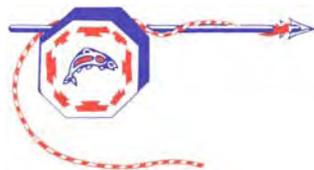

Swinomish Transportation Plan

Review Draft
October 2011



Swinomish Indian Tribal Community
Office of Planning & Community Development
11430 Moorage Way, LaConner, WA 98257

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	PURPOSE OF UPDATE.....	1
1.2	SWINOMISH INDIAN RESERVATION LOCATION.....	1
1.3	SWINOMISH TRIBAL COMMUNITY DEMOGRAPHICS.....	3
1.4	GENERAL DEVELOPMENT TRENDS AND CONDITIONS.....	4
1.5	TRIBAL DEVELOPMENT GOALS AND TRANSPORTATION POLICIES.....	5
2.0	TRANSPORTATION SYSTEM FACILITIES.....	7
2.1	OVERVIEW OF THE SWINOMISH RESERVATION TRANSPORTATION SYSTEM.....	7
2.2	SWINOMISH INDIAN RESERVATION ROADWAY (IRR) INVENTORY.....	9
2.3	BIA AND TRIBAL ROADWAY FUNCTIONAL CLASSIFICATION.....	14
2.4	ROADWAY DESIGN STANDARDS.....	17
3.0	EXISTING TRANSPORTATION CONDITIONS AND DEFICIENCIES.....	18
3.1	EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE.....	18
3.2	VEHICLE COLLISION DATA.....	22
3.3	EXISTING ROADWAY DEFICIENCIES.....	23
3.4	EXISTING PUBLIC TRANSIT.....	28
3.5	EXISTING PUBLIC TRANSIT DEFICIENCIES.....	32
3.6	EXISTING NON-MOTORIZED FACILITIES.....	33
3.7	EXISTING NON-MOTORIZED SYSTEM DEFICIENCIES.....	34
3.8	EXISTING FREIGHT SYSTEM DEFICIENCIES.....	36
3.9	EXISTING FREIGHT SYSTEM DEFICIENCIES.....	40
4.0	FUTURE TRANSPORTATION CONDITIONS AND DEFICIENCIES.....	41
4.1	TRAFFIC FORECASTING METHODOLOGY.....	41
4.2	FUTURE TRAFFIC VOLUMES AND LEVELS OF SERVICE.....	43
4.3	FUTURE ROADWAY DEFICIENCIES.....	46
4.4	FUTURE PUBLIC TRANSIT RIDERSHIP FORECASTS.....	48
4.5	FUTURE PUBLIC TRANSIT DEFICIENCIES.....	49
4.6	FUTURE NON-MOTORIZED SYSTEM FORECASTS.....	49
4.7	FUTURE NON-MOTORIZED SYSTEM DEFICIENCIES.....	50
4.8	FUTURE FREIGHT SYSTEM FORECASTS.....	50
4.9	FUTURE FREIGHT SYSTEM DEFICIENCIES.....	51
5.0	CLIMATE CHANGE CONSIDERATIONS FOR TRANSPORTATION PLANNING.....	52
5.1	BACKGROUND.....	52
5.2	ANTICIPATED IMPACTS ON FACILITIES.....	52
5.3	ADAPTATION.....	53
5.4	REGIONAL TRANSPORTATION COORDINATION.....	54
5.5	MITIGATION.....	56
6.0	TRANSPORTATION IMPROVEMENT PLAN.....	57
6.1	SHORT-RANGE TRANSPORTATION RECOMMENDATIONS.....	57
6.2	LONG-RANGE TRANSPORTATION RECOMMENDATIONS.....	59
6.3	TRANSPORTATION PLANNING STUDIES.....	61
7.0	PUBLIC INVOLVEMENT.....	64

LIST OF FIGURES

FIGURE 1: SWINOMISH TRIBAL COMMUNITY RESERVATION	2
FIGURE 2: ROADS SERVING THE SWINOMISH INDIAN RESERVATION.....	9
FIGURE 3: SWINOMISH 2008 INDIAN RESERVATION ROADWAY (IRR) ADDITIONS.....	11
FIGURE 4: SWINOMISH 2011 INDIAN RESERVATION ROADWAY (IRR) INVENTORY	13
FIGURE 5: SWINOMISH 2011 INDIAN RESERVATION ROADWAY (IRR) FUNCTIONAL CLASSIFICATION SYSTEM.....	16
FIGURE 6: 2007 TRAFFIC VOLUMES - AVERAGE WEEKDAY AND PM PEAK HOUR.....	19
FIGURE 7: TRANSIT FIXED ROUTE SERVICE COVERAGE.....	31
FIGURE 8: RECOMMENDED WA FREIGHT AND GOOD SYSTEM (FGTS) DESIGNATIONS	39
FIGURE 9: SWINOMISH MODEL STUDY AREA.....	43

LIST OF TABLES

TABLE 1: LAND STATUS AND OWNERSHIP, SWINOMISH INDIAN RESERVATION - RESERVATION LAND BY OWNERSHIP 2007.....	3
TABLE 2: EMPLOYMENT WITHIN SWINOMISH INDIAN RESERVATION - HISTORIC AND PROJECTED EMPLOYMENT: 1980-2025.....	3
TABLE 3: POPULATION WITHIN SWINOMISH INDIAN RESERVATION - HISTORIC AND FUTURE POPULATION: 1980-2025.....	5
TABLE 4: 2011 INDIAN RESERVATION ROADS (IRR) INVENTORY.....	12
TABLE 5: ROADWAY FUNCTIONAL CLASSIFICATION SYSTEMS DESCRIPTION	14
TABLE 6: BIA FUNCTIONAL CLASSIFICATION GUIDE FOR IRR INVENTORY	15
TABLE 7: SKAGIT COUNTY ROADWAY DESIGN STANDARDS.....	17
TABLE 8: 2007 TRAFFIC VOLUMES AND LEVEL OF SERVICE (LOS)	20
TABLE 9: 2006 INTERSECTION PM PEAK HOUR LEVEL OF SERVICE.....	21
TABLE 10: SWINOMISH HISTORIC TRAFFIC COLLISION DATA COMPARISON	22
TABLE 11: NORTH ECONOMIC ZONE COLLISION DATE COMPARISON.....	22
TABLE 12: SUMMARY OF EXISTING ROADWAY SYSTEM DEFICIENCIES.....	27
TABLE 13: SKAGIT TRANSIT ROUTE RESERVATION BUS STOP LOCATION	29
TABLE 14: SUMMARY OF EXISTING TRANSIT SYSTEM DEFICIENCIES	33
TABLE 15: INVENTORY OF PEDESTRIAN FACILITIES - DECEMBER 2007.....	33
TABLE 16: SUMMARY OF EXISTING NON-MOTORIZED SYSTEM DEFICIENCIES.....	36
TABLE 17: EXISTING FREIGHT TRANSPORTATION SYSTEM DEFICIENCIES.....	40
TABLE 18: 2007 AND 2025 TRAFFIC VOLUMES AND LEVELS OF SERVICE	44
TABLE 19: FORECASTED 2025 INTERSECTION LEVEL OF SERVICE.....	46
TABLE 20: SKAGIT TRANSIT ROUTE 615 RIDERSHIP FORECASTS	49
TABLE 21: SUMMARY OF FUTURE TRANSIT SYSTEM DEFICIENCIES	49
TABLE 22: RECOMMENDED SHORT-RANGE (2011-2016) TRANSPORTATION IMPROVEMENT PROJECTS.....	62
TABLE 23: RECOMMENDED LONG-RANGE (2017-2025) TRANSPORTATION IMPROVEMENT PROJECTS.....	63

APPENDICES

- Appendix A: Intersection Level of Service Reports
- Appendix B: Tribal Economic Zone Forecasts and Land Use Assumptions
- Appendix C: Fidalgo Access Corridor Preservation Proposal

1.0 INTRODUCTION

1.1 Purpose of Update

The Swinomish Indian Tribal Community is planning for the future development of its transportation system within and serving the Swinomish Indian Reservation. Toward that end, the Swinomish Transportation Plan is a primary guiding document, as a key component of the Swinomish Comprehensive Plan. A critical element of the Plan is the characterization of a viable transportation system that will service future travel levels generated by population growth and planned future development. Other key considerations for development of the Reservation transportation system include provisions for multimodal transportation and response to climate change impacts.

The purpose of this report is to:

- Provide updated information on the condition and performance of existing transportation facilities and services within and providing access to the Reservation Area, based on changing or emerging factors affecting facilities and circulation as well as development trends;
- Present calculations of the impacts of future land use growth on the transportation system, including future traffic forecasts for the year 2025;
- Identify where future transportation system deficiencies are expected to occur based on future travel levels and traffic level of service (LOS) analysis; and to
- Recommend transportation improvements based on existing and future system deficiency analysis.

Existing transportation system information maintained by the Swinomish Tribal Community as well as the Washington State Department of Transportation (WSDOT), Skagit County, the City of Anacortes, Skagit Transit, and the Bureau of Indian Affairs (BIA) was also included as part of this report.

Future traffic forecast for the years 2025 were provided by the Skagit Council of Governments (SCOG) traffic model which was augmented with more detailed forecast land use data provided by Skagit County and the Swinomish Tribal Community.

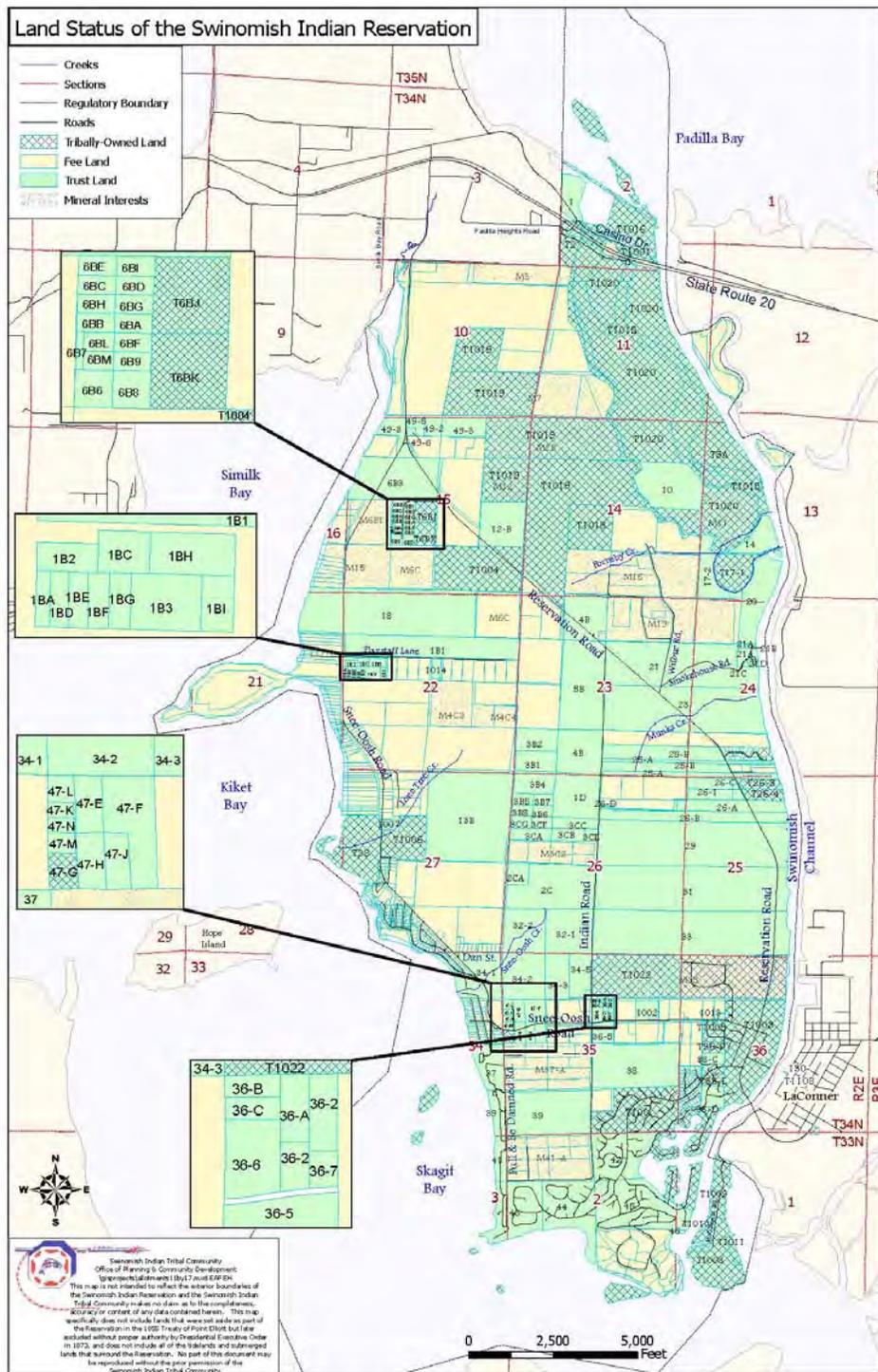
1.2 Swinomish Indian Reservation Location

The Swinomish Reservation is located in Skagit County, Washington, which is east of the Olympic Mountains and Puget Sound and west of the Cascade Mountain Range. As shown in **Figure 1**, the Reservation is 12.1 square miles.

The Reservation encompasses the southern portion of Fidalgo Island and is bound on the north by State Route 20, on the south by Skagit Bay, on the west by Skagit and Similk Bays and on the east by the Swinomish Channel. The Town of La Conner is directly across the channel and the

City of Anacortes borders the reservation on the northwest. The cities of Mount Vernon and Burlington are located 10 miles east of the reservation near I-5.

Figure 1: Swinomish Tribal Community Reservation



1.3 Swinomish Tribal Community Demographics

Population - The total Indian and non-Indian population on the Swinomish Reservation is estimated to be about 3,000 in 2007. The enrolled population is 778 and the Indian population living on or near the reservation is about 1,000. Sixty-four percent are adults between 16 to 64 years of age. Tribal government estimates the Reservation population will grow at a rate of two to three percent per year and increase to about 3,600 by 2015.

In 2010, the population of Skagit County was 116,309. The Indian share accounted for about 2.2 percent, slightly above the 1.5 percent state share reported in 2010. The County’s seven cities are Anacortes, Burlington, Concrete, Hamilton, La Conner, Lyman, Mount Vernon and Sedro-Woolley. In 2007, an estimated 58% of the County’s population resides in the incorporated cities and towns with 42% living in unincorporated areas.

Land Status and Ownership - The tribal community directly owns over 2,000 upland acres and approximately 2,900 acres of tideland. Individual members own 38 percent of the land. Fee simple, non-Indian owned lands account for 35 percent of the base. Ownership is shown in **Table 1**.

Table 1: Land Status and Ownership, Swinomish Indian Reservation Reservation Land by Ownership 2007		
Ownership	Acres	Percentage
Non-Indian	2,585	35
Individual Indian	2,835	38
Tribal	2,030	27
TOTAL	7,450	100
Tidelands	2,900	

Employment - Tribal government and the fishing industry generate most of the reservation jobs. Individual tribal businesses offer arts and crafts, commercial fishing, fish products, construction, landscaping and wood carving services. Existing and future forecasted employment on the Reservation is shown in **Table 2**.

Table 2: Employment Within Swinomish Indian Reservation Historic and Projected Employment: 1980 – 2025						
	1980	1990	2000	2006	2014	2025
Total Employment	n/a	n/a	n/a	538	925	1,300

The primary industries in Skagit County are timber, agriculture and food processing. According to the 2010 US Census, the county per capita income was \$54,335. The Washington State per capital income was \$56,479.

According to the 2000 US Census, the 2000 average unemployment rate of the American Indian and Alaska Native population on the Swinomish Reservation was 20.9% compared to 8.4% for all persons living on the Reservation. Skagit County’s average unemployment rate was 6.9% in 2000. According to the 2000 Census, the percentage of American Indian and Alaska Native population living below the federally defined poverty level in 1999 on the Reservation was

35.7% compared to 12.9% for all persons living on the Reservation. Skagit County's total population living below the poverty level in 1999 was 11.1%.

1.4 General Development Trends and Conditions

Increasing diversity and intensification of land uses is occurring within the Reservation including the Swinomish Village, the north Reservation Economic Zone, and within the Shelter Bay area. Urban land use patterns are also occurring immediately adjacent to the Reservation's boundaries in the neighboring City of Anacortes whose city limits now border the Reservation to the north, in the town of La Conner directly east across the Swinomish Channel, and nearby in Skagit County's Bayview unincorporated urban growth area (UGA). These development trends are consistent with both Tribal and neighboring local government comprehensive land use plans.

To provide for employment and housing needs, the Tribe is aggressively pursuing the following development initiatives:

North Reservation Economic Zone. The Tribe is pursuing economic development in a large Economic Development Zone on the north end of the Reservation with access to State Route 20 and rail links. Current development projects include a five-story, 100-room hotel with restaurant and convention facilities, to be located north of SR20. These proposed developments are in addition to the Tribe's existing casino, bingo hall, RV park and gas station/convenience store. The hotel project is proposed for completion by spring of 2012. The Tribe has also prepared a new economic development master plan¹ for a 120-acre tract south of SR20, to include a mix of commercial and retail businesses, cultural facilities, marine-oriented facilities and access, family-oriented resort facilities, and research and training facilities. These new uses are proposed for phased implementation over a longer timeframe through 2025.

Community Development. The Tribe prepared a new Capital Facilities Plan in 2008 detailing specific proposed new community facilities to be developed within the Swinomish Village area. The proposals include a new tribal administration building, law and justice center, and improvements to a number of existing facilities to increase functional workspace and capacity. The proposed facilities are scheduled for completion over approximately a ten-year timeframe. In addition, the Tribe is developing a small convenience store and gas station in the Swinomish Village to serve community residents and has undertaken improvements to nearby shoreline areas, with development of a major new waterfront park.

Housing. There were approximately 1600 housing units on the Swinomish reservation in 2010. Tribal housing is primarily concentrated in the Swinomish Village. Of the 140 village units, 100 are managed by the Swinomish Housing Authority, which plans to build 50 additional housing units within 10 years. Twenty-two new tribal housing units were completed in 2008 in a new development tract just north of the Village. Other largely non-tribal residences are clustered in shoreline areas along the west shore and in Shelter Bay, in the southern end of the Reservation. Most are privately owned.

¹ Swinomish Indian Tribal Community [Economic Development Zone Master Plan](#), March 2011

The subdivisions of Snee-Oosh, Shorewood, Sunnyslope and Reef Point consist of 101 homes on 128 lots. The Kiket subarea consists of 50 residences, mostly beach homes on 85 lots. The Pull and Be Damned subarea has 125 residences on 298 lots, of which 254 are owned in trust by tribal members. Shelter Bay is a private, mostly gated community consisting of 831 residences on 935 lots. Most of the 260-acre parcel is held in trust for the Tribe by the U.S. Government, under a long-term lease to the Shelter Bay Company.

The Tallawhalt subdivision just north of the Swinomish Village provides 39 lots for housing and one large lot for public uses, including a Northwest Indian College branch and a Shaker Church. Historic and future forecasted subarea populations are shown in **Table 3**.

As presented in **Tables 2 and 3**, official Tribal, County, and local City forecasts indicate that population and employment growth trends will continue into the future. By the year 2025, the population within the Swinomish Reservation alone is expected to grow to nearly 5,200 residents and 800 jobs. This population and employment growth, realized though increasingly urban-density land use patterns, is changing the character of the area and increasing the demand for urban services and facilities including transportation.

1.5 Tribal Development Goals and Transportation Policies

The future for the Swinomish Tribal Community is captured in its policy documents which provide long-terms goals, policies and implementation strategies. The four key policy documents include:

- ❖ The Swinomish Comprehensive Plan (1996);
- ❖ Swinomish Overall Economic Development Plan (FY93-94);
- ❖ Swinomish Comprehensive Economic Development Strategy (2010); and
- ❖ The Swinomish Transportation Plan (2009).

