II. TRANSPORTATION INVENTORY

The starting point for the development of a transportation systems plan is to inventory and to summarize the usage of the transportation facilities, services, and programs. Some discussion is made below on all types of transportation in the County. Much more detail is presented for those facilities, services, and programs that are under the jurisdiction and responsibility of the County (i.e. County road system and Guemes Island Ferry).

A. STREETS, ROADS, & HIGHWAYS

Probably the most important component of the overall transportation system in Skagit County is the network of streets, roads and highways that traverse the County. This network, under the jurisdiction of various governmental entities, functions as one interconnecting transportation system. This network is used primarily to accommodate auto and truck traffic in the movement of people and goods within and through Skagit County.

1. Jurisdictional Breakdown

The jurisdiction over the surface transportation system of Skagit County is divided among several different agencies. All state highways and Interstate 5 (I-5) are under the jurisdiction of Washington State Department of Transportation (WSDOT). City streets are under the jurisdiction of the eight different cities or towns in the County. There are also private roads, forest service roads, and some roads under Indian tribal jurisdiction (Swinomish, Upper Skagit, and Sauk tribes). The largest amount of surface mileage belongs to the County road system under the jurisdiction of Skagit County. Each of these various jurisdictions has the responsibility to maintain and improve their own streets, roads and highways, and each generally will have its own set of road standards or something similar.

Maps lA and lB (attached to the document) visually depict the overall street, road, and highway inventory in Skagit County. The state and interstate highways (shown in shades of green) provide the backbone for the overall system. The County road network (shown in red) provides for both access and the movement of goods and services. The major city streets are shown in black. (For clarity, all of the "local access" city streets and some of the County's "local access" roads were left off these maps.)

Interstate 5 is the central north/south link in Skagit County, with SR-9, SR-ll (Chuckanut Drive) and SR-530 (Rockport to Snohomish County) also providing north/south connections. In the east/west direction, SR-20 is the central link crossing through six of the eight

cities and towns of Skagit County. Other east/west highways making shorter connections are SR-536 (Memorial Highway), SR-538 (College Way), and SR-534 connecting Conway and Lake McMurray. While the state and federal highway system provides a basic structure for the surface transportation system in Skagit County, it is the extensive nature of the county road system itself that truly fills out the overall interconnecting County-wide network.

Mileage figures for streets, roads and highways in Skagit County were compiled in 1993 following a review of functional classifications. At that time there were about 260 miles of city streets, 800 miles of County roads, 200 miles of state and interstate highways, and 280 miles of other (forest service, etc.) in the County at that time. These figures have not changed substantially since then.

2. Functional Breakdown

We know that travelers are not concerned with which jurisdiction owns and operates the transportation system when making travel choices. What is important from both a traveler's viewpoint and a systems planning viewpoint is how the various streets, roads and highways actually function in carrying traffic. Since 1976, the Federal Highway Administration has required local jurisdictions to functionally classify streets, roads, and highways to be eligible for funding programs. The State of Washington also has similar requirements. The federal functional classification of local streets and County roads has become a planning tool locally as well. Road standards and other local programs are structured around this functional classification.

The U.S. Department of Transportation, Federal Highways Administration explains its functional classification program in its *Highway Functional Classification Concepts, Criteria and Procedures* document revised in March 1989. It states the following:

> *"Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. Basic to this process is the recognition that individual roads and streets do not service travel independently in any major way. Rather, most travel involves movement through a network of roads. It becomes necessary then to determine how this travel can be channelized within the network in a logical and efficient manner. Functional classification defines the nature of this channelization process by dividing the part that any*

particular road or street should play in serving the flow of trips through a highway network. "

The federal government's functional classification system divides each County into "urban" and "rural" areas, and has a classification scheme to categorize all the streets, roads, and highways within each. Cities within "urban areas" over 5,000 in population are required by the federal government to functionally classify their streets based on the urban classifications. Streets in the smaller cities and towns are included in the rural functional classification system that covers all areas outside of "urban areas". All but one of the rural classifications have an equivalent classification in the urban system.

In Skagit County there are four cities which have designated "urban areas". These cities are Mount Vernon, Burlington, Sedro-Woolley and Anacortes. Because these "urban areas" sometimes extend beyond the city limit boundaries, a small portion of the County road system lies within the "urban areas" and the affected roads are given urban classifications. Map 2A (attached to this document) presents the County road system broken down by Functional Classification. It also displays the "urban areas" of the cities.

In 1993, the jurisdictions in Skagit County went through a process to update the functional classification of the streets, roads and highways in the County. They are also periodically given the opportunity to review these classifications. This Functional Classification System is depicted on Maps 2A and 2B.

3. Rural Functional Classification

Within the rural system, the roads, highways, and, in some cases, city and town streets are categorized into a hierarchy of classifications for the purpose of channelizing traffic throughout the County. Long trips would tend to be channelized onto the highest classified facilities, while short trips may simply take the most direct route to the destination. Looking at it in another way, the highest classifications focus on mobility (efficiently getting from one location to another) while the lowest focus on access to property. The middle classifications provide both mobility and access. Since the system works as an interconnecting network, it is probable that an individual trip could involve the use of several facilities with various classifications.

There are different factors that come into play in the designation of an appropriate classification for a specific road or highway. The most important is the nature of the traffic that is served. For instance, a

sizable portion of the traffic on SR-20 west of I-5 has an origin or destination outside the County. Thus, it should receive a high classification. Some of the other factors that come into play are the physical qualities of the existing facility, traffic level, and spacing (distance between parallel roads of the same classification). There are also parameters as to the percentage of the total county system that should fall under each classification.

The rural system is divided into the following functional classifications, from highest to lowest:

a. **Principal Arterial (02)**. This is the highest category and it can be subdivided into "interstate" and "other principal arterials." Its purpose is to *"serve movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel."* From the Functional Classification map, Map 2A, it can be seen that the only principal arterials (including interstates) in Skagit County are I-5 and SR-20 west of I-5. I-5 is the primary north/south route through the County, while SR-20 handles the major flows from I-5 to both Whidbey Island and the state ferry terminal in Anacortes.

b. **Minor Arterial (06)**. The next level in the classification system is minor arterial, which should *"link cities and large towns and other traffic generators and form an integrated network providing interstate and inter-county service."* Spacing also comes into play in the designation of minor arterials. The main minor arterials in Skagit County are SR-20 east of I-5 and Chuckanut Drive (SR-ll), both of which provide inter-county connections. March's Point Road, the highest rated County road, is classified as an urban minor arterial. (It is within the Anacortes "urban area.") The oil refineries and deep-water port activities there provide the traffic generation to justify this high classification.

c. **Major Collectors (07)**. The heart of the County road system is comprised of the two collector classifications. The major collectors serve various traffic generators not served by arterials and link these generators to cities, towns and arterial routes. Major collectors also *"serve the more important intra-county travel corridors."* Some of the important major collectors are Fir Island Road, Best/Farm to Market Road, LaConner-Whitney Road, Rosario Road, Josh Wilson Road, McLean Road, Bow Hill Road, and Avon A11en/Ershig Road.

Many of the Major Collectors are in the agricultural area of the county. It is interesting to note that two of the state routes, SR-534 and SR-9 are classified as major collectors rather than the higher classifications because of their traffic level and function.

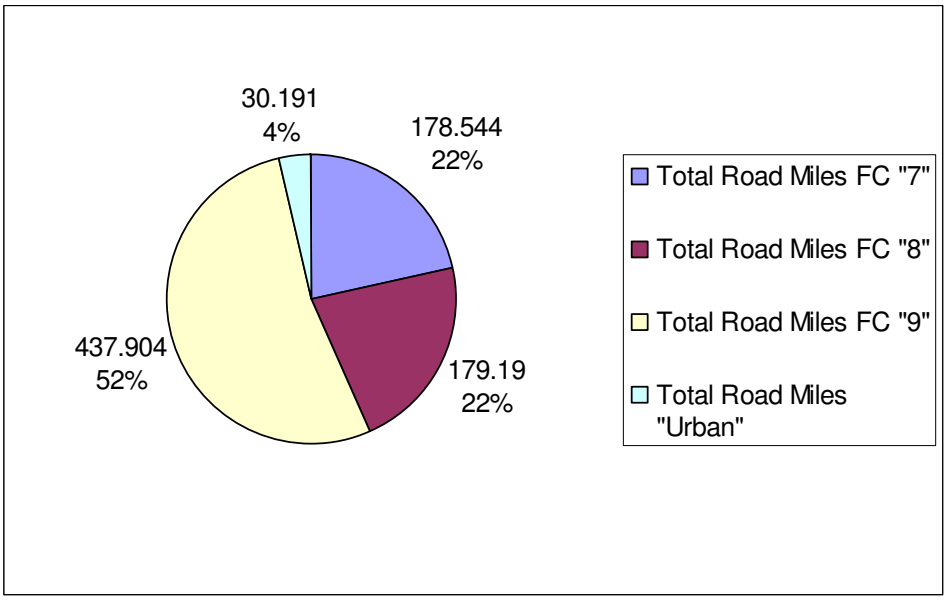
d. **Minor Collectors (08)**. The minor collectors complete the interconnecting network in the County by linking local roads, other small communities, and the rural hinterland to the road and highway system of the County. Examples of minor collectors are Beaver Marsh Road, Calboun Road, Lake Cavanaugh Road, and Samish Island Road.

e. **Locals (09)**. All other county roads not classified at a higher level are called "local" roads, "local access" roads, or simply "locals". Their primary purpose is to provide access to adjacent land. At times they also *"provide service to travel over relatively short distances."* Local roads are not considered to be a part of the "classified" system, but are included on Maps 2A and 2B as other county roads.

As you move up the list of classifications, the traffic volumes and speeds increase. Typically, a local access road has a low volume and a posted speed of 25 MPH. On the other end, a major collector has a high number of vehicles traveling the road and is posted for 50 MPH. The functional classification of a road is often used to determine eligibility for certain types of state and federal funding.

Within the County road system, out of about 825 total road miles there are about 179 miles of major collectors, about 179 miles of minor collectors, about 438 miles of rural local roads, and about 30 miles of several urban classifications. This information is depicted in Figure 2-1.

FIGURE 2-1 Country Road Miles by Functional Classification



4. Trucking & Freight Routes

The State Transportation Commission designates various streets, roads, and highways within Washington as the State's Freight and Goods Transportation System (FGTS). The FGTS system for Skagit County and its cities is shown on Maps 3A and 3B (attached to this document).

The WSDOT FGTS designation has three major objectives:

a. To identify critical roadway segments for freight and goods movement in the State of Washington.

b. To identify which of these critical segments have not been constructed and maintained to standards which are compatible with this role (i.e. "all-weather road").

c. To estimate the costs of bringing segments up to a reasonable standard for freight and goods movement, and maintain them at this standard over the next 20 years.

The FGTS designation was based on estimates of annual gross tonnage hauled. (The criterion for meeting the lowest classification is the equivalent of approximately 10 heavy trucks per day). Statewide, the FGTS system includes nearly all of the state highway system, roughly one-fifth of all county road mileage, and about one tenth of all

city street mileage. The streets, roads, and highways on the FGTS in Skagit County generally reflect this breakdown.

For rural Skagit County, the facilities with the highest FGTS designations include the entire length of I-5, and SR-20 from I-5 to Anacortes. SR-20 from Burlington to Anacortes carries an estimated 10,000,000 annual tonnage. Cook Road from I-5 to Sedro-Woolley is designated as having between 6,000,000 and 11,000,000 annual tonnage. The majority of Skagit County's FGTS designations are within the range of 300,000 to 5,000,000 tons per year. The remaining state highways in the County along with a number of County roads are included in the lowest classification in the FGTS system, 100,000 to 300,000 annual tonnage. In the cities, the streets receiving FGTS designation tend to be those with the highest functional classifications.

5. Scenic Roads & Highways

There are a number of reasons why Skagit County is ripe for the development of a program to help preserve the County's scenic roads and highways. First, Skagit County is less developed than some other counties in Western Washington. Most of the County's natural scenic resources still remain in tact. Second, with the mountains on the eastern side, the agricultural fields in the flats, and the islands and the Puget Sound to the western side, the County's road and highway system traverses some of the most scenic areas in the State. Third, there is a desire by local citizens to try to preserve the rural character of Skagit County. An important aspect of this is the preservation of scenic roads and highways.

There are several programs at the State and Federal level that are currently involved in the preservation of scenic roads and highways. Working in conjunction with these programs would give Skagit County a place to begin in the development of its own program to preserve scenic roads and highways. The current State and Federal programs are reviewed below.

a. Scenic and Recreational Highways Program

Scenic and Recreational Highways were originally designated in the State of Washington in 1967 in response to a desire for the removal of billboards along State highways. In 1991 new formal designation criteria were developed, and in 1993 the Scenic Highway designation list was updated.

There were two highway links in Skagit County on the original list. They are: 1) SR-20 in the eastern part of the County from about three miles east of Sedro- Woolley to the eastern County line, and 2) SR-20 on Fidalgo Island from Sharpe's Comer to Deception Pass. The 1993 additions to the list include: the remainder of SR-20 from Sharpe's Corner to east of Sedro-Woolley; the entire length of SR-9; and Chuckanut Dr./SR-11 from I-5 to the Whatcom County line.

The Scenic and Recreational Highways Program description discusses the need to develop "management plans" for the protection of those designated highways. These management plans will need to be developed primarily by the local jurisdictions. It is anticipated that the primary focus of the "management plans" will be on voluntary compliance with scenic preservation goals.

b. Highway Heritage Program

In 1991, in conjunction with directing WSDOT to update the Scenic and Recreational Highways designations, the State legislature also directed WSDOT to *"Develop a highway heritage program to preserve the unique scenic character along Washington's Highway corridors and provide travelers with a continuous opportunity to appreciate and obtain information regarding unique natural, cultural, and historic features that are near to or accessible by highways."* This was clearly an effort to go beyond the designation of Scenic and Recreational Highways, and provide an implementation mechanism to realize the additional goals of the program. A report was produced and submitted to the legislature in 1993 giving recommendations on how this program should proceed.

