

COMPREHENSIVE PLAN

APPENDIX 6

TRANSPORTATION

December 31, 2002

APPENDIX 6

TRANSPORTATION

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I. TRANSPORTATION FACILITIES INVENTORY AND LOS ANALYSIS

A. Air Transportation

1. Inventory of Existing Facilities and Services—Air Transportation

Aviation has been an important element of travel to and among the islands since the 1940's. There are many landing areas, ranging from seaplanes to private grass airstrips in agricultural fields to comparatively major public airfields with paved, 4,000-foot runways near population centers. In addition to passenger travel these and airport-related services provide freight and mail transport, medical evacuation to mainland hospitals and other essential services.

Only San Juan, Orcas and Lopez support public-use airports through island port districts. These are eligible for federal funds for planning and development of airports and terminal facilities.

Friday Harbor Airport. The Port of Friday Harbor operates the Friday Harbor Airport. It is located immediately adjacent to the Town of Friday Harbor, is within the Town of Friday Harbor's Interim Urban Growth Area, and is being considered for annexation in the near future. According to the *1993 Washington State Continuous Airport System Plan, Volume 1*, it is a "primary service" airport (*i.e.*, a public facility with scheduled service and 10,000+ passengers per year). There are 67 permanent aircraft tiedowns and 39 transient tiedowns. The passenger terminal has the capacity to handle 240,000 passengers annually and the runway has the capacity to handle approximately 200,000 operations (arrivals and departures) annually.

Orcas Island Airport (Eastsound). The Port of Orcas operates the Eastsound Airport. The airport is approximately 60 acres and is located within the Eastsound Planning Area. According to the *Orcas Island Airport Master Plan (1994)* an estimated 48,000 operations occurred at the airport in 1990 with annual operations expected to increase to 73,500 by the year 2010. The existing capacity of 122,100 operations annually should be sufficient to meet the increased demand. The airport has a 500-square-foot terminal building. There are 43 designated aircraft tied-down positions.

Lopez Island Airport. The Port of Lopez operates the Lopez Airport which occupies 50 acres and has a 2,900 foot runway. According to the *1993 Washington State Continuous Airport System Plan, Volume 1*, it is a "general aviation" airport (*i.e.*, public/private facility with general aviation usage) and had approximately 15,866 operations in 1990. The Port of Lopez does not currently have any full-time employees and daily flight operations are not monitored. The airport office and waiting room occupies 500 square feet. There are 18 aircraft tiedown spaces available but there are no hangar facilities. Private hangars with space for 24 aircraft are located adjacent to the Port of Lopez property.

Seaplane Facilities and Services. Currently, Kenmore Aviation provides the only regularly scheduled seaplane service to San Juan County. They have a Shoreline Substantial Development Permit to provide service to the following locations at the specified levels: Islander Lopez (49 operations per week), Islands Marine Center (49 operations per week), West Sound Marina (49 operations per week), Rosario (98 operations per week) and Roche Harbor (98 operations per week). Based on these approved service levels, the capacity for scheduled service is limited to an estimated 17,836 annually within the unincorporated County. However, Kenmore also serves the Port of Friday Harbor, which has a 150 foot seaplane float. According to the *1993 Washington State Continuous Airport System Plan, Volume 1*, the Port of Friday Harbor is currently a "general aviation" seaplane base; however, it is expected to become a "primary service" facility (*i.e.*, 10,000+ enplanements annually) by 1995.

2. Long-Range Planning Needs—Air Transportation

Identified below are some of the long-range facility and service improvements that have been identified by the service providers.

Table 1. Air Transportation Facilities Demand and Capacity.

Facility (Planning Period)	Existing Demand	Existing Capacity	Projected Demand	Projected Capacity
Friday Harbor Airport, (1988–2012) ¹	67,047	230,000	121,270	230,000
Eastsound Airport, (1990–2010) ²	48,278	122,100	73,490	122,100
Lopez Airport, (1990–2005) ³	15,865		18,370	
Seaplane Service, (1993–) ⁴		17,836		17,836

Notes:

1. Existing demand and estimated growth rate of 2.5% per telephone conversation with Steve Simpson, Port of Friday Harbor.
2. *Orcas Island Airport Master Plan*, (January, 1994). Port of Orcas.
3. Existing and projected demand per *1993 Washington State Continuous Airport System Plan: Inventory and Forecasts*. Washington State Department of Transportation Aeronautics Division.
4. Existing capacity per Conditional Use Permit.

Friday Harbor Airport. The Port of Friday Harbor airport administrator has identified the following long-range planning needs for the Friday Harbor Airport. Roads and utilities are to be placed on a portion of the airport's lease land in 1995 at an estimated cost of \$300,000. The airport runway is to be resurfaced in 1996 at an estimated cost of \$85,000. The underground storage tanks at the aircraft fueling facility are to be upgraded to EPA standards this year at an estimated cost of \$20,000. Storage tanks for turbine fuel are to be added to the fueling facility in 1995 and are estimated to cost an additional \$20,000.

The airport's permanent tiedown area is to be resurfaced in 1996 at an estimated cost of \$60,000 and the transient tiedown area is to be landscaped in 1995 at an estimated cost of \$30,000. The airport's passenger terminal is to be expanded to include a security holding and screening room. This work is to be completed in 1996 and is estimated to cost \$80,000. The Port's *Master Plan* (1990) identified an existing unmet demand for hangars with 51 people on a waiting list.

Orcas Island Airport (Eastsound). The *Orcas Island Airport Master Plan* (1994) notes that the existing length of Runway 16-34 (2,900 feet) and the runway-taxiway system are expected to be adequate through 2010. However, the Master Plan does include a series of recommendations regarding improvements to the airport, including property acquisition, a new airport terminal, an additional connecting taxiway at the end of Runway 34, security fencing, a new hangar area, lowering or removing trees located in the approach for Runway 34, and pavement maintenance. The total cost of the improvement program through 2013 is \$3,514,050 with the \$3,095,595 in expected contributions from the FAA.

Lopez Island Airport. According to the *1993 Washington State Continuous Airport System Plan, Volume 2: Recommended Facility Plan*, recommended improvements to the Lopez Airport include land acquisition for a runway extension, improved lighting and navigational aids, additional paving, hangar units and perimeter fencing. The total cost estimate for the identified improvement projects is \$285,600 with local funds contributing \$86,900.

3. Demand/Capacity Analysis—Air Transportation

According to the *1989 San Juan County Transportation Policy Plan*, the port operators indicated that capacity at these airports could accommodate four or five times more activity than they were then experiencing; the State Airport Systems Plan indicated that these have a combined capacity of over 100,000 annual operations. The FAA, however, has published forecasts in its National Airport Systems Plan in which it predicts that airport activity in San Juan County is likely to double by 1995. Even if existing capacity is adequate to meet long-range demands for airport facilities, increased air traffic and airport-related developments can generate conflicts with other land uses and transportation systems. Airport location, levels and types of activity and operational practices all affect compatibility with other land uses.

B. Marine Transportation

Marine transportation services and facilities are the primary means for movement of people and goods among the islands and between the islands and the mainland. Washington State Ferries (WSF) is the chief service provider and an essential part of the transportation system within San Juan County. Ferry terminals on four of the islands provide hubs, which along with airports and public ports, landings and marinas have a substantial effect on the quality of transportation and also on the type, character and functioning of surrounding land uses. In addition to public ferry service, private commercial vessels and barges provide transportation opportunities.

1. Washington State Ferry System

The WSF currently serves San Juan, Orcas, Shaw, and Lopez Islands, providing transportation to and from Anacortes, WA and Sidney, B.C. Existing island terminals, except at Shaw, include ferry holding lanes, commuter parking lots, and waiting areas. Schedules and routes vary from year-to-year as well as season-to-season, but in general a greater number of larger vessels are employed in summer months than in winter. In addition, peak- and off-season demands increase with island population growth and continuing resort and tourist-destination development. Long-term planning for services and facilities must anticipate and respond to these changes so that efficiency and convenience are maintained. Recently a new program was implemented called the Puget Sound Investment Program. This is a long-term program which will look at service and capital investments on all routes on the WSF system. Both land-based and water-based transportation linkages will be addressed.

a. Inventory of Existing Facilities and Services—Ferry System

Ferries. The San Juan Islands are currently served by one 160-vehicle ferry, one 100 vehicle ferry, and one 40-vehicle ferry, all of which operate 16 hours per day and seven days per week. During summer months a 160-vehicle ferry is added to this fleet and operates 24 hours per day. A 100-vehicle ferry is also added and the regular 75-vehicle ferry replaces the 40-vehicle inter-island ferry. Approximately 208,000 passengers used the WSF system to travel to or from the San Juan Islands in August 1992. The trip from Anacortes takes from 45 minutes to 2 hours, depending on the destination. Ferries to the islands can face overload situations from February through November, on any day of the week. Overloads are most likely between June and September, during nice weather, on and close to weekends, and on holidays.

Table 2. Inventory of Ferries Serving San Juan County, 1994.