As outlined in the Swinomish Comprehensive Plan, pg. 41, the Tribal Community's long-term goals are:

- To promote the general welfare of the residents, both Indian and non-Indian living on the Reservation, by creating and maintaining conditions under which humanity and nature can exist in productive and enjoyable harmony.
- To ensure that the Reservation is a place of safe, healthful productive and aesthetically and culturally pleasing surroundings.
- To preserve areas of historic, archaeological and cultural significance.
- To foster and encourage the purchase of non-trust or tidelands on Reservation by the Tribal Community or Individual Tribal members when available.
- To ensure an environment that is compatible with the purposes for which the Reservation was created.

- To attain the widest range of beneficial uses of the environment without degradation, risk to health and safety, or other undesirable and unintended consequences.
- To promote the highest state of environmental compatibility, economic value, and productivity in the development of housing, employment, economic base activities, and leisure activities while ensuring the maintenance of the Swinomish Reservation as a social cultural, political, and economic unit for the continuing benefit of the Tribal members and all residents of the Reservation.
- To promote the maximum fulfillment of traditional cultural and religious tribal values and the continuance of a heritage of balanced dependence of community members on the renewable resources of the Reservation.
- To preserve, enhance, rehabilitate, and utilize the natural resources and amenities of the Reservation; and to recognize an obligation to future generations in the comprehensive management of the natural resources and amenities of the Reservation.
- To protect the maximum fulfillment of traditional tribal values and to continue a heritage of balanced dependence of community members on the tribal natural resources.
- To utilize renewable resources for the long-term benefit of the Reservation.
- To limit the use of the Reservation resources to economic development which results in positive long-term cost/benefit ratios.

To facilitate development of the on-Reservation transportation system and services, the Swinomish Tribal Community Council adopted the following transportation policies as part of the 1996 Swinomish Comprehensive Plan. Today these transportation policies are still relevant and continue to provide guidance for transportation decision making:

- A transportation network should be provided that will adequately satisfy the requirements for everyday access, tourism and emergency vehicle access and evacuation in a safe and effective manner.
- The Swinomish Transportation Plan should be updated every five years and modified on a yearly basis to reflect current transportation improvement needs. These efforts should coordinate county, state, federal and tribal road systems and their respective transportation improvement needs.
- Acknowledging that transportation problems and solutions are often regional in nature, the Tribe shall actively seek to coordinate its planning with regional planning agencies.
- Future expansion of the Skagit Transit Public Transportation Bus Service shall be coordinated to reflect on-Reservation transportation needs and shall emphasize the needs of senior citizens, the physically challenged, and the non-driving public and youth. Future Skagit Transit services should seek to serve Reservation employment centers.

- The ongoing maintenance and improvement of federal and county roads shall remain a priority for near-term tribal Transportation Improvement Project (TIP) listings.
- Coordinated road and utility networks should be planned to avoid encroachment onto critical aquifer recharge and watershed areas.
- Road and utility construction should be prohibited from areas subject to excessive erosion and/or accretion.
- Transportation routes should provide adequate rights-of-way to accommodate anticipated traffic volumes.
- Disruption of established communities and residential areas by new transportation facilities should be avoided.

The goal of the Swinomish Reservation Transportation Plan is to “*Enable the safe and efficient movement of people, goods and services on and to the Swinomish Reservation.*” In support of this goal, Transportation Plan objectives have been developed to help guide its development and implementation. The Plan’s objectives are to:

- Strengthen the reservation transportation infrastructure and services;
- Update the roads inventory and identify a six-year transportation improvement program (TIP) for incorporation in federal, state, County and regional funding programs; and
- Prepare a twenty-year transportation program, which reflects the cultural, economic and environmental values of the Swinomish people.

2.0 TRANSPORTATION SYSTEM FACILITIES

This chapter provides updated information about the current transportation system servicing the Swinomish Reservation including roads, highways, transit, freight and non-motorized transportation within the Reservation, and key connecting routes that provide surface transportation access to the Reservation. Current system inventories, operations data and physical characteristics, and system deficiencies are presented on each of the major transportation systems operating within the Reservation.

2.1 Overview of the Swinomish Reservation Transportation System

The transportation system serving the Swinomish Reservation is comprised of mostly rural transportation facilities and services. This system provides access to residential, commercial, government, civic, tribal cultural, health services, and natural resources located within the Reservation. The transportation system also provides for through-traffic and freight movement trips which originate and/or are destined beyond the Reservation’s boundaries.

An inventory of the Swinomish Reservation transportation system includes:

- Roads, highways, and bridges,
- Transit facilities and services,
- Non-motorized trails, sidewalks and road and highway shoulders, and
- Freight transportation facilities.

Rural transportation systems by definition typically serve a lower intensity and diversity of land uses that usually do not generate large amounts of vehicular or non-motorized traffic. They typically include roads with paved or gravel shoulders, and areas of limited transit service and access points (bus stops and transfer centers). In rural areas there is typically a minimal amount of non-motorized travel, with pedestrians and cyclists mainly traveling on road shoulders.

The rural transportation system serving the Swinomish Reservation has served the Reservation well in the past. However, a more urbanized transportation system is beginning to emerge within and adjacent to the Reservation being built to serve increasingly urban-density land use development patterns. Consistent with both Tribal and non-tribal comprehensive land use plans, increasing diversity and intensification of land uses has occurred within the Reservation including the Swinomish Village, the north Tribal economic zone, and the Shelter Bay area.

Urban land use development is also occurring immediately adjacent to the Reservation's boundaries in the neighboring City of Anacortes whose city limits now border the Reservation to the north, in the Town of La Conner directly east across the Swinomish Channel, and nearby in Skagit County's Bayview unincorporated urban growth area (UGA).

Official Tribal, County, and local City forecasts indicate that population and employment growth trends will continue through the planning horizon. This growth, realized though increasingly urban-density land use patterns, is changing the character of the area and increasing the demand for *multimodal* transportation facilities and services within the Swinomish Reservation. This demand is realized in increasing highway and arterial traffic volumes, higher volumes of heavy vehicle (truck) traffic, increased pedestrian and bicycle traffic, demand for increased transit service, and unfortunately, increasing traffic safety concerns.

In response, key highway and arterial routes providing access to the Reservation have been improved in recent years including installation of traffic signals on State Route (SR) 20 at the intersection of Reservation Road, and at SR 20 and Thompson Road, and the closure of the SR 20 and S. March's Point/Padilla Heights Road intersection. Skagit County has recently widened the northern section of Reservation Road located south of SR 20 to the intersection of Snee-Oosh Road. Other projects include additional traffic capacity and safety projects on SR 20 near I-5.

While these improvements have provided safer access to the Swinomish Reservation, transportation investment is needed within the Reservation to solve existing system deficiencies that have grown increasingly acute in the last decade, and provide for the transportation needs of future planned population and employment growth.

2.2 Swinomish Indian Reservation Roadway (IRR) Inventory

The Swinomish Tribal Community works to coordinate transportation planning, engineering, and construction activities between Federal, State, and local governments (including transit) which all own and operate transportation facilities and services within and near the Reservation.

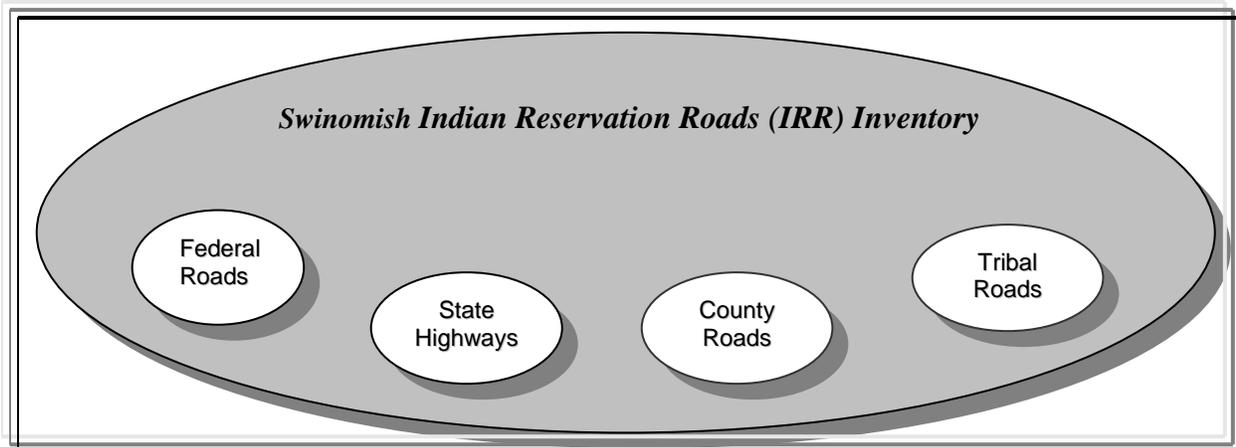
The Federal Bureau of Indian Affairs (BIA) assists the Tribe in providing support and guidance to help maintain and expand the transportation system on the Reservation to support growth and development. The BIA has established a national system called the Indian Reservation Roads (IRR) Inventory, defined as:

“an inventory of roads which meets the following criteria: a) public roads strictly within reservation boundaries, b) public roads that provide access to lands, to groups, villages and communities in which the majority of residences are Indian, c) public roads that serve checkerboard Indian lands not within reservation boundaries, and d) public roads that serve recognized Indian groups, villages and isolated communities not located within a reservation.”²

With this definition, all roads that serve the Reservation including federal, state, local, and tribal should be part of the IRR inventory, as illustrated in **Figure 2**.

In 2008, a comprehensive inventory of Swinomish roads was conducted. As part of the inventory, additions were proposed to the 1992 Swinomish Indian Reservation Roadway (IRR) inventory. The additions include recently constructed streets located within the Reservation, and a key State transportation highway (State Route 20) that extends beyond the jurisdictional boundaries of the Reservation.

Figure 2: Roads Serving the Swinomish Indian Reservation



² Indian Reservation Roads, Program, Transportation Planning Procedures and Guidelines, Federal Highway Administration, Federal Lands Highway Office and the Bureau of Indian Affairs, Division of Transportation, June 1998.

One notable inclusion to the Swinomish Tribe's IRR inventory is the proposed State Route 20 (SR 20) Reservation highway access route. This route is particularly significant since the Reservation is located on Fidalgo Island with connecting mainland access provided by only two bridges: the SR 20 bridges and the Rainbow Bridge on Pioneer Parkway from LaConner. These bridges provide a critical travel link to and from the Swinomish Reservation, and in the unfortunate event of a natural or man-made disaster, the bridges and SR 20 would be essential to emergency services access or evacuation for the Reservation.

The updated Swinomish IRR inventory is comprised of 63 roadways and bridges representing 63.2 miles. Federal BIA, State, County, and Tribal roads comprise the Reservation network. Roads controlled by WSDOT represent 48 percent of the system (including off-Reservation access routes). Skagit County roads represent 33 percent of the system. BIA and Tribal roads represent 19 percent.

The Tribe's updated IRR Inventory is shown in **Table 4** with roadway ownership, functional classification, right of way width, and other information. A map of the Swinomish Tribe's updated IRR Inventory is shown in **Figure 4**

Figure 3: Swinomish 2008 Indian Reservation Roadway (IRR) Inventory Additions

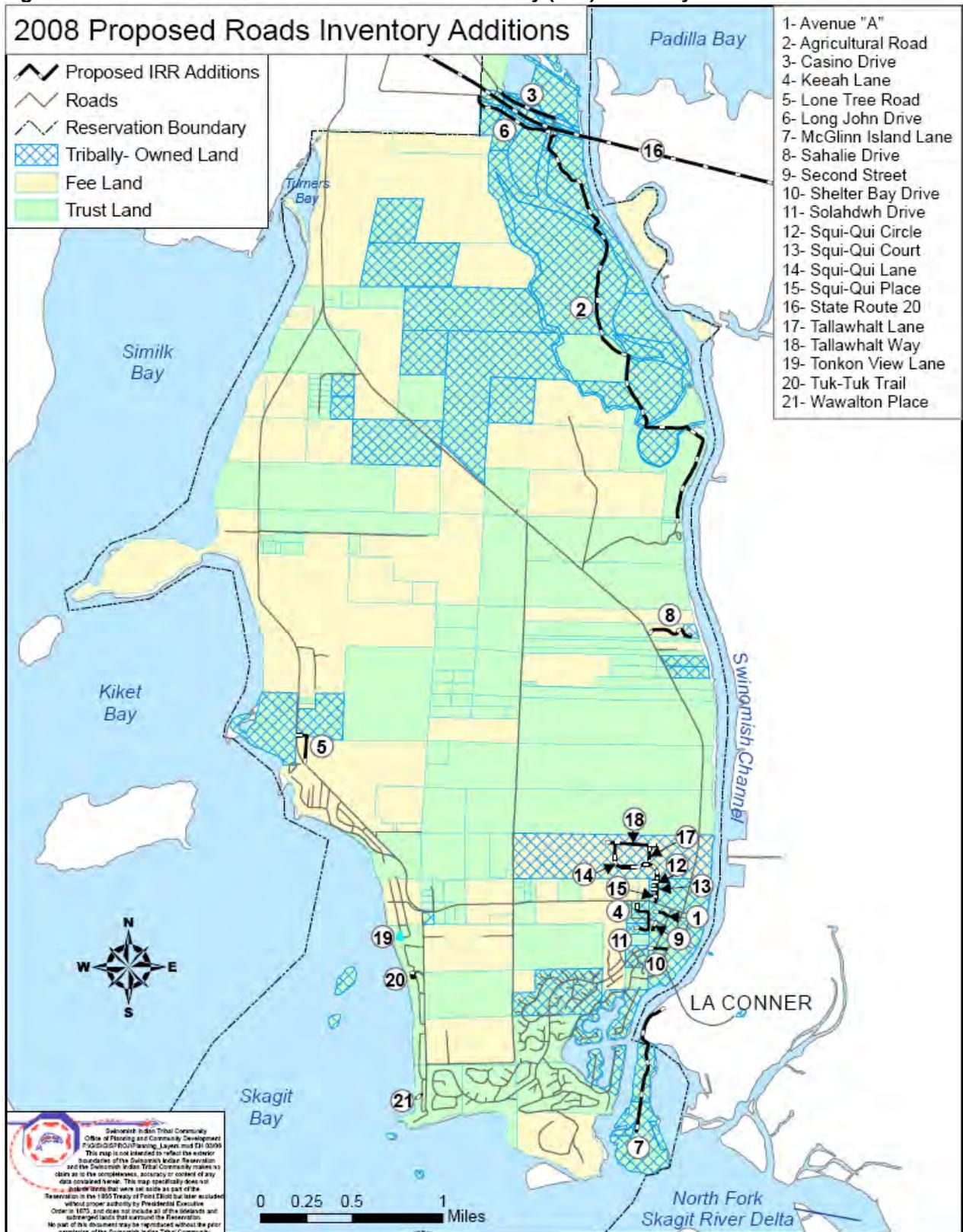


Table 4: Swinomish Tribe's 2011 Indian Reservation Roads (IRR) Inventory

Route	Section	Road Name	ROW Width	Mileage	Classification		Surface	Ownership
					BIA	Non-BIA		
2068	10	Agricultural Road	0	2.9	5 - Rural Local Road	9 - Local Access Road	1 - Earth Road	2 - Tribe
2055	10	Avenue "A"	36	.1	3 - Local Residential Street	9 - Local Access Road	5 - Paved >2" thick	1 - BIA
4061	810	Beach Road	25	.1	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
4401	10	Best Road	50	6.4	2 - Rural Minor Arterial	7 - Rural Major Collector	5 - Paved >2" thick	5 - County
2012	10	Casino Drive	60	.4	5 - Rural Local Road	7 - Rural Major Collector	5 - Paved >2" thick	2 - Tribe
4360	810	Chilberg Avenue	50	.8	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
4220	10	Chilberg Road	50	2.4	2 - Rural Minor Arterial	7 - Rural Major Collector	5 - Paved >2" thick	5 - County
4008	10	Conway Bridge	N/A	0.2	2 - Rural Minor Arterial	7 - Rural Major Collector	---	5 - County
4028	810	Dan Street	60	.3	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
4020	10	Fir Island Road	40	5.2	2 - Rural Minor Arterial	7 - Rural Major Collector	5 - Paved >2" thick	5 - County
0051	10	Front Street	60	.8	3 - Local Residential Street	00 - Private	5 - Paved >2" thick	1 - BIA
4280	810	Goldenvue Avenue	40	.2	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
4141	810	Indian Road	40	1.4	3 - Local Residential Street	9 - Local Access Road	5 - Paved >2" thick	5 - County
4141	820	Indian Road	40	2.1	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
4047	810	Island View Lane	30	.2	3 - Local Residential Street	9 - Local Access Road	5 - Paved >2" thick	5 - County
2056	10	Keah Lane	36	.1	3 - Local Residential Street	00 - Private	5 - Paved >2" thick	1 - BIA
4241	10	La Conner- Whitney Road	40	4	2 - Rural Minor Arterial	7 - Rural Major Collector	5 - Paved >2" thick	5 - County
4101	10	Lone Tree Road	60	.2	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
2011	10	Long John Drive	60	.5	4 - Rural Major Collector	7 - Rural Major Collector	5 - Paved >2" thick	2 - Tribe
4240	810	Maple Lane	50	.3	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
4045	810	Mcglinn Drive	60	.3	3 - Local Residential Street	9 - Local Access Road	5 - Paved >2" thick	5 - County
2067	10	Mcglinn Island Road	20	.7	5 - Rural Local Road	00 - Private	3 - Gravel Road	2 - Tribe
4400	10	Mclean Road	50	5.8	2 - Rural Minor Arterial	7 - Rural Major Collector	5 - Paved >2" thick	5 - County
4200	20	Pioneer Parkway	60	.4	2 - Rural Minor Arterial	7 - Rural Major Collector	4 - Paved < 2" thick	5 - County
4200	810	Pioneer Parkway	60	.4	2 - Rural Minor Arterial	7 - Rural Major Collector	4 - Paved < 2" thick	5 - County
4037	10	Pleasant Ridge Bridge	N/A	0.1	2 - Rural Minor Arterial	7 - Rural Major Collector	---	5 - County
4121	810	Pull & Be Damned Road	40	1.1	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
4039	10	Rainbow Bridge	N/A	0.2	2 - Rural Minor Arterial	7 - Rural Major Collector	---	5 - County
4200	30	Rainbow Bridge	N/A	0.2	2 - Rural Minor Arterial	7 - Rural Major Collector	---	5 - County
0001	10	Reservation Lane	60	.4	4 - Rural Major Collector	00 - Private	5 - Paved >2" thick	1 - BIA
4021	30	Reservation Road	60	.5	2 - Rural Minor Arterial	7 - Rural Major Collector	5 - Paved >2" thick	5 - County
4021	810	Reservation Road	60	2.6	4 - Rural Major Collector	7 - Rural Major Collector	5 - Paved >2" thick	5 - County
4021	820	Reservation Road	60	2.6	4 - Rural Major Collector	7 - Rural Major Collector	5 - Paved >2" thick	5 - County
2066	10	Sahalie Drive	50	.3	3 - Local Residential Street	00 - Private	4 - Paved < 2" thick	1 - BIA
2057	10	Second Street	36	.1	3 - Local Residential Street	00 - Private	5 - Paved >2" thick	1 - BIA
2059	10	Shelter Bay Drive	30	.1	3 - Local Residential Street	00 - Private	5 - Paved >2" thick	2 - Tribe
4063	810	Sherman Street	25	.1	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
4162	810	Smokehouse Road	30	.6	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
4001	20	Snee-Oosh Road	60	.1	4 - Rural Major Collector	8 - Minor Collector	5 - Paved >2" thick	5 - County
4001	810	Snee-Oosh Road	40	5.2	4 - Rural Major Collector	8 - Minor Collector	5 - Paved >2" thick	5 - County
2058	10	Solahdwh Lane	36	.2	3 - Local Residential Street	00 - Private	5 - Paved >2" thick	1 - BIA
2063	10	Squi Qui Circle	38	.1	3 - Local Residential Street	00 - Private	5 - Paved >2" thick	1 - BIA
2062	10	Squi Qui Court	38	.1	3 - Local Residential Street	00 - Private	5 - Paved >2" thick	1 - BIA
2060	10	Squi Qui Lane	38	.2	3 - Local Residential Street	9 - Local Access Road	5 - Paved >2" thick	1 - BIA
2060	20	Squi Qui Lane	38	.4	3 - Local Residential Street	9 - Local Access Road	5 - Paved >2" thick	1 - BIA
2061	10	Squi Qui Place	38	.1	3 - Local Residential Street	00 - Private	5 - Paved >2" thick	1 - BIA
0020	10	State Route 20	160	7.5	2 - Rural Minor Arterial	7 - Rural Major Collector	5 - Paved >2" thick	3 - State
4260	810	Sunset Drive	50	.2	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
2010	10	Swinomish Flats Road	0	.2	3 - Local Residential Street	---	5 - Paved >2" thick	1 - BIA
2010	20	Swinomish Flats Road	0	.2	3 - Local Residential Street	---	5 - Paved >2" thick	1 - BIA
2064	10	Tallahalt Lane	60	.1	3 - Local Residential Street	---	5 - Paved >2" thick	1 - BIA
2065	10	Tallahalt Way	60	.3	3 - Local Residential Street	---	5 - Paved >2" thick	1 - BIA
4062	810	Third Avenue	25	.1	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
2008	10	Tonkon View Lane	20	.1	3 - Local Residential Street	00 - Private	3 - Gravel Road	1 - BIA
2009	10	Tuk-Tuk Trail	20	.1	3 - Local Residential Street	00 - Private	3 - Gravel Road	1 - BIA
4046	810	View Lane	30	.2	3 - Local Residential Street	9 - Local Access Road	5 - Paved >2" thick	5 - County
0002	10	Village Roads	30	1.6	4 - Rural Major Collector	00 - Private	5 - Paved >2" thick	1 - BIA
4041	810	Warren Street	25	.2	3 - Local Residential Street	9 - Local Access Road	4 - Paved < 2" thick	5 - County
2007	10	Wawalton Place	20	.1	3 - Local Residential Street	00 - Private	3 - Gravel Road	1 - BIA
4161	810	Wilbur Road	50	.7	3 - Local Residential Street	9 - Local Access Road	3 - Gravel Road	5 - County
4161	820	Wilbur Road	50	.2	3 - Local Residential Street	9 - Local Access Road	5 - Paved >2" thick	5 - County
Totals				63.2				

2.3 BIA and Tribal Roadway Functional Classification

Functional classification of a roadway system is the process in which roads and highways are grouped into classes according to the character of service they are intended to provide. There is a relationship between road functional classification in terms of providing for mobility and land access. Basic classifications are described in **Table 5**.