It is clear from the "Recommendations for a Highway Heritage Program" report that there are no easy formulas that have been developed to accomplish the program's objectives. Much coordination is needed with various players including the RTPOs, the local jurisdictions, other state and federal agencies, and private property owners and interest groups. The report refers to the success of the "Mountains to Sound Greenway" program along I-90 as a good example of how scenic corridor preservation projects can develop and succeed.

c. Heritage Corridors Program

WSDOT has now combined the Scenic and Recreational Highways Program, the Highway Heritage Program, and local management of the federal Scenic Byways Program (discussed below) into a single Heritage Corridors Program for the State of Washington. One of the approaches of this program is to downplay jurisdictional divisions and focus on the scenic transportation corridors in a comprehensive or unified way. In some cases, the highway or road jurisdiction could change along the corridor, so the involvement of multiple jurisdictions is critical.

d. Scenic Byways Program

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) authorized expenditures for the development of a National Scenic Byways Program. These expenditures can go for: Scenic Byway planning; highway safety improvements; parallel non-motorized transportation facilities or rest area/interpretive facilities; recreation access facilities; historical, archaeological, and cultural resource protection; or tourist information. SR-20 through the Cascade Range was originally designated as a potential Scenic Byway.

In early 1996, WSDOT received a large grant to do a corridor management plan for the SR-20, Sedro-Woolley to Winthrop corridor through this program. The planning process has just begun with a number of public meetings along the corridor. It is the intent of WSDOT to develop this management plan through a grass roots process that relies heavily on input from local citizens for guidance. A particularly important aspect of the planning process will be the Citizen Action Committees that will guide both the work of project's staff and the content of the plan. The hope is that the resulting corridor management plan will be a document that reflects the values of the residents, the businesses, and other interests along the corridor.

In order for Skagit County to have its own scenic highways and roads program, there must be a major commitment by a number of participants to make it happen. It requires bringing together various public and private agencies as well as private companies, interest groups and individuals to develop a "vision" for the program and a

plan of action. Certainly financial commitment by appropriate governmental agencies will also be needed.

Similar to the Scenic and Recreational Highway "management plans", voluntary compliance may eventually become an important component of a successful scenic highways and roads program in Skagit County.

B. COUNTY ROAD SYSTEM

The Skagit County road system is comprised of over 800 miles of paved and graveled roads that have been established by the Board of County Commissioners as County roads. These roads lie outside of incorporated city boundaries and are the responsibility of the County to build and maintain. In this section, various aspects of the County road system are presented. The tables, figures and appendices displayed here come from a combination of sources, primarily from the PMS and the Roadlog of CRIS. As the information was compiled over many years, some discrepancies exist in the data, particularly regarding road mileage. Since road County road mileage changes over time, temporal differences explain the discrepancies.

Detailed listings of all road segments from the Roadlog and from the PMS are available upon request from Skagit County Public Works.

1. Road Information Systems

Skagit County has several programs that monitor and maintain road related information in support of its responsibilities for the County road system. These programs all incorporate computerized databases and some include additional analytical tools. Together, these can be referred to as road information systems.

In discussing the road related databases, the first one that needs mentioning is the County Road Information System, or CRIS system. It not only includes the official Roadlog along with various other road inventories, but also includes the database component of broader information programs like the Pavement Management System (PMS) which monitor and forecasts pavement conditions. Other major inventory programs are the Traffic Flow Program which monitors traffic on the system and the Maintenance Management System (MMS) that tracks road maintenance activities.

a. County Road Information System (CRIS)

The most comprehensive County road database is the County Road Information System (CRIS). This system was developed and is supported by the County Road Administration Board (CRAB). The System is divided into various components including a detailed Roadlog, a traffic accident inventory, a bridge inventory, a sign inventory, a guardrail inventory, and an inventory of culverts. This system allows for very quick access to any information in the CRIS system for any specific road location. It also provides a relatively easy method for creating summary reports on the information contained therein.

The Roadlog is the most important of the inventories of the CRIS system. It divides every road in the County into individual segments, generally less than one mile in length. The database contains a detailed record for each road segment, including such items as street name, milepost, length, functional class, average daily traffic, and vehicle miles of travel or VMT .The roadlog in CRIS is the official state road listing for Skagit County and is used to help determine the County's fuel tax allocation. Two inventories developed from the Roadlog, the Road Use Inventory and the Road Characteristics Inventory, are available upon request.

b. Pavement Management System (PMS)

Skagit County has established a program to continuously evaluate and rate the condition of the pavement on all paved roads in the County. The rating methodology, the sampling program, the database in which the rating results are kept, and the forecasting capabilities are referred to as the Pavement Management System, or the PMS. The County has dedicated one staff person full time to PMS activities.

Like the roadlog, the PMS is a road segment based system. The pavement condition of each segment is periodically field checked and rated on several qualities. Several ratings are merged into one "pavement condition rating." The pavement condition rating is an important factor in deciding which roads and road segments are to be scheduled for improvement projects.

In addition to the pavement condition rating, there are several other useful data items contained in the PMS database. The data in this system includes road name, milepost, cross streets, segment length, functional class, pavement width, shoulder width, shoulder information code, pavement type, and year rated. This inventory was used in the development of the preliminary draft of the Non-motorized Transportation Plan and in the development of the Level of Service Standards for County roads.

c. Traffic Flow Program

The Traffic Safety Unit of the Public Works Department has developed a detailed traffic counts program that monitors the traffic levels on County roads. In this program (formally called the Traffic Flow Program) counts are typically taken for seven-day periods in order to establish both daily and hourly variations in traffic. Selected roads are counted throughout the year in order for seasonal factors to be developed. Using these seasonal factors, counts can be taken in any week of the year and be converted into accurate estimates of yearly traffic for specific roads.

The traffic flow program has become an excellent tool for monitoring various aspects of traffic on the County road system. However, traffic on the city streets and on the state highways in Skagit County has been counted in a more piecemeal manner. In 1995, the Skagit/lsland Regional Transportation Planning Organization (RTPO), of which Skagit County is a member, also initiated a Sub-Regional (County- wide) traffic monitoring program based on the Skagit County Public Works Department's traffic flow program methodology.

d. Maintenance Management Program

A major responsibility of the Public Works Department is to maintain all the County roads. In support of this responsibility, the Department has the Maintenance Management System, a computerized database that monitors all maintenance activities. This system includes inventories of road features, pavement, ditches, and other road related items that impact maintenance activities. It keeps track of staff resources allocated, equipment usage, and material needs based on specific maintenance activities accomplished. The

Maintenance Management Program is used as a tool for maintenance activity programming and for budgeting.

e. Service Requests

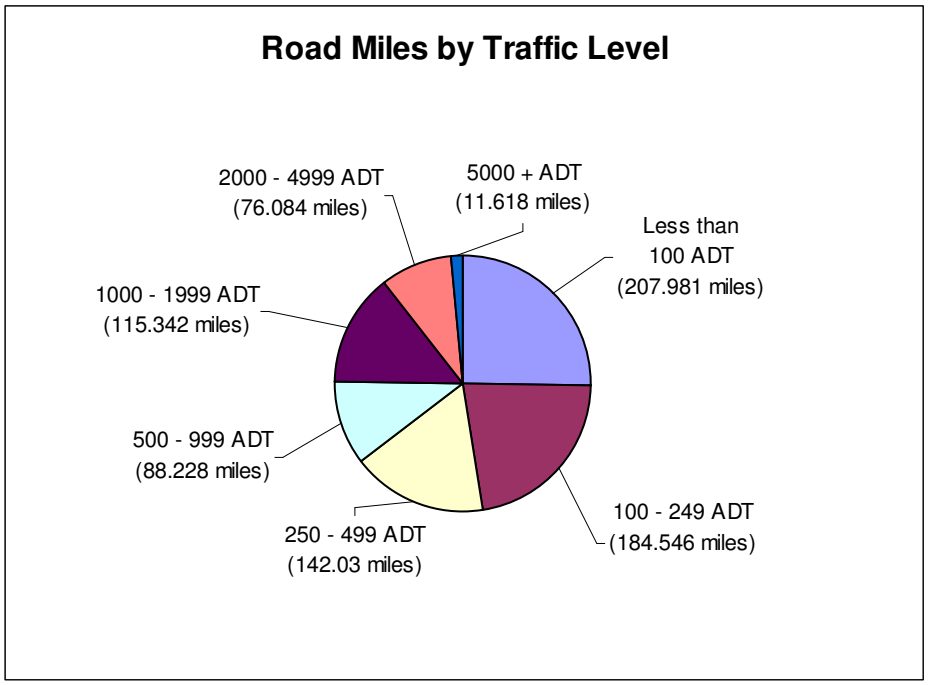
In conjunction with both the County's road maintenance program and the traffic safety program, the County has a formalized system to handle road related service requests from the public. Each time information is received from the public that there is a specific problem or need that requires attention, a service request form is filled out and is then processed in a systematic way. For minor requests that can be easily accommodated, the request is simply carried out right away. For more extensive requests, the requesting citizen is kept up on the request's status through the process. After staff has been assigned to handle the request, the citizen is contacted by staff to discuss the problem, its resolution, and scheduling. Once the request is carried out, the citizen is informed of the final disposition of the request. A customer service feedback form is then sent to the citizen for comments on the quality of the County's service in this matter. All service requests and their disposition are entered into a CRIS database for monitoring and analysis.

2. Traffic Level

The County road system is versatile in the types of traffic it accommodates as discussed in the functional classification section. Consequently, there are a great variety of traffic levels seen on the various roads in the system. A good measure for traffic level is the average daily traffic (ADT) on each road segment.

Out of the 825 miles of Skagit County roads, approximately 48% are roads with ADT of fewer than 250 vehicles per day. On the upper end, only 87.7 miles of County roadways have ADT levels of 2,000 or higher, and only 11.6 miles of those have ADT levels of 5,000 plus. A breakdown of road mileage by traffic level is shown in Figure 2-2.

FIGURE 2-2 Road Miles by Traffic Level



More interesting than a simple breakdown of the road system traffic level is an additional breakdown by functional classification. Figure 2-3 clearly shows how the functional classification system works with respect to traffic level. For local access roads, the greatest number of roadway miles fall into the under 100 and the 100-249 ADT groups, and nearly all the road miles are on roads with under 500 ADT. Moving up the classification scale, minor collectors have the most road mileage in the 500-999 ADT group, while major collectors have the most mileage in the 1,000-1,999. Virtually all of the roads with 2,000 or more ADT are major collectors. All of the information in Figure 2-3 is shown in tabular form in Table 2-1.

FIGURE 2- 3 Road Miles By ADT Range by Functional Class

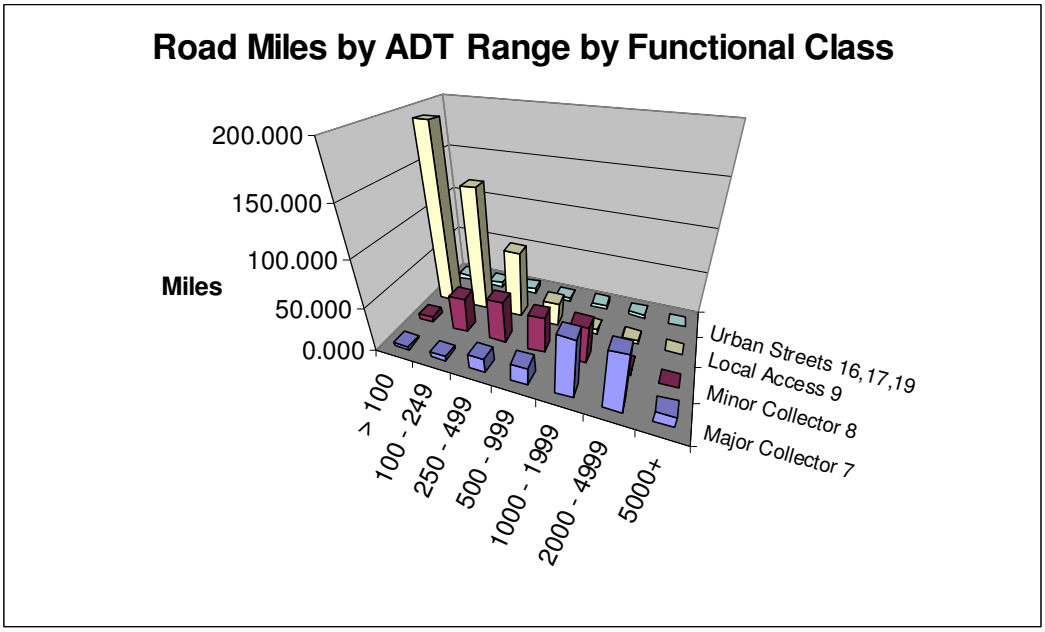


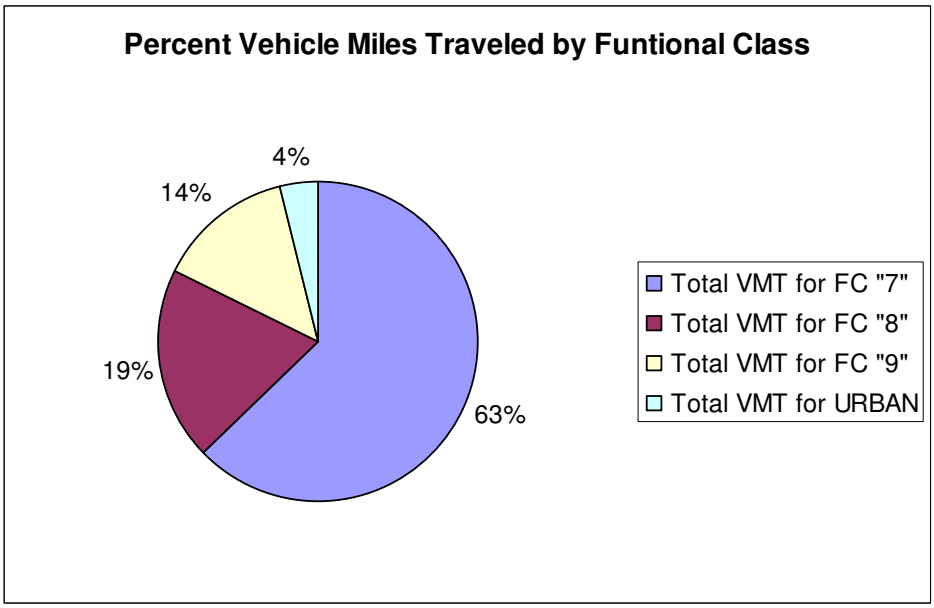
TABLE 2- 1 Road Miles by ADT Range by Functional Class

	#	Average Daily Traffic (ADT)							TOTALS
Function Class		> 100	100 - 249	250 - 499	500 - 999	1000 - 1999	2000 - 4999	5000+	
RURAL									
Major Collector	7	**2.950**	**4.580**	**15.530**	**18.908**	**63.368**	**61.590**	**11.618**	178.544
Minor Collector	8	**6.62**	**39.134**	**45.989**	**39.907**	**40.831**	**6.709**	0.000	179.190
Local Access	9	**192.511**	**136.089**	**74.493**	**25.473**	**5.753**	**3.585**	0.000	437.904
URBAN									
Urban Streets	16,17,19	**5.9**	**4.743**	**6.018**	**3.94**	**5.39**	**4.2**	0.000	30.191
TOTAL		207.981	184.546	142.030	88.228	115.342	76.084	11.618	825.829
Percentage of Total		25.18%	22.35%	17.20%	10.68%	13.97%	9.21%	1.41%	100.00%

Earlier, a breakdown was presented of the County road system by functional classification that showed that local access roads account for over half of the road mileage. Looking at the road system from a traffic level perspective using Vehicle Miles Traveled (VMT) on the system, the local access roads appear to take on much less importance while the major collectors take on increased importance. Local roads account for only about 14% of the daily VMT (ADT times road length) on the road system while the major collectors account for 63% of total

VMT. (See Figure 2-4.) Minor collectors account for 19%, and urban roads account for 4% of daily VMT.

