This equates to approximately 2,400 trucks per day. Percent truck traffic is higher on state highways in the rural areas because there are less cars there then in the urban areas. Many of the trucks using these intersections are going to or coming from local industries and port facilities located in Coos Bay near the US 101 and the Isthmus Slough. These industries and facilities include the Oregon Chip Terminal, Tyree Oil, Dedicated Fuels Inc. and the Port of Coos Bay.

Several industries are located southeast of Coos Bay in the Bunker Hill (Coos County) area and account for some of the truck traffic at the US 101/Coos River Highway intersection and other US 101 intersections. They include the Georgia-Pacific Chip Terminal, Coos Bay Docks, Coastal Fiber, Coos Head Timber and a Georgia–Pacific Sawmill. Some of the truck traffic is also generated by the commercial businesses in the Coos Bay/North Bend area such as Wal-Mart, Bi-Mart, K-Mart and the larger chain grocery stores.

In order to better handle truck traffic, some intersections on US 101 in Coos Bay need to be improved. Some of the intersection curb radii are too sharp to accommodate the turning movements of the larger trucks (especially right turns). For example, trucks heading south on US 101 in North Bend wanting to turn west on to Virginia Avenue (Cape Arago Highway) must swing out into the other travel lane. This problem is also present at other intersections on US 101 such as Commercial/US 101 and California Ave/US 101. These movements are unsafe for other motor vehicles and reduce the capacity of the roadways. The US 101/Coos River Highway intersection is a bottleneck because of its triangular configuration and proximity to other busy intersections in the immediate area.

Bridges

The Coalbank Slough and Isthmus Slough bridges provide access between Coos Bay and points east. ODOT's bridge sufficiency rating ranges from 0 (extremely poor/does not meet standards to 100 (excellent). The following information was provided by ODOT regarding the condition of the bridges:

Coalbank Slough
Sufficiency Rating = 85.0

Approach Condition	3 Serious
Deck Wearing Surface	6 Satisfactory
Deck	6 Satisfactory
Superstructure	7 Good
Substructure	7 Good
Channel	6 Bank beginning to slump
Scour	T Over tidal waters / No eval
Bridge Rail	1 Meets acceptable standards
Transitions	N Not Applicable
Approach Rail	N Not Applicable
Rail Ends	N Not Applicable
Structural	7 Better than present minimum criteria
Deck Geometry	9 Superior to present desirable criteria
Waterway	9 Superior to present desirable criteria
Approach Alignment	8 Equal to present desirable criteria

Isthmus Slough
Sufficiency Rating = 4.0

Approach Condition	5 Fair
Deck Wearing Surface	4 Poor
Deck	5 Fair
Superstructure	6 Satisfactory
Substructure	3 Serious
Channel	7 Bank needs minor repairs
Bridge Rail	0 Does not meet standards
Transitions	0 Does not meet standards
Approach Rail	0 Does not meet standards
Rail Ends	0 Does not meet standards
Structural	2 Basically intolerable requiring high priority of replacement
Deck Geometry	3 Basically intolerable requiring high priority of corrective action
Waterway	9 Superior to present desirable criteria
Approach Alignment	4 Meets minimum tolerable limits to be left in place as is

Water Transportation

The Coos Bay estuary is a U-shaped body of water about 15 miles long and 1 mile wide at its widest point. Major marine activities include domestic and international maritime commerce, marine industrial transportation and manufacturing, commercial fishing, marine-related recreation and tourism, and oyster aquaculture. Woodchips, lumber and plywood, pulp and paper, and logs are the principal waterborne commodities handled through marine terminals in the harbor.

The principal waterfront facilities are located as follows:

- at Charleston, near the ocean entrance to the bay;
- at the western and northern shorelines of the lower bay on the North Spit, the eastern shoreline of the lower bay at Empire, at the localities of Coos Bay, North Bend and Bunker Hill on the western and southern shorelines of the upper bay, and
- at the location where the Coos River flows into the southeastern end of the bay.