Table 5: Roadway Functional Classification Systems Description	
Functional System	Services Provided
Arterial	Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.
Collector	Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.
Local	Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.

Each type of road has a specific purpose or function: arterials provide a high level of mobility and a greater degree of access control, while local facilities provide a high level of access to adjacent properties but a low level of mobility. Collector roadways provide a balance between mobility and land access. Typically, travelers will use a combination of arterial, collector, and local roads for their trips.

As surface transportation needs are met primarily by the road and highway network, an adequately designed and constructed roadway system should provide the primary foundation for meeting the transportation needs of an area. A well designed road system is also *multimodal*, providing for other transportation needs of the area it serves including transit, freight and goods delivery by truck, and safe and continuous facilities for pedestrians and cyclists.

BIA Functional Classification - The BIA roadway functional classification system provides grouping or classifications of roadways based on their connectivity, traffic volumes and capacities, adjoining land uses and access, and speed. As part of the IRR system management, all transportation facilities included on or added to the IRR inventory must be classified according to the following functional classifications presented in **Table 6**.

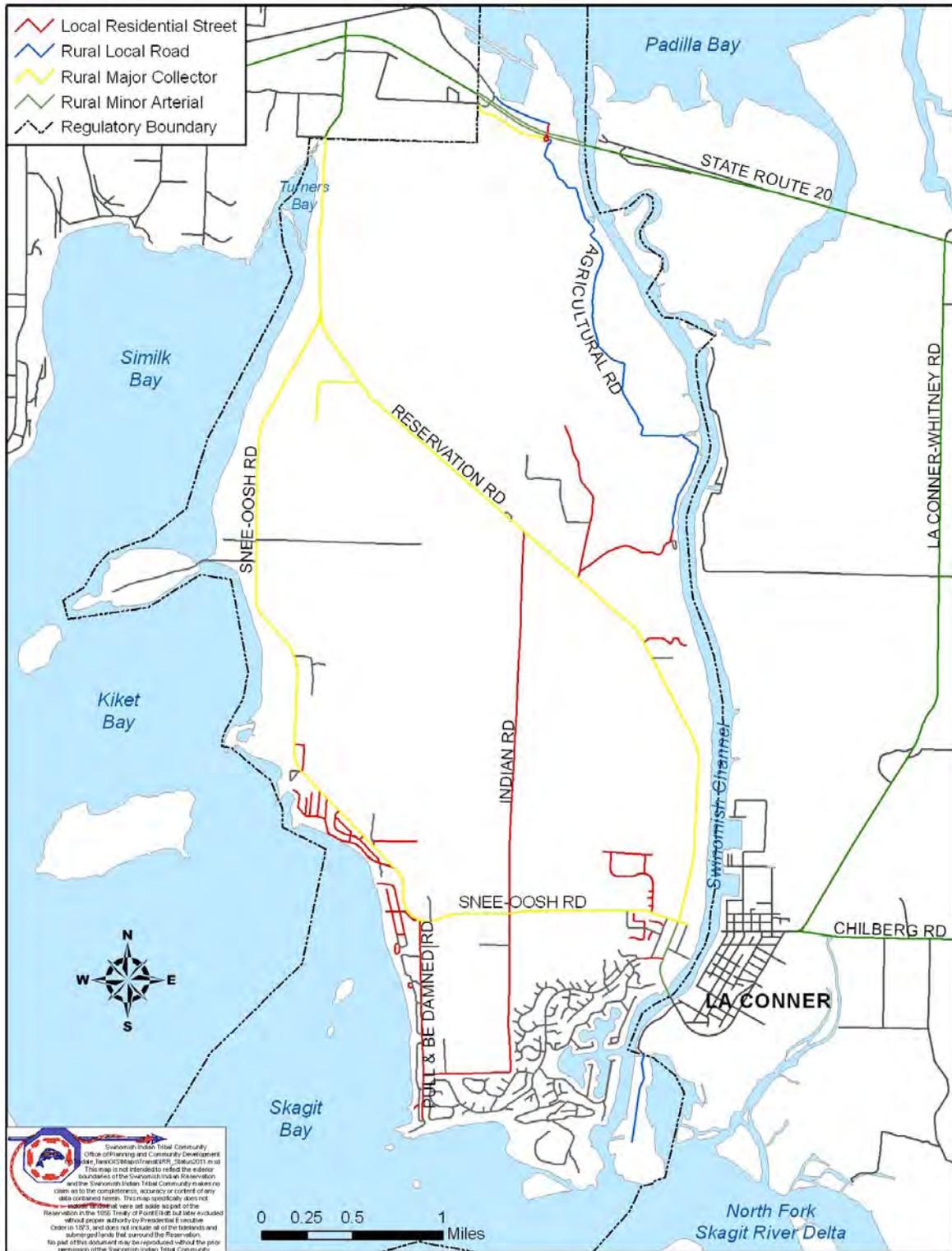
The BIA classifications of roads may not coincide exactly with federal, local or tribal government road classification definitions, but consistency is important. As part of the Swinomish Tribe’s active regional transportation coordination efforts, the Tribe strives to work cooperatively on system designation and classification issues. The Swinomish roadway functional classification system is shown in **Figure 5**.

Table 6: BIA Functional Classification Guide for IRR Inventory

Class	Description
1	Major arterial roads providing an integrated network with characteristics for serving traffic between large population centers, generally without stub connections and having average daily traffic volumes of 10,000 vehicles per day or more with more than two lanes of traffic.
2	Rural minor arterial roads providing an integrated network having the characteristics for serving traffic between large population centers, generally without stub connections. May also link smaller towns and communities to major resort areas that attract travel over long distances and generally provide for relatively high overall travel speeds with minimum interference to through traffic movement. Generally provide for at least inter-county or inter-state service and are spaced at intervals consistent with population density. This class of road will have less than 10,000 vehicles per day.
3	Streets that are located within communities serving residential areas.
4	Rural major collector road is collector to rural local roads.
5	Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.
6	City minor arterial streets that are located within communities, and serve as access to major arterials.
7	City collector streets that are located within communities and serve as collectors to the city local streets.
8	This class encompasses all non-road projects such as paths, trails, walkways, or other designated types of routes for public use by foot traffic, bicycles, trail bikes, snowmobiles, all terrain vehicles, or other uses to provide for the general access of non-vehicular traffic.
9	This classification encompasses other transportation facilities such as public parking facilities adjacent to IRR routes and scenic byways, rest areas, and other scenic pullouts, ferry boat terminals, and transit terminals.
10	This classification encompasses airstrips that are within the boundaries of the IRR system grid and are open to the public. These airstrips are included for inventory and maintenance purposes only.
11	This classification indicates an overlapping or previously inventoried section or sections of a route and is used to indicate that it is not to be used for accumulating needs data. This class is used for reporting and identification purposes only.

BIA Publication: *Coding Guide and Instructions for IRR Inventory (As of 10-21-2004)*

Figure 5: Swinomish 2011 Indian Reservation Roadway (IRR) Functional Classification System



2.4 Roadway Design Standards

Each of the different road functional classifications is typically built to a different road design standard. The standards reflect design elements necessary to support varying traffic levels, vehicle mixes, land use access requirements, and non-motorized transportation needs associated with the road classifications including pedestrians, cyclists, and transit access.

The Swinomish Tribe follows Federal Highways Administration road design standards for federal and Tribal funded road projects on Tribal roads. For improvements completed jointly with Skagit County on County roads within the Reservation, County road standards are applied.

The Skagit County Road Standards provide specific roadway design standards for different roadway classifications. Roads are classified as either rural or urban based on their location within or outside of County adopted Urban Growth Areas (UGA's). They are also classified by County road functional classification and by future forecasted average daily traffic volumes (ADT). Skagit County Road Design standards are provided in **Table 7**.

Table 7: Skagit County Roadway Design Standards

Street Type	Traffic Lanes	Shoulder Width	Sidewalks	Roadway Width	Right of Way
- Rural Roadways					
Private roads with 20 year projected ADT less than 160	2 - 10'	n/a	n/a	20'	50' min. easement
Local Access with 20 year projected ADT less than 251	2 - 10'	2'	n/a	24'	50'
Local Access with 20 year projected ADT 251 - 400	2 - 10'	3'	n/a	26'	50'
Local Access with 20 year projected ADT over 400	2 - 10'	6'	n/a	32'	50'
Major and Minor Collector with 20 year projected ADT under 401	2 - 11'	3'	n/a	28'	60'
Major and Minor Collector with 20 year projected ADT 401 - 2000	2 - 12'	6'	n/a	36'	60'
Major and Minor Collectors with 20 year projected ADT over 2000	2 - 12'	8'	n/a	40'	60'
- Urban Roadways					
Local Access without parking	2 - 10'	n/a	5'	22'	50'
Collector Arterials without parking	2 - 12'	n/a	5'	26'	60'

If an existing County road does not meet the applicable road design standard, the road may be deemed deficient or substandard by the County and a road improvement project developed to correct the deficiency.

3.0 EXISTING TRANSPORTATION CONDITIONS AND DEFICIENCIES

3.1 Existing Traffic Volumes and Levels of Service

The analysis of the Swinomish Tribe's roadway system included a review of the existing (2007) traffic volumes and traffic level of service (LOS). Traffic data collected by the Tribe was supplemented by data provided by the Skagit County Public Works Department and the Washington State Department of Transportation (WSDOT). The existing average weekday traffic volumes and average weekday PM peak hour traffic volumes are shown in **Figure 6** and displayed in **Table 8**.

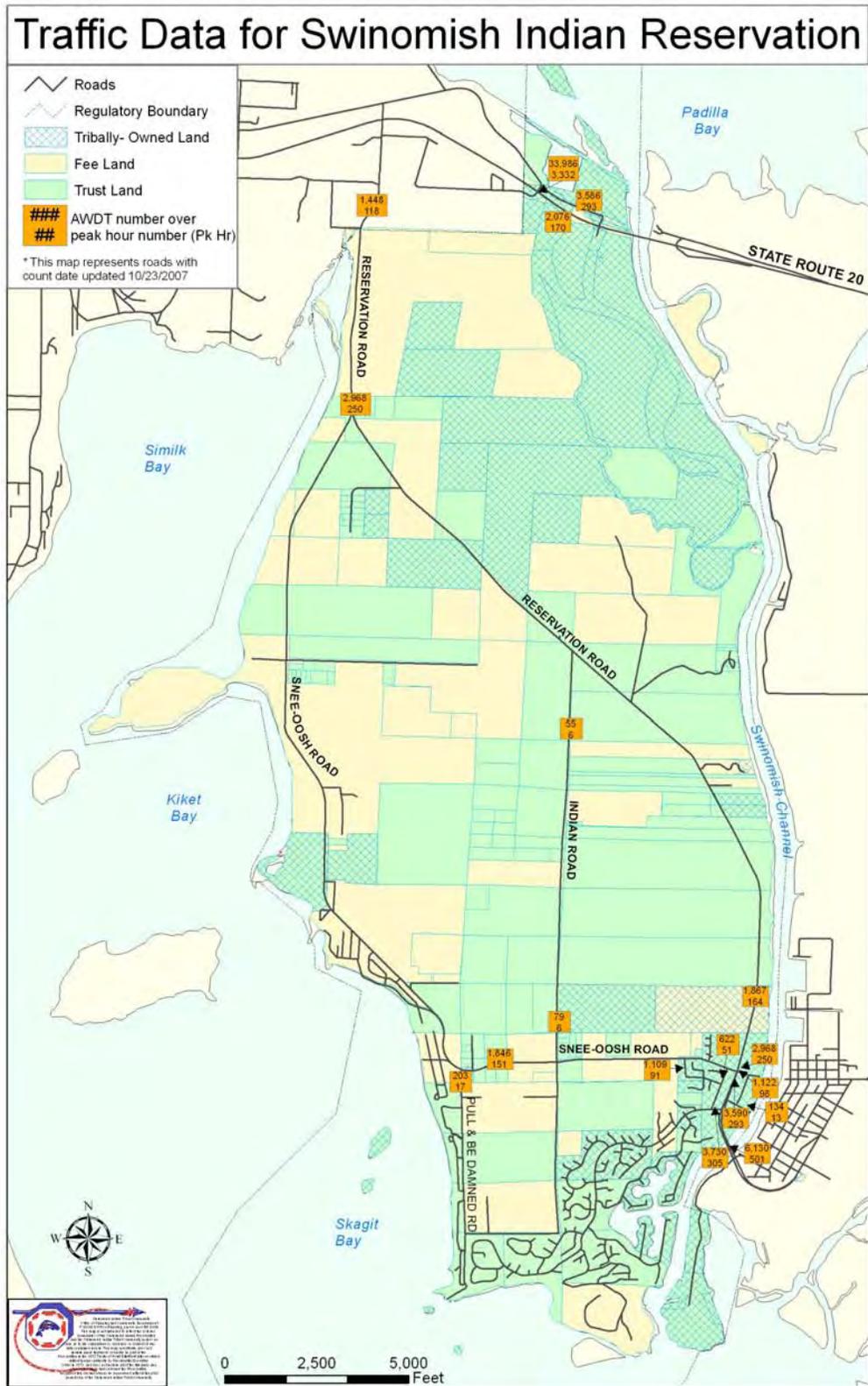
Transportation level of service or LOS is a measure of the quality of service provided by the transportation system. LOS helps provide an understanding of the performance of the transportation system, establishes a basis for comparison between roadways, and helps guide the prioritization of improvement projects. Evaluating the traffic LOS on the roadway system is typically described in terms of traffic congestion which can be measured by average vehicle delay, travel speed, vehicular density, or the traffic volume to street traffic capacity (V/C) ratio. The resulting level of service is usually given a letter ranking from A to F where:

- LOS A and B represent fairly free-flow travel conditions with little or no delay;
- LOS C and D represent stable flow with acceptable delay; and
- LOS E and F represent severe congestion with low travel speeds and unacceptable delay.

Many jurisdictions set LOS standards to help guide transportation project programming with analysis typically occurring concurrent with larger land use development proposals. The Tribe has not set transportation LOS standards, however Skagit County and WSDOT have LOS standards. Skagit County LOS standards are LOS C for non FGTS roads under 7,000 average daily traffic (ADT) and LOS D for FGTS classified roads over 7,000 ADT. WSDOT LOS standards are LOS C for state highways in rural areas, and LOS D for those in urban areas.

The LOS analysis conducted for this Plan was based on a generalized traffic LOS methodology for road corridors accepted in the Puget Sound Region. This road corridor based methodology uses the ratio of peak hour traffic volumes (PHT) to a maximum service volume (MSV) appropriate for the arterial being examined. The generalized road corridor LOS is an excellent indicator of general traffic conditions and can help to indicate where LOS problems may exist and where more detailed operational level of service analysis may be necessary. This is a conventional approach to determining traffic LOS for planning purposes and is consistent with the most current version of the Transportation Research Board's Highway Capacity Manual.

Figure 6: 2007 Traffic Volumes - Average Weekday and PM Peak Hour



The existing (2007) PM peak hour corridor LOS on the roadway system within and accessing the Reservation is shown in **Table 8**. In addition, traffic operational LOS analysis was conducted using Synchro software to examine key intersections accessing SR 20 in the developing north end of the Reservation. The 2006 PM peak hour intersection LOS is shown in **Table 9**.