Ferry Name	Year Built/	Service Area	Ferry Size
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	Rebuilt		
Elwha	1967/1991	San Juan Islands/ Sydney, B.C.	160 Vehicles per 2,500 Passengers
Evergreen State	1954/1988	San Juan Islands/ Anacortes	100 Vehicles per 1,000 Passengers
Nisqually	1927/1987	San Juan Islands/ Anacortes	75 Vehicles per 800 Passengers
Hiyu (replaced during Summer)	1967	San Juan Islands	40 Vehicles per 200 Passengers
Kaleetan (Summer only)	1967	San Juan Islands/ Anacortes	160 Vehicles per 2,500 Passengers
Chelan (Summer only)	1981	San Juan Islands/ Anacortes	100 Vehicles per 1,200 Passengers

Ferry Parking.

San Juan Island. WSF operates a paved park and ride lot for ferry patrons located south of the intersection of Nichols Avenue and "B" Street just east of the upper auxiliary holding area. This lot has a capacity of 57 spaces and a maximum time limit of three days. The lot is operating well below its capacity and should be able to accommodate increased ferry patron demand for several years. Some walk-on ferry patrons park in front of the Town of Friday Harbor's Sunken Park at the intersection of "B" Street and Nichols Avenue and some park on Nichols Avenue adjacent to the north boundary of the upper boundary of the upper auxiliary holding area.

The Port of Friday Harbor provides 27 permit only parking spaces with a 24-hour time restriction in the marina parking lot southwest of Front Street. The balance of the parking spaces in this area are for tenants by permit only. The majority of the on-street parking areas within close proximity to the ferry terminal are restricted to four hours or less. There are areas, however, where on-street parking is permitted for at least twelve hours or more in relatively close proximity to the ferry terminal. The total present parking supply for ferry patrons on San Juan Island is approximately 71 spaces.

Orcas Island. WSF provides 38 parking spaces in a paved lot adjacent to the upper vehicle holding area. This lot is heavily used and during summer months is at full capacity. Apparently walk-on ferry patrons are leasing parking on private property east of the terminal along the south side of the county road. A small area exists on the north side of the county road with unrestricted parking just east of the intersection of the holding area with the county road. Considerable vehicle parking occurs along the right shoulder of the county road in the general area of the intersection of the holding area access road with the northbound county road. There are times during the summer months when visitors leave their "island vehicles" on both sides of the county road. The residents along the county road have had cars towed away because emergency vehicles could not have accessed their homes.

Some limited paid parking is available associated with the Shoals Restaurant directly across the holding area access road from the toll booths. Fifteen spaces are leased for \$40 per month and there is a considerable waiting list. There is a problem at the Orcas ferry landing of long-term parkers competing with business patrons for available parking. Availability of long-term parking is in extremely short supply, especially during summer months, and total present parking supply is 77 spaces. No park and ride lots are located on Orcas Island for long-term parkers. However, 23 parking spaces are proposed for development in 1994.

Lopez Island. Parking is provided for ferry patrons in several areas in close proximity to the Lopez terminal. A WSF owned lot containing 58 spaces is located 200 feet south of the terminal building and east of the vehicle holding area. This parking lot is usually filled to capacity and residents and visitors to the island have a difficult time finding available parking, especially during the peak tourist season. A license plate survey taken in November 1990 indicated that at least 55 percent of the vehicles parked in this lot were registered to owners with non-county addresses.

A small parking lot owned by San Juan County is located across from the terminal building and contains 20 spaces signed for 24-hour maximum usage. Controlling over-usage at this lot is very difficult. A portion of this lot is not public property but is owned by the agent. Privately-operated paid parking is available along an unpaved road located across from the entrance of the WSF lot. There are ten spaces available and the monthly fee is \$25. The present parking supply in the vicinity of the Lopez Island ferry terminal is approximately 103 spaces.

In the summer of 1992, WSF spent more time at the Lopez dock loading inter-island traffic than what the schedule allowed. This resulted in the vessel being consistently late. The problem appears to be caused by holding lane #4 being used for parking instead of for the staging of vehicle loading as originally intended. Because of the remoteness of the terminal location, no other alternative to parking or being dropped off at the terminal is available except for the use of a taxi available on the island. There are no park and ride lots on Lopez.

Shaw Island. Parking in the vicinity of the Shaw Island ferry terminal is located in two areas. The first consists of an unpaved area across the road from the store operated by the Franciscan Sisters of the Eucharist. This parking area, located on private property, has a capacity of 6 vehicles. The second parking area is located on property owned by the Sisters just east of the store. The monthly rental fee is \$20 for each of the 10 spaces. The existing parking supply of 19 spaces is sufficient and parking shortfalls occur only occasionally. However, if the parking on private property were to be eliminated a parking shortfall would result. There are no park and ride lots located on Shaw Island. A project is currently under construction to realign a portion of the county road by the Shaw store and create a holding area. This will enhance safety by getting the vehicles waiting in line for the ferry off the county road. The project includes an 8 space parking area associated with the vehicle holding area. It is anticipated this project will be completed before 1994.

b. Long-Range Planning Needs—Ferry System

Ferries.

WSF has indicated that it will be adding three new jumbo ferries to its fleet for use on its southern routes. This will free up existing vessels for use on San Juan County routes.

Ferry Terminals.

WSF has indicated that the ferry landing terminals on each of the four ferry served islands are in need of general maintenance and renovation during the next six years (1993–1999). General maintenance and renovations to the Friday Harbor ferry terminal are estimated to cost \$1,828,000 over the next six years. WSF proposes to spend \$98,000 during the 1993–1995 biennium, \$580,000 during the 1995–1997 biennium, and \$1,150,000 during the 1997–1999 biennium.

General maintenance and renovations to the Orcas Island ferry terminal are estimated to cost \$1,034,000 over the next four years. WSF proposes to spend \$140,000 during the 1993–1995 biennium and \$894,000 during the 1995–1997 biennium.

General maintenance and renovations to the Lopez Island ferry terminal are estimated to cost \$846,000 over the next four years. WSF proposes to spend \$103,000 during the 1993–1995 biennium and \$743,000 during the 1995–1997 biennium. General maintenance and renovations to the Shaw Island ferry terminal are estimated to cost \$164,000 over the next four years. WSF proposes to spend \$45,000 during the 1993–1995 biennium and \$119,000 during the 1995–1997 biennium.

Ferry Parking.

WSF has developed future parking demand forecasts in the *Parking Management Plan for the San Juan Islands* (December 1992). In order to estimate future demand for parking at the Lopez terminal, WSF assumed that parking demand is a function of total household growth since visitors to various islands tend not to utilize parking near the terminals. The forecasts used were based upon forecasted increases in total housing units, both occupied and vacant, taken from the *1992 San Juan County Comprehensive Housing Needs Assessment*, using an assumed 2.5 percent annual growth rate for the islands.

San Juan Island. WSF is proposing a project designed to separate pedestrians from vehicles when disembarking the ferry. Currently, departing pedestrians cause time delays during unloading because of conflicts at the intersection of Front and Spring Streets. Some town merchants are negatively impacted by employees and ferry users who park on the street for long periods of time in areas where parking is unrestricted, such as Nichols between "A" and Argyle. If this problem becomes more severe, the Town of Friday Harbor could reduce these long-term parking areas to short term, as was done in the summer of 1990 when Second Street was reconstructed.

The WSF forecast is that a parking space shortfall will not develop on San Juan Island before the year 2001. A parking shortfall could result if the Town of Friday Harbor further restricts long-term on-street parking in close proximity to the ferry terminal. The magnitude of this shortfall would be a function of the Town's aggressiveness in restricting long-term parking in the central business district.

Orcas Island. WSF forecasts a parking space shortfall of approximately 52 spaces on Orcas Island by June 2001. However, 23 new spaces were added in 1994.

Lopez Island. WSF forecasts a parking space shortfall of approximately 93 spaces on Lopez Island by June 2001. If the 24 hour parking area across from the terminal is eliminated and lane #4 is converted to vehicle holding there will be total parking shortfall of approximately 128 spaces by June 2001.

Shaw Island. WSF forecasts a parking space surplus of approximately three spaces on Shaw Island by June 2001 due to the re-construction of the holding area in 1994.

c. Level of Service Analysis—Ferry System

Table 3, together with Figures 1 and 2, describes the methodologies used to estimate the projected number of overloads using regression analysis to establish the relationship between demand/capacity and overloads. Table 3, *below*, shows the available base data. Because the number of overloads has only been tracked for a few years there are only a limited number of observations. It is interesting to note that these numbers suggest that off-peak (March) ridership is able to utilize a larger percentage of available capacity with fewer overloads. Perhaps, this is due to smaller weekend "spikes" in the demand as well as no night runs in the off-peak.

Table 3. Relationship between Demand/Capacity and Overloads.

Date	Demand	Capacity	Demand/Capacity (%)	Overloads
Aug. 92	39,346	66,340	59.31	110
Aug. 93	40,702	66,340	61.35	146
Aug. 94	41,654	66,340	62.79	188
Mar. 92	24,258	40,300	60.19	73
Mar. 93	24,628	40,300	61.11	80
Mar. 94*	27,083	40,300	67.20	102

Source: WSF Monthly Rider Segment Reports (* except March 1994, which is based on Anacortes Terminal Traffic Statistics). Does not include the international run.