The Oregon International Port of Coos Bay currently lists seven active marine terminal cargo facilities on Coos Bay, five with deep-draft berths. Two facilities are dedicated to barge operations. In addition, there are 13 other marine facilities in the harbor, six inactive cargo facilities and seven utility and/or work dock sites. The public Port Authority itself does not own or operate any of the active cargo facilities. Four of the marine facilities are located downstream from the Coos Bay railroad bridge (one on the east side of the channel and three on the west and north sides of the channel). The remaining marine facilities are located upstream of the railroad bridge primarily on the west side of the channel. There also are five public boat launch ramps with small floating dock facilities on the main bay.

Three of the active marine terminals handle wood chips. Two terminals handle logs, one is a deep-draft facility and one is a barge facility. One terminal handles breakbulk (non-containerized) general cargo. One inactive terminal is used for storage of petroleum products delivered by tanker truck, but also provides dockside fuel service to large fishing boats and tugboats.

At the present time, the seven active marine terminal cargo facilities provide more than 4,000 feet of deep-draft berthing space and more than 1,500 feet of barge moorage; more than 90 acres of open storage space; and more than 200,000 square feet of covered storage. The two inactive bulk petroleum terminals have a combined storage capacity of nearly 200,000 barrels.

The six terminals that primarily handle wood chips or logs (four deep-draft and two barge) represent a total of approximately 4,850 feet (3,350 feet deep-draft and 1,500 feet barge) or about 88 percent of the marine cargo terminal berthing space available at the Port of Coos Bay. The one terminal specializing in the handling of general cargo represents approximately 640 feet or about 12 percent of the available berthing space, although this terminal shares another 600 foot berth with a wood chip facility.

Table A-11: Marine Cargo Summary

Cargo Type	*Number of Terminals*	*Percent of Total Cargo Berthing Space*
Wood Chips/ Logs	6	88%
General Cargo	1	12%
Mineral Ores	2 (inactive)	11%
Utility & Work Functions	7	11%
Petroleum Products	2 (inactive)	7%

Note: There are two inactive facilities with four deep-draft berths that are not included in this chart.

The seven active and six inactive marine terminal cargo facilities have good connections to the local highway system, and more than 85 percent of the *facilities* have either a rail spur on site or are located adjacent to an active rail line.

Commercial Fishing

Commercial fishing operations at Coos Bay are a major contributor to the local and statewide economy. According to a 1989 study prepared by the Ports Division of the Oregon Economic Development Department, commercial fishing operations at Coos Bay contributed more than $34 million to the regional economy in 1987. According to the study, the Coos Bay commercial fishing fleet accounted for 29,688,856 landed pounds in 1987, the third highest amount in the state behind Astoria and Newport. In 1987 Coos Bay had 328 fishing vessel moorages with an average occupancy rate of 100 percent. Commercial fishing moorages and fish-handling facilities are located primarily in the Charleston area near the entrance to the bay. None of the fish-handling facilities have rail connections.

Cargo Variety

Waterborne commerce through the Port of Coos Bay in 2001 reflected continuing significant downturns in overall tonnage. This is occurring for a variety of reasons, including ongoing weakness in the

Asian/Pacific Rim export market (primarily Japan), shifting worldwide market demand and increased competition from new wood fiber producing regions such as South America, New Zealand, and the Russian Far East, declines in timber harvest and lumber production in the US Pacific Northwest, and increases in harvest and production in the Southeast US and the Pacific Coast region of Canada. Declines occurred in outbound lumber, plywood particle board, linerboard/pulp, and wood chips. A portion of these declines, however, was offset by increases in outbound and inbound whole logs. Fish and seafood landings were down substantially, due primarily to increased federal and state regulation and reduced quotas for west coast fisheries. Total cargo movement for 2001 was 2,026,266 short tons, a decrease of 22 percent from 2000. Total vessel calls of 64 were down 23 percent from the previous year, although barge traffic through the harbor has been increasing annually since the mid-1990's.

The staff at the Oregon International Port of Coos Bay annually compiles information from terminal operators on cargo types and volumes, and the number of deep-draft vessel and cargo barge calls at terminals in the Coos Bay harbor. They also compute various averages for this data. The average number of deep draft vessel calls per year at cargo terminals in Coos Bay during the period 1992-2001 was 151. In addition, there was an average of 146 loaded cargo barge calls in the harbor during the period of 1996-2001.