Table 8: 2007 Traffic Volumes and Level of Service (LOS)

Road Name	Location	2007 Average Weekday Traffic	2007 PM Peak Hour Traffic	Truck Percentage	2007 LOS
Avenue A	w/o First Street	268	33	16%	A
Beach Road	at Chilberg Avenue	115	12		A
Best Road	s/o Chilberg Road	3,900	390		A
Caput Zalsiluce Road	s/o Cobahud Road	31	7	10%	A
Casino Drive	e/o S March's Point Rd	3,586	293		A
Chilberg Avenue	at Snee Oosh Road	20	5		A
Chilberg Road	e/o LaConner-Whitney Road	4,575	460		A
Cobahud Road	s/o Nanna Lane	30	7	10%	A
Dr. Joe Road	n/o Wawalon Place	36	6	9%	A
Fir Island Road	s/o Rawlins Road	4,250	425		A
Fir Island Road	w/o Pioneer Highway	7,150	715		B
Fir Island Road	e/o Maupin Road	5,400	540		B
First Street	n/o Shelter Bay Drive	658	33	8%	A
First Street	s/o Snee-Oosh Road	635	72	6%	A
Front Street	n/o Moorage Way	121	19	9%	A
Goldenview Avenue	s/o Sunset Drive	26	5	13%	A
Indian Road	s/o Reservation Road	56	5		A
Indian Road	n/o Snee-Oosh Road	79	6		A
Island View Lane	At McGlinn Drive	100	10		A
Keeah Lane	n/o Swinomish Ave	138	17	11%	A
LaConner-Whitney Road	s/o McLean Road	5,650	565		B
Lone Tree Road	e/o Snee Osh Road	25	3		A
Long John Drive	s/o Padilla Hights Road	2,076	170		A
Maple Avenue	s/o Caledonian Avenue	6,130	501		A
Maple Lane	s/o Sunset Drive	47	7	8%	A
McGlinn Drive	at Island View Lane	160	20		A
McGlinn Island Rd	49	92	8		A
McLean Road	e/o LaConner-Whitney Road	3,800	380		A
Moorage Way	e/o Pioneer Parkway	134	14	8%	A
Nanna Lane	n/o Cobahud Road	25	3	15%	A
Padilla Heights Rd.	w/o Long John Drive	500	50		A
Pioneer Parkway Road	at Rainbow Bridge	6,130	501	5%	B
Pioneer Parkway Road	s/o Snee-Oosh/Reservation	3,590	293	9%	A
Pull and Be Damned	s/o Snee-Oosh Road	340	34		A
Pull and Be Damned	n/o Indian Road	23	2	5%	A
Pull and Be Damned	at Dr Joe Road	56	5		A
Ray Paul Lane	n/o Nanna Lane	19	5	12%	A
Reservation Lane	s/o Reservation Road	108	18	14%	A
Reservation Road	n/o Snee-Oosh Road/Pioneer Pkwy	1,867	164	7%	A
Reservation Road	s/o Snee-Oosh Road	1,780	150	8%	A
Reservation Road	n/o Snee-Oosh Road	2,970	250	7%	A
Reservation Road	s/o SR 20 (Anacortes)	2,178	190	2%	A

Table 8: 2007 Traffic Volumes and Level of Service (LOS) – continued

Road Name	Location	2007 Average Weekday Traffic	2007 PM Peak Hour Traffic	Truck Percentage	2007 LOS
S March's Point Rd	s/o Casino Drive	2,150	215		A
S March's Point Rd	w/o Casino Drive	1,424	136		A
S March's Point Rd	e/o March's Point Road	1,277	176	7%	A
Sahalie Drive	e/o Reservation Road	163	13		A
Second Street	s/o Swinomish Ave	159	21	20%	A
Shelter Bay Drive	w/o Pioneer Parkway	3,730	305		A
Sherman Street	at Chilberg Avenue	115	12		A
Smokehouse Road	e/o Wilbur Road	92	7		A
Snee-Oosh Rd	w/o Reservation/Pioneer	2,260	171	3%	A
Snee-Oosh Rd	e/o Pull and Be Damned Rd	1,846	151		A
Snee-Oosh Rd	n/o Mill Road	918	75		A
Snee-Oosh Rd	s/o Reservation Road	1,122	98	13%	A
Solahdwh Lane	s/o Swinomish Avenue	372	44	5%	A
Squi-Qui Lane	n/o Snee-Oosh Rd	315	39	16%	A
SR 20	e/o Padilla Hts/March's Point	33,986	3,332		B (HCM)
SR 20	w/o Padilla Hts/March's Point	38,893	3,214		B (HCM)
SR 20	w/o Pulver Road	23,500	2,350		F
SR 536	w/o Avon Allen Rd.	11,000	1,020		C
SR 536	w/o I-5	20,000	1,900		C
Sunset Drive	w/o Maple Lane	77	9	11%	A
Swinomish Avenue	s/o Snee-Oosh Rd	368	36	8%	A
Swinomish Avenue	w/o 1st St	714	76	3%	A
Swinomish Flats Road	s/o Casino Drive	3,586	293		A
Third Avenue	n/o Chilberg Avenue	80	8		A
View Lane	at SE connection	115	12		A
Warren Street	at Snee-Oosh Road	150	15		A
Wilbur Road	n/o Reservation Road	249	20		A

Table 9: 2011 Intersection PM Peak Hour Level of Service (LOS)

Intersection	Control	Worst Movement	2011 Counts	
			LOS	Sec Delay
S March's Point @ Casino Dr.	Two-Way Stop Control	WBL & WBR	B	11.3
Padilla Heights @ Long John Dr.	One-Way Stop Control	EBR & EBT	A	8.4
SR 20 WB @ S. March's Point Rd.	One-Way Stop Control	SBR	C	18.1
SR 20 EB @ Padilla Heights Rd	One-Way Stop Control	NBR	D	24.6
Casino Dr. @ Swinomish Flats Rd.	All-Way Stop Control	EBL	A	10.0
Long John Dr. @ Swinomish Flats Rd.	1 Lane Roundabout	Long John Dr. EB approach	A	8.2

The existing (2007 and 2011) PM peak hour traffic LOS on roadways within and accessing the Reservation is generally very good. The only failing level of service in 2007 was on a Reservation Roadway Access Route: SR 20 west of Pulver Road. In 2009, a project to widen the highway from two to four lanes to resolve congestion and safety problems was completed.

3.2 Vehicle Collision Data

The number and location of *property-damage-only*, *injury* and *fatal* vehicle collisions recorded on or near the Reservation from June 2001 through June 2007 were reviewed. There were 193 collisions recorded over the six-year period; 78 included property damage and 4 were fatal.

Most (111) of the collisions occurred at the intersections of SR20/Reservation Road and SR 20/S. March’s Point - Padilla Heights Roads, representing 58 percent of all accidents. Of the reported collisions, 10 were injury and 6 were property-damage. The remaining multiple collision roadways were located:

- On Reservation Road there were 30 total collisions; of these 16 involved injury, and 1 fatal;
- On Indian Road there were 16 total collisions; of these 7 involved property damage;
- On Snee-Oosh Road there were a total of 11 property damage collisions;
- On Pull and be Damned Road there were 3 total collisions; of these 2 involved injury;
- On Pioneer Parkway there were a total of 2 property damage collisions; and
- On Casino Drive there was 1 fatal collision.

A summary level review of the 2001-2007 six-year collisions was compared to the previous four year (1996 – 2000) review completed for the 2001 Swinomish Transportation Plan and is shown in Table 10.

Table 10: Swinomish Historic Collision Data Comparison		
	1996– 2000	2001 - 2007
Total Collisions	46	193
Ave. Collisions per year	12	32

Source: WSDOT

Additional 2007-2009 intersection traffic collision data was prepared in 2011 as part of master planning for the Tribe’s North End Economic Zone. A summary of that data is in Table 11.

Table 11: North Economic Zone Collision Data Comparison

Intersection Location	Number of Collisions				
	2007	2008	2009	Total	Avg.
South March Point Rd/Casino Drive	0	1	1	2	.67
SR 20 Westbound/S. March Point Rd.	3	0	3	6	2.00
SR20 Eastbound/Padilla Heights Rd.	0	3	1	4	1.33

Source: WSDOT

The summary level comparison indicates that the number of collisions within and near the Reservation has increased in the last several years. More analysis may be needed to verify this trend and determine contributing factors, however recent analysis indicates that sub-standard roadway design is a contributing factor. According to the *Swinomish Road Condition Report 2007*, substandard roadways pose the greatest challenge to travel within and through the Reservation:

“A survey of the tribal road system within the tribal boundaries shows that the dominant safety issue is the lack of shoulders between roadway edge and the adjacent ditch. The severity of the risk associated with the narrow shoulders ranges from minor to severe depending on the depth of the ditch or the width of the clear zone.” - Swinomish Road Condition Report 2007

3.3 Existing Roadway Deficiencies

While existing (2007) traffic level of service (LOS) on road corridors and intersections within the Reservation is generally LOS C or better, several of the functionally classified roadways do not meet applicable road design standards for lane width, shoulder width, and/or pedestrian facilities. Substandard design on key arterial roadways negatively impacts the ability of the road system to provide for safe travel and property access within the Reservation. This issue is particularly acute on County owned arterial roadways within the Reservation. The following Reservation roads have existing roadway design deficiencies (summarized in Table 12):

Pioneer Parkway

Pioneer Parkway provides primary access to the Reservation from the mainland and La Conner for vehicle traffic, and frequent cyclists and pedestrians across the Rainbow Bridge. Pioneer Parkway is the main arterial route into the Swinomish Village from the mainland. The road bisects the Village and ends in the Village center at the intersection of Snee-Oosh Road and Reservation Road.

Functional Classification: A Skagit County owned roadway, the County classifies Pioneer Parkway as a Rural Major Collector. The Swinomish classify the road as a BIA Type 2 Rural Minor Arterial.

Traffic Volumes: In 2007, average daily traffic (ADT) volumes on Pioneer Parkway were 6,100 vehicles at the bridge and 4,000 vehicles south of Snee-Oosh Road, the highest traffic of any roadway on the Reservation. With approximately 9% truck traffic, Pioneer Parkway is designated a T-3 truck route by WSDOT carrying 300,000 to 4 million tons of freight and goods per year. High through traffic and truck volumes on this bisecting Village spine route deter from the quality of life within the Village posing hazards to inner-Village non-motorized circulation.

Non-motorized Facilities: Pioneer Parkway provides primary access to the mainland, including La Conner public schools. Unfortunately, non-motorized facilities on Pioneer Parkway are limited. There is one sidewalk on the west side of the arterial, no pedestrian crosswalks, and limited safety amenities. Within the village, the lack of crosswalks and a sidewalk on the east side impedes safe roadway crossing for Village residents accessing tribal services. This lack of

pedestrian facilities hampers safe pedestrian passage and significantly detracts from the cultural, economic and residential setting within the village.

Collision Data: Between June 2001 and June 2007 there were a total of 2 property-damage vehicle collisions reported on Pioneer Parkway. Both occurred at intersections within the Village: one collision at Moorage Way, the other at the Shelter Bay Drive intersection.

Roadway Design Issues: Pioneer Parkway has two 11 foot travel lanes and 3-4 foot gravel shoulders. The current roadway design is substandard based on both rural and urban Skagit County Road Standards for collector arterials. The Skagit County road standards require that the road have two 12 foot travel lanes and 8 foot wide shoulders (see **Table 7**).

Reservation Road

Reservation Road provides primary access from the north through the Reservation and is the only arterial route into the Swinomish Village from SR 20. The road bisects the Village and ends in the Village center at the intersection of Snee-Oosh Road and Pioneer Parkway.

Functional Classification: Reservation Road is a Skagit County owned Rural Major Collector. The Tribe classifies the road as a BIA Type 2 Rural Minor Arterial.

Traffic Volumes – Average daily traffic (ADT) in 2007 on Reservation Road range from 3,000 vehicles north of Snee-Oosh Road in the Village to 2,200 vehicles south of SR 20. With approximately 8% truck traffic, Reservation Road is designated a T-3 truck route by WSDOT carrying 300,000 to 4 million tons of freight and goods per year. High through traffic and truck volumes on this bisecting Village spine route significantly deter from the quality of life within the Village by posing hazards to inner-Village non-motorized circulation.

Non-motorized Facilities - Within the Swinomish Village, Reservation Road has 4 foot wide substandard shoulders and no sidewalks on either side. There is one crosswalk located mid-block north of the Snee-Oosh Road intersection providing access to the Tribal Longhouse. There are no crosswalks at the intersection with Snee-Oosh Road and Pioneer Parkway, a central pedestrian crossing point within the Village. The roadway's 20-mph speed limit when school children are present is not in effect during all school hours, posing a safety hazard.

Collision Data – Between June 2001 and June 2007 there were a total of 30 collisions reported on Reservation Road; of these 16 involved injuries, and 1 was a fatal collision. Eight (8) of the total collisions occurred at intersections including seven (7) at Snee-Oosh Rd.

Roadway Design Issues – Most of Reservation Road is of substandard design based on both rural and urban Skagit County Road Standards for collector arterials (see **Table 7**). Between Pioneer Parkway and the north Snee-Oosh Road intersection, Reservation Road has two 11 foot wide travel lanes with narrow 3 to 4 foot gravel shoulders and deep drainage ditches directly abutting the roadway. North of Snee-Oosh Road to SR 20, the roadway has been reconstructed and widened to two 11 foot travel lanes and 6 to 8 foot paved shoulders. The Skagit County road standards require that the road have two 12 foot travel lanes and 8 foot wide shoulders.

Snee-Oosh Road

Snee-Oosh Road provides collector access through the core of residences and Tribal services in the Swinomish Village. From its intersection with Pioneer Parkway and Reservation Road, Snee-Oosh Road travels west to the West Shore residential area, then north along the Reservation's western shoreline to its northern intersection with Reservation Road.

Functional Classification: Snee-Oosh Road is a County owned Rural Minor Collector. The Tribe classifies the road as a BIA Type 4 Rural Major Collector.

Traffic Volumes: The ADT in 2007 on Snee-Oosh Road ranged from 2,300 vehicles and 3% trucks within the Village (east of Pioneer Parkway), to 1,100 vehicles and 13% trucks south of Reservation Road. Snee-Oosh Road is currently designated a T-3 truck route by WSDOT (300,000 to 4 million annual tons). This report recommends redesignation of Snee-Oosh Road to the lower T-4 classification (100,000 – 300,000 annual tons) to reflect the fact that much of the truck traffic volumes are recreational vehicles accessing the Thousand Trails recreational park.

Non-motorized Facilities: There is currently a lack of adequate non-motorized facilities along Snee-Oosh Road. Snee-Oosh Road travels through the core of the Village's residential area providing access to nearby Tribal services where destinations are best accessed by foot. Snee-Oosh Road also provides access to the Village from the West Shore residential area. The Thousand Trails recreational park also generates high levels of non-motorized traffic using Snee-Oosh Road.

Significant vehicular traffic and non-motorized usage have raised community safety concerns about the lack of non-motorized facilities. Although one of the most heavily traveled roads within the Reservation, Snee-Oosh has no grade separated sidewalk. An 8-foot to 10-foot wide gravel shoulder provides an 800-foot pedestrian walkway on the north side of roadway from Pioneer Parkway to Squi Qui Lane. Two crosswalks help facilitate pedestrian crossings along the walkway at 1st Street and Squi Qui Lane, however no crosswalks or safety warnings have been constructed at the key intersection of Snee-Oosh Road and Pioneer Parkway. The remaining sections of Snee-Oosh have 1 to 4 foot graveled shoulders which abut deep roadside drainage ditches.

Collision Data: Between June 2001 and June 2007 there were a total of eleven (11) property-damage collisions reported on Snee-Oosh Road. Six (6) of those collisions occurred at intersecting roadways.

Roadway Design Issues: Travel lanes on Snee-Oosh are 11 foot wide with narrow 3-4 foot gravel shoulders and deep roadside drainage ditches. Within the Village, there is an 8 foot wide gravel walkway along the north side of Snee-Oosh road between Reservation Road and Squi-Qui Lane. The current roadway design is substandard based on both rural and urban Skagit County Road Standards for collector arterials. The Skagit County road standards require that the road have two 12 foot travel lanes and 6 to 8 foot wide shoulders (see **Table 7**).

Poor sight distance and intersection design issues are safety hazards at the Snee-Oosh Rd./Pull and be Damned Road and Snee-Oosh Rd./Sunset Drive intersections. These local roads intersect

Snee-Oosh on a curve where topography and vegetation combine to hamper visibility. A joint project is currently underway between the County and the Tribe to correct the deficiencies.

Indian Road

Indian Road provides north/south access from Pull and be Damned Road at the West Shore area. From its intersection with Snee-Oosh Road, Indian Road continues north to Reservation Road.

Functional Classification: Indian Road is a County owned Local Access road. The Tribe classifies the road as a BIA Type 3 Local Residential Street.

Traffic Volumes: In 2007, traffic volumes on Indian Road were less than 100 ADT.

Non-motorized Facilities: Indian Road serves as a popular parallel non-motorized route for travelers who do not wish to walk or bike on Reservation Road or Pull and Be Dammed Road. There are no designated non-motorized facilities on Indian Road. There are no signs advising of pedestrian or bicycle travel.

Collision Data: Between June 2001 and June 2007 there were sixteen (16) total collisions reported on Indian Road; seven (7) were injury causing. Eight (8) collisions occurred at intersections including four (4) at the intersection with Reservation Road.

Roadway Design Issues: Indian Road has two 10 foot travel lanes with 1 foot shoulders on either side. The roadway abuts deep drainage ditches. At the intersection with Reservation Road, Indian Road enters at a skewed angle.

Shelter Bay Road

Shelter Bay Road provides access from Pioneer Parkway to the gated Shelter Bay residential community, to tribal housing on 1st Street, and to the Swinomish Cemetery.

Functional Classification: Shelter Bay Road is classified as a Type 3 Local Residential Street by the Tribe and a Local Access Road by Skagit County.

Traffic Volumes: 2007 ADT volumes on Shelter Bay Road were 3,700 vehicles near the First Street intersection.

Non-motorized Facilities: There are no non-motorized facilities on Shelter Bay Road. There are no sidewalks, designated road shoulders or crosswalks. The road has no signs alerting motorists to pedestrians or cyclists. High traffic volumes on Shelter Bay Road hamper safe pedestrian passage to the Tribal Cemetery which many people access on foot.

Collision Data: Between June 2001 and June 2007 there were five (5) collisions reported on Shelter Bay Drive; two (2) involved injury. Three (3) of the collisions occurred at intersections including two (2) at the Makah Way intersection.

Roadway Design Issues: The design of Shelter Bay Drive is substandard to Skagit County's road standards which require private road design to be consistent with public roads for ADT

volumes greater than 160³ (see **Table 7**). With 3,700 ADT recorded in 2007, Shelter Bay is one of the highest-volume roadways on the Reservation. The Skagit County road standards require that the road have two 10 foot travel lanes and 6 foot wide shoulders.

Table 12: Summary of Existing Roadway System Deficiencies

Roadway	Characteristics	Existing Deficiencies
Reservation Road	<p>Skagit County Rural Major Collector</p> <p>BIA Type 2 Rural Minor Arterial and Type 4 Rural Major Collector</p> <p>2007 ADT of 3,000 vehicles with 9% heavy vehicles</p> <p>Skagit Transit route</p> <p>WA State FGTS T-3 classification</p> <p>North/south Reservation spine route</p>	<p>Substandard Skagit County road design with narrow travel lanes, curving alignment, deep roadside drainage ditches, and limited shoulder width.</p> <p>Inadequate non-motorized facilities for in-Village roadway</p> <p>Limited Safety Signage</p> <p>Heavy truck/recreational vehicle traffic for existing roadway design</p> <p>Reported 30 collisions between 2001-2007 attributed to substandard roadway design</p> <p>Fish barrier culverts</p>
Snee-Oosh Road	<p>Skagit County Rural Minor Collector</p> <p>BIA Type 4 Rural Major Collector</p> <p>2007 ADT of 2,300, 13% heavy vehicles</p> <p>Skagit Transit route</p> <p>Recommended WA State FGTS T-4 classification</p> <p>Road travels through the Village</p> <p>High levels of non-motorized traffic</p>	<p>Substandard Skagit County design for the roadway's classification with narrow travel lanes, curving alignment, deep roadside drainage ditches, limited shoulder width, poor pavement condition</p> <p>Inadequate pedestrian facilities for in-Village roadway</p> <p>Limited safety signage</p> <p>Heavy recreational vehicle traffic conflicts with non-motorized users</p> <p>Reported 11 collisions between 2001-2007</p> <p>Fish barrier culverts</p>
Pioneer Parkway	<p>Skagit County Rural Major Collector</p> <p>BIA Type 2 Rural Minor Arterial</p> <p>2007 ADT of 3,000, 9% trucks</p> <p>Skagit Transit route</p> <p>WA State FGTS T-3 classification</p> <p>Main access route to mainland</p> <p>North/south Reservation arterial spine route</p>	<p>Inadequate pedestrian facilities for in-Village roadway</p> <p>Limited safety signage</p> <p>Heavy truck/recreational vehicle traffic through the Village conflicts with inner-Village non-motorized circulation</p> <p>Reported 2 collisions between 2001-2007</p>
Shelter Bay Road	<p>Skagit County Local Access road</p> <p>BIA Type 3 Local Residential Street</p> <p>2007 ADT of 3,700 vehicles</p> <p>Skagit Transit route</p> <p>Provides access to large residential developments and Tribal Cemetery</p> <p>High levels of non-motorized traffic</p>	<p>No Sidewalks</p> <p>No Crosswalks</p> <p>Potential Vehicle Turning Movement Conflicts at Pioneer Parkway</p> <p>Roadway Functional Classification not reflective of road function and traffic volumes</p> <p>Reported 5 collisions between 2001-2007</p>
Indian Road	<p>Skagit County Rural Minor Collector</p> <p>BIA Type 3 Local Residential Street</p> <p>2007 ADT of less than 100 vehicles</p>	<p>Narrow Travel Lanes, Deep Drainage Ditches, Limited/No Shoulders</p> <p>Limited/No Safety Signage</p> <p>Reported 16 collisions between 2001-2007</p>

³ Skagit County Road Standards, Appendix B Figure B-1

3.4 Existing Public Transit

Public transportation within the Swinomish Reservation is operated by Skagit Transit which provides transit fixed route, paratransit and vanpool services within Skagit Transit's defined Public Transit Benefit Area (PTBA). Skagit Transit is funded through a special sales tax assessment of 4/10 of 1% (.04%) for purchases made within the PTBA. The standard bus fare is \$1.00; youth and reduced (senior) fares are 50 cents.