Figures 1 and 2 show the regression analysis if the months are segregated. While this limits each to only three observations, the statistical relationship between the variables appears to be relatively strong.

Figure 1. Regression Analysis—August.

Regression Output:

Constant	-1203.04
Std Err of Y Est	7.98
R Squared	0.98
No. of Observations	3
Degrees of Freedom	1
X Coefficient(s)	2209.36
Std Err of Coef.	322.85

Figure 2. Regression Analysis—March.

Regression Output:

Constant	-163.00143
Std Err of Y Est	2.40499404
R Squared	0.98737119
No. of Observations	3
Degrees of Freedom	1
X Coefficient(s)	394.679
Std Err of Coef.	44.636

Tables 4 and 5, *below*, project the level of service for the ferry system based on the percentage of boats departing Anacortes overloaded (not including the International routes) during the peak and off-peak, respectively. WSF considers a boat overloaded when it reaches its base capacity even though additional cars may actually be loaded.

Table 4. Peak (August) Overload Estimates and Projections.

Date	Demand	Capacity	Demand/Capacity (%)	Departures	Projected Overloads	Projected Overloads (%)	Projected LOS
1992	39,346	66,340	59.31	496	110	22	B

Table 4. Peak (August) Overload Estimates and Projections.

Date	Demand	Capacity	Demand/ Capacity (%)	Departures	Projected Overloads	Projected Overloads (%)	Projected LOS
1993	40,702	66,340	61.35	496	146	29	C
1994	41,654	66,340	62.79	496	188	38	D
1995	40,291	66,340	60.73	496	114	23	B
1996	42,881	66,340	64.64	496	123	25	C
1997	44,746	70,060	63.87	496	121	24	B
1998	44,669	70,060	63.76	496	121	24	B
1999	45,277	70,060	64.63	496	123	25	C
2000	45,154	70,060	64.45	496	122	25	C
2001	45,036	70,060	64.28	496	122	25	C
2002	44,922	70,060	64.12	496	121	24	B
2003	46,078	70,060	65.77	496	125	25	C
2004	47,267	70,060	67.47	496	129	26	C
2005	48,483	70,060	69.20	496	133	27	C
2006	49,733	70,060	70.99	496	137	28	C
2007	51,015	70,060	72.82	496	141	28	C
2008	52,327	70,060	74.69	496	146	29	C
2009	53,679	70,060	76.62	496	150	30	C
2010	55,060	70,060	78.59	496	155	31	C
2011	56,481	70,060	80.62	496	159	32	C
2012	57,937	70,060	82.70	496	164	33	C
2013	59,430	70,060	84.83	496	169	34	C

Sources: 1992–93: WSF Monthly Rider Segment Reports; March 1994: Anacortes Terminal Traffic Statistics; and 1995–2013: WSF, Parsons-Brinckerhoff "Capacity Constrained Ridership". Adjusted for one-way and reduced 13 percent for inter-island ferry.

Table 5. Off-Peak (March) Overload Estimates and Projections.

Year	Demand	Capacity	Demand/ Capacity (%)	Departures	Projected Overloads	Projected Overloads (%)	Projected LOS
1992	24,258	40,300	60.19	341	73	21	C
1993	24,628	40,300	61.11	341	79	23	C
1994	27,083	40,300	67.20	341	102	30	D
1995	27,337	40,300	67.83	341	130	38	D
1996	28,646	40,300	71.08	341	137	40	E
1997	29,167	50,840	57.37	341	106	31	D
1998	30,907	50,840	60.79	341	114	33	D
1999	31,305	50,840	61.58	341	116	34	D
2000	32,744	50,840	64.41	341	122	36	D
2001	32,995	50,840	64.90	341	123	36	D
2002	33,491	50,840	65.88	341	125	37	D
2003	33,366	50,840	65.63	341	125	37	D
2004	34,227	50,840	67.32	341	129	38	D
2005	35,108	50,840	69.06	341	133	39	D
2006	36,013	50,840	70.84	341	137	40	E
2007	36,941	50,840	72.66	341	141	41	E
2008	37,892	50,840	74.53	341	145	43	E
2009	38,870	50,840	76.46	341	150	44	E
2010	39,871	50,840	78.42	341	154	45	E
2011	40,899	50,840	80.45	341	159	47	E
2012	41,954	50,840	82.52	341	164	48	E
2013	43,035	50,840	84.65	341	168	49	E

Sources: 1992–93: WSF Monthly Rider Segment Reports; March 1994: Anacortes Terminal Traffic Statistics; and 1995–2013: WSF, Parsons-Brinckerhoff "Capacity Constrained Ridership". Adjusted for one-way and reduced 13 percent for inter-island ferry.

c. Level of Service Analysis—Ferry Parking

Table 6, *below*, estimates the level of service for ferry parking facilities based on the estimated number of parking spaces available at the ferry terminals per 100 County residents. The estimated number of available parking spaces was provided by WSF.

Table 6. LOS—Ferry Parking Facilities.

Ferry Terminal Location	1993			2012		
	Existing Demand	Existing Capacity	Existing LOS ¹	Projected Demand	Projected Capacity	Projected LOS ¹
San Juan Island	5,836	71	1.22 = E	9,853	71	0.72 = F
Orcas Island	3,802	100	3.80 = D	6,230	100	1.61 = E
Lopez Island	1,765	103	5.84 = B	2,893	103	3.56 = C
Shaw Island	194	19	9.79 = A	318	19	5.97 = B

Note:

1. Level of Service is measured in spaces per 100 residents.

2. County Docks

Because of the marine orientation of the San Juan Islands docks, both public and private are a significant part of the transportation system. Public docks are, in a sense, a continuous part of the County road system, and therefore the responsibility of the County. San Juan County Public Works Department currently maintains seven public docks. A structural survey of these docks was conducted by Public Works in 1991. Private docks are owned, maintained and used by the owners and their guests.

a. **Inventory of Existing Facilities and Services—County Docks**

Prevost Harbor County Dock. This pier is located on the northern portion of Stuart Island and is not considered usable during winter months. The pier is approximately 233 feet long and 12 feet wide and was built around 1950. Three private floats exist, but there is no space for visitor or transient boats. Stuart Island residents are able to drive vehicles on to the pier to load and unload boats. (Estimated useable lineal footage is 60 feet)

Waldron Island County Dock. This pier is located on the southwest coast of Waldron Island in Cowlitz Bay. The pier was built in the early 1950's and is 210 feet long and twelve feet wide with a 40-foot-wide "Hammerhead" on one end. A 32-foot by 3-foot welded steel ramp leads down to a 32-foot by 10-foot timber float. (Estimated useable lineal footage is 64 feet)

Obstruction Pass County Dock. This pier is located at the end of Baylis road on the southeastern tip of Orcas Island. The pier was built in 1982 and is 107 feet long and 12 feet wide. (Estimated useable lineal footage is 60 feet)

Westsound County Dock. This pier is located just south of Deer Harbor Road on the southwestern portion of Orcas Island. The pier was built in 1989 and is 140 feet long and 7 feet wide with two floats (40 feet by 8 feet each). (Estimated useable lineal footage is 160 feet)

Eastsound County Dock. This pier is located just east of Haven Road in Eastsound on the north-central portion of Orcas Island. The pier is 98 feet long and 14 feet wide with a float (40 feet by 12 feet). (Estimated useable lineal footage is 80 feet)

Odlin Park County Dock. This pier is located at Odlin County Park on the northern portion of Lopez Island. The pier was built in the early 1950's and is 85 feet long and 11 feet, six inches wide. The approach apron is 25 feet long and 16 feet wide. A 30-foot by 3-foot timber ramp supported from the approach apron leads down to a timber float. This float consists of a 24-foot by 6-foot section hinged to a 14-foot, 9-inch by 6-foot section, but this is removed during winter months, the ramp is also removed. (Estimated useable lineal footage is 24 feet)

Hunter Bay County Dock. This pier is located at the end of Seattle Avenue between Hunter Bay and Mud Bay on the southeast portion of Lopez Island. The pier was built around 1960 and is 80 feet long and ten feet wide. An additional 80-foot float is attached to the pier and was rebuilt following the winter storms of 1991. (Estimated useable lineal footage is 140 feet)

b. **Long-Range Planning Needs—County Docks**

Prevost Harbor County Dock. According to the 1991 survey, the pier seems to be in good structural condition.

Waldron Island County Dock. According to the 1991 survey, the structural integrity of this pier is more than doubtful and serious consideration must be given to replacing the entire structure, including the pilings.

Obstruction Pass County Dock. According to the 1991 survey, overall the pier is in excellent condition and should provide many years of service for both walk-on and drive-on traffic. Only minor maintenance repairs were recommended.

Westsound County Dock. According to the 1991 survey, overall the pier is in excellent condition and should provide many years of service for both walk-on and drive-on traffic. Only minor maintenance repairs were recommended.