Barge Traffic

Barge traffic also is a major component of vessel activity in the main bay. Barge traffic includes barges loaded at marine cargo terminals with wood products and other commodities outbound to domestic and foreign destinations; inbound barges bringing unprocessed logs to regional mills; and barges brought to the harbor for moorage between voyages or for repairs and maintenance. The biennial channel maintenance dredging that occurs between July and December in project years dramatically increases the amount of barge traffic throughout the bay and over the bar at the ocean entrance. The average number of total barge movements at the Port of Coos Bay during the 8-year period from 1994 through 2001 was approximately 218 per year. The average number of round-trip barge loads (from dredging sites in the bay to the ocean disposal area and back again) during maintenance dredging is estimated to be in the range of 200 to 225 trips per project cycle.

Commercial Fishing

Commercial fishing operations at Coos Bay are a major contributor to the local and statewide economy. According to data available from the Oregon Department of Fish and Wildlife, commercial fishing fleets operating out of Coos Bay accounted for 26,793,886 landed pounds of fish and shellfish in 2001, the third highest amount in the state behind Astoria and Newport. The estimated value of this catch at the fishermen's level is $12,416,139. In 2001 Coos Bay had approximately 150 commercial fishing boats home ported in the harbor. The majority of the commercial fishing moorages and all of the fish-handling and processing facilities are located in the Charleston area near the ocean entrance to the bay, although some vessel moorage is available at the Coos Bay City Docks in the upper bay. None of the fish-handling facilities have rail connections.

Rail

Freight rail service for the Coos Bay area is provided by the Central Oregon & Pacific (CORP) Railroad, which operates the Coos Bay Branch Line from the Union Pacific (UP) Railroad yard at Eugene to the end of the line at Coquille. The Coos Bay line provides rail access to industrial operations at various locations between Eugene and Coquille and intermodal connections for marine terminals in the Port of Coos Bay. CORP is owned by RailAmerica Inc., the largest shortline and regional freight railroad operator in North America.

The Coos Bay line runs west from Eugene within the approximate corridor of State Highway 126, except for a portion of the line east of Mapleton which parallels State Highway 36 for several miles before

intersecting the highway 126 corridor. The line crosses the Siuslaw River at Cushman and runs east of Siltcoos and Tahkenitch Lakes north of Reedsport, and is separated from U.S. Highway 101 by several miles. At Reedsport, the line crosses the Umpqua River and proceeds south within the approximate corridor of U.S. 101.

The Coos Bay line enters the City of North Bend at the northwest corner of the North Bend peninsula by crossing the Coos Bay Railroad Bridge from Jordan Point. The line proceeds south, crossing east under U.S. 101 near the Simpson Heights neighborhood. The line then runs south through North Bend and the City of Coos Bay on the east side of U.S. 101, crossing Coalbank Slough at the south city limits of Coos Bay, continuing adjacent to marine and industrial waterfront property in the Bunker Hill area, crossing under State Highway 241, and then proceeding south along the west side of Isthmus Slough and on to the Coquille area.

CORP's Coos Bay line accesses rail spurs and sidings in North Bend at several locations; a spur serving industrial property on the North Bend peninsula (under the south end of the McCullough highway bridge), several sidings near the Ocean Terminals marine cargo facility, and two spurs at a marine industrial site owned by Weyerhaeuser Company.

In the City of Coos Bay, the line accesses one spur at a marine industrial facility known as Central Dock. Just south of the Central Dock site, the line runs for several blocks within the Front Street vehicle traffic corridor to the north end of the railroad's primary marshalling yard for the Coos Bay and Coos County area. This yard is adjacent to the upper Coos Bay waterfront and contains a number of rail sidings and spurs. After crossing Coalbank Slough, the Coos bay line accesses two spurs serving marine and industrial sites in the Bunker Hill area.

There are daily – Monday through Sunday – rail movements on the Coos Bay line. Six to either times per week CORP moves long trains (35 to 50 cars) inbound from Eugene yard to the Coos Bay yard and outbound from the Coos Bay yard to Eugene. In addition, there are daily switching activities that originate in the Coos Bay yard that spot loaded and/or unloaded cars at various spurs and sidings within the Coos Bay area, or that move cars to Coquille and industrial sites north of the Coos Bay railroad bridge. The majority of the switching activity is Monday through Friday, but there is some switching on weekends, primarily in support of the inbound or outbound Eugene yard train.