Island Transit also operates buses which travel through, but do not stop at the Reservation traveling on SR 20. Both Island Transit and Skagit Transit utilize the March's Point Park and Ride Lot located approximately 2.5 miles northwest of the Reservation's north boundary.

Skagit Transit currently serves the Reservation with two fixed bus routes and dial-a-ride service. Skagit Transit's two fixed bus routes are shown in **Figure 7**. The map provides a ¼ mile hatched line buffer drawn around the existing bus routes. This 1/4 mile buffer demonstrates the distance that most people would walk (about ten minutes) to access bus transit. By providing this buffer on the transit map, we are able to demonstrate the extent of effective fixed route transit service coverage area within the Reservation. A complete description of public transit service and facilities within and near the Reservation is summarized below.

Skagit Transit Route 615

Route 615 provides limited fixed route bus service on weekdays and Saturdays between Skagit Station (Mount Vernon), the Swinomish Village, the Tribal Casino, and the March's Point Park and Ride Lot. Route 615 travels between these cities on State Route 536, McLean Road, and La Conner Whitney Road, traveling through La Conner and crossing the Swinomish Slough at the Rainbow Bridge (Pioneer Parkway) to access the Swinomish Village. Weekday service is provided from 6:15 AM to 7:25 PM; Saturday service is provided from 8:10 am to 6:25 pm. Weekday frequency is every two hours throughout the day traveling eastbound, and every two hours during the AM and evening peak periods traveling westbound with no midday service.

Within the Swinomish Village, Route 615 makes a loop via Front Street, Snee-Oosh Road, Swinomish Avenue, First Street and Shelter Bay Drive, continuing north along Reservation Road to the Swinomish Casino, and the March's Point Park and Ride Lot. Route 615 Reservation bus stops are listed in **Table 13**.

Average monthly ridership on Route 615 in 2008 was 830 riders with an average of 8.9 riders per revenue hour. In comparison, the average weekday boarding per revenue hour for all of Skagit Transit's local routes was 11.1

Skagit Transit Route 513

Route 513 provides four daily round trips (once every three hours) weekdays from 7:00 AM to 7:00 PM between Skagit Station in Downtown Mount Vernon, Burlington, the March's Point Park and Ride lot, and Downtown Anacortes.

Within the Reservation, the westbound Route 513 bus exits SR 20 at South March's Point Road. The westbound 513 then continues west on South March's Point Drive to the March's Point Park and Ride Lot and on to Downtown Anacortes. The westbound Route 513 will deviate for

passenger drop off or pick up at the bus stop on Casino Drive near the Tribal Casino. Route 513 Reservation bus stops are listed in **Table 13**.

The eastbound Route 513 travels from Downtown Anacortes to the March’s Point Park and Ride Lot, then travels into the Reservation on South March’s Point Road, continuing east onto Casino Drive with another bus stop near the Tribal Casino, then traveling underneath the SR 20 twin bridges to Long John Drive and accessing SR 20 eastbound at the Padilla Heights Road intersection. Average monthly ridership in 2006 was approximately 1,200 riders with an average of 8.3 riders per revenue hour.

Table 13: Skagit Transit Route Reservation Bus Stop Locations

Route #	Stop Location	Facility
615	Front Street – east side	Signed Stop
	Reservation-Snee-Oosh Road intersection, northeast corner	Signed Stop with Covered Shelter
	Squi-Qui Lane at Snee-Oosh Road – northwest corner	Signed Stop
	Swinomish Road – west side	Signed Stop
	Swinomish Avenue at Keeah Road – southeast side	Signed Stop
	1 st Street – mid-block – west side	Signed Stop
	1 st Street at Shelter Bay Drive – northwest corner	Signed Stop
	South March’s Point Road at the Smokehouse – north side	Signed Stop
	South March’s Point Road at the Smokehouse – south side	Signed Stop
	Casino Drive near the Tribal Casino – south side	Signed Stop
513	South March’s Point Road at the Smokehouse – north side	Signed Stop
	South March’s Point Road at the Smokehouse – south side	Signed Stop
	Casino Drive near the Tribal Casino – south side	Signed Stop

Skagit Transit Route 410

Route 410 provides 12 daily round trips (once every hour) weekdays from 7:00 AM to 7:00 PM between March’s Point Park and Ride lot, Downtown Anacortes, and Washington State Ferry. The westbound route travels from March’s Point Park and Ride traveling on State Route 20 to Anacortes, heading north to the first scheduled stop at 10th Street and Q Avenue. From there the route travels west to the Guemes Ferry and the Washington State Ferry.

The eastbound route 410 travels from Skyline Way in Anacortes heading north to the Guemes Ferry where after 8am the stop is on request only. From there the route travels west to the scheduled stops at 10th Street and Q Avenue and terminates at the March’s Point Park and Ride where there is a thirty minute break before the route continues heading westbound.

Island Transit Route 411W

Island Transit Route 411W provides hourly fixed route bus service between Oak Harbor and Mount Vernon with 12 daily round trips operating 5:35 AM to 8:00 PM. Route 411w also provides timed access to connecting bus service in Mount Vernon to Bellingham, Everett and

Camano Island. Route 411W travels on SR20 with the nearest access point to the Reservation at the March's Point Park and Ride Lot.

Skagit Transit Dial-A-Ride Service

Skagit Transit provides dial-a-ride (paratransit) service within the Swinomish Reservation. Skagit Transit's paratransit service provides transportation for people whose disability or condition prevents them from using Skagit Transit regular fixed route buses. Within the Reservation, the Swinomish Village area is served by Dial-A Ride weekdays from 8:00 AM through 5:00 PM.

The actual Skagit Transit Dial-A Ride service area is defined as the area $\frac{3}{4}$ mile from the regular Skagit Transit fixed routes; this would extend to the entire Village and encompass most of Shelter Bay. Outside of the $\frac{3}{4}$ mile fixed route buffer area, Skagit Transit provides "Pocket Service" Dial-A-Ride on specific days of the week; this includes all of the Reservation outside the Village area described above including the Reservation's north end employment area. Skagit Transit Dial-A-Ride service to the Reservation's Skagit Transit Pocket Service areas is limited to Mondays and Thursday from 8:00 to 5:00 PM.

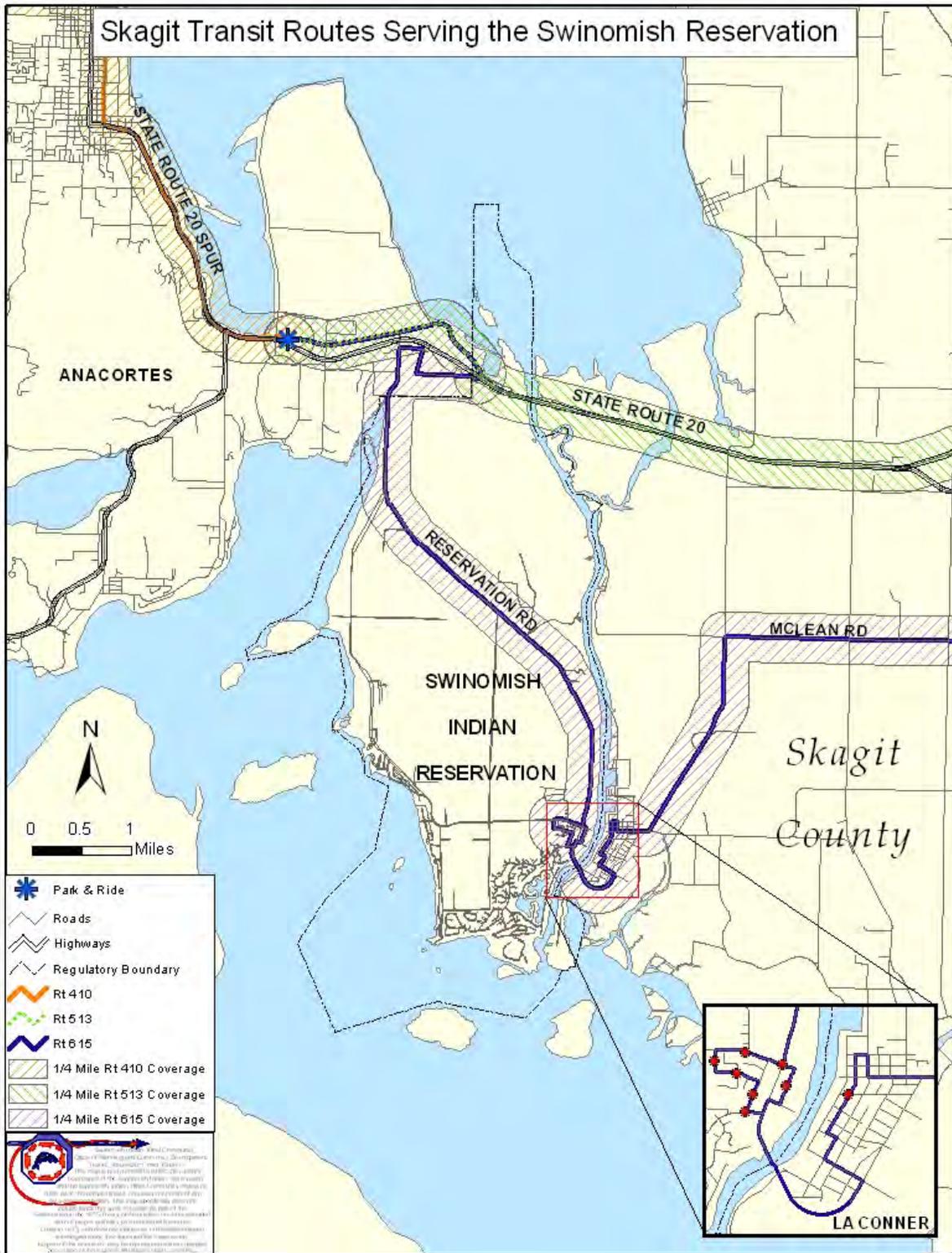
Park and Ride Lots

Skagit Transit operates out of a leased park and ride lot located approximately 2.5 miles northwest of the Reservations north boundary. The March's Point Park and Ride lot is located on South March's Point Road, near the intersection of SR 20 and West March's Point Road/Christensen Road. The lot provides parking for 144 vehicles, has two covered bus shelters and a driver washroom.

The park and ride is serviced by Skagit Transit's Routes 410, 513 and by Island Transit's Route 411W. The lot operates as a transfer center providing access to connecting service to Burlington, Mount Vernon and Anacortes, including both the County Guemes Ferry and the Washington State Ferries (WSF) Anacortes ferry terminal with connections to the San Juan Islands and Sydney, B.C.

According to Skagit Transit, there is usually available parking at the lot with a 40% average utilization rate in 2008. While vehicular access to the Park and Ride Lot is a viable access option, pedestrian and bicycle access from the Reservation is not.

Figure 7: Transit Fixed Route Service Coverage



3.5 Existing Public Transit Deficiencies

Skagit Transit provides public transit service to the Reservation with dial a ride and fixed route bus service on Routes 615 and 513. Existing fixed route service levels are deficient due to limited service frequencies. Also, the populated West Shore area of the Reservation is outside of the Skagit Transit public transit benefit area (PTBA) and is without any public transit service. Subsequently ridership levels are low although demand for public transit is high.

The Swinomish Tribal Community is committed to working with Skagit Transit to resolve these system deficiencies (summarized in Table 14):

- Weekday and weekend public transit access within the Swinomish Village on Skagit Transit Route 615 is infrequent with bus service provided only once every two hours eastbound, and more limited every two hour service during the AM and PM peak periods only westbound, and no Sunday service. This limited frequency is unable to effectively provide for non-traditional (non-standard 8-5 shift) work commute trip or mid day service for Reservation residents.
- Weekday and weekend public transit access within the Swinomish Village on Skagit Transit Route 513 is infrequent, with bus service provided only once every two hours during the AM and PM peak periods and no weekend service. This limited frequency is unable to provide effective standard shift work commute trip or mid day service for Reservation residents.
- Limited fixed route bus transit access to the north end Tribal Economic Zone via Skagit Transit Routes 513 and 615 due to limited bus frequencies weekdays and weekends.
- Dial-a-ride service to the north end Tribal Economic Zone is limited to two days a week limiting access to transit for elderly and disabled transit riders.
- Many areas within the Reservation lack safe pedestrian and bicycle access to bus stops; this includes much of the Shelter Bay and West Shore residential areas. Transit riders walk from these areas to bus stops within the Swinomish Village on substandard roadways with limited or nonexistent roadway space for safe non-motorized travel.
- Within the Village, several signed bus stops are located on roads without adequate pedestrian facilities, compromising safe access to transit. These include bus stops located on:
 - Front Street north of Moorage Way - missing sidewalk/road shoulder;
 - Snee-Oosh Road east of Pioneer Way– missing sidewalk/road shoulder, crosswalks;
 - Snee-Oosh Road west of Squi-Qui Lane – missing sidewalks; and
 - First Street north of Shelter Bay Drive - lack of pedestrian facilities on Shelter Bay Dr.

Table 14: Summary of Existing Transit System Deficiencies

Existing System Deficiency	Potential Solution
Infrequent weekday fixed route service; limited service	Increase weekday service frequency from once every two hours to once every hour; increase weekend service
Infrequent weekday paratransit service; no weekend service	Increase weekday service frequency to 3-4 days per week; begin weekend service
Many areas within the Reservation lack safe walk access to Village bus stops.	Extend fixed route service directly to these areas; correct identified connecting substandard pedestrian routes in direct route to bus stops
Inadequate pedestrian facilities at Village bus stops	Provide targeted pedestrian safety improvements at/near bus stops
Skagit Transit's PTBA does not encompass the entire Reservation with no service provided to the West Shore Area	Residents of non-PTBA area petition for inclusion and service

3.6 Existing Non Motorized Facilities

Reservation residents, visitors, and employees often travel by foot and by bicycle, especially within the Swinomish Village and Shelter Bay residential areas. Within the Reservation there are 15 sidewalks, three crosswalks, two pathways, one small wooden bridge and one recreational trail. Most of these facilities are located within the Village and are in relatively good condition. An inventory is provided in **Table 15**.

Table 15: Inventory of Pedestrian Facilities – December 2007

	Facility	Location	From	To	Side	Width*	Notes
1	Crosswalk	Snee-Oosh Rd.	Squi-Qui Ln.	-	Across	5'	Installed in 2002
2	Crosswalk	Snee-Oosh Rd.	1 st St.	-	Across	5'	Installed in 2002
3	Crosswalk	Reservation Rd.	Mid block @ Tribal Long House		Across	5'	Installed in 2004
4	Asphalt Walkway	Reservation Rd.	SR 20	Snee-oosh Rd.	Both	6'	Constructed in 2004
5	Gravel Walkway	Reservation Rd.	Reservation Rd.	Snee-Oosh Rd.	West and South	Variable	Off-road to Long House, ball field
6	Gravel Walkway	Snee-Oosh Rd.	Reservation Rd.	Squi-Qui Ln.	North	8-10'	Constructed in 2002
7	Path	Reservation Rd.	Senior Center	Day Care Bldg.	West	4 – 6'	Off-road; connects bldgs.
8	Sidewalk	Moorage Way	Pioneer Pkwy.	Fish Plant	Both	3 – 4'	-
9	Sidewalk	Front Street	Moorage Way	Snee-Oosh Rd.	West	3 – 4'	Only on west side of street
10	Sidewalk	Pioneer Pkwy.	Snee-Oosh Rd.	Shelter Bay Rd.	West	3 – 4'	7 Curb cuts on west sidewalk
11	Sidewalk	Senior Center	Snee-Oosh Rd.	Senior Center	N.A.	5'	Steps
12	Sidewalk	Casino Dr.	S. March's Point Rd.	S. Casino Dr.	North	5'	Constructed in 2005
13	Sidewalk	S Casino Dr.	Casino Dr.	Padilla Heights	South	5'	Constructed in 2005
14	Sidewalk	Reservation Rd.	Tribal Court Bldg.	Day Care Bldg.	West	4 – 5'	Off-road; steps, benches
15	Sidewalk	1 st Street	Snee-Oosh Rd.	Shelter Bay Rd.	Both	3 – 4'	Speed bump (3)
16	Sidewalk	Swinomish Ave.	1st St.	Snee-Oosh Rd.	Both	3 – 4'	Speed bump (2)
17	Sidewalk	2 nd Street	Swinomish St.	N.A.	Partial	3 – 4'	Cul de Sac
18	Sidewalk	Soladwh Street	Swinomish St.	End	East	3 – 4'	Cul de Sac
19	Sidewalk	Keeah Street	Swinomish St.	End	North	3 – 4'	Speed bump
20	Sidewalk	Squi-Qui Ln.	Snee-Oosh Rd.	Squi-Qui Court	West	5'	-
21	Sidewalk	Avenue A	1 st St.	End	North	3 – 4'	-
22	Trail	Reservation Rd.	Day Care Bldg.	Swinomish Channel	West	4 – 6'	Off-road
23	Wooden Bridge	Reservation Rd.	Tribal Court park lot	N.A.	West	5'	Roadside ditch; crossing sign (2)

* Widths are approximate.

3.7 Existing Non-motorized System Deficiencies

As demonstrated in **Table 15**, needed non-motorized system improvements have been constructed over the past five years, however there is still an acute lack of non-motorized facilities and system connectivity within the Reservation. The lack of connecting sidewalks and adequate shoulders and trails is a particular concern within the Swinomish Village and the Shelter Bay residential areas.

The Swinomish Village contains a mix of land use types at urban level densities. In this compact, walkable-scale village, high levels of pedestrian and bicycle activity often conflict with heavy traffic volumes due to the lack of adequate non-motorized facilities. In 2007 the Tribe reviewed and reported on the roadways within the Reservation. According to the *Swinomish Road Condition Report 2007*, substandard roadways pose a safety hazard to non-motorized traffic:

“...the dominant safety issue is the lack of shoulders between the roadway edge and the adjacent ditch...the vast majority of roads within the Reservation lack shoulders of sufficient width to qualify as bicycle lanes...Like bicycle safety discussed above, pedestrian safety is linked primarily to the absence of shoulders on roadways” - Swinomish Road Condition Report 2007

Where sidewalks or road shoulders end, pedestrians are forced into the vehicle travel lane to complete their trips. The lack of crosswalks at high pedestrian crossing points creates unnecessary confusion for pedestrians of where to safely cross, and doesn't cue drivers to stop where crossings take place.

Constructing safe non-motorized facilities is a priority for the Tribe on Pioneer Parkway, Reservation Road, Snee-oosh Road, Shelter Bay Road, and Indian Road. Non-motorized system deficiencies include:

- Missing Crosswalks,
- Missing Sidewalks,
- Substandard Road Shoulders,
- Inadequate Safety Signage,
- Need for improved Village Trail System, and
- Need for additional Reservation Non-motorized Planning.

Missing Crosswalks - In the Village center, there are no crosswalks, warning lights and only limited signage at the intersection of Reservation Road/Snee-Oosh Rd/Pioneer Parkway. Tribal education, health, social, and residential services are concentrated in this area. A bus stop with a shelter is located on Snee-Oosh Road directly east of the intersection.

There are no crosswalks on Shelter Bay Road at First Street or at Pioneer Parkway. A Tribal cemetery located south of Shelter Bay Road across from the two intersections is difficult to access safely due to high traffic volumes on Shelter Bay Road and Pioneer Parkway.