Eastsound County Dock. According to Public Works, the pier and float are in excellent condition; however, additional float space will be needed in the near future.

Odlin Park County Dock. A structural survey performed in 1989 determined the structure to be unsafe to drive-on traffic. The 1991 survey confirmed this and added that the approach apron is structurally unsound for anything but walk-on traffic. The ramp and the floats are owned by the San Juan County Parks Board and funding for replacement may be available. Also noted in the structural engineering report is the fact that the hillside adjacent to the pier and the access road leading to it appear very threatening. The steep slopes are showing signs of extreme erosion and the danger of loose gravel, falling rocks, and boulders is very evident.

Hunter Bay County Dock. According to the 1991 survey, this pier is unsafe for both drive-on and walk-on traffic and the placement of a sign reading "Unsafe—Off Limits" was recommended for the outer 60 feet of the pier. This does not affect the usability of the floats; however, if drive-on capability is required in the future then the pier must be completely reconstructed. Consideration should also be given to replacing the existing 80-foot float with two 40-foot floats connected with a hinge joint because of the heavy winds and waves associated with the pier location.

Potential Future Docks. The County Engineer has identified three general areas which may be suitable for development of county dock facilities during the planning period: Lopez Sound, Deer Harbor, and Roche Harbor. Specific locations for these dock facilities have not been identified at this time.

c. Level of Service Analysis—County Docks

Level of service for County docks is based on the lineal footage of useable dock space per residential dwelling unit within the designated service area. For Type-3 docks, the service area is the entire county and is estimated in hundreds of dwelling units. Table 7 identifies the estimated existing and projected number of residential dwelling units within each service area. These estimates are then used in Table 8 to calculate the existing and projected LOS based on the LOS policies for County docks.

Table 7. Service Areas for County Docks (2.5 Percent Annual Growth Rate).

Estimated Demand in Dwelling Units

Table 7. Service Areas for County Docks (2.5 Percent Annual Growth Rate).

Service Area	1993	1995	2000	2005	2010	2012
Type 1 Docks¹						
(1) Center, Decatur, Frost, & Trump Is.	222	233	264	299	338	355
(2) Blakely & Obstruction Is.	138	145	164	186	210	226
(3) Waldron & Wasp Is.	160	168	190	215	243	256
(4) Stuart, Henry Pearl, Johns, Cactus, O'Neal & Spieden Is.	251	264	298	338	382	401
Type 2 Docks²						
(5) Stuart Is.	105	110	125	141	160	168
(6) Waldron Is.	112	118	133	151	170	179
(7) Decatur Is.	139	146	165	187	212	222
Type 3 Docks³ (Estimate in thousands of dwelling units)						
Countywide	77	81	92	104	118	124

Notes:

1. Type-1 Docks = County docks located on ferry-served islands which provide primary access for non-ferry-served islands.
2. Type-2 Docks = County docks located on non-ferry-served islands with County roads.
3. Type-3 Docks = County docks that provide recreational uses or access between ferry-served islands.

Table 8. LOS for County Docks.

Service Area	1992			2012		
	Existing Demand ¹	Existing Capacity (Lineal Ft.)	Existing LOS	Projected Demand ²	Projected Capacity	Projected LOS ³
Type 1 Docks⁴						
(1) Center, Decatur, Frost, & Trump Is.	197	Hunter Bay = 140 ft.	0.7 ft. = C	355	Hunter Bay = 140 ft. Lopez Sound = TBD ³	0.4 ft. = D
(2) Blakely & Obstruction Is.	129	Obstruct. Pass = 60 ft.	0.5 ft. = D	226	Obstruct. Pass = 60 ft.	0.3 ft. = E
(3) Waldron & Wasp Is.	153	[no Co. Dock] = 0 ft.	0.0 ft. = F	256	Deer Hbr = TBD	0.0 ft. = F

Table 8. LOS for County Docks.

Service Area	1992			2012		
	Existing Demand ¹	Existing Capacity (Lineal Ft.)	Existing LOS	Projected Demand ²	Projected Capacity	Projected LOS ³
(4) Stuart, Henry Pearl, Johns, Cactus, O'Neal & Spieden Is.	223	[no Co. Dock] = 0 ft.	0.0 ft. = F	401	Roche Hbr = TBD	0.0 ft. = F
Type 2 Docks⁵						
(5) Stuart Is.	90	Prevost Hbr = 60 ft.	0.7 ft. = C	168	Prevost Hbr = 60 ft.	0.6 ft. = C
(6) Waldron Is.	108	Cowlitz Bay = 64 ft.	0.6 ft. = C	179	Cowlitz Bay = 64 ft.	0.4 ft. = D
(7) Decatur Is.	121	[no Co. Dock] = 0 ft.	0.0 ft. = F	222	[no Co. Dock] = 0 ft.	0.0 ft. = F
Type 3 Docks⁶						
(8) San Juan Is.	77	[no Co. Dock] = 0 ft.	0.0 ft. = F	124	Ferry Landing = TBD	0.0 ft. = F
(9) Orcas Is.	77	Eastsound = 80 ft. Westsound = 160 ft.	3.1 ft. = A	124	Eastsound = 80 ft. Westsound = 160 ft. Ferry Landing = TBD	1.9 ft. = B
(10) Lopez Is.	77	Odlin Park = 24 ft.	0.3 ft. = E	124	Ferry Landing = TBD	0.0 ft. = F
(11) Shaw Is.	77	[no Co. Dock] = 0 ft.	0.0 ft. = F	124	Ferry Landing = TBD	0.0 ft. = F

Notes:

- Existing Demand based on existing dwelling units within the service area. Existing Dwelling Units estimated based on a combination of 1990 Census data, Building Department data, and Assessor's Use Code parcel data (Code Numbers: 1100, 1120, 1190, 1200, 1220, 1300, 1700, 1900, and 1920).
- Projected Demand based on projected dwelling units within the service area. Projected Dwelling Units estimated based on a 2.5% annual growth rate. Estimated in hundreds of dwelling units for Type 3 County docks.
- TBD = To Be Determined. Because lineal footage is unavailable for these docks, the "Projected LOS" does not reflect identified capacity improvements for these possible future County docks.
- Type-1 Docks = County docks located on ferry-served islands which provide primary access for non-ferry-served islands.
- Type-2 Docks = County docks located on non-ferry-served islands with County roads.
- Type-3 Docks = County docks that provide recreational uses or access between ferry-served islands.

C. Land Transportation**1. Roads**

a. Inventory of Existing Facilities and Services—County Roads

The County Road classification maps contained in this plan (figures 1–4 in the Transportation Element) are revised from those adopted in 1996. San Juan County roads are classified as Major Collectors, Minor Collectors, and Local Access Roads.

b. Long-Range Planning Needs—County Roads

Evaluation of average annual County-wide accident rates indicates that these are lower than averages for other counties of similar size (in area and population) but that certain types of accidents occur here more often than they do statewide. Local trips involve fewer miles traveled and at lower speeds than in other counties, accounting for the lower accident incidence. Compared to the rest of the state, however, more local accidents involve vehicles overturning or hitting fixed objects. This may be partly due to narrower road surfaces, poor or no road shoulders and the presence of objects like trees and fences in road rights-of-way. But while these may contribute to local vehicular accidents they are also elements of scenic, rural character enjoyed by travelers on many island roads.

Since 1972, traffic volumes on County roads have increased at about five percent per year, about the same as the rate of increase in County population and ferry traffic for the same period of time. If this rate of growth continues through the year 2000 most island roads will accommodate the increased traffic volumes without significant improvements and without reduction in service levels. In some locations, however, especially near major island centers, peak traffic volumes (*e.g.*, summer weekends) may reduce service capacities. In most locations, maintenance and gradual upgrading to meet state and County standards are expected to provide adequate capacity and traffic safety to meet anticipated increases in traffic volumes.

c. Level of Service Analysis—County Roads

Table 9. LOS for County Roads—Arterials

Co. Rd. #	Mile Post	Road Name	Terrain ¹	1993		2014	
				AADT ²	LOS	AADT ²	LOS
4	7.00	Horseshoe Highway	Rolling	5,000	D	8,398	D
4	8.20	Horseshoe Highway	Rolling	4,107	C	6,898	D
53	0.15	North Beach Rd.	Level	3,250	A/B	5,459	C
3	0.83	Roche Harbor Rd.	Rolling	3,100	C	5,207	D
4	8.75	Horseshoe Highway	Rolling	2,355	A/B	3,955	C
2	1.05	Beaverton Valley Rd.	Rolling	2,300	A/B	3,863	C
4	11.5	Horseshoe Highway	Rolling	2,250	A/B	3,779	C
53	0.60	North Beach Rd.	Level	2,226	A/B	3,739	C
1	1.00	San Juan Valley Rd.	Rolling	2,200	A/B	3,695	C
133	5.02	Lopez South Rd.	Level	2,100	A/B	3,527	A/B
54	0.00	Prune Alley	Level	2,000	A/B	3,359	A/B