FIGURE 2-4 Percent VMT by Functional Class



Neither average daily traffic nor daily VMT data shows the whole picture of traffic on the County road system because there is a relatively strong seasonal component in many parts of the County. The seasonal trend in Skagit County is generally for the traffic to be the lowest in the winter months and the highest in the summer months.

Past analysis through the traffic flow program has shown that the County road system can be divided up into five geographic areas and two special trip types, each with homogeneous seasonal traffic characteristics. These homogeneous groupings include: 1) Road District 2, 2) north of SR-20 west of SR-9), 3) east county (east of SR-9), 4) Fidalgo Island, 5) Industrial, 6) recreational (farther east), and 7) school (specific roads with a school).

The seasons of the year have a systematic effect on traffic flow in Skagit County. Traffic volumes are typically below average in January and above average in August each year. Due to the seasonal effect on traffic volumes, traffic engineers must apply a seasonal adjustment factor when summarizing annual traffic data. The seasonal factor adjusts the days of short-term traffic monitoring to the year as a whole.

3. Pavement Characteristics

There are four road surface treatment types used on the County road system: bituminous surface treatment (BST), also known as chip seal; asphalt concrete pavement (ACP), or simply asphalt; portland cement concrete (PCC), or simply concrete; and gravel, abbreviated in the database as GRV. The chip seal surface treatment is where the surface is oiled, gravel is spread, and the combination is allowed to set and harden with the help of the normal traffic on the road.

Pavement Type (in Miles)

Gravel	39.280 miles	4.76%
BST (Chip Seal)	661.254 miles	80.07%
Asphalt	114.371 miles	13.85%
Concrete	10.924 miles	1.32%
TOTAL	825.829 miles	100%

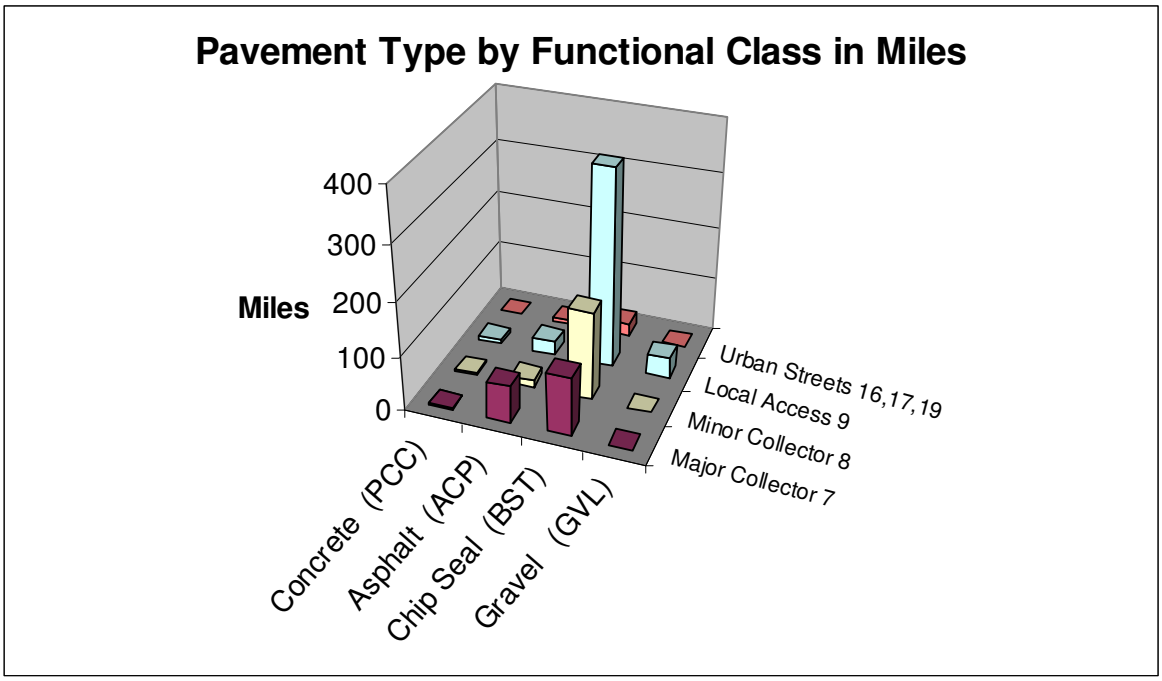
Chip seal is by far the most common surface treatment for County roads. Of the 825 total County road miles, 661 (over 80%) are paved with chip seal. The next highest is asphalt with 114 miles of road surface. About 39 road miles have a gravel surface. Only about 11 County road miles have a concrete surface.

Table 2-2 provides a detailed summary of pavement type by functional class. While the major collectors are fairly evenly split between asphalt and chip seal surfaces (69 miles to 109 miles), the vast majority of minor collectors are chip seal (164 miles to 13 for asphalt). Concrete and gravel make up a very small portion of these classified roads. The pavement surface for local roads is similar to that of the minor collectors with chip seal being the dominant surface type. Virtually all gravel roads in the County are local roads. See Figure 2-5 for a graphic depiction of pavement type by functional class.

TABLE 2-2 Pavement Type by Functional Class (in Miles)

Functional Class	#	Concrete (PCC)	Asphalt (ACP)	Chip Seal (BST)	Gravel (GVL)	TOTAL MILES	Percentage
RURAL							
Major Collector	7	**1.655**	**68.562**	**108.327**	**0.000**	178.544	21.62%
Minor Collector	8	**2.435**	**12.875**	**163.88**	**0.000**	179.190	21.70%
Local Access	9	**6.834**	**26.094**	**365.766**	**39.21**	437.904	53.03%
URBAN							
Urban Streets	16,17,19	**0.000**	**6.840**	**23.281**	**0.070**	30.191	3.66%
Total		10.924	114.371	661.254	39.280	825.829	
Percentage		1.32%	13.85%	80.07%	4.76%		

FIGURE 2-5 Pavement Type by Functional Class (in Miles)



As discussed above, the pavement condition rating from the PMS is based on several factors. These factors include rutting, waving, previous patching, and three types of cracking. Generally, an individual rating is established based on the percentage of the segment surface experiencing the deterioration.

The final pavement condition rating, a weighted combination of the individual ratings, is a number from 0 to 100, with 100 being a newly paved road in perfect condition. A rating of 75 would be about the point to begin considering the need for future improvement of the road. As the rating goes lower and lower, it becomes more advisable to make some improvements. If the rating gets down to 35 or lower, improvements should be made, immediately. For summary purposes, we have defined the following pavement conditions: Excellent = 76-100, Good = 56- 75, Fair = 36-55, and Poor = 0-35.

Based on the above groupings, the overwhelming majority of County roads, when last rated, were in excellent condition. As can be seen in Figure 2-6, nearly 93% of the roads in the County are rated excellent, and only about 2% - are rated poor. The fair and good are low as well, with 2% and 4% respectively. From Figure 2-6, it can be seen that the overall trend is about - the same for each individual road classification.

FIGURE 2-6 Pavement Condition by Functional Class

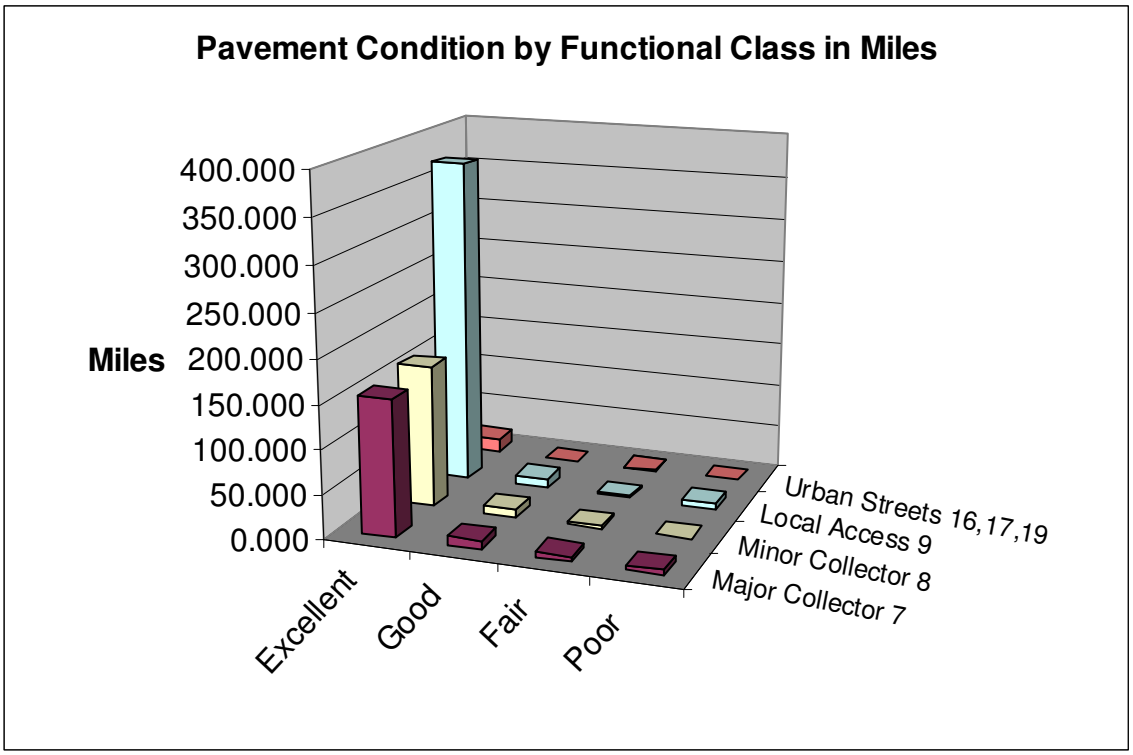


TABLE 2-3 Pavement Conditions by Functional Class (in Miles)

Functional Class	#	Excellent	Good	Fair	Poor	TOTAL	Percentage
RURAL							
Major Collector	7	**154.129**	**9.514**	**5.910**	**5.075**	174.628	22.96%
Minor Collector	8	**162.660**	**8.380**	**3.531**	**1.564**	176.135	23.16%
Local Access	9	**372.197**	**10.901**	**2.694**	**6.860**	392.652	51.62%
URBAN							
Urban Streets	16,17,19	**16.523**	**0.290**	**0.260**	**0.150**	17.223	2.26%
Total		705.509	29.085	12.395	13.649	760.638	100.00%
Percentage		92.75%	3.82%	1.63%	1.79%	100.00%	

Breaking out the data by pavement type (Figure 2-7 and Table 2-4) shows that chip seal roads are in the best comparative condition. Only 4 out of over 640 miles (less than 1%) are rated poor or fair. On the other hand, close to 60% of the concrete roads are rated fair or poor, and only 3% of the asphalt roads (3 miles out of 105) are rated poor. (Gravel roads are not rated by the PMS and have been left out of this analysis.)