There is no crosswalk on Pioneer Parkway at the Moorage Way intersection. Tribal governmental services and administrative offices are located on Moorage Way and generate significant pedestrian and vehicular traffic during the day.

Missing Sidewalks - There is only a sidewalk on the west side of Pioneer Parkway through the Swinomish Village. Sidewalks on both sides are needed along this main traffic corridor through the Swinomish Village.

There are no sidewalks on either side of Reservation Road within the Village. The Tribal Longhouse is located north of the Snee-Oosh/Pioneer Parkway intersection. There are also no sidewalks on either side of Snee-Oosh Road within the Village, the major east/west traffic corridor.

There are no sidewalks on either side of busy Shelter Bay Road which provides access to the Tribal Burial Grounds, to bus service on First Street, and to the large Shelter Bay residential area.

Substandard Road Shoulders - Narrow road shoulders create hazardous conditions for pedestrian and cyclists on the west side of Pioneer Parkway, on the south side of Snee-Oosh Road east of Squi Qui Lane, and on Reservation Road between Pioneer Parkway and Snee-Oosh Road (north intersection). Indian Road has no road shoulders or delineating pavement striping. Shoulder widths on these Skagit County arterials do not meet County road standards.

Safety Signage - Non-motorized safety signage should be provided where there are significant volumes of pedestrians or cyclists on roadways within the Reservation. Signed areas should include marked crosswalks, higher-volume unmarked crossings, on designated bicycle routes, near at-grade pedestrian paths and sidewalks, within school zones, and on roads within areas that generate significant pedestrian activity.

Village Trail System - There is one recreational trail in the village.⁴ In 1999, the Swinomish government, with grant assistance from the state Department of Natural Resources, examined non-motorized connections in the village. The study resulted in a recommended system of Village trails which should be constructed to provide for enhanced non-motorized circulation and safety within the Village.

Reservation Non-motorized Planning - There are no designated bicycle routes on the Reservation. A bicycle route map published by the Skagit Council of Governments (SCOG) in 2008 indicates only Pioneer Parkway and portions of Reservation Road as the preferred bike routes through the Reservation, however many cyclists and pedestrians travel on Snee-Oosh and Indian Road. While trails and paths have been formally designated within the Village, connecting trail planning to other areas of the Reservation has not been done.

A Reservation non-motorized plan could address these needs by identifying a system of preferred bicycle routes, connecting Village trails and walking paths, and recommend

⁴ The Swinomish government, through a Washington Department of Natural Resources grant, restored a wetland and created this trail for public access to the Swinomish Channel.

improvement projects and next steps. Once approved, the Plan would be transmitted to the BIA and to federal, state, regional, County and local governments for funding and incorporation into their non-motorized plans. A summary of existing non-motorized system deficiencies is provided in **Table 16**.

Table 16: Summary of Existing Non-motorized System Deficiencies	
Deficiency	Location
Missing Crosswalks	<ul style="list-style-type: none"> • Intersection of Reservation Road/Snee-Oosh Rd/Pioneer Parkway • Intersection of Shelter Bay Road at First Street • Intersection of Shelter Bay Road at Pioneer Parkway • Intersection of Pioneer Parkway at the Moorage Way
Missing Sidewalks	<ul style="list-style-type: none"> • Pioneer Parkway – east side • Reservation Road ¼ mile north of Snee-Oosh Road – both sides • Snee-Oosh Road ¼ mile west of Pioneer Parkway – both sides • Shelter Bay Road 100' west of 1stStreet to Pioneer Parkway– both sides • Front Street – east side
Substandard Road Shoulders	<ul style="list-style-type: none"> • Pioneer Parkway – East Side • Snee-Oosh Road east of Squi-Qui Lane – south side • Snee-Oosh Road west of Squi-Qui Lane – both sides • Reservation Road between Pioneer Parkway and Snee-Oosh Road (north intersection) – both sides • Indian Road – both sides
Needed Non-motorized Safety Signage	<ul style="list-style-type: none"> • Pedestrian crossing signs at marked crosswalks • Pedestrian crossing sign at high-volume unmarked crossings • Designated bicycle routes • At-grade pedestrian paths and sidewalks • Within school zones • Other areas of significant walk and bike activity
Village Trail System	<ul style="list-style-type: none"> • Complete in-Village trail system
Needed Reservation Non-motorized Plan	<ul style="list-style-type: none"> • Designation of a Reservation-wide bicycle and trail route system and improvements plan

3.8 Existing Freight System Deficiencies

Freight and goods travel within and through the Reservation on several transportation modes including trucks, freight rail, pipeline and waterborne. According to the Skagit Council of Governments, the majority of product tonnage being shipped within the Reservation boundaries is petroleum and petroleum processing related product transported to/from the nearby March's Point refineries, agricultural products, logs moving from Tribal harvest areas to local mills and log yards, Tribal fish and seafood products, and consumer and industrial products.

This plan provides freight system analysis and recommendations across:

- Truck Routes,
- Freight Rail,
- Pipelines, and
- Waterborne Traffic.

Truck Routes - The Washington Freight and Goods Transportation System (FGTS) is a ranking of roads in Washington State by average gross annual truck tonnage carried. The ranking is intended to help government agencies and private businesses that produce and/or move freight better understand the truck freight system including:

- Truck routes and the locations of intermodal terminal and business locations;
- Provide a system and guidance roadway deficiency analysis;
- Prioritize project programming for programs that provide freight system funding; and
- Assist planners, engineers and elected officials in freight related policy decision making.

The FGTS ranking and revisions occur through a collaborative effort of WSDOT working with local governments through the Skagit Council of Governments. The last review was in 2005.

In Skagit County, the facilities with the highest FGTS designations are I-5 and SR 20 (from I-5 to Anacortes). As shown in **Figure 8**, SR 20 crosses the northern tip of the Reservation carrying 4 to 10 million tons of freight and goods annually and is classified at a T-2 on the FGTS.

Other FGTS designated roadways within the Reservation are Pioneer Parkway, Reservation Road and Snee-Oosh Road. As of the 2005 update, the FGTS designation of these routes was a T-3 indicating that they carry 300,000 to 4 million tons per year. The Tribe recommends that Snee-Oosh Road be re-designated from a T-3 classification to the lower T-4 classification based on truck volume data. The data reflects that much of the truck traffic volumes are recreational vehicles accessing the Thousand Trails recreational park.

Freight Rail - The Burlington Northern Santa Fe (BNSF) is the only major commercial railroad in Skagit County with 24 active spurs. The track traverses the north end of the Swinomish Reservation. The main switching yards are located in Burlington. An east-west branch follows SR20 and connects the March's Point refineries to the mainline in Burlington. A second branch line runs along SR20 from Burlington to Sedro-Woolley, parallel SR9 north to the Whatcom County line.

Pipelines - Both the Trans Mountain pipeline and the Olympic pipeline traverse the Swinomish Reservation. The Trans Mountain pipeline moves crude oil from Vancouver BC through Sumas, Washington to the Anacortes and Cherry Point refineries. The Olympic Pipeline transports refined petroleum products from the Anacortes and Ferndale refineries to distribution points in western Washington and Oregon.

Waterborne Traffic - The Swinomish Channel borders the east side of the Reservation and provides for waterborne freight and commerce. The channel is a navigable man-made cut through which was once called Swinomish Slough, a shallow collection of tidal sloughs, extensive salt marshes, and mud flats.

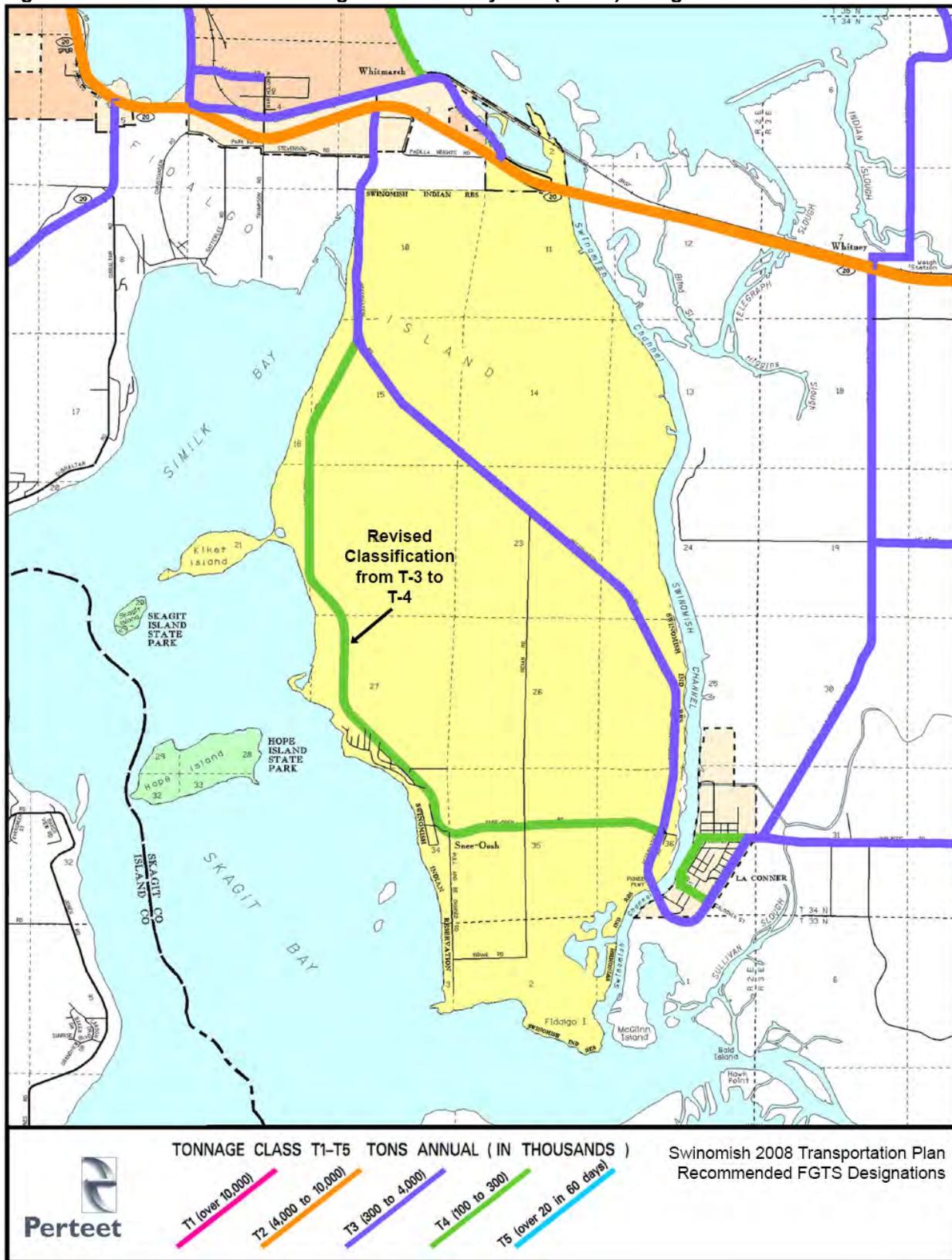
The Swinomish Channel is used extensively by fishing boats, tugs, recreational craft, and shallow-draught freight vessels including vessels from the south bound to the nearby Port of Anacortes terminals. Dredging the Channel made La Conner into a working waterfront and is vital to the Swinomish fishing fleet and such longtime employers as Dunlap Towing.

According to the U.S. Army Corp of Engineers (USCOE), about 200,000 metric tons traveled through the Channel in recent years. The Port of Skagit County estimates that there are at least 340 jobs that depend on the channel, and boats using the waterway generate \$11.7 million in direct revenue in the area.



Scott Terrell photo: A pair of Dunlap Towing tugboats, the Pull & Be Damned (front) and the Rosario, tow a log raft northbound through the Swinomish Channel near La Conner.

Figure 8: Recommended WA Freight and Good System (FGTS) Designations



3.9 Existing Freight System Deficiencies

A tremendous amount of freight and goods move within and through the Reservation due to the Tribe’s sustainable logging and fishing fleet activities, the proximity to a major industrial center on March’s Point, and freight transport facilities and routes including the Swinomish Channel, the on-Reservation alignment of SR 20, the BNSF Branch line, and both the Olympic & Trans Mount pipelines. Attention to the special needs of the on Reservation freight and goods transportation system will help ensure the economic viability of the Tribe and the larger region.

System deficiencies include substandard design on arterials serving as Washington State FGTS truck routes including Reservation Road and Snee-Oosh Road. On these routes, narrow arterial travel lanes, inadequate road shoulders and the lack of standardized non-motorized facilities create unsafe travel conditions as truck, auto and non-motorized travelers compete for limited roadway space.

Freight system deficiencies also exist for waterborne freight traffic. Bi-annual dredging of the Swinomish Channel is essential to maintaining this important waterway. In recent years, USCOE has been under pressure to reduce their efforts to maintain small public works projects such as dredging the Swinomish Channel to its authorized 12-foot channel depth. Federal funding for dredging projects is determined in part by the tonnage traveling aboard vessels through a waterway. The Swinomish Channel currently doesn’t meet the minimum tonnage requirements placing bi-annual dredging in jeopardy.

While the Swinomish Channel was dredged in 2008, previous dredging occurred back in 2003. During these five years, several developing sand bars created hazards and impeded travel within the Channel, especially during low tides. A five-year schedule for dredging maintenance is inadequate for proper maintenance of channel navigation and threatens the economic viability of Tribal and non-tribal jobs that depend on the channel. Bi-annual dredging is needed to help maintain economic viability and boating safety within the Channel.

Table 17 presents a summary of existing freight and goods transportation system deficiencies within the Swinomish Reservation.

Table 17: Existing Freight Transportation System Deficiencies			
Facility	Location	Freight Designation	System Deficiency
Pioneer Parkway	Within the Swinomish Village	WA State FGTS T-3 Facility	Sub-standard roadway design creates unnecessary roadway user conflicts with heavy vehicles
Reservation Road	Pioneer Parkway to Snee-Oosh Rd.	WA State FGTS T-3 Facility	Sub-standard roadway design creates unnecessary roadway user conflicts with heavy vehicles
Snee-Oosh Road	Entire Length	Recommended WA State FGTS T-4 Facility	Sub-standard roadway design creates unnecessary roadway user conflicts with heavy vehicles
Swinomish Channel	Entire Length	Waterborne Traffic	Infrequent dredging Insufficient channel depth (less than 12 ft.)

4.0 FUTURE TRANSPORTATION CONDITIONS AND DEFICIENCIES

This chapter provides information on future transportation conditions within the Reservation including forecasts of system demands, future roadway level of service (LOS), and future system deficiencies.

Year 2025 traffic forecasts were developed using the Skagit Council of Governments (SCOG) traffic forecasting model in 2011. A description of the traffic forecasting model development and its resulting traffic forecasts is provided below.

Future forecasts of travel on other modes such as transit and non-motorized (pedestrian and bicycle) is also documented in this chapter. While traffic forecasts were developed using the revised SCOG traffic demand forecasting model, forecasts of other transportations modes within the Reservation were less vigorous, but still provided enough information to guide transportation infrastructure and service improvements.

4.1 Traffic Forecasting Methodology

There are very specific steps that are followed in development and use of a traffic forecasting model. These steps are summarized here as applied to the Swinomish Transportation Plan.

1. **Define Model Study Area:** Define the specific area that will be included in the traffic model. The SCOG traffic model includes most of Skagit County and all of Island County divided into 308 internal traffic analysis zones (TAZ's).
2. Within the model, a study area was identified, slightly larger than the Swinomish Reservation in order to review land use data and forecasts and to better calculate traffic generation, traffic flows and their impacts on Reservation and nearby State and County roads. The boundaries of the study area were consistent with the SCOG model transportation analysis zones. **Figure 9** displays the Swinomish Model Study Area.
3. **Determine Street Network to be Modeled:** Define the specific set of streets for traffic forecasting. Within the Swinomish study area, the existing arterial street network for the Swinomish was selected for projections of traffic forecasts. No new roadways were proposed or modeled.
4. **Intergovernmental Coordination:** In order to examine and account for traffic and land use that may impact a model study area from outside its boundaries, it is incumbent on the modeler to review neighboring jurisdiction's land use plans, and traffic forecasts on arterials and highways that traverse the model study area. The development of the Swinomish traffic forecasts included discussions with Skagit County and the City of Anacortes for review of the traffic and land use forecasts provided by the County/City Comprehensive Plan.
5. **Land Use Data:** Collect population, housing and employment information for each of the TAZ's. Existing (2008) and future (2025) population, housing, and employment information within the model was revised to provide consistency with the Tribal land use plans, the

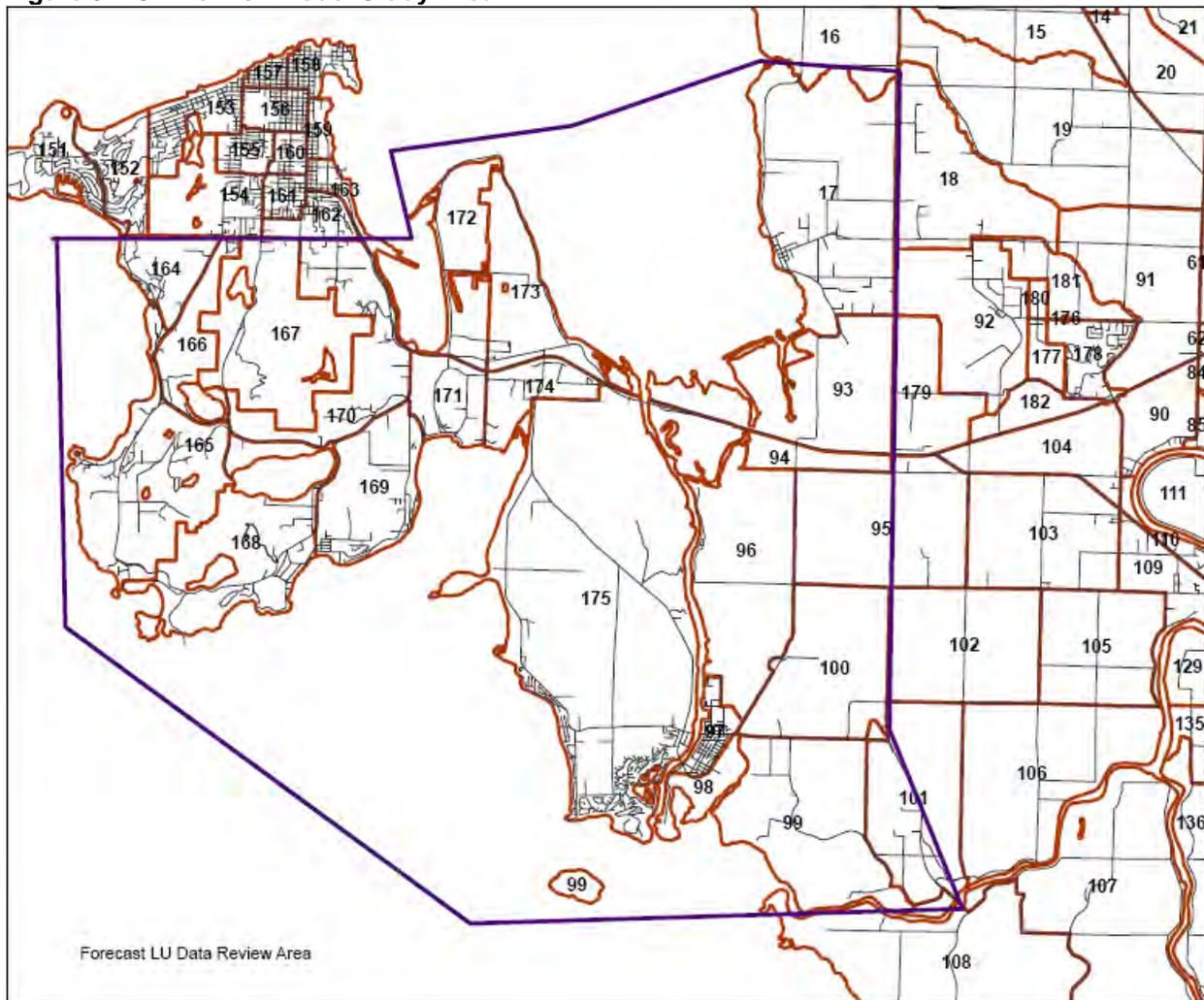
Skagit County's Comprehensive Plan, and the City of Anacortes comprehensive plan. The Tribe's future 2025 land use growth was allocated to the TAZ's based on:

- The location of known development projects;
 - Comprehensive Plan zoning;
 - Constraints to development such as steep slopes and wetland; and
 - Calculated average density of recently completed developments, such as dwelling units per acre.
6. Trip Generation: Calculate trips to be generated by each TAZ based on the land use data and trip generation assumptions. The land use data and PM peak hour (4:30 – 5:30) trip generation rates are included in the SCOG traffic model. Trip generation is performed within the model.
 7. Trip Distribution: Trip distribution refers to the calculation of trip movements within and outside of the model study area. Trip distribution occurs between housing areas, commercial areas, recreational areas, and to/from areas outside of the model study area such as between neighboring cities. For the SCOG model, PM peak hour traffic trip distribution is estimated within the model through application of a gravity model with model coefficients specific to three typical trip purposes: home based work, home based other, and non home based.
 8. Trip Assignment: Trip assignment is the final step where trips are assigned to the various streets and roadways network within the model study area. For the Swinomish traffic forecasts, trip assignment was calculated and trips assigned to the model network within the SCOG model.
 9. Post Processing: Predicted traffic growth from the SCOG model was added to actual 2008 traffic counts to produce more realistic 2025 traffic forecasts. The 2025 forecasts were then scaled back to represent year 2025 using a simple straight-line interpolation of 2008-2025 traffic growth.
 10. North End Tribal Economic Zone Analysis: More detailed traffic and turning movement forecasts were desired for the north Tribal Economic Zone by a consulting firm as part of a detailed transportation analysis as part of master planning completed in 2011⁵. Standardized Institute of Transportation Engineers (ITE) trip generation rates were used to forecast 2025 PM peak hour volumes of two land use development scenarios, a Baseline 2025 scenario and a With Proposed Land Use Projects 2025 Scenario. The future land use assumptions for the TEZ under can be viewed in **Appendix B**.