There are numerous rail grade crossings in the corridor from North Bend through Coos Bay and Bunker Hill that are blocked for short periods at various times of the day. The most impacted rail crossings or corridor sections are the entry/exit crossing at The Mill Casino-Hotel in North Bend and the Front Street corridor in Coos Bay. There is one pedestrian crossing in Coos Bay, at the entry to the Coos Bay Boardwalk and City Docks that is blocked for short periods each day by rail car movements on the Coos Bay line.

CORP owns the Coos Bay Branch Line from Danebo Junction, west of the Eugene UP rail yard to the north end of the Coos Bay Railroad Bridge near Cordes Junction. The Oregon International Port of Coos Bay (Port) owns the Coos Bay Railroad Bridge, which consists of a north approach trestle, 12 steel truss spans, including a swing span, and a south approach trestle. CORP operates and maintains the rail bridge. The portion of the Coos Bay line from the south end of the bridge to the end of the line at Coquille is owned by UP, but is leased and operated by CORP.

The Port acquired the rail bridge from UP in August 2000, in order to access state and federal funds for long-term rehabilitation of the bridge. Phase I of the rehabilitation is underway now and involves rebuilding the swing span and minor repair of the two approach spans. Phase I construction should be completed within two years. Phase II will involve the complete rehabilitation of the approach spans to provide a minimum 25-year additional service life for the structure. Port staff is working on acquiring the funding for

Phase II.

Air

North Bend Municipal Airport (OTH) is a commercial and general aviation facility located on Pony Point in the City of North Bend. The North Bend airport is the only commercial air passenger facility on the Oregon coast, with service provided by Horizon Air, a feeder subsidiary airline of Seattle-based Alaska Airlines.

Horizon operates four flights per day between North Bend and it's hub at Portland International Airport (PDX). Horizon currently uses the 37-passenger Bombardier Dash 8 200 aircraft on this route. As Horizon upgrades its fleet and adds more 70-passenger Dash 8 4002, they will use the larger aircraft as required during the higher demand late spring early fall season.

Air cargo service for the Coos Bay area and for the south coast region is available from several vendors, including UPS, FedEx, Airborne Express, Horizon Air and others. In some cases vendors operate their own aircraft, while other firms utilize contract carriers that operate throughout the northwest or west coast regions.

North Bend Municipal Airport is located approximately one and a quarter road miles west of U.S. Highway 101. Access is via Virginia Ave. and Maple St. in the City of North Bend. Virginia Ave. is a major arterial in North Bend. Ground transportation services available for commercial and general aviation passengers is currently limited to taxi and limousine services, and courtesy cans from local and regional lodging facilities.

The airport currently has three (3) paved runways, but a major rehabilitation project scheduled for 2003 will upgrade the primary north/south runway (1A-31) and decommission the shortest and least used runway.

Runway Designation	*Length*	*Width*	*Surface*	*Navigational Equipment*
4-22	5,321 ft.	150 ft.	Asphalt	ILS,MLS,VOR,VOR/DME, ADF, GPS
1A-31	4,586 ft.	150 ft.	Asphalt	VOR-Alpha, VOR/DME,Bravo, GPS
16-34	2,320 ft.	150 ft.	Asphalt	(scheduled for decommissioning)

Technical Information

Airport designation:	OTH – North Bend Municipal Airport; North Bend, Oregon
Sector Aeronautical Chart:	Klamath Falls
Airport Latitude:	4A-25-01.700N
Airport Longitude:	124-15-45.700W
Airport Elevation:	17 ft above mean sea level

General aviation operations at the North Bend airport are supported by a Fixed Base Operator (FBO), which provides fuel (AVGAS and Jet A), charter flights and flying instruction. An aviation mechanic also operates an aircraft maintenance facility at the airport. The North Bend airport maintains rental hangar facilities and aircraft tie-downs. Air ambulance service is available at the airport.