FIGURE 2-7 Pavement Condition by Pavement Type

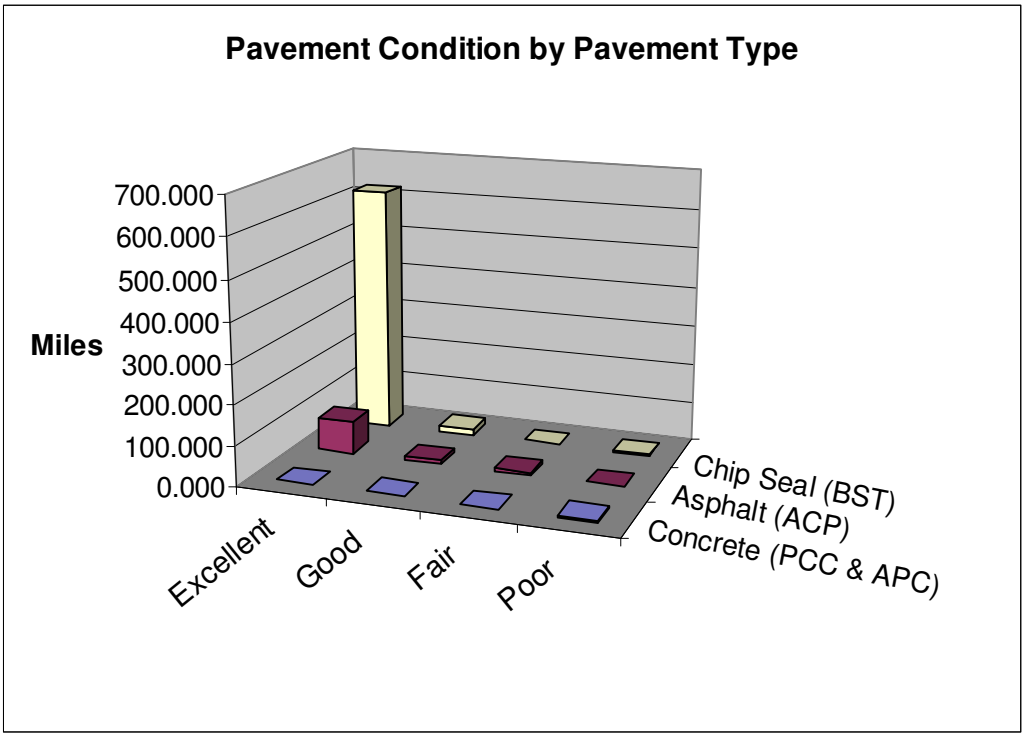


TABLE 2-4 Pavement Condition by Pavement Type (in Miles)

Pavement Type	Excellent	Good	Fair	Poor	TOTAL	Percentage
Concrete (PCC & APC)	**0.030**	**3.250**	**1.221**	**6.054**	10.555	1.39%
Asphalt (ACP)	**84.132**	**9.912**	**7.926**	**3.495**	105.465	13.87%
Chip Seal (BST)	**621.347**	**15.923**	**3.968**	**3.380**	644.618	84.75%
Total	705.509	29.085	13.115	12.929	760.638	100.00%
Percentage	92.75%	3.82%	1.72%	1.70%	100.00%	

C. COUNTY BRIDGES

In conjunction with its jurisdiction over the County road system, the County is also responsible for providing and maintaining the various bridges on County roads. Currently there are 104 such bridges, the largest being the Rainbow Bridge with its 500-foot span across the Swinomish Channel. Some of the other large bridges include the Dalles Bridge and the Government Bridge along Concrete Sauk Valley Road, with spans of 300 and 225 feet respectively; the Skagit River Bridge on Cascade River Road at Marblemount, with a 280-foot span; and, the South Fork Bridge on Fir Island Road, with a 186 foot span. Fifty-four of the County's bridges have a span over 50 feet, thirteen of them over 100 feet. Six County bridges have a span under 20 feet. The greatest width of any County bridge is 37.2 feet. The current bridge inventory is shown in Appendix B

D. NON-MOTORIZED TRANSPORTATION

The two modes of travel which have traditionally been considered as non-motorized transportation are bicycle and pedestrian travel. Sometimes equestrian travel is included as well. These modes represent important travel options, but the planning for and development of facilities to accommodate them has generally not been a priority in the past. Future transportation decisions in Skagit County should include consideration for the accommodation of non-motorized travel needs.

1. Non-motorized Transportation Use

Detailed information on pedestrian activities in Skagit County do not currently exist. However, national trends show that close to 40% of all trips in the U .S. less than .5 miles in length are done by walking. As the trip distance increases, the percent of the trips done by walking decreases to the point where only about .1% of the trips over ten miles in length are made by pedestrians.

With respect to bicycling, national studies show that there are essentially three types of bicyclists: 1) children and inexperienced riders; 2) casual adult riders; and, 3) experienced riders. While children and inexperienced riders tend to ride close to home and casual adult riders tend to do off-street travel and recreational riding, experienced adult- riders are comfortable riding in vehicular traffic and tend to gravitate to the quickest, most direct routes to their destination. While only about 20% of the riders fit into this experienced group, they account for close to 80% of the total miles traveled on bicycles.

In Skagit County, there is some data available on bicycle use. As a part of the development of the County's Comprehensive Park, Recreation and Open Space Plan, a recreational survey of 505 Skagit County residents was conducted in 1995. From this survey, information on bicycle use was collected. It was found that 77% of the respondents ride a bicycle, with 33% bicycling primarily for transportation purposes and 44% for recreational purposes. (See Table 2-5.) Only about 5% ride primarily for commuting purposes (work or school).

TABLE 2-5 Reasons Given for Riding a Bicycle

RESPONSE	%
Transportation	32.9
To go to work	*2.1*
To go to school	*2.8*
To run errands	*10.9*
Visit	*13.9*
To save money	*3.2*
Recreation	43.9
	40.7
Other	*3.2*
Do not ride a	23.3

The survey also shows that 48% of the respondents have an average one-way trip length of two miles or less. And 5% of the respondents have an average trip length of eleven miles or more. (See Table 2-6). It is interesting to note that the percent of bicyclists who ride primarily for commuting purposes and the bicyclists with an average trip length of 11 miles or more are about the same.

TABLE 2-6 Average Length of l-Way Bike Trip

RESPONSE	%	Sum%
Up to 1 Mile	21.8	21.8
1 to 2 Miles	26.2	48.0
3 to 5 Miles	35.1	83.1
6 to 10 Miles	12.0	95.1
Over 11 Miles	4.9	100.00

2. Current Facilities

Presently, the primary facilities that accommodate non-motorized uses in the unincorporated County are the County roads. Many roads lack adequate shoulder widths making them dangerous for pedestrian use. The same holds true for bicycle use on roads without adequate paved shoulders.

There are a few facilities in the County either built for, or specifically designated for non-motorized transportation usage. One is the Padilla Bay Trail. Both bicyclists and walkers can use it, but it functions primarily as a recreational trail. The limited inventory of signed on-road bikeways in Skagit County includes portions of the following:

- Bayview-Edison Road
- La Conner- Whitney Road
- McLean Road
- West Big Lake Road

The County has invested in two unused railroad corridors that may provide opportunities for the future development of some major non-motorized facilities in the County. One includes parts of an abandoned Burlington Northern Railroad (BNRR) line running north-south along SR-9 between Snohomish County and Sedro-Woolley. It is to be called the Centennial Trail and, if completed, will link up to the Centennial Trail in Snohomish County. The other includes a 23-mile stretch of an unused BNRR line between Sedro- Woolley and Concrete which is under a rail banking agreement. (Through rail banking, the right of way is retained, intact, by one jurisdiction. The Railroad then retains the right to reacquire the line for rail use in the future.)

3. Skagit County Non-motorized Transportation Plan

Included in this document as Chapter X, the Skagit County Non-motorized Transportation Plan, which addresses transportation issues associated with pedestrian and bicycle access, safety and mobility throughout unincorporated Skagit County. The plan was developed concurrently with the Countywide Non-motorized Transportation policies adopted in August of 2000 by the Skagit Council of Governments. The plan establishes design and performance standards for bicycle and pedestrian facilities, and clarifies the transportation function and priority of certain facilities developed by other agencies and entities that might be developed using transportation resources.

One of the basic concepts in the plan is connectivity. A primary purpose of the planning effort was to produce an interconnected non-motorized transportation system that will enable travelers to get from one side of the County to the other. Since it would be impossible for many areas of Skagit County to be served by off-road non-motorized transportation facilities because of the costs involved, the draft plan proposes that much of the interconnecting non-motorized transportation system should rely on the current road system. The addition of paved shoulders on selected roads is emphasized to provide for safe non-motorized uses. This paving, in some cases, can be accomplished in conjunction with the normal road improvement projects.

A final focus of the draft plan is on consistent and timely maintenance of non-motorized transportation facilities. Particularly for bicyclists, facilities that are not maintained (usually swept) are facilities that are not useable.

E. COUNTY FERRY SERVICE

In the State of Washington, there are four counties that own and operate their own ferry system. One of the four is Skagit County which operates the Guemes Island Ferry between Anacortes and Guemes Island. Additional detail on the Guemes Ferry can be found in the most current version of the *Guemes Island Ferry Capital Facilities Plan*.

OPERATING SYSTEM EQUIPMENT AND FACILITIES INVENTORY

The Guemes Island Ferry operating system equipment and facilities are functionally categorized as: Ferry vessel, Structures, Parking and auto staging facilities, Ferry service, and Ferry operations. Most of the operating system facilities were built in the 1979-1980 time period to accommodate the M/V Guemes. The current value of these facilities (after depreciation) is estimated to be $ 7,599,500. (See Table 2-7) The total current replacement costs for these facilities is estimated to be $ 10,033,857. (See Table 2-8)

Table 2-7 Estimated Current Value of Ferry System Assets, 2002

Facility	Anacortes	Guemes Island	Total
M/V Guemes	--	--	$ 2,050,000
Ferry Docks	$ 887,262	$ 328,587	$ 1,215,849
Transfer Span and	$ 1,381,587	$ 1,381,587	$ 2,763,174
Dolphins/Wingwalls	$ 507,012	$ 263,262	$ 770,274
Terminal Buildings	$ 154,062	$ 7,812	$ 161,874
Parking Lots	$ 498,500	$ 14,000	$ 512,500
Totals	$ 3,428,423	$ 1,995,248	$ 7,473,671

Table 2-8 Estimated Replacement Costs of Ferry System Assets, 2002

Facility	Anacortes	Guemes Island	Total
M/V Guemes	--	--	$ 2,900,000
Ferry Docks	$ 1,157,075	$ 432,860	$ 1,598,935
Transfer Span and	$ 1,812,857	$ 1,812,857	$ 3,625,714
Dolphins/Wingwalls	$ 562,614	$ 337,012	$ 899,626
Terminal Buildings	$ 256,623	$ 13,913	$ 270,536
Parking Lots	$ 498,500**	$ 22,673	$ 521,173
Totals	$ 4,287,669	$ 2,619,315	$ 9,806,984

* Based on 1999 replacement estimates with 3% annual inflation factor.
** Includes estimated cost of new Anacortes ferry parking facility.

FERRY VESSEL

The current ferry, the M/V Guemes, was built in 1979 and has served Skagit County and the residents of Guemes Island for 21 years. Vessel characteristics are listed in Table 2-9. The M/V Guemes requires three crew members to staff each regularly scheduled crossing of Guemes Channel; a Ferry Master, a Deck Hand, and a Purser/Deck Hand. A round-trip crossing of the 0.7-mile channel normally takes less than 20 minutes.

Table 2-9 M/V Guemes Physical Characteristics

Length	124 feet
Beam	46 feet
Gross Tonnage	91 tons
Displacement	298 tons
Vehicle Capacity	22 cars
Passengers	99 persons
Crew	3 staff

FERRY SYSTEM STRUCTURES

The Guemes Island Ferry system structures include docks, transfer spans and machinery, dolphins, wingwalls, and terminal buildings on both sides of Guemes Channel.

Anacortes: The Anacortes ferry dock is composed of two sections; one 80 x 40 foot section and one 60 x 24 foot section. The Anacortes ferry terminal building is composed of a crew area, crew office, rest rooms, and a sizable waiting room with capacity for approximately 15-20 ferry passengers.

Guemes Island: The Guemes Island dock measures 60 x 24 feet. Terminal facilities do not currently exist and the available waiting space for ferry passengers consists of a wooden shelter exposed to the elements on one side. This passenger waiting facility has been identified as inadequate for over ten years, but measures have not been taken to improve it.

PARKING AND AUTO STAGING FACILITIES

Vehicle parking is available at both the Anacortes and Guemes Island ferry landings.

Guemes Island: A gravel parking area for ferry riders is located adjacent to the ferry landing and west of Guemes Island Road. This parking facility was developed in 1983 and funded by a federal program for park and ride lots. Parking lot improvements are limited to grading and gravel surfacing, individual parking stalls are not designated, and landscaping does not exist. Depending on configuration of the lot and parking management, the Guemes Island parking lot can accommodate up to 60 vehicles. Off-street auto staging facilities on Guemes Island do not exist. Vehicles waiting to board the ferry line up in an extra quarter-mile long holding lane on the west side of Guemes Island Road.

Anacortes: Two lanes for auto staging extend south along County right-of-way from the ferry dock to 6th Street and one loading lane extends for two blocks along the north side of 6th Street. During peak times, the line of vehicles waiting for the ferry can extend past K Avenue and conflict with residential parking. Approximately 20 paved parking spaces are available on the west side of the auto-staging area. Parking is also available along the Anchor Cove Marina fence on the east side of the auto staging lanes. In the past, Guemes Island ferry users have also parked at a dirt lot at the corner of 6th and I Avenue. This lot is owned by the City of Anacortes, however, and is being converted into the Guemes Channel Park. Skagit County is currently in the process of creating a 70 stall parking facility on County-owned property at 6th Street and K Avenue. This new facility is estimated to be available for use in 2004.

GUEMES ISLAND FERRY SERVICE

Scheduled Ferry Service

The 2003 Guemes Island Ferry schedule includes standard weekday service plus an expanded hour service on the weekend. From Monday through Thursday each week, the ferry makes 17 daily round trips with service beginning at 6:30am and ending at 6:00pm. Weekday ferry runs are made every 30 minutes, except from 9:00am to 1:00pm. This is considered to be "off-peak" time and crossings are made at 9:00am, 10:00am, 11:00am, and 1:00pm. On Friday and Saturday, ferry service begins at 6:30am and ends at 12:00am. There are 23 scheduled round trips on Friday, but the frequency of trips on

Saturday is cut back to once per hour and the ferry makes 18 round trips. On Sundays, the ferry makes 16 round trips with service beginning at 7:00am and ending at 10:00pm. Table 2-10 shows the Guemes Island Ferry Schedule in more detail. The current schedule calls for the M/V Guemes to carry passengers and vehicles across Guemes Channel 6,500 times per year.

Non-Scheduled and Emergency Ferry Service

In addition to regularly scheduled ferry service, special and emergency runs are provided on an "as needed" basis. Any person or group can charter the M/V Guemes and crew to make a special, non-scheduled ferry run outside of regular operating hours. Special runs require two crew members and cost $175 per run with a standby charge of $50 for the ferry to wait up to 2 hours if a return run is needed. Puget Sound Energy often hires the ferry in this manner when emergency service is required on Guemes Island. Ocassionally, an individual or group will hire the ferry for a special run to Guemes Island after regular operating hours. The M/V Guemes can also be hired for a special run between regularly scheduled runs during regular operating hours for $50. The regular vehicle and passenger fares for crossing on the Guemes Island Ferry are charged in addition to the cost of any special run. Trucks carrying flammable liquids are exempt from special run charges during regular operating hours due to laws requiring isolation of these vehicles on the ferry for safety purposes. Medical emergency runs are made whenever necessary and are provided by the County at no charge, even if required outside of regular operating hours.