Table 9. LOS for County Roads—Arterials

Co. Rd. #	Mile Post	Road Name	Terrain ¹	1993		2014	
				AADT ²	LOS	AADT ²	LOS
4	0.75	Horseshoe Highway	Rolling	1,950	A/B	3,275	C
52	0.08	Lovers Lane	Rolling	1,877	A/B	3,153	C
18	0.20	Mullis Rd.	Level	1,800	A/B	3,023	A/B
3	2.15	Roche Harbor Rd.	Rolling	1,775	A/B	2,981	A/B
3	5.00	Roche Harbor Rd.	Rolling	1,775	A/B	2,981	A/B
4	3.54	Horseshoe Highway	Rolling	1,700	A/B	2,855	A/B
7	0.46	Argyle Rd.	Rolling	1,680	A/B	2,822	A/B
18	3.22	Cattle Point Rd.	Rolling	1,666	A/B	2,798	A/B
3	6.53	Roche Harbor Rd.	Rolling	1,575	A/B	2,645	A/B
103	3.76	Fisherman Bay Rd.	Level	1,550	A/B	2,603	A/B
103	4.00	Fisherman Bay Rd.	Level	1,500	A/B	2,519	A/B
58	1.00	Mount Baker Rd.	Rolling	1,448	A/B	2,432	A/B
59	0.00	Rosario Rd.	Rolling	1,400	A/B	2,351	A/B
2	11.0	Roche Harbor Rd.	Rolling	1,300	A/B	2,183	A/B
5	7.26	Richardson Rd.	Level	1,200	A/B	2,015	A/B
2	10.0	Roche Harbor Rd.	Rolling	1,150	A/B	1,932	A/B
1	3.52	Bailer Hill Rd.	Rolling	1,125	A/B	1,890	A/B
1	2.15	Douglas Rd.	Rolling	1,125	A/B	1,890	A/B
53	0.61	North Beach Rd.	Level	1,110	A/B	1,864	A/B
57	0.03	Terrill Beach Rd.	Rolling	1,069	A/B	1,795	A/B
5	0.16	Ferry Rd.	Level	1,050	A/B	1,764	A/B
45	1.00	Deer Harbor Rd.	Rolling	1,050	A/B	1,764	A/B
58	1.34	Mount Baker Rd.	Rolling	1,050	A/B	1,764	A/B
6	0.56	Turn Point Rd.	Rolling	1,000	A/B	1,680	A/B
103	1.75	Fisherman Bay Rd.	Level	986	A/B	1,656	A/B
106	4.46	Hummel Lake Rd.	Level	950	A/B	1,596	A/B
51	3.53	West Crow Valley Rd.	Rolling	922	A/B	1,549	A/B
51	0.16	West Crow Valley Rd.	Rolling	900	A/B	1,512	A/B
103	0.40	Fisherman Bay Rd.	Level	883	A/B	1,483	A/B
9	0.07	San Juan Valley Road	Rolling	840	A/B	1,411	A/B
86	0.10	Enchanted Forest Ln.	Rolling	810	A/B	1,360	A/B
1	14.67	Mitchell Bay Rd.	Rolling	800	A/B	1,344	A/B
18	5.52	Cattle Point Rd.	Rolling	800	A/B	1,344	A/B
193	0.00	Terrace Drive	Rolling	800	A/B	1,344	A/B
2	6.91	West Valley Rd.	Rolling	781	A/B	1,312	A/B

Table 9. LOS for County Roads—Arterials

Co. Rd. #	Mile Post	Road Name	Terrain ¹	1993		2014	
				AADT ²	LOS	AADT ²	LOS
93	1.00	Sunset Beach Rd.	Rolling	750	A/B	1,260	A/B
114	2.12	Mud Bay Rd.	Level	750	A/B	1,260	A/B
45	4.36	Deer Harbor	Rolling	710	A/B	1,193	A/B
4	15.94	Horseshoe Highway	Rolling	700	A/B	1,176	A/B
5	3.30	Center Rd.	Level	700	A/B	1,176	A/B
63	0.56	Doe Bay Rd.	Rolling	700	A/B	1,176	A/B
45	0.00	Deer Harbor Rd.	Rolling	690	A/B	1,159	A/B
1	6.23	Bailer Hill Rd.	Rolling	625	A/B	1,050	A/B
42	0.10	Killebrew Lake Rd.	Rolling	620	A/B	1,041	A/B
2	9.70	West Valley Rd.	Rolling	600	A/B	1,008	A/B
31	0.20	Egg Lake Rd.	Rolling	600	A/B	1,008	A/B
114	1.10	Mud Bay Rd.	Level	600	A/B	1,008	A/B
108	1.18	Dill Rd.	Level	575	A/B	966	A/B
10	0.00	Little Rd.	Rolling	510	A/B	857	A/B
66	0.10	Obstruction Pass Rd.	Rolling	510	A/B	857	A/B
89	0.56	West Beach Rd.	Rolling	510	A/B	857	A/B
118	0.00	Mackaye Harbor Rd.	Level	510	A/B	857	A/B
118	0.10	Mackaye Harbor Rd.	Level	500	A/B	840	A/B
38	0.10	Rouleau Rd.	Rolling	460	A/B	773	A/B
5	2.24	Center Rd.	Level	458	A/B	769	A/B
1	10.0	Westside Rd.	Rolling	400	A/B	672	A/B
12	0.1	Wold Rd.	Rolling	400	A/B	672	A/B
41	0.00	Sutton Rd.	Rolling	400	A/B	672	A/B
32	0.10	Yacht Haven Rd.	Rolling	385	A/B	647	A/B
136	0.10	Airport Rd.	Rolling	380	A/B	638	A/B
35	0.00	Limestone Point Rd.	Rolling	370	A/B	621	A/B
1	11.54	Westside Rd.	Rolling	360	A/B	605	A/B
12	1.27	Wold Rd.	Rolling	350	A/B	588	A/B
19	0.00	Portland Fair Rd.	Rolling	350	A/B	588	A/B
81	0.00	Buckhorn Rd.	Rolling	350	A/B	588	A/B
128	0.16	Port Stanley Rd.	Level	350	A/B	588	A/B
132	1.50	Lopez North Rd.	Level	350	A/B	588	A/B
40	0.14	Three Corners Lk. Rd.	Rolling	325	A/B	546	A/B
129	0.10	Bakerview Rd.	Rolling	320	A/B	537	A/B
96	1.00	Blind Bay Rd.	Rolling	315	A/B	529	A/B
31	2.10	Egg Lake Rd.	Rolling	310	A/B	521	A/B

Table 9. LOS for County Roads—Arterials

Co. Rd. #	Mile Post	Road Name	Terrain ¹	1993		2014	
				AADT ²	LOS	AADT ²	LOS
90	0.02	Mitchell Bay Rd.	Rolling	300	A/B	504	A/B
134	0.10	Bayshore Rd.	Level	300	A/B	504	A/B
46	0.25	Nordstrom Lane	Rolling	285	A/B	479	A/B
12	3.00	Wold Rd.	Rolling	250	A/B	420	A/B
109	0.10	School Rd.	Level	250	A/B	420	A/B
128	2.26	Port Stanley Rd.	Level	250	A/B	420	A/B
136	0.15	Sharkreef Rd.	Level	250	A/B	420	A/B
123	1.00	Aleck Bay Rd.	Level	240	A/B	403	A/B
5	8.16	Richardson Rd.	Level	225	A/B	378	A/B
16	0.00	Sunset Point Rd.	Rolling	225	A/B	378	A/B
106	3.48	Hummel Lake Rd.	Level	225	A/B	378	A/B
110	0.25	Fisherman Bay Rd.	Level	225	A/B	378	A/B
110	0.10	Davis Bay Rd.	Level	225	A/B	378	A/B
5	9.20	Richardson Rd.	Level	200	A/B	336	A/B
8	6.00	Lampard Rd.	Rolling	200	A/B	336	A/B
105	0.00	Cross Rd.	Level	200	A/B	336	A/B
128	0.10	Port Stanley Rd.	Level	200	A/B	336	A/B
11	0.00	False Bay Rd.	Rolling	185	A/B	311	A/B
114	4.30	Mud Bay Rd.	Level	175	A/B	294	A/B
44	0.10	Eastman Rd.	Rolling	170	A/B	286	A/B
11	3.39	False Bay Rd.	Rolling	160	A/B	269	A/B
135	0.10	Channel Rd.	Level	160	A/B	269	A/B
78	0.00	Eagle Cove Rd.	Rolling	150	A/B	252	A/B
114	1.70	Vista Road	Level	150	A/B	252	A/B
28	0.10	Schoolhouse Rd.	Rolling	140	A/B	235	A/B
92	0.00	Girl Scout Camp Rd.	Rolling	140	A/B	235	A/B
97	0.00	Squaw Bay Rd.	Rolling	140	A/B	235	A/B
109	0.05	Lopez Sound Rd.	Level	140	A/B	235	A/B
112	0.46	Kjargaard Rd.	Level	140	A/B	235	A/B
120	2.95	Pavey Boulevard	Level	140	A/B	235	A/B
117	0.10	Islandale Rd.	Level	135	A/B	227	A/B
42	2.40	White Beach Rd.	Rolling	130	A/B	218	A/B
110	2.10	Davis Bay Rd.	Level	130	A/B	218	A/B
30	0.00	Kiehl Rd.	Rolling	120	A/B	202	A/B
131	0.10	Military Rd.	Level	120	A/B	202	A/B