North Bend Municipal Airport also is home to a U.S. Coast Guard air operation – Group North Bend / Air Station North Bend. The station maintains a fleet of all-weather helicopters for search and rescue

operations and law enforcement activities, and patrols from the Oregon-California border to just north of Depoe Bay.

The North Bend airport recently completed a Federal Aviation Administration (FAA) mandated and funded Master Plan. The plan will serve as the development documentation for the airport during a 20-year planning period. The most significant improvements planned for the next 10 years are additional navigation system upgrades and the relocation and construction of a new passenger terminal.

In 1999, management and operations of the North Bend Municipal Airport transferred from the City of North Bend to the Oregon International Port of Coos Bay under and intergovernmental agreement. In November 2002, Coos County voters approved the formation of a new Coos County Airport District. The district is scheduled to take over operations at the North Bend airport on July 1, 2003.

The North Bend airport complex includes more than 100 acres of non-aviation related property designated as the North Bend Airport Business Park. The property is located south and west of the runways and primary aviation facilities, and is being developed for commercial and light industrial tenants and uses. Vehicle traffic accessing the business park uses Maples St. and Colorado Ave. as feeders to and from Virginia Ave. A multi-year development plan for the park projects an additional access to Virginia Ave. being established near the southwest corner of the property as demand warrants in future years.

Pipelines

There are no regional natural gas or petroleum pipelines serving the Coos Bay area. A Final Environmental Impact Statement (FEIS) has been prepared (Coos County Natural Gas Pipeline Final EIS, November, 2002) for a proposed right-of-way permit from the BLM for construction of a natural gas pipeline from Roseburg, Oregon to Coos Bay, Oregon of approximately 60 miles in length and anticipated follow-up construction of another 28 miles of smaller-sized lateral pipelines from Fairview, Oregon to Bandon, Coquille and Myrtle Point, Oregon. It is intended for perpetual and continuous operation to supply natural gas to consumers in Coos County. Granting of the right-of-way easement would also trigger construction of a distribution facility in Coos Bay by Northwest Natural Gas, the distribution company associated with the proposed gas pipeline project.

Additional (smaller) pipelines would likely be installed to the communities of North Bend, Coquille, Myrtle Point, Empire, Charleston and Bandon if these communities grant a franchise to NW Natural. These future projects would be planned based on market needs within the area they would serve, which would include determination of pipeline size. Funding for these projects, except in the case of Bandon, will be provided by NW Natural. Bandon would have the option to build their own distribution system, including a pipeline extending from the proposed action or its lateral pipelines, if they decide to have natural gas supplied to their community.

Although the final locations of the laterals are not known, it is anticipated that 28 miles of pipeline laterals would likely be constructed to Coquille, Myrtle Point and Bandon. Impacts associated with construction of the laterals are anticipated to be similar to, but of lower magnitude than, the main pipeline because the laterals would cross fewer streams and would not be adjacent to late-successional habitats.

Planned Roadway Improvements

The City of Coos Bay were contacted to determine if there were any capital improvement projects planned in the near term (i.e. next five years). Both City spend the majority of their funds on maintaining the existing street system rather than building new projects. The City of North Bend had no capital improvement projects planned. The City of Coos Bay also did not have any capital improvement projects planned, but did provide a maintenance (overlay) schedule for the next 10 years. This schedule can be found in the appendix of this report.

Existing Transportation Problems That Need To Be Addressed

This section lists motor vehicle issues identified by citizen's early on in the process that need to be addressed in the Transportation System Plan:

- Coos Bay – Anderson Ave needs re-evaluation between 7th and Hwy 101. Pulling onto Anderson from parkway along the sides by the Coos Bay library is frightening.
- No complete sidewalk from downtown NB to CB. One must wade through mud puddles and/or cross 101 on the lower route or on the Sherman/10th st. route cross the street twice to access pavement.
- WalMart access to Newmark overloaded with traffic. This problem will worsen at the completion of the WalMart addition and the development of the commercial area to the west.
- LaClair is increasingly used by traffic from the Coos Bay area for access to SWOCC and WalMart. Needs additional lanes and traffic signals at each end.
- Coos Bay Core Area- confusing system of one-way/two-way streets. The changes at the intersection of 4th and Anderson and the latest change to a 2-way on Anderson between Broadway and 2nd appear to have caused more problems than they solved. A first-time visitor to Coos Bay would likely find the traffic pattern in this area a complete mystery.
- Hwy 101 Corridor…..N.B. Bridge- this is a huge problem when it becomes critical. The bridge appears to be near capacity at times. At times southbound traffic on Broadway in Coos Bay is solid behind traffic lights starting at Park Ave.
- Lack of turn lanes on Ocean Blvd. and Cape Arago Hwy.
- Traffic congestion on Hwy 101 SB in Coos Bay.
- CB/Central Ave from Ocean Blvd to 10th street traffic backup at stop sign eastbound and production from 4 to 2 lanes.
- Constant excessive speeding on Lakeshore between Fenwick and Morrison, a 25 mph zone. Main drop off for school buses, but no sidewalks, very wide road. Traffic often exceeds 40 mph. This is a main route for residents traveling between Empire and N. Bend. Outer edge of city limits with minimal police presence.
- Suggest that cab drivers and police officers be interviewed regarding hazardous locations.
- Newmark's 2-lane sections are the most hazardous. At least build a three-lane section with a decent shoulder if a four-lane section not feasible.

Other Problems For Different Types Of Users

This section lists issues identified by citizen's related to modes of transportation other than motor vehicle, early on in the process that need to be addressed in the Transportation System Plan:

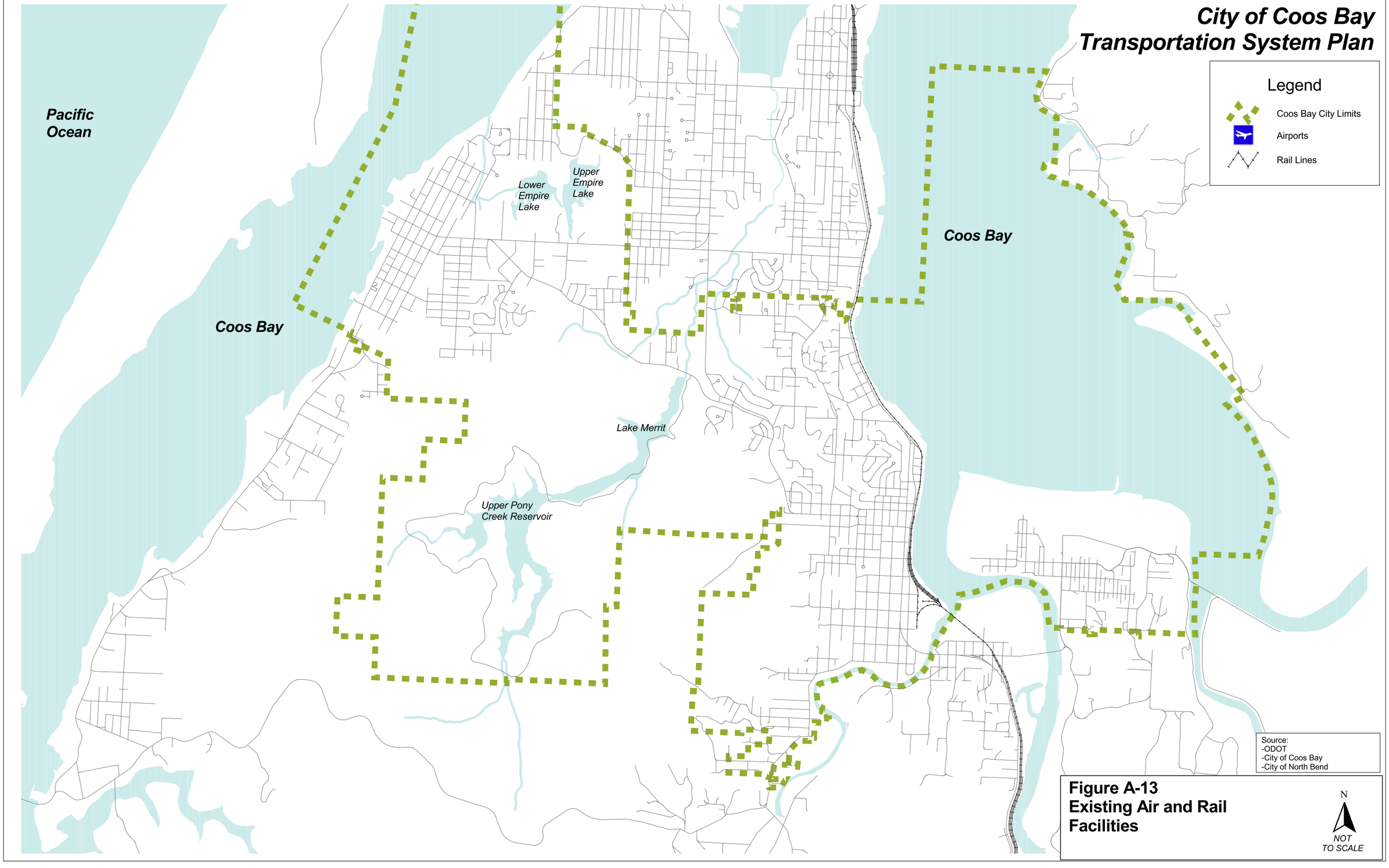
- 10th Street in Coos Bay south of Marshfield has beautiful new pavement; however it needs sidewalks and street lights due to pedestrians along the side of the road. Sidewalks exist but are sporadic.
- The CCAT (bus)route takes over an hour to get from downtown NB to downtown CB. I can walk it faster. Need a bus stop on the S/west corner which would enable some riders to avoid a half hour loop.
- Need a complete bike path between the town.
- How about a trolley service to Coquille? The tracks are still there.
- Highway 101- bike lanes would be ideal. Develop bike lanes where space permits. A bike route could be designated off Hwy 101 in places…example-use 4th street between Commercial and Kruse.
- Major routes – develop bike lanes and/or designated bike routes between:
  1. Hwy 101 at North Bend to SWOCC, WalMart shopping area, Empire and beaches via Virginia Ave.,/Broadway, Newmark, Empire Blvd.
  2. Hwy 101 at Coos Bay to Empire and the beaches via Central and Ocean Blvd. Connect across to Newmark at Woodland and LaClaire for traffic to SWOCC and WalMart shopping area.
- Bicycles have seldom been used for basic transportation in the Coos Bay area, in part due to the hilly terrain and occasional severe weather conditions. Also, there is a relatively small segment of the