Ferry Service Interruption

The U.S. Coast Guard requires both an annual inspection of the M/V Guemes and an extensive dry dock inspection once every 24 months. The annual inspection usually occurs in January and examines all mechanical and navigational equipment above water line. The result of this examination is a Certificate of Inspection, which lays out the terms and conditions under which the County can operate the M/V Guemes.

The U.S. Coast Guard conducts an extensive dry dock inspection of the M/V Guemes once every 24 months. The primary purpose of this inspection is to document and correct any deterioration of non-visible physical aspects of the M/V Guemes. Standard maintenance work conducted as a result of this inspection includes replacing corroded metal parts, repairing the water cooling system, and painting the hull.

The dry dock inspection, which occurs during the month of June in every odd-numbered year, typically takes 2 weeks and the County contracts with a private operator to provide passenger-only ferry service during this down time. This causes significant interruption in normal ferry service to Guemes Island and creates an extremely congested parking situation at both the Guemes Island and Anacortes parking areas because many ferry commuters park a vehicle on both ends of the ferry run.

Table 2-10 Guemes Island Ferry Schedule

Ferry departs Anacortes dock at times listed below; Guemes Island dock approx. 8 minutes later.			
Monday - Thursday	**Friday**	**Saturday**	**Sunday; Holidays** except Fri. & Sat.**
6:30 am	6:30am	6:30am	---
7:00	7:00	7:00	7:00am
7:30	7:30	---	---
8:00	8:00	8:00	8:00
8:30	8:30	---	---
9:00	9:00	9:00	9:00
10:00	10:00	10:00	10:00
11:00	11:00	11:00	
---	---	---	11:30
---	---	---	12:30pm
1:00pm	1:00pm	1:00pm	1:00
1:30	1:30	---	---
---	---	2:00	2:00
2:30	2:30		---
---	---	3:00	3:00
3:30	3:30	---	---
4:00	4:00	4:00	4:00
4:30	4:30	---	---
5:05	5:05	5:00	5:00
5:30	5:30	---	---
6:00	6:00	6:00	6:00
---	7:00	7:00	7:00
---	8:00	8:00	---
---	---	---	8:30
---	---	---	9:00
---	9:30	9:30	---
---	10:00	10:00	10:00
---	11:00	11:00	---
---	12:00am	12:00am	---
This Schedule is Subject to Change Without Notice			
Special Notes:			
** Holidays = New Year's Day, Memorial Day, 4th of July, Labor Day, Thanksgiving, and Christmas.			
Ferry crossing time from Anacortes to Guemes Island is approximately 5 minutes.			

FERRY SYSTEM OPERATIONS AND PROCEDURES

Vessel Operation

All regularly scheduled ferry crossings of Guemes Channel require 3 crewmembers: one Ferry Operator, one Deck Hand, and one Purser/Deck Hand. The Ferry Operator is the M/V Guemes captain and navigator. The Deck Hand directs traffic on and off of the M/V Guemes and attends to the manual duties required for docking. The Purser/Deck Hand sells tickets and assists the Deck Hand with the manual duties required for docking. Medical emergency runs are subsidized by Skagit County and only two crew members are legally required to operate the M/V Guemes.

Auto Staging

Guemes Island: Vehicles waiting to board the ferry line up in an extra quarter-mile long holding lane on the west side of Guemes Island Road.

Anacortes: Two lanes for auto staging extend south along County right-of-way from the ferry dock to 6th Street and one loading lane extends for two blocks along the north side of 6th Street. During peak times, the line of vehicles waiting for the ferry can extend past K Avenue and conflict with residential parking.

Ticketing

Round trip tickets are issued at the Anacortes terminal and tickets are not required to board the ferry on the return trip from Guemes Island. Currently, when the M/V Guemes is ready for vehicle loading, the Purser is stationed in front of the dock, collects money and issues tickets to each driver, and sends vehicles on board the ferry. The Purser is available in the Anacortes terminal between runs for the purchase of frequent user passes.

Skagit County has issued a request for proposals to implement an automated ticketing system for the Guemes Island Ferry operation at the Anacortes terminal. An automated ferry ticketing system will require less labor by ferry crews and will provide automatic computer downloads of ridership information and record-keeping data to the Accounting Division of Public Works.

Pedestrian Service

The Anacortes terminal building contains a sizable, heated waiting room with four 8-foot benches for seating, substantial standing area, and restrooms. The M/V Guemes contains a passenger room with capacity for approximately 30 adults, but restroom facilities are not available. A small wooden passenger waiting shelter is available immediately north of the Guemes Island ferry dock, but it is exposed to the elements on one side. A unisex portable restroom is located at the northeast corner of the Guemes Island parking lot.

Boarding and exiting the M/V Guemes on foot is safe and easy at the Guemes Island ferry dock. The M/V Guemes passenger cabin area opens to a pedestrian walkway that leads directly to the passenger waiting shelter. Boarding and exiting the M/V Guemes for pedestrians at the Anacortes ferry dock is by a pedestrian walkway from the terminal to the vessel and is located on the opposite side of the dock as the M/V Guemes passenger cabin. Passengers must board and exit either before or after vehicles to avoid a conflict.

Personnel Requirements

The Guemes Island Ferry system currently has 8 full-time employees and 6 part-time employees. Table 2-11 shows the breakdown of ferry personnel by position. Three of the 6 Purser/Deck Hands are licensed Ferry Masters. This gives the system additional flexibility, particularly when there are extra run needs or in the absence of a regular Ferry Master.

Table 2-11 Guemes Island Ferry Personnel

Position	Full-Time	Part-Time
Manager	-	1
Ferry Master	3	-
Purser/ Deck Hand (Ferry Master	1	-
Purser/ Deck Hand	3	-
Mechanic/Deck Hand	1	-
Deck Hand (Part-time, on call)	-	10
Totals	**8**	**11**

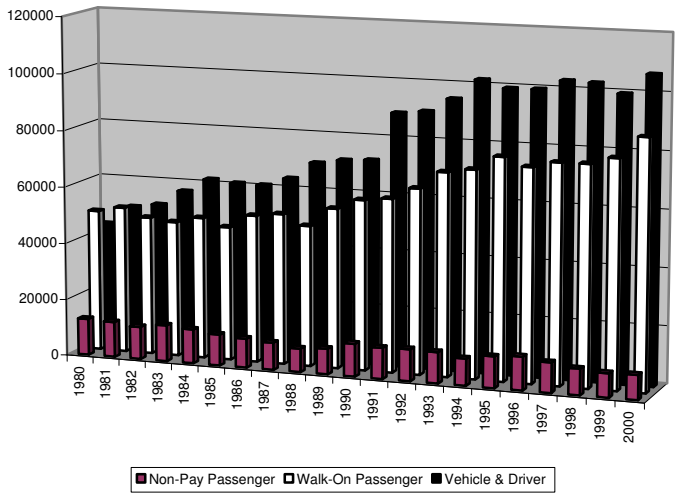
FERRY RIDERSHIP ANALYSIS

This section examines the actual ridership that has occurred over the past 21 years on the M/V Guemes, including a close look at monthly and daily ridership by user category, and uses linear regression analysis to project future ridership trends on the Guemes Island Ferry.

FERRY RIDERSHIP STATISTICS, 1980-2000

The Guemes Island Ferry system is relatively small considering it runs only one vessel with a 22-vehicle and 99-passenger capacity. The primary users of the ferry system are the permanent and part-time residents of Guemes Island who rely on the ferry as their link to the mainland. The residential development and population on Guemes Island have both increased over the past 21 years and the ferry system has experienced growth as a direct result.

Figure 2-8 Guemes Island Ferry Annual Ridership by User Category, 1980-2000.



- In 1980, the M/V Guemes transported a grand total of 105,992 riders, including 43,429 vehicles and drivers, 49,778 walk-on passengers, and 12, 785 non-paying passengers.

- In 1990, the M/V Guemes transported a grand total of 143,130 riders, including 71,874 vehicles and drivers, 59,729 walk-on passengers, and 11,527 non-paying passengers.

- In 2000, the M/V Guemes transported a grand total of 201,876 riders, including 106,410 vehicles and drivers, 86,862 walk-on passengers, and 8604 non-paying passengers.

- These figures represent an overall increase of 90.5% in total ferry ridership between 1980 and 2000, (4.3% per year), over the past 21 years. Growth in the vehicle and driver category has been especially remarkable, increasing 145%, (6.9% per year), since 1980. The number of walk-on passengers has increased 74.5% (3.5% per year) since 1980. (See Figure 2-8).

Figure 2-9 Total Ridership Compared With User Categories, 1980-2000

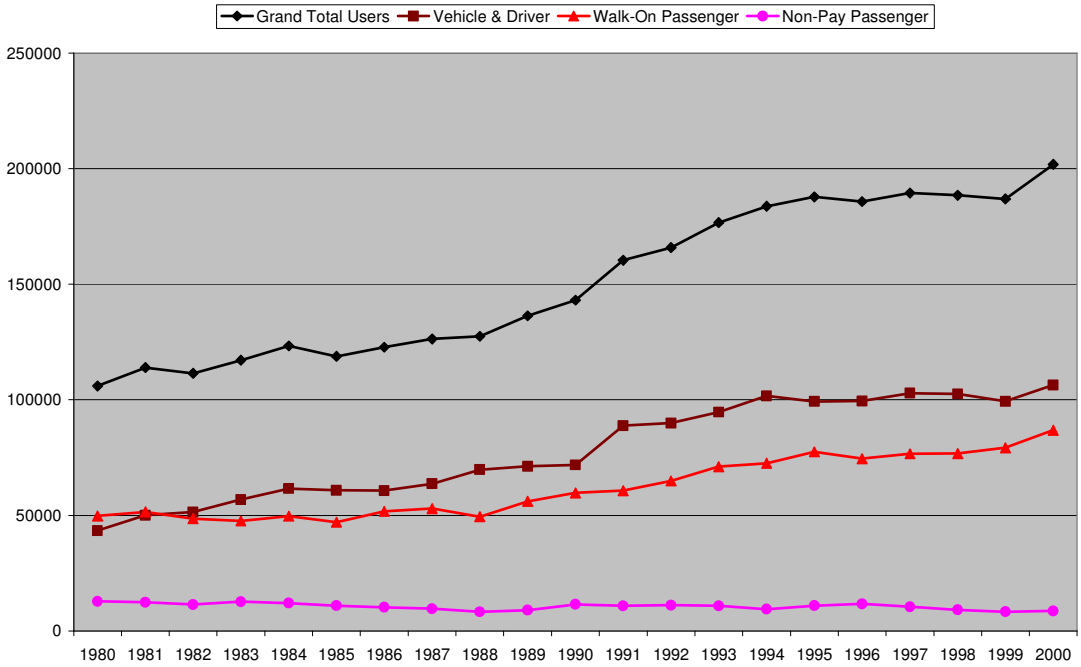


Figure 2-9 shows Guemes Island Ferry annual growth by user category compared to total ferry system ridership (top line) from 1980 to 2000.

FERRY RIDERSHIP ANALYSIS

In the early 1980's, the Guemes Ferry system exhibited a relative balance between carrying walk-on passengers and vehicles. In fact, during 1980, the Guemes Island Ferry carried more walk-on passengers (49,778) than vehicles (43,429). During the year 2000,

however, vehicle ridership (106,410) was much higher than walk-on ridership (86,862). This represents a very significant change in ferry user demand and in the relative balance of the Guemes Ferry system, as vehicles have a much higher impact on the overall capacity of the M/V Guemes. While both vehicle and walk-on passenger ridership has increased, the number of non-paying passengers has decreased by 34.9%, or 3.3% per year over the past 20 years. Non-paying passengers include children on school busses and children under six years in age.

Seasonal Peak of Guemes Island Ferry Ridership

There is a strong seasonal peak in the residential and visitor population of Guemes Island, which directly translates to increased ferry ridership during summer months. The Guemes Island ferry schedule recognizes this seasonal increase in demand for service and imposes a summer surcharge of $1.00 from May 1 through September 30 each year. Figure 2-10 contains actual monthly ridership numbers for the period 1996-2000 while Figures 2-11 through 2-12 depict monthly ridership by user category for the period 1996-2000.

As Figure 2-10 demonstrates, total ferry ridership peaks in July and August every year. This is due to the large number of summer residents owning homes on Guemes Island and summer tourists seeking recreational opportunities on Guemes Island. While July has seen the highest number of total riders in 1999 and 2000, the overall total ridership for the period 1996 – 2000 has been highest during August.

Figure 2-10 All Passengers & Drivers Per Month on Guemes Ferry, 1996-2000.

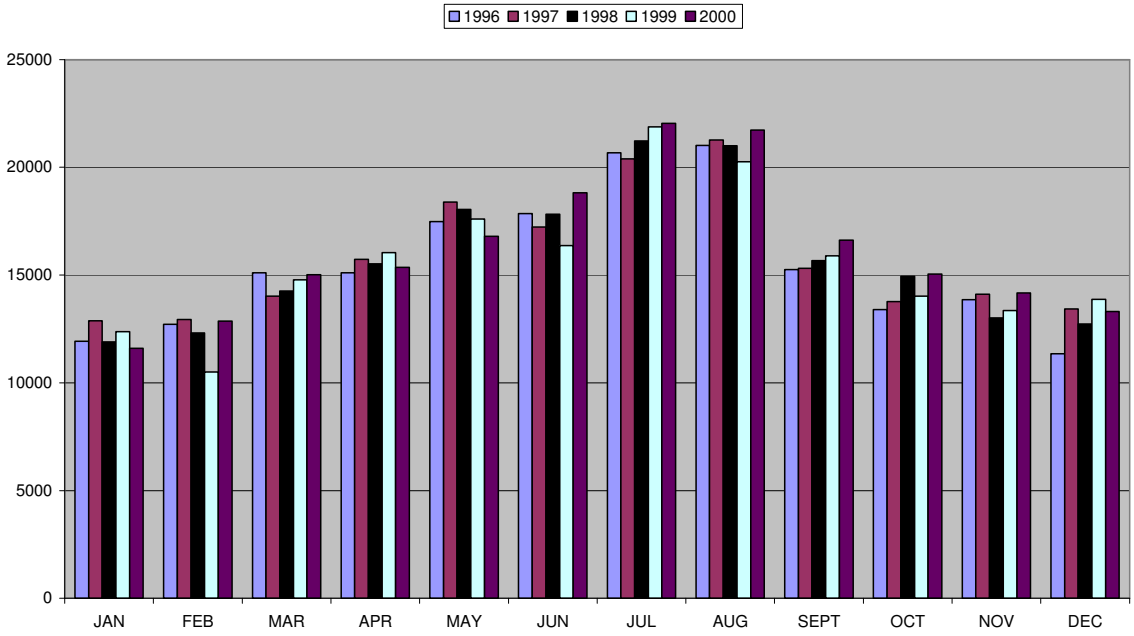


Figure 2-11 shows peak walk-on passenger ridership occurring in July during both 1999 and 2000, but the overall total walk-on passenger ridership for the period 1996 – 2000 has seen a fairly even peak distribution during both July and August.