To produce traffic forecasts within the TEZ, forecasted traffic volumes generated under each future land use scenario were added to existing counts then distributed and assigned based on observed SCOG forecast model distribution and assignment parameters.

⁵ Swinomish Reservation: North End Economic Development Zone Master Plan Transportation Analysis, May 2011

Figure 9: Swinomish Model Study Area



4.2 Future Traffic Volumes and Levels of Service

As discussed in the previous section, future 2025 traffic forecasts within the Swinomish planning area were developed using the revised SCOG traffic forecasting model with a more detailed forecast analysis developed for the Tribal Economic Zone (TEZ). In order to evaluate the impacts of future traffic volumes on the highway and road system, PM peak hour (4:30 – 5:30) level of service (LOS) analysis was performed.

Future year 2025 forecasted traffic volumes and generalized traffic LOS for roads within the Reservation and larger planning area using with the 2025 with land use project forecast scenario is presented in **Table 18**.

Table 18: 2007 and 2025 Average Weekday Traffic Volumes and Levels of Service

Road Name	@ Location	2007 AWDT	2007 LOS	2025 AWDT	2025 LOS
Avenue A	w/o First Street	268	A	380	A
Beach Road	at Chilberg Avenue	115	A	160	A
Best Road	s/o Chilberg Road	3,900	A	5,010	A
Caput Zalsiluce Road	s/o Cobahud Road	31	A	40	A
Casino Drive	e/o S March's Point Rd	3,586	A	9,580	C
Chilberg Avenue	at Snee Oosh Road	20	A	30	A
Chilberg Road	e/o LaConner-Whitney Road	4,575	A	5,490	B
Cobahud Road	s/o Nanna Lane	30	A	40	A
Dr. Joe Road	n/o Wawalton Place	36	A	50	A
Fir Island Road	s/o Rawlins Road	4,250	A	5,450	A
Fir Island Road	w/o Pioneer Highway	7,150	B	9,150	C
Fir Island Road	e/o Maupin Road	5,400	B	6,920	B
First Street	n/o Shelter Bay Drive	658	A	940	A
First Street	s/o Snee-Oosh Road	635	A	910	A
Front Street	n/o Moorage Way	121	A	170	A
Goldenview Avenue	s/o Sunset Drive	26	A	40	A
Indian Road	s/o Reservation Road	56	A	80	A
Indian Road	n/o Snee-Oosh Road	79	A	110	A
Island View Lane	At McGlenn Drive	100	A	140	A
Keeah Lane	n/o Swinomish Ave	138	A	200	A
LaConner-Whitney Road	s/o McLean Road	5,650	B	7,070	B
Lone Tree Road	e/o Snee Osh Road	25	A	30	A
Long John Drive	s/o Padilla Hights Road	2,076	A	4,430	B
Maple Avenue	s/o Caledonian Avenue	6,130	A	8,930	C
Maple Lane	s/o Sunset Drive	47	A	70	A
McGlenn Drive	at Island View Lane	160	A	230	A
McGlenn Island Rd	49	92	A	130	A
McLean Road	e/o LaConner-Whitney Road	3,800	A	5,210	A
Moorage Way	e/o Pioneer Parkway	134	A	200	A
Nanna Lane	n/o Cobahud Road	25	A	30	A
Padilla Heights Rd.	w/o Long John Drive	500	A	970	A
Pioneer Parkway Road	at Rainbow Bridge	6,130	B	8,930	C
Pioneer Parkway Road	s/o Snee-Oosh/Reservation	3,590	A	5,500	B
Pull and Be Damned	s/o Snee-Oosh Road	340	A	510	A
Pull and Be Damned	n/o Indian Road	23	A	30	A
Pull and Be Damned	at Dr Joe Road	56	A	80	A
Ray Paul Lane	n/o Nanna Lane	19	A	30	A
Reservation Lane	s/o Reservation Road	108	A	160	A
Reservation Road	n/o Snee-Oosh/Pioneer	1,867	A	2,770	A
Reservation Road	s/o Snee-Oosh Road	1,780	A	2,040	A
Reservation Road	n/o Snee-Oosh Road	2,970	A	4,410	B
Reservation Road	s/o SR 20 (Anacortes)	2,178	A	3,470	A

Table 18 cont: 2007 and 2025 Average Weekday Traffic Volumes and Levels of Service						
Road Name	@ Location	2007 AWDT	2007 LOS		3470	2025 LOS
S March's Point Rd	s/o Casino Drive	2,600	A		8,280	C
S March's Point Rd	w/o Casino Drive	1,424	A		1,650	A
S March's Point Rd	e/o March's Point Road	1,277	A		1,800	A
Sahalie Drive	e/o Reservation Road	163	A		230	A
Second Street	s/o Swinomish Ave	159	A		230	A
Shelter Bay Drive	w/o Pioneer Parkway	3,730	A		4,840	B
Sherman Street	at Chilberg Avenue	115	A		160	A
Smokehouse Road	e/o Wilbur Road	92	A		130	A
Snee-Oosh Rd	w/o Reservation Road/Pioneer Parkway	2,260	A		3,260	A
Snee-Oosh Rd	e/o Pull and Be Damned Rd	1,846	A		2,520	A
Snee-Oosh Rd	n/o Mill Road	918	A		1,370	A
Snee-Oosh Rd	s/o Reservation Road	1,122	A		1,660	A
Solahdwh Lane	s/o Swinomish Avenue	372	A		530	A
Squi-Qui Lane	n/o Snee-Oosh Rd	315	A		450	A
SR 20	e/o Padilla Hts/March's Point	33,000	B (HCM)		40,100	C
SR 20	w/o Padilla Hts/March's Point	34,000	B (HCM)		38,900	C
SR 20	w/o Pulver Road	20,000	F		28,180	B
SR 536	w/o Avon Allen Rd.	10,000	C		11,840	C
SR 536	w/o I-5	16,000	A		20,200	A
Sunset Drive	w/o Maple Lane	77	A		110	A
Swinomish Avenue	s/o Snee-Oosh Rd	368	A		530	A
Swinomish Avenue	w/o 1st St	714	A		1,020	A
Swinomish Flats Road	s/o Casino Drive	3,586	A		9,620	C
Third Avenue	n/o Chilberg Avenue	80	A		110	A
View Lane	at SE connection	115	A		160	A
Warren Street	at Snee-Oosh Road	150	A		210	A
Wilbur Road	n/o Reservation Road	249	A		350	A

To examine key intersections in the north Tribal Economic Zone (TEZ), future traffic operational LOS analysis was conducted using Synchro software. The traffic impacts of two future land use scenarios in the TEZ were analyzed. The future land use scenarios studied included:

2025 Baseline Scenario – No additional development occurs in the north end beyond current (2010) levels;

2025 Forecast with Proposed Land Use Projects - Includes additional commercial development in the TEZ. The future land use assumptions under this scenario can be viewed in **Appendix B**. The 2025 PM peak hour intersection LOS under each scenario is shown in **Table 19**.

Table 19: 2025 Intersection Level of Service						
Intersection	Intersection Stop Control	Worst Movement	2025 Baseline Land Use Forecast		2025 Forecast with Proposed Land Use Projects	
			LOS	Sec Delay	LOS	Sec Delay
SR 20 EB @ Padilla Heights Road	One-Way Stop Control	EBR	E	48	F	>120
SR 20 WB @ South March's Point Road	One-Way Stop Control	SBR	C	20	F	>120
S March Point Road @ Casino Drive	Two-Way Stop Control	WBL & WBR	B	12	F	63
Padilla Heights Road @ Long John Drive	One-Way Stop Control	WBL & WBT	A	8	C	16
Casino Drive @ Swinomish Flats Road	All-Way Stop Control	N/A	A	9	F	86
Long John Drive @ Swinomish Flats Road	1 lane Roundabout	N/A	A	5	A	7

4.3 Future Roadway Deficiencies

Traffic volumes in general on Reservation roads are forecasted to increase by 2025 and commensurate with land use growth within the Reservation. Roadways with the highest traffic volume increases are those serving the north economic zone and within the Swinomish Village including South March's Point Road, Casino Drive, Long John Drive, Pioneer Parkway, Reservation Road and Snee-Oosh Road.

As shown in **Table 13**, Forecasted 2025 generalized road corridor level of service (LOS) rating is "C" or better on all roads within the Reservation generally indicating good vehicle traffic operating conditions during the PM peak hour on road corridors in the future.

Future year 2025 weekday PM peak hour intersection LOS presented in **Table 14** indicates that the Padilla Heights Road at Long John Drive and Long John Drive at Swinomish Flats intersections will both operate with acceptable delay and LOS under all future year scenarios. However, the analysis reveals that the two intersections accessing SR 20, the South March's Point Road at Casino Drive, and the Casino Drive at Swinomish Flats Road intersections may have unacceptable delay and LOS in the future.

SR 20 EB / Padilla Heights Road Intersection - The analysis of level of service (LOS) at SR20 eastbound at Padilla Heights Road for future year conditions suggests that the overall intersection will operate at LOS E under the 2025 Baseline scenario during the weekday PM peak but could worsen to LOS F under the 2025 With Proposed Land Use Project land use scenario. As shown in **Table 14**, the worst movement of the intersection, the stop-controlled eastbound approach of Padilla Heights Road to SR 20. The traffic model predicts that the vehicles on that stop-controlled approach with SR 20 would extend 660 feet back with traffic queues spilling over to the adjacent upstream intersection at Padilla Heights and Long John Drive.

A potential solution to this problem is to provide an eastbound acceleration lane for the vehicles merging and exiting onto SR 20 from Padilla Heights Road. Independent traffic analysis performed for this interchange⁶ suggested an acceleration lane length of 786 feet and extending the SR 20 eastbound deceleration lane to a length of 582 feet. This recommendation is based on WSDOT design standards and not traffic operations analysis which may indicate different lengths.

The traffic model used for the study (Synchro) is not capable of estimating appropriate lane lengths. The Highway Capacity Manual also does not propose any suitable lengths for this intersection configuration since it is not a conventional on ramp. Further operational traffic analysis is required to verify the adequacy of the proposed lane lengths.

Another solution to the intersection is to build a more classic on ramp to provide the vehicles more space to accelerate before merging with the mainline SR 20 traffic. As part of the reconfiguration, Long John Drive should be realigned to become the major traffic movement while the traffic from Padilla Road should remain stop-controlled as suggested by future traffic patterns.

SR 20 WB / South March's Point Road Intersection

The intersection of SR 20 at South March Road is forecasted to operate at an acceptable LOS C under the 2025 Baseline scenario but could worsen to LOS F under the 2025 With Proposed Land Use Project scenario during the weekday PM peak hour.

Similar to the proposed SR 20 eastbound intersection improvements discussed above, independent traffic analysis cited above recommends increasing the lane length of the existing intersection's westbound acceleration lane to 1,435 feet and extending the existing deceleration lane an additional 120 feet to 470 feet.

A classic on ramp is another potential solution that would provide better merge conditions for the westbound traffic. This should include suitable changes to the intersection at Casino Drive and South March Point Road, in terms of making Casino Road the major traffic movement as suggested by the future trip patterns and possibly relocating the intersection to accommodate the classic on ramp. Additional in-depth

⁶ Lervik Engineering "SR20 Interchange Modifications Feasibility and Analysis Report" 2007

traffic modeling and micro simulation is recommended to better assess the traffic effects and recommend preferred solutions.

South March's Point Road/Casino Drive and Padilla Height Road/Long John Drive Intersections

These two study intersections are also forecasted to have capacity problems during the weekday PM peak hour, as reflected in the LOS results. However the operations at these intersections are predicated upon the traffic flow at the nearby intersections at SR 20. The forecasts indicate that extensive queues originating from the stop-control at SR 20 will impede traffic flow through these intersections. Hence, any intersection control changes, mainline SR 20 improvements, or reconfiguration of the approaches to SR 20 will result in improvements to traffic operations at these intersections. Additional in-depth traffic modeling and micro simulation is recommended to better assess the traffic effects and recommend preferred design solutions.

Casino Drive / Swinomish Flats Road Intersection

This all-way stop controlled intersection is forecasted to operate at LOS A during the PM peak hour under the 2025 Baseline. However, the intersection is forecasted to fall to LOS F under the 2025 With Proposed Land Use Project scenario. A two-lane roundabout was proposed in the master plan transportation analysis to mitigate for peak hour weekday and large traffic queues that may occur during special events. Further analysis using a micro simulation software should be considered to provide for a more comprehensive evaluation of the system.

4.4 Future Public Transit Ridership Forecasts

The Swinomish Reservation is served by Skagit Transit with dial-a-ride service and with two fixed bus routes:

- Route 615 serving the Swinomish Village from Mount Vernon via La Conner;
- Route 513 serving the north Tribal Economic Zone from Mount Vernon via Burlington traveling to March's Point and Anacortes.

As discussed in Section 2.9 *Existing Public Transit Deficiencies*, bus frequency on routes 513 and 615 is once every two hours on weekdays and Saturday.

Future Skagit Transit plans and ridership forecasts were developed by Skagit Transit within their 2008–2013 Six-Year Transit Development Plan (TDP). Within the TDP, Skagit Transit has identified general goals for service improvements, service increases to fixed route bus service, dial-a-ride transit, and their successful vanpool commuter program. Skagit Transit also plans to begin a commute trip reduction (CTR) program. Skagit Transit is predicting a 3.6% annual growth in overall system ridership between 2008 and 2013.

To support implementation of Skagit Transit's six-year TDP, a joint transit service proposal has been developed by the Tribe and Skagit Transit to modify Route 615. The

proposal would increase service frequency on weekdays and add Saturday service. The route now travels north from the Village to the Tribe’s north economic zone, the March’s Point Park and Ride Lot, where passengers can transfer buses and travel to Downtown Anacortes.

Future ridership forecasts were developed to estimate the average monthly ridership on Route 615 by 2015 if the proposal is successfully implemented. The forecast is shown in **Table 20** and demonstrates a substantial increase in ridership with the proposed route expansion.

Table 20: Route 615 Ridership Forecasts with Proposed Service Expansion		
Route	2008 Average Monthly Ridership	2015 Average Monthly Ridership Estimate
615	830	2,400

4.5 Future Public Transit Deficiencies

Future transit deficiencies within the Reservation were developed by analyzing future transit demand under the assumed 2025 land use scenarios. The analysis also assumed completion of the planned Route 615 service expansion proposal and correction of existing transit system deficiencies. Future transit deficiencies are presented in **Table 21**.

Table 21: Summary of Future Transit System Deficiencies	
Future System Deficiency	Potential Solution
Skagit Transit PTBA does not encompass entire Reservation with no service provided to the West Shore Area	Residents of non-PTBA area petition for inclusion and service
Infrequent weekday fixed route transit service	Increase weekday service frequency to hourly
Lack of connecting transit service and facilities within north economic zone	Provide increased transit service and supporting access infrastructure

4.6 Future Non-motorized System Forecasts

The demand for non-motorized transportation on the Reservation was not explicitly modeled, but estimated through a review of future land use forecasts, from public opinion analysis through outreach completed by the Tribe in 2001⁷, and through ongoing discussions of Tribal transportation needs.

Over the last ten years, the demand for non-motorized transportation on the Reservation has increased faster than the rate of population growth due to the completion of additional Tribal services and on-Reservation employment opportunities. Trips currently done by

⁷ Interim Report: Issues Survey, Swinomish Tribe Transportation Plan Update, July 2001

car or transit to employment, education, health and social services, can be met on-Reservation within the Village conveniently by walk and bike trips.

In the future, as additional housing, employment, education and tribal services are constructed within the Reservation, the demand for non-motorized transportation will continue to increase. As residential and employment densities increase, so will the demand for walk and bike trips.

4.7 Future Non-motorized System Deficiencies

There is awareness within the Swinomish Community of the hazards of walking and biking on the Reservation. Increasing traffic volumes on connecting arterial roadways, high levels of truck and heavy vehicle traffic, the lack of standardized pedestrian and bicycle facilities, missing connections between facilities, and the lack of warning signs in higher-use non-motorized travel areas combine to create hazardous conditions for pedestrians and cyclists.

The list of existing system deficiencies listed in Section 2.11 *Existing Non-motorized System Deficiencies* is well known to residents. As the demand for non-motorized transportation grows, there will be increased risks to pedestrians and cyclists within the Village and other areas of the Reservation due to existing non-motorized deficiencies. Where deficiencies are corrected, those improvements should adequately provide for existing as well as future demand in those areas.

Tribal leaders should work towards correcting existing non-motorized system deficiencies. Leaders should also monitor for new deficiencies and project opportunities that may arise with continued development and changing transportation conditions. Tribal leaders should consider designating bicycle routes on the Reservation in order to provide direction for planners and engineers to provide adequate bicycle facilities on the routes concurrent with development and future road improvement projects. A Reservation non-motorized plan could address these needs by identifying a system of preferred bicycle routes, connecting Village trails and walking paths, and recommend improvement projects and next steps.

4.8 Future Freight System Forecasts

Forecasts of freight and goods traveling within and through the Reservation were provided by the Skagit Council of Governments (SCOG) over the next six years through the year 2014. Forecasts beyond 2014 have not been explicitly modeled. According to SCOG, the majority of product tonnage shipped within the Reservation by 2014 will be very similar to products shipped today. These goods travel through the Reservation boundaries on trucks, rail, pipeline and water via the Swinomish Channel.

Truck Freight - SCOG forecasts indicate modest increases in trucking activity related to refinery operations and chemical manufacturing at March's Point. Tribal logging and activity is expected to remain constant within the Reservation. Overall truck volumes on the designated Freight and Goods System (FGTS) routes within the Reservation are

expected to increase related to increased construction across the Reservation as well as serving planned developments in the Tribe's north economic zone. No new FGTS routes are recommended at this time to accommodate the forecasted increases.