population working in situations where the use of bicycles can replace the automobile. Some of the exceptions to this would seem to be SWOCC, Bay Area Hospital, and the local schools. There are also at times numbers of cyclists traveling through the area on Hwy 101 on their way to the state parks beyond Charleston.

- I have found that the local streets where traffic is relatively slow are safe for bicycles if the cyclist obeys the traffic rules and the drivers of autos respect the right of the bike to be there and if everybody stays alert. However, the higher speed arterial streets (Ocean Blvd., Newmark, Broadway, Virginia, Hwy 101, etc…) are more dangerous and bike paths, or even wider shoulders would be helpful.
- Sidewalks are needed in some obvious locations: Parts of Newmark between Broadway and Empire and parts of Woodland between Ocean Blvd. and Newmark.
- The sidewalk at the WalMart entrance drive as it is being revised will have a hazard for pedestrians crossing the exit lane turning east. No crosswalk or auto traffic control light is planned.
- Pedestrian crossings are currently a challenge.
- Near corner of Golden and 5th St. in Coos Bay – we need a designated pedestrian crosswalk for pedestrian crossing from the post office going south across the street to continue walking on sidewalks on Golden or go to 4th or 5th.
- Parking is so crowded at the post office at times many cars must park on the south curb of Golden and then walk to and from access to the post office.
- Ocean Blvd is also an area of concern with high speeds. Very heavy traffic area.
- Ocean Blvd to Newmark via side road by Swoy building very hard to get onto Newmark to get to WalMart.
- Main bus stop area, no crosswalks, no sidewalks. Numerous vehicle accidents, slides, skids due to excessive speeds entering corners at west end of Lakeshore.

DKS *Associates*

City of Coos Bay Transportation System Plan



Source:
-ODOT
-City of Coos Bay
-City of North Bend

Figure A-13
Existing Air and Rail Facilities

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NOT TO SCALE