Figure 2-11 Walk-On Passengers Per Month on Guemes Ferry, 1996-2000

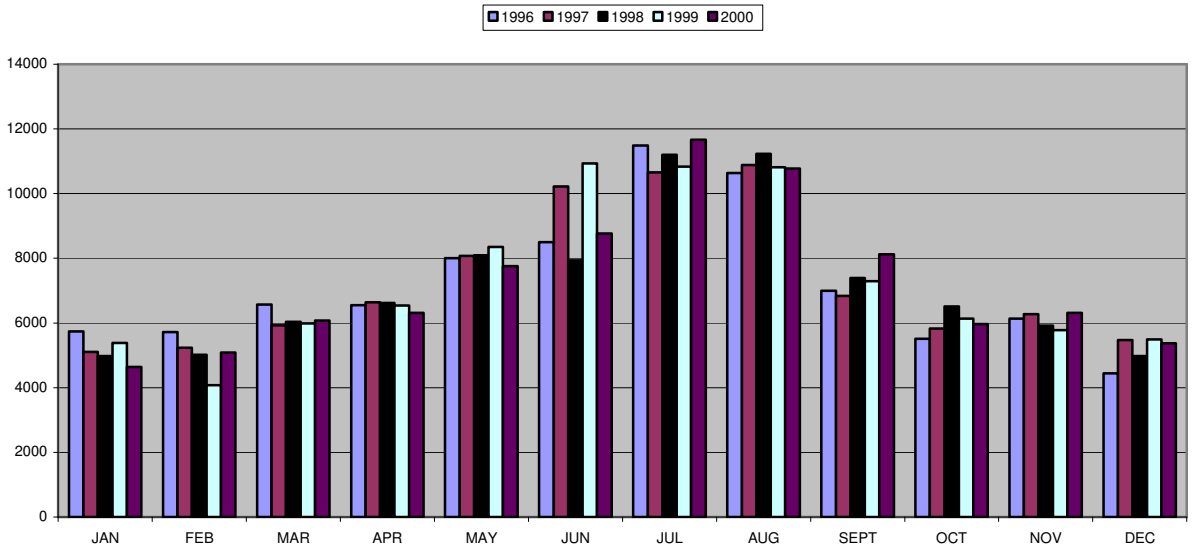
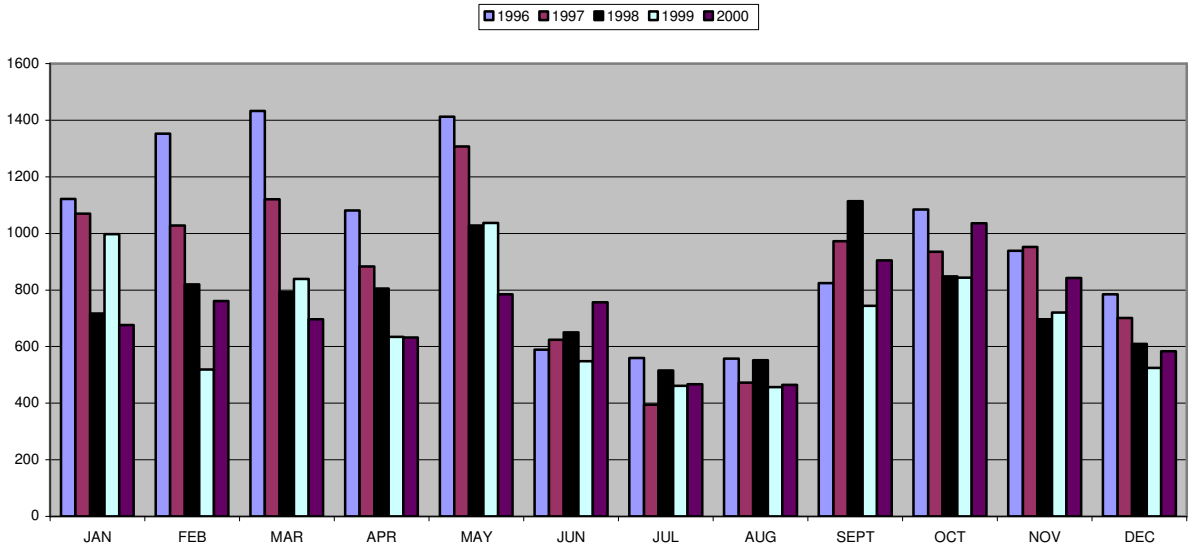


Figure 2-12 illustrates that peak ridership for non-paying passengers, such as school children occurs during the non-summer school year months. The month of May appears to exhibit the highest overall ridership for non-paying passengers.

Figure 2-12 Non-Pay Passengers Per Month on Guemes Ferry, 1996-2000



Daily Peak of Guemes Island Ferry Vehicle Ridership

In addition to the strong seasonal peak in demand for ferry service, there is also a daily peak in demand for ferry service. Figures 2-13 through 2-16 illustrate the daily peaking of vehicle demand on both weekdays (Monday through Friday) and weekends (Saturday and Sunday) from both the Anacortes ferry terminal and from the Guemes Island ferry terminal during August 2000. The month of August represents the seasonal peak and therefore, it can be assumed that other months will experience lower volumes of vehicles and passengers.

The number of vehicles and walk-on passengers for each scheduled ferry crossing for the month of August 2000 has been totaled, averaged, and graphed to provide a picture of daily ferry use during the busiest month of the year. This should help to identify individual ferry crossings that are at capacity or experiencing congestion and should help management to evaluate needed system improvements to the Guemes Island Ferry.

Figure 2-13 Average Vehicles Per Weekday Ferry Crossing, August 2000. (Anacortes to Guemes Island)

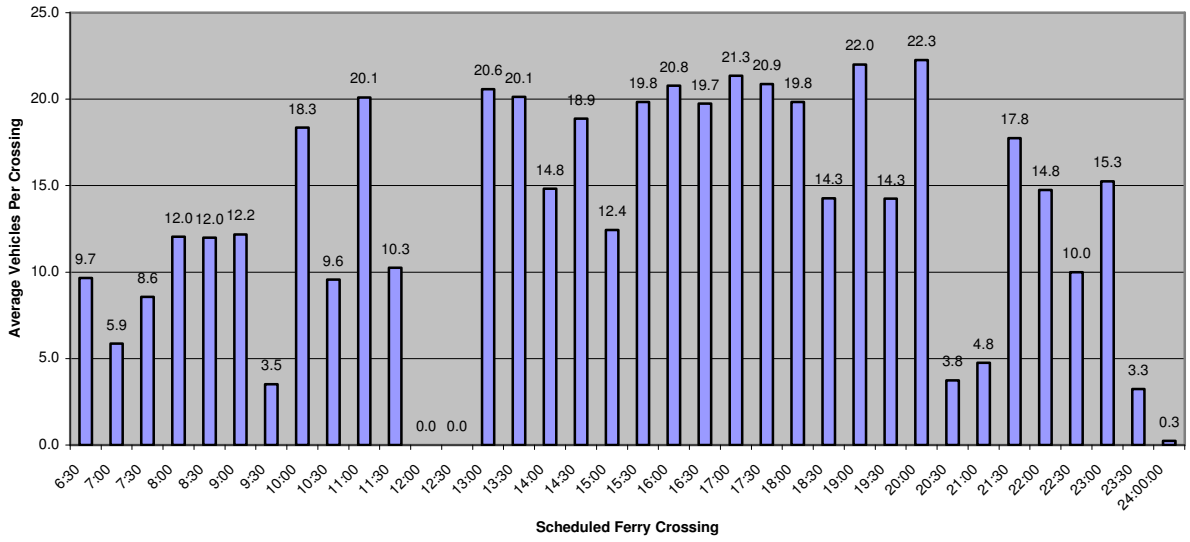


Figure 2-13 shows that in August 2000, scheduled weekday ferry crossings from Anacortes to Guemes Island experienced moderate vehicle ridership before 9:30am and then increased from 10:00am to 12:00pm. Normally, there are no ferry crossings scheduled between 12:00pm and 1:00pm. Fairly consistent heavy vehicle ridership

occurred during the weekday afternoon and evening hours. The vehicle capacity of the M/V Guemes is 22 cars and approximately 10 (66%) of the 15 scheduled ferry crossings between 1:00pm and 8:00pm carried an average of 20 or more vehicles. The remaining five scheduled ferry crossings between 1:00pm and 8:00pm experienced moderate to heavy vehicle ridership. It is important to note that ferry service stops at 6:00pm Monday – Thursday, but continues until 12:00am on Friday evenings. This is reflected in the sharp decrease in average vehicles carried on the scheduled 6:30pm ferry crossing, as it is only offered on Fridays. It is also evident that there was a significant amount of vehicle ridership from Anacortes to Guemes Island on Friday nights in August 2000. In fact, the 7:00pm and 9:00pm Friday night ferry crossings both reached the maximum M/V Guemes vehicle capacity of 22 vehicles. During Friday night hours after 8:00pm, vehicle ridership decreased, but still averaged moderate levels.

Figure 2-14 shows that in August 2000, scheduled weekend ferry crossings between Anacortes and Guemes Island carried fewer vehicles on average than scheduled weekday ferry crossings. Scheduled weekend ferry crossings experienced fairly light vehicle ridership before 11:00am, light to moderate vehicle ridership between 11:30am and 7:00pm, and light vehicle ridership after 7:00pm. No single scheduled weekend ferry crossing averaged more than 17 vehicles. It is important to note that ferry service is scheduled until 12:00am on Saturdays, but only 10:00pm on Sundays. This is reflected in the significant decrease of vehicle crossings after 10:00pm.

Figure 2-14 Average Vehicles Per Weekend Ferry Crossing, August 2000. (Anacortes to Guemes Island)

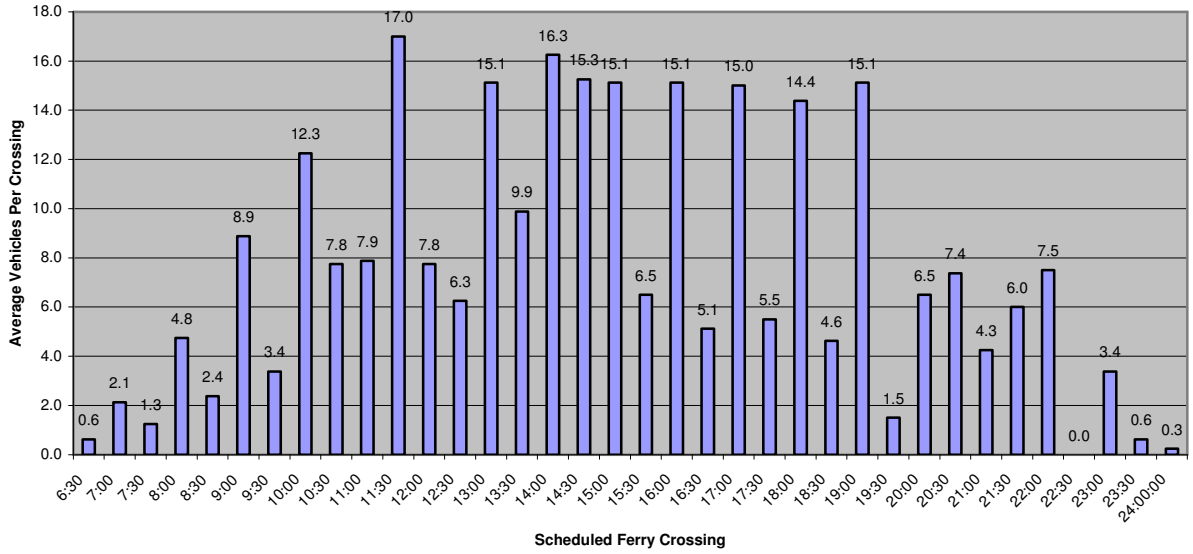


Figure 2-15 depicts average vehicle ridership on scheduled weekday ferry crossings from Guemes Island to Anacortes in August 2000 and shows a dramatically different picture than Figures 2-13 and 2-14. There was fairly consistent heavy vehicle ridership throughout the morning hours from 6:45am to 11:45am. Heavy vehicle ridership continued during early afternoon hours from 1:15pm to 1:45 and then decreased to moderate levels from 2:15pm through 5:45pm. Approximately 5 (33%) of the 15 scheduled ferry crossings between 6:45am and 1:45pm carried an average of 20 or more vehicles. It is important to note that ferry service stops at 6:00pm Monday – Thursday, but continues until 12:00am on Friday evenings. The scheduled Friday 6:15pm ferry crossing carried a moderate number of vehicles on average, but then decreased to extremely light vehicle ridership throughout the evening and night hours of operation. Figure 2-13 shows a significant amount of vehicles crossing from Anacortes to Guemes Island on Friday nights in August 2000 whereas Figure 2-15 shows very few vehicles crossing from Guemes Island to Anacortes on Friday nights.