Table 9. LOS for County Roads—Arterials

Co. Rd. #	Mile Post	Road Name	Terrain ¹	1993		2014	
				AADT ²	LOS	AADT ²	LOS
100	0.00	Neck Point Rd.	Rolling	110	A/B	185	A/B
156	0.00	Macginity Rd.	Rolling	110	A/B	185	A/B
37	0.00	Halvorsen Rd.	Rolling	100	A/B	168	A/B
107	2.99	Port Stanley Rd.	Level	100	A/B	168	A/B
116	8.50	Vista Rd.	Level	100	A/B	168	A/B
43	0.00	La Porte Rd.	Rolling	90	A/B	151	A/B
99	0.40	Broken Point Rd.	Rolling	90	A/B	151	A/B
149	0.00	Kanaka Bay Rd.	Rolling	90	A/B	151	A/B
48	0.10	Dolphin Bay Rd.	Rolling	60	A/B	101	A/B
76	0.00	Guthrie Cove Rd.	Rolling	50	A/B	84	A/B
126	0.10	Cousins Rd.	Level	45	A/B	76	A/B
29	0.00	Valley Farms Rd.	Rolling	40	A/B	67	A/B

Notes:

1. 40% no-passing zones is assumed for Level terrain, and 80% no-passing zones for Rolling terrain.
2. AADT is the typical description for the two-way traffic count for a roadway in a 24-hour period.

2. Bridges

a. Inventory of Existing Facilities and Services—Bridges

San Juan County Public Works Department maintains three bridges on Orcas Island.

Deer Harbor Bridge. Located at milepost 0.22 on Sunset Beach Road. This bridge was constructed in 1974 with a timber plank deck and timber pile. It crosses a saltwater estuary that is nearly dry at low tide. The deck was replaced in 1988 and along with the piling will be adequate until the year 2004. Repair and replacement of the north approach fill was completed this spring.

Moran State Park Bridge. Located at milepost 14.35 on Horseshoe Highway. This one-lane bridge was constructed in the early 1900's over a stream in Moran State Park and the concrete arch structure is adequate for current loads. Because of the narrowness of the bridge and the angle at which the road approaches, the rail and overhead concrete detailing have sustained some minor damage. This bridge may be able to receive funding under the State Bridge Replacement Program because of geometrics. A yield sign has been installed on the northbound lane and Public Works is currently monitoring traffic safety. There is an oversize restriction on the bridge because the bridge is narrow and on a curve and extra wide or long vehicles, such as mobile homes, may strike the supports or the sides of the bridge.

West Sound Bridge. Located at milepost 0.72 on Deer Harbor Road. This bridge is a pre-cast, pre-stressed concrete slab decking with concrete beams supported by cast-in-place concrete piles. The bridge crosses a small salt water estuary.

b. Long-Range Planning Needs—Bridges

Deer Harbor Bridge. The County Engineer has identified the deck system as needing replacement within 10 years.

Moran State Park Bridge. The County Engineer identified the bridge structure as adequate, but noted that the narrow roadway may require a new bridge within the next 15 years.

Westsound Bridge. The bridge was replaced in 2001 with new decking and new structural support system. The existing concrete retaining walls were left in place, but no longer provide structural support for the bridge.

3. Public Transit

a. Inventory of Existing Facilities and Services—Public Transportation

The availability of public transportation services on the San Juan Islands is extremely limited. Public transportation services are only available on the three largest islands.

San Juan Island is served by two transit providers (San Juan Transit and Island Transportation Services) which offer regularly scheduled service during the Spring, Summer, and Fall. Service is expected to be available from approximately 8:00 a.m. to 8:00 p.m. San Juan Transit may begin offering year-round service beginning in November, 1995. A seasonal bus stop is located on Front Street next to the ferry landing during those times when bus service is available. There is also a bus stop at Roche Harbor Resort, other stops are flag stops. The island is also served by a taxi service (San Juan Taxi, previously Primo Taxi). Exclusive ride taxi service is available from 5 a.m. to 3 a.m.

Orcas Island is served by Adventure Limo and Taxi which operates two vans during the off-peak season and adds a limousine during the summer peak. Service is provided to Moran State Park, Olga, Rosario, Eastsound, Doe Bay, and Deer Harbor. Adventure Limo and Taxi does not meet each ferry due to the lack of a taxi stand close to the ferry terminal and service is primarily directed at the airport. People are picked up at the ferry terminal if it is prearranged by a particular resort. Rosario Resort provides transportation between the ferry terminal and the resort for its clients.

Lopez Island is served by Angie's Cab and Courier Service with one seven-passenger minivan. During the summer of 1992, taxi service was provided for peak sailings on Thursday, Friday, and Saturday.

II. TRANSPORTATION FINANCING

A. Transportation Financing Mechanisms

This section identifies selected funding mechanisms and types of debt available for transportation improvements from *Your Community's Transportation System: A Transportation Element Guidebook* (1993, DCD). These mechanisms include new sources provided through state legislation in conjunction with the State Growth Management Program. The State provides for the imposition of impact fees, additional real estate excise taxes, local option taxes (fuel, tax, vehicle license fee, commercial parking, and street utility), and High Occupancy Vehicle (HOV) local option taxes.

These transportation funding mechanisms require that the city or county interested in using the mechanism comply with the transportation planning requirements of the State Growth Management Program, including the finance element.

1. City/County Funds

City/county revenue resources can be categorized as unrestricted and dedicated. Unrestricted revenue is available for transportation to the extent that transportation needs can compete with the many other local government needs.

Unrestricted Governmental Funds:

General Funds. General funds include all local funds subject to appropriation by the governing body--property taxes, local option sales taxes, utility taxes, general state shared revenues, business license fees, etc. These funds may be used for transportation purposes.

Special Property Taxes. Additional taxes can be authorized by voters, usually for the purpose of bonds. If proposal is above the statutory limitation for taxing rate, it must be approved by 60 percent of voters with 40 percent turnout. If it is below the legal limitation, a simple majority is sufficient (usually called a "lid lift"). The tax may be temporary or permanent.

Dedicated Governmental Funds for Capital Purposes:

Real Estate Excise. Tax on sale of real property. Two categories are available; now both can be used for all types of GMA defined capital projects, not just streets. 1/4¢ is authorized for capital facilities; if used another 1/4¢ may be levied. The projects must be included in the capital facilities element of the comprehensive plan.

Dedicated Governmental Funds for Street Purposes:

State Shared. A portion of a motor vehicle fuel tax is distributed to cities and counties for "highway purposes". Local option fuel taxes equivalent to ten percent of the state use tax may also be levied by counties also for highway purposes.

County Road Tax. Property tax for road purposes, \$2.25/\$1,000 assessed value, only in unincorporated areas.

Local Vehicle License Fee. Authorized and collected by county (subject to referendum), shared with cities.

Commercial Parking Tax. County or city, subject to referendum, imposed on commercial parking businesses. For general transportation purposes.

Federal Forest Yield Tax. Distributions of revenues from timber operations on federal-owned lands to counties. Federal Forest Reserve Funds have been an important source of funding to counties for several years. Counties use these revenues to fund both schools and roads.

2. Other Transportation Authority Funds

Dedicated Governmental Funds for Transportation Purposes:

Transportation Benefit Districts. Special taxing district for transportation purposes created by cities and/or counties. Allows more than one jurisdiction to join together for the purpose of acquiring, constructing, improving, providing, and funding any city street, county road, or state highway improvement within the district. With voter approval, has authority to levy property tax and issue general obligation bonds. With city/county approval, has authority to impose fees on building construction or land development.

Transit Tax. Separate taxing authority for transit authorities. Voter approval is required for the B&O, household/utility, and sales and use taxes.

3. **Federal Financial Assistance**

ISTEA. The new federal funding program for surface transportation. Federal funds are available to cities or counties as distributed by the state and Metropolitan Planning Organizations. The allocation process is still under discussion. The recommendation is for the allocation to have three components: regional competition, statewide competition, and Washington State Department of Transportation (WSDOT) funding. Funds can be used for highways, roads, transit, bicycle facilities, and related improvements.

For regional competition, funds would be distributed to:

- Transportation Management Areas (TMAs) for areas with an urban population over 200,000.
- Metropolitan Planning Organizations (MPOs) for areas with an urban population over 50,000.
- Counties/Regional Transportation Planning Organization (RTPOs) for areas with an urban population under 50,000. There will be countywide competition through the Federal Fiscal Year (FFY) 1995. Competition would be at the RPTO level thereafter.

Federal Emergency Management Act (FEMA). Available to cities, counties, or other public agencies from federal government. Repair serious damage to non-Federal property caused by natural disaster.