Figure 2-15 Average Vehicles Per Weekday Ferry Crossing, August 2000 (Guemes Island to Anacortes)

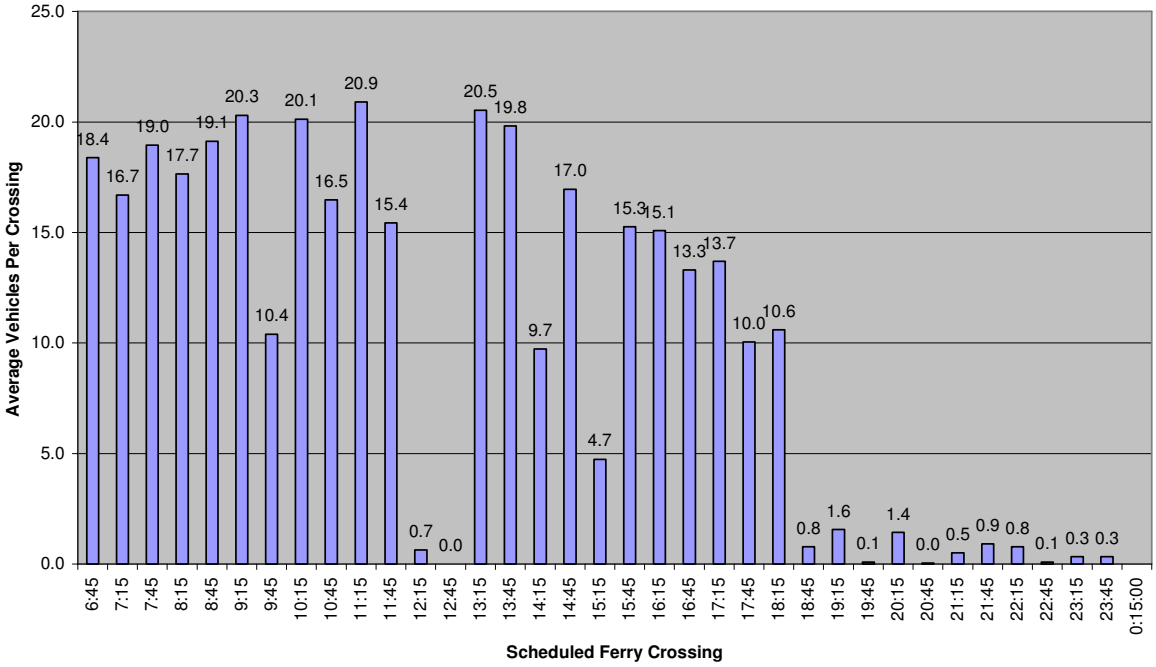
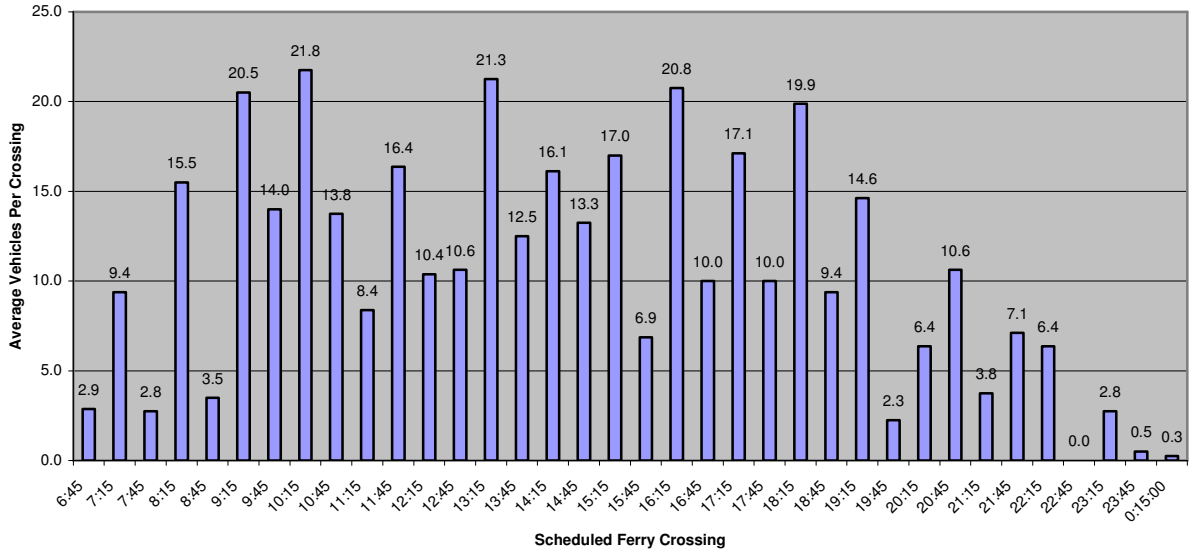


Figure 2-16 shows that in August 2000, scheduled weekend ferry crossings between Guemes Island and Anacortes carried fewer vehicles on average than scheduled weekday ferry crossings. Scheduled weekend ferry crossings experienced light to moderate vehicle ridership before 9:15am, moderate to heavy vehicle ridership between 9:15am and 7:15pm, and light vehicle ridership after 7:15pm. In general, scheduled weekend ferry crossings from Guemes Island to Anacortes experienced more vehicle ridership than scheduled weekend ferry crossings from Anacortes to Guemes Island. Approximately 5 (26%) of the 19 scheduled weekend ferry crossings from Guemes Island to Anacortes between 9:15am and 6:15pm carried an average of 20 or more vehicles.

Figure 2-16 Average Vehicles Per Weekend Ferry Crossing, August 2000 (Guemes Island to Anacortes)



F. STATE FERRY SERVICE

The Washington State Department of Transportation (WSDOT) Marine Division provides ferry service to the San Juan Islands and to Vancouver Island in British Columbia through its terminal facility in Anacortes. In addition to this service being the transportation lifeline for the residents of the San Juan Islands, it also serves the needs of vacationers and recreational visitors to the area.

In 2000, Washington State ferry service from Anacortes accommodated 2,023,809 total riders, including 926,223 vehicle and drivers and 1,097,586 passengers (both vehicle passengers and foot passengers). Of the total riders, 1,849,190 were traveling to and from destinations in the San Juan Islands and the remaining 174,619 were traveling to and from Sidney, British Columbia. On an average about, 5,545 riders use the system daily, with about 2,500 being vehicle and drivers and about 3,000 passengers. Historic data shows that August is the month with the highest ridership while January is usually the month with the lowest. August ridership is generally about triple that in January.

G. TRANSIT

There are several types of transit services currently available in Skagit County. On the public side, these can be classified as: 1) general public transit; and 2) Dial-A-Ride service for the elderly and handicapped. Both of these services are provided by Skagit Transit (SKAT), Skagit County's only public transit system. There are also private transit companies providing bus service in Skagit County.

1. General Public Transit

In November of 1993, the first Skagit Transit busses began providing daily transit service within the cities of Burlington and Mount Vernon. This service was the cu1mination of many years effort to initiate public transit service in Skagit County. It was finally made possible in 1992 when voters in these two cities approved an increase in sales tax of .2% to support the Public Transportation Benefit Area *(PTBA).* Following the early success of the new SKAT system, LaConner, Anacortes, and Sedro-Woolley, along with some adjacent and connecting unincorporated areas voted in 1994 to be included in the Public Transportation Benefit Area. During the Fall of 1995, the most recent expansion of the service area took place as voters approved the expansion of the benefit area to the upriver communities, to the north County area, and to additional locations on Fidalgo Island. All of the unincorporated areas involved in these expansions are now being served either by fixed route service or demand responsive service. It should be noted that the Guemes Island Ferry terminal in Anacortes is now served by SKAT buses.

As of April 2000, SKAT had 20 busses available for fixed route operations, nearly all in the 30 to 40-foot range. SKAT's total fixed-route ridership in 2000 was 1,124,081 and average daily ridership was 3,080. This represents a 137% increase in total ridership from 1994-2000 and a 20% increase in average daily ridership from 1995 to 2000. SKAT fixed-route busses drove a total of 883,476 revenue miles in 2000. SKAT also has 15 dial-a-ride busses, all of which have wheelchair lifts and can accommodate two wheelchair passengers. Dial-a-ride service ridership in 2000 was 43,207. SKAT dial-a-ride busses drove a total of 237,677 revenue miles in 2000.

When SKAT initiated public transit service in 1994, five routes were offered in the Mount Vernon-Burlington area. As of April 2000, SKAT offers 11 fixed routes throughout western Skagit County with additional, but less frequent service to Concrete.

Currently the rural areas served by fixed routes are the SR-20 corridor from Burlington to Anacortes, the SR- 20 corridor from Burlington to Concrete, the SR-9 corridor from SR-538 in East Mount Vernon through Clear Lake to Sedro-Woolley, and the Skagit Flats between West Mount Vernon and La Conner along McLean Road and La Conner-Whitney Road. (See Maps 4a and 4b, attached to this document) Some demand responsive service is provided for much of the north County area, most of Fidalgo Island east of the Swinomish Reservation, and most of the SR-20 corridor between Concrete and Marblemount.

From 1994 through April 2001, SKAT public transportation was fare free. Initiative 695 was approved by Washington voters in November 1999, which eliminated funding and resulted in extreme budget cuts to public transportation service across the state. As a result, SKAT implemented a rider fare of 50 cents with a 90-minute transfer policy beginning in May 2001.

2. Dial-A-Ride Transit for Elderly and Disabled

Prior to 1995, the Skagit Council on Aging (SCOA) had been providing a door-to-door dial-a-ride transportation service to the elderly and handicapped of Skagit County. For about 15 years this service, which extended throughout the populated areas of Skagit County, functioned as the only public transit system in the County. When SKAT was first initiated, SCOA began contracting with SKAT to provide this service. On January 1, 1995, SCOA bowed out of the paratransit service business completely as SKAT assumed sole responsibility for serving the County's elderly and handicapped citizens. SKAT purchased all of SCOA's rolling stock and brought existing SCOA transit staff in as regular SKAT employees. This change was done to better comply with the American Disabilities Act (ADA) requirements and to improve the overall quality and efficiency of service.

3. Private Transit

There are several private bus carriers operating within Skagit County's boundaries. Greyhound provides intercity, interstate, and international bus service to Mount Vernon along the I-5 corridor. Wickiser International of Bellingham provides scheduled intercity bus service in Skagit County through its Airporter Shuttle. Ten round trips per day are provided between Bellingham and Sea-Tac Airport, stopping in Mount Vernon and other locations along the I-5 corridor. A branch line airporter service is provided between Mount Vernon and Oak Harbor, stopping in Anacortes. This has eight round trips

per day (10 in summer), and its schedules are synchronized with those for the I-5 corridor service to provide for immediate transfer at Mount Vernon.

4. Shuttle Service

Skagit Transit also provides ferry shuttle service from a close-in park and ride lot in the Anacortes area to the Washington State ferry terminal. Service is provided during the heavily traveled periods from mid May through the first of October. Express shuttle service is offered Friday, Saturday, and Sunday between the hours of 6:30 a.m. through 9:30 p.m. SKATs regular bus service provides local trips to and from the park and ride lot to the ferry seven days a week. A park and ride lot is available at March's Point located just outside the Anacortes city limits. It accommodates 150 automobiles and provides interconnecting transit service among Whidbey Island, Skagit County, and the state ferry terminals.

H. RAIL

1. Freight Rail

The Burlington Northern Santa Fe (BNSF) Railroad is the one major railroad that serves Skagit County. It is an international company with a vast network of tracks in the Midwest and Western United States. It also owns a huge fleet of rolling stock to serve its customers. In Skagit County, it has one mainline, two branch lines, and numerous active spurs in the western part of the County that provides a freight rail service with connectivity regionally, nationally, and internationally. The main switching yards for the BNSF Railroad in Skagit County are located in Burlington.

The north/south BNSF mainline generally runs along the I-5 corridor connecting the urban centers of Seattle and Vancouver, British Columbia. From the Snohomish County line, it runs north along Pioneer Highway to Conway. From there it runs more or less parallel to I-5 all the way to Cook Road then veers northwest to eventually parallel SR -11 (Chuckanut Drive) all the way to the Whatcom County line. An east/west branch follows along SR-20 connecting the March's Point refineries to the mainline in Burlington. A second branch line runs along SR-20 from Burlington to Sedro-Woolley, then turns north and eventually parallels SR-9 to the Whatcom County line. That branch line eventually crosses the Canadian border at Sumas. The location of the Burlington Northern Santa Fe Railroad tracks are shown on Map 3A

In 1993, 172,209 rail carloads were transported in and through Skagit County on the BNSF mainline. Of this only about 5% was generated within the County borders. The remaining 95% was pass through freight traffic.

2. Passenger Rail

In 1993 the rail corridor from Eugene Oregon to Vancouver, British Columbia was selected by the federal government as one of several high priority passenger rail corridors eligible for funding for upgrades. In response to this designation, the State of Washington (in conjunction with the then Burlington Northern Railroad) committed substantial funding to make track improvements in order to accommodate the reestablishment of Amtrak passenger rail service between Seattle and Vancouver. The Burlington/Mount Vernon area was selected for the future location of a new passenger terminal.

In the Spring of 1995, this new Amtrak service began with one round trip daily. In 2001, there are two round trips daily, with stops in Everett, Mount Vernon and Bellingham. One-way travel time between Seattle and Vancouver is three hours and 55 minutes. The travel time from Mount Vernon to both Seattle and Vancouver is just under two hours. In 1999, Amtrak reported that 9,589 passengers boarded the train in Mount Vernon. In 2000, this number increased by over 71% to 16,421 passengers boarding in Mount Vernon. The City of Mount Vernon plans to build a new downtown multi-modal center that will accommodate train passengers and allow easy access to public transit throughout Skagit County. Future plans for expansion of train service depend upon state and federal funding.

I. PORTS, INTERMODAL & MULTIMODAL FACILITIES

Ports and other intermodal and multimodal facilities are a part of the overall transportation system that are often ignored in local transportation studies and plans because they are not generally under the jurisdiction of local government. Yet they represent transportation components that are integral to the functioning of the local and regional economy. In Skagit County, this importance has been recognized by all the jurisdictions and entities represented in the Skagit Sub-Regional Transportation Planning Organization. With this in mind, the Sub-RTPO entered into a joint effort with WSDOT, the Port of Skagit County, and the Port of Anacortes to fund an Air, Rail, Water, and Port Transportation Study for the Skagit County region. That study was completed in early 1996 and was subsequently adopted as a part of the Regional Transportation Plan. Information

from that study has been incorporated in this and other sections of the Transportation Systems Plan.