FTA Urban Mass Transit (Sections 3,9). To transit agencies from the federal government. Section 3 is for new rail projects, improvement of existing rail systems, and the rehabilitation of bus systems. Section 9 provides transit capital and operating assistance to urbanized areas.

FTA Urban Mass Transit (Section 16). To private, nonprofit agencies from the federal government through the state. Provides capital assistance for transportation services to elderly persons and persons with disabilities.

FTA Urban Mass Transit (Section 18). To transit agencies, cities and counties in rural areas from the federal government through the state. Provides transit capital and operating assistance to nonurbanized areas.

Community Development/Development Block Grant (CDBG). Federal funds available to cities and counties for a variety of public facilities. (and housing and economic development projects which benefit low to moderate income households.

Land and Water Conservation Fund (LWCF). Available to cities, counties, and the state to provide funds for trail development. Project must create or expand trail development.

4. **State Financial Assistance**

Transportation Improvement Account (TIA). Available to cities, urban counties and transportation benefit districts (TBDs) from the state for projects that alleviate/prevent traffic congestion.

Rural Arterial Program (RAP). Available to counties from the state for improvements to rural arterial.

County Arterial Preservation Program (CAPP). Available to counties from the state to preserve paved county arterial.

Community Economic Revitalization Board (CERB). Available to cities, counties, port districts, and special purpose districts from the state in the form of low interest loans and occasional grants to finance sewer, water access roads, or bridges for a specific private sector development.

Public Works Trust Funds (PWTF). Available to cities, counties, and special purpose districts from the state in the form of low interest loans for public work improvements.

Motor Vehicle Excise (MVET) for Transit and High Occupancy Vehicle Lanes. With voter approval, transit agencies may collect a local excise tax on vehicles registered within their taxing district, imposed as addition to the state MVET, for high capacity transit service. Certain large population counties may with voter approval, collect local excise tax on vehicles registered within their county, imposed as an addition to the State MVET, for high occupancy vehicle lanes and related facilities.

Local Development Matching Fund (LDMF). Available to cities to fund transportation studies related to economic development.

5. Private Sources

User Fees

Transit Fares. Established by transit operator.

Tolls. Paid by user: limited to repayment of bonds to finance construction.

Ferry Fares. Established by ferry operator.

Parking Fees. Either for use of right-of-way (on street parking) or special facility (parking garage).

Developer Contributions

Development Regulations. Various development regulations (especially subdivision ordinances) may require that certain facilities to be available, frequently requiring developers to finance them.

Special Assessments. Local Improvement or Road Improvement Districts may be formed to finance street improvements through a special assessment on benefited property.

Industrial Revenue Bonds. IRBs are special debt instruments under the IRS code allowing tax free interest. Bonds are retired by revenue generated from the benefited property. Can be used for streets. This power is limited by requirements in the IRS code.

NEPA/SEPA Mitigation. Public facilities, including streets, traffic signals, or additional lanes may be required in order to mitigate adverse environmental impacts from development. As part of the development approval process the municipality can require that the developer mitigate the impacts on the public facilities caused by the development. The two parties may agree to negotiate an agreement that determines the appropriate share of the funding, and establishes the developer's methods of payment for mitigation of direct impacts. A developer may agree to pay a monetary fee or to mitigate through donation of a right-of-way or completed facilities. Negotiated agreements are entered into voluntarily and are enforceable by the municipality.

Impact Fees. System of fees authorized under the Growth Management Act to finance public facilities. Generally imposed as a condition for approval to proceed with development to ensure adequate capital facilities are built. The fees must follow an established procedure and criteria that guard against duplication of fees for the same impact. The fees are only for system improvements that

are "reasonably" related to the development and they are set to reflect the proportionate share of the system improvement costs directly impacted by the development.

Voluntary Contributions. Voluntary contributions can be made by the developer to facilitate their development. Contributions can be in the form of money, but often are in the form of donated right of way or even a completed facility. Contributions are subject to the same stipulations as a negotiated agreement, however they are not enforceable by law.

Operating/True/Financing Leases. A form of "privatization". Developer builds a facility, leases to government for a charge to recover cost and profit.

6. Debt Types

Many of the various sources of revenue can be used either to fund the facility at one time or through various debt financing systems.

Voted General Obligations (GO). Debt secured by "full faith and credit" of the jurisdiction: taxing power pledged to repay debt. Usually (not always) involves approval of an additional property tax levy pledged to retire the debt. Requires a vote with a 60 percent approval of those voting at an election with the participation of 40 percent of the number who voted in the last general election in the jurisdiction. Total amount of debt is limited by statute and constitution.

Nonvoted General Obligations (GO). This debt is also secured by "full faith and credit" of the jurisdiction. However, no voter approval is required and debt service is paid out of current taxing authority (revenue is diverted from operations and is committed debt service). Sometimes this type of debt is strictly limited by law. Also called "councilmanic" debt or and "inside levy".

Revenue Bonds. Debt is secured by identified revenue source, not the taxing power of the jurisdiction. Such revenue is usually some sort of user fees, such as fare box revenues or toll charges. Since such revenues are less secure than taxing powers, this type of debt usually has higher interest costs than GO bonds. Rarely used for street financing, but theoretically possible. Street utilities could increase the use of this type of debt. Industrial revenue bonds are technically a specialized type of revenue bonds.

Double-Barreled Bonds. Debt secured by taxing authority (under one of the two types of GO methods), but debt service is paid out of other revenues. This allows revenue bonds to enjoy lower interest benefits of GO bonds.

Special Assessment Debt. Bonds financed by the formation of a special assessment district (Local Improvement District, Road Improvement District, or Utility Local Improvement District). Predominate method of debt financing of developer contributions. Must be based on benefit to the assessed properties and must meet requirements of IRS code. Can be augmented by general revenues (usually by absorbing financing costs or "buying down" interest rates).

B. Financial Analysis.

1. Air Transportation

The Transportation Element does not include a Level of Service standard for air transportation facilities. However, the inventory does note that existing airport capacity should be sufficient to meet the projected air travel demand of the county. Air transportation facilities are provided by the port districts on San Juan, Orcas and Lopez islands. Approximately 2.31 percent of the local property tax dollar is collected by the port districts to support port operations. Most funding for airports is provided through the Federal Aviation Administration which apportions funds from the Aviation

Trust Fund. Aviation trust funds are authorized to be spent through the Airport and Airway Improvement Safety and Capacity Expansion Act of 1987. The monies are allocated to airports on a priority basis.

2. Marine Transportation

Washington State Ferries. The projections included in the inventory suggest that the County may exceed the LOS adopted for ferry service within the planning timeframe. Should this come to pass, the BOCC should initiate the response mechanisms called out in policies and work with the Department of Transportation (DOT) to ensure adequate state funding is available for necessary improvements. The Marine Division of the DOT has identified (in Table 10) the following capital improvements for the Anacortes-San Juan Island route facilities:

Table 10. Near-Term Capital Improvements Identified by WDOT for the Anacortes-San Juan Island Ferry Route.

FACILITY	Capital Improvements (\$)		
	1995-1997 Biennium	1997-1999 Biennium	1999-2001 Biennium
Anacortes Terminal	3,370,000	8,271,000	2,281,000
Friday Hbr. Terminal	1,069,000	616,000	0
Lopez Terminal	593,000	919,000	0
Orcas Terminal	377,000	457,000	1,403,000
Shaw Terminal	0	0	126,000

3. Land Transportation

The Transportation Element includes Level-of-Service standards for County roads and County docks. Based on the projections, it does not appear that the County will exceed the adopted LOS for County roads in most locations. However, capacity improvements are projected to be needed within the planning period for County docks. Funding for required County dock improvements will be allocated in the adopted Six-Year Road Program. Sufficient monies for improvements to remedy existing County docks deficiencies should be made available through the adopted Six-Year Road Program. Deficiencies resulting from future development should be funded through a combination of those funding mechanisms identified in the Transportation Financing Goals and Policies.

In this section, the County Road Fund revenue sources and expenditures are reviewed in more detail, financial trends are discussed, future assumptions are laid out and revenue and expenditure forecasts are made. Table 11, below, provides long-range road budget projections for revenues and expenditures through the year 2015.

County Road Fund Revenues

The state's motor vehicle **Fuel Tax** is a specified number of cents per gallon of fuel purchased. The County's portion of the fuel tax is based on three factors: unincorporated population, county road mileage, and county road need. One problem with a tax revenue based on a number of cents per unit purchased is that, in real dollar terms, the revenues tend to decrease from year to year. This is because inflation reduces the value of that money collected over time.

Another problem is that as vehicles become more fuel efficient less tax is paid per mile of travel. Thus the road system continues to incur the impact of travel without sufficient revenue to provide maintenance. In reviewing past trends, this fund source has increased at about one percent per year over the past four years with some sporadic movement. There has also been considerable speculation on increasing this fund source in the future. There also continues to be an increase in vehicle miles of travel in the state which should continue to increase this fund source. The financial analysis in Table 1 assumes this fund will grow at two percent per year.