1. Marine Ports

The marine ports in Skagit County function as important intermodal transportation centers as well as important centers for economic or recreational activity. Fifteen commercial piers, wharfs, and docks are located in the Anacortes area along Guemes Channel, along Swinomish Channel, on the west shore of Fidalgo Bay, and at March's Point.

a. Port of Anacortes Marine Terminal

The Port of Anacortes marine terminal facilities and services include a deep-water port with four barge and ship berths. The port serves as an intermodal facility for linking deep water shipping and trucking. The types of shipping handled at the port are logs, steel, lumber and dry bulk commodities. The Port of Anacortes is the only port in the U.S. with its own log debarker. In 2000, the Port handled approximately 252,750 metric tons of cargo, most of which was petroleum coke from the refineries at March's Point.

b. March's Point

The two petroleum refineries at March's Point, Equilon and Tesoro, both have deep water terminals which can accommodate ocean going oil tankers. At this location, crude oil, refined petroleum products, and byproducts from the refinery process are transported in and out by ship, rail, and truck. Pipelines to the refinery facilities provide for the transport of oil products as well. These two petroleum companies provide high wage jobs for over 700 employees at March's Point. The waterborne commerce activities at March's Point dwarfs those of other locations in the County with an estimated 11.66 million metric tons of cargo in 1992.

c. Other Marine Terminal Facilities

Other marine terminal facilities in Skagit County include the Dakota Creek Shipyard; the City of Anacortes's barge dock, boat launch, and boat ramp on Fidalgo Bay; Dunlop Towing's log-rafting facility in Swinomish Village; and the Swinomish Tribe's Industrial District pier at the north end of Swinomish

Channel. Over 600,000 metric tons of cargo are transported through the Swinomish Channel each year .

d. Marinas & Boat Harbors

There are 14 marinas and boat harbors in Skagit County. The City of Anacortes is the location for three of the five largest. The LaConner area is the location of the other two.

The Cap Sante Boat Haven, owned and operated by the Port of Anacortes, is located on the east side of Anacortes on Fidalgo Bay. With 1,150 boat slips, it accommodates a large group of commercial fishing vessels as well as well as recreational boating and is one of the largest marinas in the state. Anacortes Marina, also on the west side of Fidalgo Bay is privately owned as are the marina facilities at Flounder Bay on the western side of Anacortes. The Flounder Bay facilities include the Skyline Marina, the Flounder Bay Yacht Club, Condominium # 17, and individual residential moorages.

Another large marina in Skagit County is the LaConner Marina. Owned and operated by the Port of Skagit County, it accommodates recreational boating on both sides of Fidalgo Island through the Swinomish Channel. It also accommodates large tourist vessels, especially during the Tulip Festival. Also in the immediate area is the privately owned marina at Shelter Bay.

The five large marinas in Skagit County, Cap Sante Boat Haven, Anacortes Marina, Flounder Bay, LaConner Marina, and Shelter Bay Marina comprise a total of 3,025 slips, or about 90% of the total moorage in the County. These marinas are all available to be used for emergency water transportation and evacuation if the highway system ever becomes impassable.

2. Airports

There are three municipal airports in Skagit County, the Anacortes Airport, the Skagit Regional Airport, and the Concrete Airport.

a. Skagit Municipal Airport

The Skagit Regional Airport, also called Bayview Airport, is operated by the Port of Skagit County and is adjacent to the

Bayview Business & Industrial Park west of Burlington. The airport is used for general aviation and has runways of 5,475 feet and 3,000 feet in length which can accommodate all aircraft with 30 passenger capacity or less. It also provides a charter service, primarily for passengers in route to the San Juan Islands. In 2000, there were approximately 80,000 take-offs and landings, with approximately 1,400 being air cargo operations. The vast majority of activity at the airport is general aviation. In 2000 there were 130 aircraft based at Skagit Regional Airport.

b. Anacortes Airport

The Anacortes Airport is a general aviation airport operated by the Port of Anacortes with a 3,018-foot runway serving Bellingham and the San Juan Islands. Numerous charter flights originate from the airport serving Sea- Tac Airport and Boeing Field (business travelers), and the San Juan Islands (tourist travelers). The airport has 39 covered hangars and 75 open tie-downs for private and recreational craft. In 2000, there were 15,070 take-offs and the number of paying passengers taking off from the airport was 8,847.

c. Concrete Airport

The Concrete Airport operates a charter service for business and tourist travel, and provides a general aviation facility for the eastern part of Skagit County. The only heavy usage period for the airport is in mid-May when the annual fly-in takes place. Up to 300 airplanes participate each year.

3. Other Intermodal/Multimodal Facilities

a. Multi-modal Center

The City of Mount Vernon plans to build a centralized multi-modal center in the heart of downtown Mount Vernon to accommodate the needs of rail and bus passengers as well as pedestrians and bicyclists in Skagit County. Amtrak Cascades passenger rail service will be accommodated as well as SKAT public transportation and Greyhound bus service to local and regional airports and ferry terminals. The location in downtown Mount Vernon will allow pedestrians and bicyclists easy access to local sidewalks and trails in central Skagit County.

b. Washington State Ferry Terminal

The Washington State Ferry Terminal in Anacortes functions as a significant regional intermodal passenger transportation facility. The available parking at the terminal allows travelers to leave their car in Anacortes and walk on or take a bicycle on the ferry. Some San Juan Island residents and property owners keep one vehicle on the island and one on the mainland, thus allowing them to travel on the ferry as walk on passengers. Since the ferry capacity constraint is related to vehicles not passengers, this increases the efficiency of the ferry system.

J. FREIGHT TRAFFIC

1. Types of Freight Traffic

The Air, Rail, Water, and Port Transportation System Study breaks down commodity traffic into three types: that which passes through the County; that taking place within the County; and that going between locations inside and outside of the County. Examples for each type are shown below:

a. Transport of commodities through the County.

Examples include shipments between Canada and the Ports of Seattle and Tacoma, other industrial and consumer goods transported between the U.*S.* and Canada, U.*S.* bulk exports through Canadian terminals, and inter county shipments within Washington passing through Skagit County.

b. Transport of goods within Skagit County.

Examples include logs moving from harvesting areas to local mills, agricultural products moving from fields to distribution facilities, and petroleum coke moving from the refineries to the Port of Anacortes for export.

c. Transport of commodities between locations inside and outside of the County.

This type is the largest of the three in terms of its in1pact on the local road and highway network. Examples include such things as wood, agricultural, fish, and seafood products

manufactured in the County for distribution elsewhere as well as consumer and industrial products moving from other U.S. location to Skagit distribution/retail centers.

2. Freight Volumes

The unadopted 1994 Air, Rail, Water, and Port Transportation System Study included a detailed survey of transportation users and transportation providers in Skagit County, with interviews of over 100 companies. This survey along with other available data led to estimates by the study's consultant of freight volumes generated within Skagit County. These volumes did not include the freight which passed through the County. The base year of 1994 was used in the analysis.

For 1994, the total freight tonnage generated by industry in Skagit County was estimated to be about 30 million metric tons. Over 62% of this tonnage was attributable to the oil refineries at March's Point. The next largest freight generating industrial segments, Retail and Other Manufacturing, each accounted for less that 7% of the total. Agriculture and Logging, two traditional mainstays of the local economy, accounted for only 2.3% and 2.6% of the total respectively. The multimodal category that accounted for about 6% of the total includes facilities which move goods from one mode to another. See Figure 2-17 for other industrial sector percentages.

From another perspective, we can look at the freight generated within the County based on the transportation mode that is used in its transport. Of the 30 million metric tons generated in 1994, approximately 40% was transported by truck, 32% by water, and 26% by pipeline. (See Figure 2-18.) Only 2% of the freight was transported by rail. Of that 2% rail freight, over 75% of it was generated by the oil refineries at March Point. (See Figure 2-19)

FIGURE 2-17 Freight Tonnage by Industry, 1994

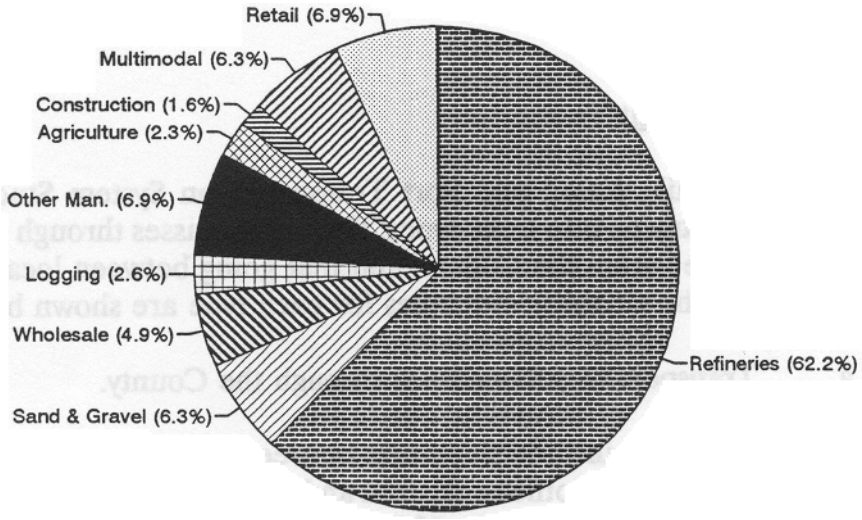


FIGURE 2-18 Freight Tonnage by Mode, 1994

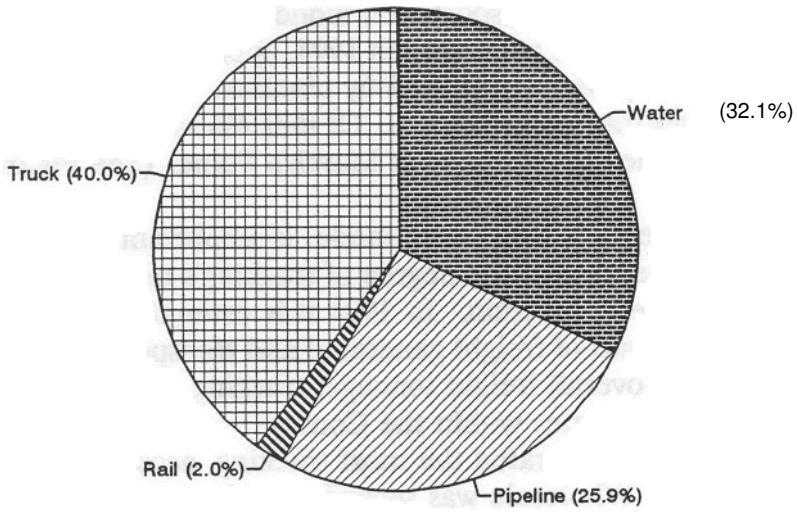


FIGURE 2-19 Rail Loads by Industry, 1994

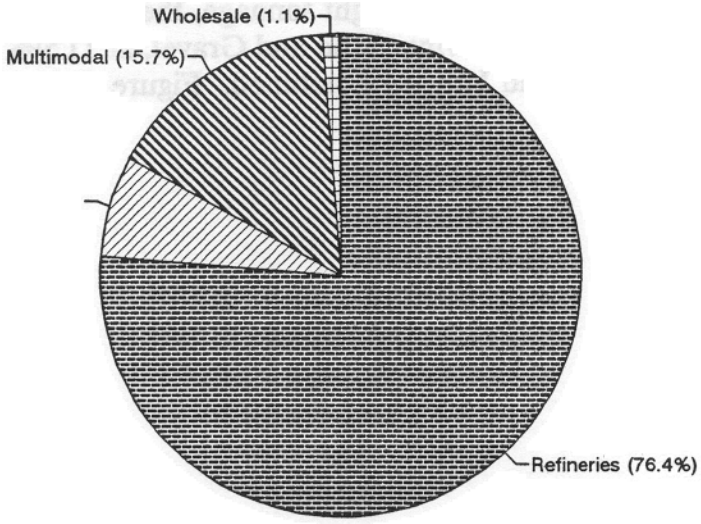
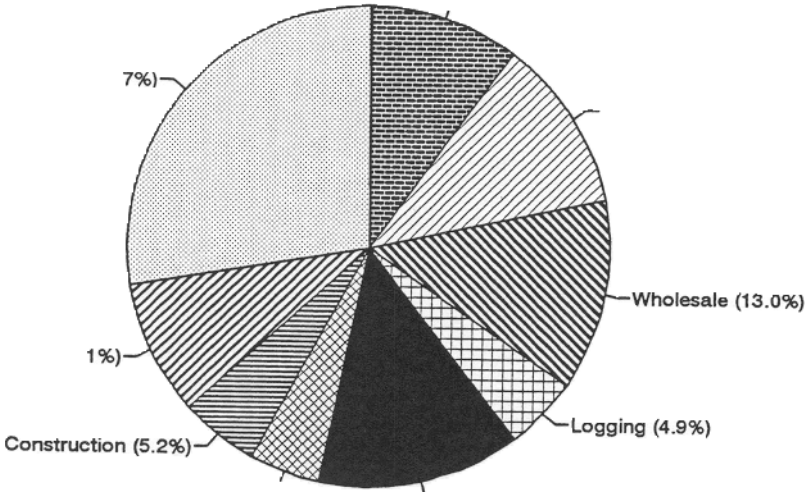


FIGURE 2-20 Truck Loads by Industry, 1994



Trucking is very important for the Transportation Systems Plan because of the degree of trucking reliance on the County road system to properly function. In 1994 it was estimated that there were over 770,000 truck loads of freight generated and transported in Skagit County. In contrast to the overall freight tonnage, trucking freight is broadly distributed among many industries within the County.

The retail sector generated the most trucking, accounting for nearly 28% of the 1994 total. Wholesale was second at 13%. Thus the trade

sector (retail plus wholesale) accounted for over 40% of the total. In contrast to its dominance_in overall freight tonnage, the refineries accounted for only 10% of the trucking activity. Sand and Gravel, at 11.5%, accounted for more than Agriculture and Logging combined. Figure 2-20 shows the entire breakdown.