The **County Arterial Preservation Program (CAPP)** is an allocation of funds to the County from the state's motor vehicle fund. The allocation is to fund arterial pavement resurfacing and is based upon the number of paved arterial road miles within the County. This fund comes from the same source as the Fuel Tax and therefore the same growth factor was used.

The **Capron Fund** is a special allocation of motor vehicle funds to San Juan County enacted in the Legislature many years ago at the request of Dr. Capron (RCW 46.68.080). This statute returns all the motor vehicle license fees and motor vehicle fuel tax paid by the residents of the County. This revenue source, because it is tied to vehicle license fees, has grown at a higher rate than the fuel tax: at over eight percent for the past 14 years. However in more recent years the rate has slowed to four percent. We have taken a conservative approach to the financial analysis and used four percent.

A cautionary note needs to be made with regards to the longevity and health of the Capron Fund. This source is authorized by the legislature and is justified because there are no state highways within the County. Two events in the recent past show the County should not rely on this source as long term revenue. About ten years ago when a sizable amount of Road Funds were diverted to the Current Expense Fund and the Capital Fund the legislature was quick to ask the County if this was a long term trend or an aberration. Using state funds to solve County needs *vis-a-vis* the Capron fund did not seem appropriate. Several years later Island County's allocation of the Capron Fund was reduced when it was pointed out that a state highway ran the length of Whidbey Island. Given the Ferry System is now considered part of the state highway system and also provides for inter-island travel this same issue may face San Juan County.

The **Property Tax Road Levy** is a tax assessed against unincorporated property within the County. The assessment rate is currently the lowest in the state at \$0.839 per \$1,000 of assessed value. The funds generated, \$1,586,087, are in the bottom third of the state for levies. Finally, the state average levy produced per mile of arterial road is \$14,500 compared to \$20,300 for San Juan County. The County has increased the taxes to be collected at 2.75 percent for the past three years. In addition new construction, has added \$30,000 to the taxes collected. This has resulted in a fund source increase of 4.4 percent per year. The financial analysis in Table 1 uses this figure.

The **ISTEA fund** is the allocation of Federal Fuel Tax. The County receives approximately \$65,000 per year and tries to combine annual allotments into one project every three or four years. The ISTEA legislation expires in 1998. However, it is expected the allocation will continue and the financial analysis assumes the same amount for long range projections.

The **Rural Arterial Program** is a state grant program in which the County competes with six other counties for funds. Individual projects are ranked throughout the region and available funds distributed by priority. This County was very successful in obtaining funds in the early years of the program. However, as our largest needs have been funded, other jurisdictions' projects are now being funded through this source. Allocations are made every two years with a maximum of \$500,000 per project and \$1,500,000 per county. We have assumed that San Juan County will be able to receive funding for a project every four years from this source.

Cash is the amount of savings or unallocated funds left at the end of each year. The amount assumed is equal to the budgeted cash reserve.

Miscellaneous funds reflect a number of small sources such as timber tax, bottom lands leasehold tax, and map sales. These sources are fairly minor and we have assumed an annual amount of \$10,000.

Reimbursable funds are paid to the Road Department for work performed. Sources include the Town, Port Districts, Parks, contractors, and other Departments. Work includes trench patching, seal coating, design of buildings, and construction of roads and buildings. This amount equals expenses and has been estimated at \$25,000 per year.

The Road Fund has **loaned funds** in the past. This source shows the repayment which will be complete in the year 2009.

County Road Fund Expenditures

The state constitution allows for the expenditure of County Road Levy to police County roads. These **traffic patrol funds** are used to provide speed control, investigate traffic accidents, and assist stranded motorists. The Board of Commissioners set this amount at \$384,000 for 1996 and an inflation factor of three percent is used for future years.

The County assesses the Road Fund an **administrative fee** for services provided. Services include such things as legal advice, accounting, Board time, planning and building permits, *etc.* The Board of Commissioners has set the 1996 rate at \$328,000 and an inflation factor of three percent is used for future years.

The **maintenance** item includes all funds expended in maintaining county roads, such as: seal coating, grading, ditching, stripping, signing, mowing, brushing, and patching. To fund the current level of maintenance we need to provide for inflation and a small increase in activities do to additional traffic and new services. We estimate this factor should be four percent per year.

Construction expenses cover the cost of improving roadways, bridges, docks, road ends, *etc.* Though the County evaluates all arterial and collector roads for improvement each year, the actual fund level is determined after deducting all other expenses from revenue. Thus this expense is limited to available dollars rather than need. The primary problem with this approach is that as inflation increases for other expenditures and revenue does not increase, the ability to fund improvements is dramatically reduced. For example the maintenance expenditure for the year 2015 is 180 percent higher than 1996. Whereas the construction expenditure level remains the same between the two years. Another way to express this problem is that in 1996 we could complete two miles of road improvements as compared to one mile in 2015. This means as roads deteriorate because of increased traffic loads, or because road bases were not adequately constructed, or road widths are found to be insufficient there will be inadequate funds to remedy the problem. Increasing the property tax levy would be the only means to increase revenue.

The **administration expense** funds the general obligations of the Road Department. These activities include planning, engineering, office staff, accounting, management and expenses. This expense is estimated to grow at a rate of 2.5 percent per year.

Capital/Operating transfers include expenses for insurance, computer time, office furniture, traffic counters, janitorial services, and computers. We have estimated it will grow at a rate of three percent per year.

The **reserve** is the amount the road fund reserves during a year to ensure that we are able to pay bills and avoid short term borrowing.

Table 11. Long-Range County Road Budget Projections, Years 1996-2015.

A. Years 1996-2005.

Road Fund Revenue Source or Expense Account	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Revenue Projection (in thousands of dollars)										
Gas Tax	717	721	735	750	765	780	796	812	828	845
CAPP	84	80	82	83	85	87	88	90	92	94
Capron	1,204	1,267	1,292	1,318	1,354	1,371	1,399	1,427	1,455	1,484
Road Levy	1,885	1,939	2,024	2,113	2,206	2,303	2,405	2,511	2,621	2,736
ISTEA	10	787	0	137	65	65	65	65	65	65
R.A.P.	0	517	984	400	0	0	0	500	0	0
Cash	100	100	100	100	100	100	100	100	100	100
Miscellaneous	0	0	0	0	0	0	0	0	0	0
Reimbursable	25	25	25	25	25	25	25	25	25	25
Loans/Bonds	9	9	9	9	9	9	9	9	9	9
Total	4,034	5,445	5,252	4,936	4,600	4,741	4,887	5,539	5,196	5,358

Expenses Projection (in thousands of dollars)

Sherriff's Patrol	384	394	406	418	431	443	457	470	485	499
Administrative Fee	331	340	350	361	372	383	394	406	418	431
Maintenance	2,010	1,889	1,965	2,043	2,125	2,210	2,298	2,390	2,486	2,585
Construction	723	2,415	1,944	1,515	1,062	1,081	1,101	1,622	1,143	1,165
Administration	352	353	362	371	380	390	399	409	420	430
Reimbursable	25	25	25	25	25	25	25	25	25	25
Cap/Opr Transfer	220	208	100	103	106	109	113	116	119	123
Reserve	100	100	100	100	100	100	100	100	100	100
Total	4,145	5,724	5,252	4,936	4,601	4,741	4,887	5,538	5,196	5,358

B. Years 2006-2015.

Road Fund Revenue Source or Expense Account	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Revenue Projection (in thousands of dollars)										
Gas Tax	862	879	896	914	933	951	970	990	1,010	1,030
CAPP	96	98	99	101	103	106	108	110	112	114
Capron	1,514	1,544	1,575	1,607	1,639	1,672	1,705	1,739	1,774	1,810
Road Levy	2,857	2,983	3,114	3,251	3,394	3,543	3,699	3,862	4,032	4,209
ISTEA	65	65	65	65	65	65	65	65	65	65

R.A.P.	0	500	0	0	0	500	0	0	0	500
Cash	100	100	100	100	100	100	100	100	100	100
Miscellaneous	0	0	0	0	0	0	0	0	0	0
Reimbursable	25	25	25	25	25	25	25	25	25	25
Loans/Bonds	9	9	9	9	9	9	9	9	9	9
Total	5,527	6,202	5,884	6,072	6,268	6,971	6,681	6,900	7,126	7,862

Expenses Projection (in thousands of dollars)

Sherriff's Patrol	514	530	545	562	579	596	614	632	651	671
Administrative Fee	444	457	471	485	499	514	530	546	562	579
Maintenance	2,689	2,796	2,908	3,024	3,145	3,271	3,402	3,538	3,680	3,827
Construction	1,188	1,712	1,237	1,263	1,291	1,819	1,348	1,379	1,411	1,944
Administration	441	452	463	475	487	499	511	524	537	551
Reimbursable	25	25	25	25	25	25	25	25	25	25
Cap/Opr Transfer	127	130	134	138	143	147	151	156	160	165
Reserve	100	100	100	100	100	100	100	100	100	100
Total	5,528	6,203	5,884	6,073	6,268	6,971	6,681	6,900	7,126	7,862