Freight Rail - Slight increases in rail freight tonnage are forecasted by SCOG on the Burlington Northern Santa Fe (BNSF) line traversing the north end of the Swinomish Reservation related to petroleum and chemical manufacturing on March's Point.

Pipeline - The Trans Mountain pipeline and the Olympic pipeline traverse the Swinomish Reservation. SCOG tonnage forecasts for the pipelines indicate slight increases over today's volumes based on activities at the March's Point refineries.

Waterborne Freight - Freight traffic through the Swinomish Channel is expected to increase slightly by 2014 related to shipping activity at the Port of Anacortes and continued logging within the Reservation and County. Forecasted volumes by 2014 are not expected to exceed peak levels seen in the early 1990's.

4.9 Future Freight System Deficiencies

Future year 2014 freight system deficiencies are related to the capacity of the existing system to move expected future tonnage levels. Existing system deficiencies outlined in Section 2.12 *Existing Freight System Deficiencies* provide a good guide to future system deficiencies. Only truck and waterborne modes within the Reservation were identified as having existing deficiencies.

Truck Freight - Substandard arterial roadway design on designated Washington Freight and Goods Transportation System (FGTS) routes include Pioneer Parkway, Reservation Road and Snee-Oosh Road. Inadequate roadway design creates unnecessary conflicts between heavy vehicles and other roadway users. These conflicts are acute within the Swinomish Village with substandard arterial roadways and the lack of standardized non-motorized facilities.

Where recommended road and non-motorized safety improvement projects are constructed, conflicts between road users and heavy vehicles will be mitigated. Where improvements are not made, existing deficiencies will become worse with forecasted increases in freight traffic levels, especially truck traffic and impacts to Reservation roads. Restrictions on heavy vehicles within the Village can also help mitigate road user conflicts and should be explored.

Waterborne Freight - Insufficient Swinomish Channel depth due to infrequent dredging. The Swinomish Channel should be dredged on a biannual basis to ensure safe navigation.

As freight system forecasts and analysis were provided only to year 2014, the Tribe should continue to work with SCOG and WSDOT to study freight traffic forecasts, system impacts, and improvement needs beyond 2014 and incorporate their findings into future updates of the Tribal transportation plan.

5.0 Climate Change Considerations for Transportation Planning



5.1 Background

In the fall of 2008 the Swinomish Indian Tribal Community started work on a landmark two-year Climate Change Initiative to study the impacts of climate change on the resources, assets, and community of the Swinomish Indian Reservation and to develop recommendations on actions to adapt to projected impacts. This followed issuance of a Proclamation by the Tribal Senate in 2007 directing action to study and assess climate change impacts on the Reservation. Under the guidance and coordination of the Swinomish Office of Planning & Community Development, the first year of the project was devoted to assessment of projected impacts, as presented in an Impact Assessment Technical Report issued in the fall of 2009. The second year of the project was focused on evaluation of strategies and options for recommended adaptation actions to counter identified impacts. The focus on adaptation actions, i.e., those actions designed to address the effects of climate change, was in response to local events such as storm surges that presented perceived threats to the Reservation community, and also in response to increasing volume of accepted scientific data on projected impacts. The ultimate goal of the project was to help ensure an enduring and climate-resilient community that can meet the challenges of anticipated impacts in the years to come.

The Tribe was assisted during the two years of this project by the University of Washington Climate Impacts Group as science advisors, who provided expert assistance with analysis and interpretation of climate data and models. Given a mix of inter-jurisdictional issues involved, the Tribe also solicited the assistance of a strategy advisory group comprised of representatives of Skagit County, the Town of LaConner, and the Shelter Bay Community. In addition, project staff worked with a tribal community interest group, led by a communications/outreach facilitator, to communicate information on particular significant potential impacts to tribal traditions and practices, and to solicit feedback on concerns and issues. Working with these partners and groups, project staff evaluated a broad range of potential strategy options for targeting to various climate impacts and developed a comprehensive list of recommendations for actions to address specified impacts. (This is the Exec. Summary of the adaptation report)

5.2 Anticipated Impacts on Facilities

As discussed in the Technical Report, increasing sea levels have the potential to inundate roads on and leading to the Reservation where such roads are not adequately protected by dikes, or where rising sea levels eventually top dikes. Responding to this threat will ultimately require daunting projects that will likely be both considerably expensive and considerably complex, especially considering the inter-jurisdictional coordination that will also be required. Given the uncertainties of the rate of sea level rise, it is not practical to implement strategies that are static and non-adaptive to changes, although early protections may be so due to the prohibitive cost of other options. Raising dikes and road levels may counter higher sea levels and storm surges in the short term, but will ultimately prove ineffective as sea levels continue to rise. Transportation facilities most vulnerable to these impacts are located in the inundation risk zone. Depending on the

level of risk accepted by the community, there are a range of adaptation responses that can be applied, both short term and long term.

Ensuring road access and increased pavement maintenance is of crucial importance because of its potential to isolate the community by inhibiting access to and from the Reservation, and those that pose risk of disruption of essential services to large portions of the Reservation population due to road and transportation impairment. The potential impacts that were identified in the Impact Assessment report are

- Inundation of access routes, travel disruption and isolation from mainland, as higher tides top dikes
- Travel disruption/road closures due to stronger/more frequent storm/tidal surge events
- Incidental road closure/travel disruption from wildfire
- Flooding damage from storm/tidal surge, buckling/cracking from higher temperatures
- Erosion of bridge footings from higher tides/storm surges
- Increased fatigue/deterioration of bridge joints from increased/ prolonged heat

Responses to these impacts will be a combination of complex, challenging strategies involving coordination with multiple jurisdictions and straightforward utility design. Protecting critical access routes to the Reservation will require working with agencies at both the state and local level on potentially expensive solutions. In working with these other agencies to preserve access to the Reservation, the Tribe will have to determine which strategy or combination of strategies will be most effective in the long run.

5.3 Adaptation

Adaptation goals that were identified for the transportation element of the Climate Change Adaptation report include:

- A transportation network should be provided that will adequately satisfy the requirements for everyday access, tourism, and emergency vehicle access and evacuation in a safe and effective manner, while protecting and restoring coastal and natural resources.
- Road and utility construction should be prohibited from areas subject to excessive erosion and/or accretion.

A range of strategies were identified for each identified potential impacts. These include options and solutions that are programmatic/non-regulatory, regulatory/code controls, and practical/engineering solutions.

One of the greatest potential climate change threats to the Reservation vicinity is impacts on access and circulation is inundation of low-lying roads and bridge approaches.

Potential strategies for this impact include:

- Building dikes or raising the elevation of existing dikes protecting roads located in the inundation risk zone, particularly low lying roads and bridge approaches,

although this may be a short term strategy given the uncertainty of sea level rise projections.

- Raise elevation of roads in the inundation risk zone that are highly vulnerable to inundation from sea level rise and/or high tidal storm surges. Raising road elevation would maintain the existing routes and access to the Reservation.
- Relocation of routes within the inundation risk zone for better long-term protection of low-lying roads from inundation and of coastal resources from adverse impacts related to such routes.
- Vacate routes in the inundation risk zone, where possible and where alternate routes can be established. Abandoning routes subject to inundation may be a more desirable and fiscally feasible option since no construction or purchase/lease of ROW is required and coastal resources would be better protected.

In contrast to the incremental but long term impact of sea level rise, storm/tidal surge events would be relatively short-lived, but are expected to become more frequent with increasing sea level rise, and even short-term surge events could create significant impacts on Reservation access and circulation depending on duration. Likewise, wildfire presents a similar short-term but potentially significant risk to travel within and to the Reservation, given the extent and density of forested areas within and adjacent to the Reservation. Approximately 2,128 acres of land and over 20 miles of roads miles are located in the identified wildfire risk zone. Potential strategies for Road closure from storm/tidal surge event and/or wildfire impacts include:

- Identify or develop alternate route plans to accommodate traffic in the event that flooding or wildfire renders existing routes inaccessible. Develop an alternate route plan based on various potential weather and hazardous conditions through a broad assessment of possible road closure situations, with provisions for detours as needed.
- Limit/restrict construction of public roads within the inundation risk zone and urban/forest interface wildfire risk zone, to avoid reliance on routes that may be potentially at risk, and to better protect coastal and natural resources.

5.4 Regional Transportation Coordination

Planning and implementation of transportation improvement projects typically requires long timelines and commitment of significant financial and organizational resources. Such projects are often logistically and technically complex, and identification and securing of funding must be undertaken well in advance of anticipated improvement needs. Where regional projects and priorities are concerned, efforts become even more logistically and politically complex.

As part of analysis of adaptation strategies and implementation, a number of issues were identified that require some degree of interjurisdictional coordination for successful implementation. Of primary concern among these is preservation of access to the Reservation from the adjacent mainland. There are two means of access from the mainland across the Swinomish Channel to Fidalgo Island and the Swinomish Indian

Reservation, one via SR20 bridges to the north and one via the Rainbow Bridge in the LaConner area to the south. The north SR20 route provides primary access to Tribe’s economic development area, Anacortes, the ferry terminal, and Fidalgo and Whidbey Island beyond. The SR20 bridge approaches on the east side of the Swinomish Channel are located in what Swinomish has identified as a potential inundation risk zone for seal level rise and storm surge. The southern access route to the Reservation and Fidalgo Island is through LaConner, leading to the Rainbow Bridge that crosses the Swinomish Channel. The Maple Avenue/Pioneer Parkway approach to the Rainbow Bridge is likewise located in a potential inundation risk zone, as it is within a low-lying area of LaConner with minimal protection from high tides. A storm surge event in 2006 very nearly flooded lower LaConner, as it nearly did a northerly access to the Swinomish Reservation along Reservation Road.

The major risks associated with possible inundation of these critical access routes include regional disruption of connectivity and access to Fidalgo Island, including the Swinomish Indian Reservation, Anacortes, the ferry terminal, and beyond, and potential isolation from the mainland, with corollary impacts of disruption of vital transport of goods and access to services. Such impacts have the potential to be magnified many times depending on the duration and/or frequency of disruption. Other impacts to transportation were identified in the Technical Report as shown in the table below.

Transportation Element	Potential Impacts	Vulnerability (impact level)	Estimated Risk	Potential Priority
Access/ Circulation	Higher tides top dikes, causing inundation of access routes, travel disruption, isolation from mainland (long-term impact)	High	High	High
	Higher, more frequent storm/ tidal surges, causing travel disruption/road closures, restriction of access, isolation (short duration events)	Medium-High	Medium	Medium
Road System Integrity	Flood damage from storm/tidal surge, buckling/cracking from higher temperatures	Medium	Medium	Medium
Bridges	Erosion of bridge footings from higher tides/storm surges	Medium	Medium	Medium
	Increased deterioration/ fatigue of bridge structure and joints from increased or prolonged heat	Medium	Medium	Medium
Public Transit	Service disruption, impact-related closures	High	Medium-High	Medium-High
Marine transport facilities	Increasing inundation of marine facilities and ports from gradual sea level rise and higher tides	High	High	High

Local governments in Skagit and Island Counties already coordinate on transportation planning and issues through the Skagit/Island Regional Transportation Planning Organization (RTPO) and Metropolitan Planning Organization (MPO), and this would seem to be a primary means through which to pursue new regional coordination on priority planning for adaptation issues affecting transportation. Toward that end, the Tribe held initial discussions with local governments and put forward a proposal for Fidalgo Access Corridor Preservation, as a first step toward regional coordination on these issues (see Appendix C for draft proposal). Much work remains to be done on this proposal, but early response from other interested local entities appears to be positive thus far.

An additional challenge in regional planning is coordination with the Washington Department of Transportation (WSDOT) on potential impacts to State Route 20, the primary arterial connecting Fidalgo Island to the mainland of Skagit County (the other connection being the less direct and traveled route through LaConner onto the Reservation). While early talks with WSDOT representatives on these issues have been positive, it must be recognized that WSDOT has tremendous responsibilities and obligations for transportation projects statewide. Establishing a new priority, albeit a regionally significant one, within the state's current slate of transportation priorities, as assigned to WSDOT, poses a difficult long term challenge that carries an expensive price tag. WSDOT also participates in the RTPO/MPO process, however, and will play a significant role in helping to shape an eventual solution. Encouragingly, WSDOT was recently funded to carry out an inventory of climate change impacts to transportation facilities, a very important first step, and the results of their study will no doubt help to determine direction for further coordination.

5.5 Mitigation

In addition to pursuing adaptation planning and strategies, the Tribe is also turning its attention to “mitigation” activities, or those activities designed to help reduce the cause of climate change impacts, i.e., reduce the level of carbon dioxide emissions. Initial steps toward that end to date have included formulation of a draft strategy that is still under development and review. Early components of this strategy include the following:

- Energy Conservation; e.g., alternatively fueled vehicles, fuel-efficient vehicles, employer sponsored carpooling.
- Emissions Reduction and establishment of emission reduction goals.

6.0 TRANSPORTATION IMPROVEMENT PLAN

The overall goal of the Swinomish Tribal Community's Transportation Plan is to *“Enable the safe and efficient movement of people, goods and services on and to the Swinomish Reservation”*. Plan objectives include:

- Update the roads inventory and identify a six-year transportation improvement program (TIP) for incorporation in federal, state, County and regional funding programs; and
- Prepare a twenty-year transportation program, which reflects the cultural, economic and environmental values of the Swinomish people.

In order to meet these objectives, a series of transportation improvements are recommended for arterials, State highways, transit facilities and services, non-motorized facilities, and freight transportation facilities.

Swinomish transportation projects have developed over time. The tribe's 1992 and 2002 transportation plans identified needed improvements which led to completion of several major improvements, but many others have not been completed. The updated 2009 Transportation Improvement Plan incorporates all previous work and addresses current findings.

This Transportation Improvement Plan has two primary sections:

- Short-Range Transportation Recommendations – Section 6.1 provides a recommended list of projects that resolve identified existing transportation system deficiencies. A six year time period is recommended for completion of these improvements. Most are safety projects, and many are overdue. The recommended 2011 – 2016 projects are summarized in **Table 22**.
- Long-Range Transportation Recommendations - Section 6.2 presents a list of recommended projects that will require additional time for planning and design, but should be constructed by 2025. Completion of these projects resolve identified future transportation system deficiencies. These improvements also represent the realization of longer-term Tribal transportation, land use, economic, environmental and sustainability goals and objectives outlined in the Comprehensive Plan. The recommended projects are summarized in **Table 23**.

In addition to the above, several planning studies are suggested to address specific transportation planning issues, as summarized in Section 6.3.

6.1 Short-Range Transportation Recommendations

Some of the Tribe's transportation needs can be addressed within a six-year period. They include completion of overdue safety projects, minor road widening, additional public transit service and facilities, and new non-motorized facilities. These multi-modal transportation projects collectively provide the basis for development of the Tribe's six-year Tribal Transportation Improvement Program (TTIP).

Roadway Projects

- S-1 Swinomish Roundabout Extension.** Construction of 800 feet of roadway extending from existing roundabout south of SR20 to serve economic development activities on the north end of the Reservation.
- S-2 Reservation Maintenance Projects.** Ongoing Tribal Public Works projects to provide routine maintenance to Tribal roadways, such as pavement patching and sealing, ditch/drainage repair, sweeping, and mowing.
- S-3 North Economic Zone Road Improvements, Phase 1 (Swinomish Flats Road).** This project will reconstruct approximately 1,000 feet of roadway north from the existing Long John Drive/Swinomish Flats roundabout and construct a new roundabout at the Swinomish Flats/Casino Drive intersection.
- S-4 North Economic Zone Road Improvements, Phase 2 (Access Roads).** Construct approximately 1,000 feet of new access roads to serve the North Economic Zone.
- S-5 SR20 Safe Access Improvements.** Design and construct acceleration and deceleration lanes and associated intersection improvements at the SR20 intersections of South March's Point Road (SR20 westbound) and Padilla Heights Road (SR20 eastbound). Design and construct intersection improvements at the nearby intersections of Casino Drive with South March's Point Road and Long John Drive with Padilla Heights Road.
- S-6 Casino Drive Widening.** Widen Casino Drive adding turn lanes.
- S-7 Squi Qui Lane Reconstruction.** Reconstruction of Squi Qui Lane.
- S-8 Moorage Way/Front Street Reconstruction.** This project will reconstruct Moorage Way and Front Street in the Swinomish Village, and improve the intersection of Moorage Way with Pioneer Parkway.
- S-9 Village Roads Reconstruction, Avenue A and Keeah Avenue.** This project will reconstruct Keeah Avenue and Avenue "A" in the Swinomish Village, correcting crown and drainage.
- S-10 McGlinn Island Causeway and Fish Barriers Improvement Project.** McGlinn Island gravel road will be reconstructed to modern road standards to eliminate impediments to fish and water flows caused by the McGlinn Island causeway. The project will eliminate the water flow, water salinity and fish barrier caused by the McGlinn Island causeway and the 1937 jetty and remove culverts on public reservation roads that impede fish flow. These improvements will reconnect the Swinomish Channel to prime king salmon habitat in the Dunlop Bay estuary of the north fork of the Skagit River.

Transit Projects

S-11 Skagit Transit Route 615 Expansion. As discussed in Section 4.3 *Future Transit Ridership*, a joint transit service proposal has been developed by the Tribe and Skagit Transit to expand Route 615. The proposal would increase service frequency on weekdays to once every two hours on both eastbound and westbound trips.

Non-Motorized Projects

S-12 Village Safety Improvements. Traffic and pedestrian safety improvements within the Swinomish Village (traffic calming, sidewalks, bulbouts, signage, crossings, striping).

6.2 Long-Range Transportation Recommendations

This list of transportation projects is recommended to correct identified long-term future transportation system deficiencies. Completion of these projects may require additional planning and design consideration working in tandem with future tribal land use, economic, and environmental plans and projects. Some of these projects may also require cooperation with regional and state transportation agencies.

Road Projects

L-1 Snee-Oosh Road Intersection Improvements. This joint project with Skagit County will address safety concerns between Snee-Oosh Road and Sunset Drive. The project will eliminate the existing intersection alignment and provide alternate access to Snee-Oosh Road from the Pull and be Damned Road intersection for residential neighborhood traffic currently served by Sunset Drive.

L-2 Pioneer Parkway/Shelter Bay Drive Safety Improvements. This project will construct pedestrian, traffic and drainage improvements at the intersection of Pioneer Parkway and Shelter Bay Road.

L-3 Snee-Oosh Road Corridor Safety Project. This project would provide vehicular, pedestrian, and transit-access safety improvements on Snee-Oosh Road from the intersection of Pioneer Parkway to approximately one mile west. Within the Village, the corridor safety improvements include intersection channelization, construction of sidewalks, pedestrian bulbouts and crosswalks at major intersections, upgraded transit stops with shelters, installation of warning lights, and safety signage. Consideration of reducing the posted speed on Snee-Oosh Road within the Village to 25 mph should be given. West of the Village, corridor improvements would include widening the existing roadway to County rural arterial road standards and installing signage indicating the presence of cyclists and recreational vehicle traffic.

- L-4 Reservation Road Corridor Safety Project.** This project would provide vehicular, pedestrian, and transit-access safety improvements on Reservation Road from the intersection of Pioneer Parkway/Snee-Oosh Road to approximately one mile north. Within the Village, the corridor safety improvements include intersection channelization, construction of sidewalks, pedestrian bulbouts and crosswalks at major intersections, upgraded transit stops with shelters, installation of warning lights, and safety signage. Consideration of reducing the posted speed on Reservation Road within the Village to 25 mph should be given. One short-term recommendation that could be implemented immediately is to request that truck traffic accessing the log yard north of the Village on Reservation Road avoid travel through the Village on Pioneer Parkway.
- L-5 Reservation Road Reconstruction.** This project would continue Skagit County's widening of the north segment of Reservation Road, extending improvements south from Snee-Oosh Road (north) to approximately one mile north of the Pioneer Parkway/Snee-Oosh Road Intersection. The project would widen Reservation Road to 11 foot travel lanes with six foot paved shoulders and provide for safer auto, truck, and non-motorized travel.
- L-6 North Economic Zone Road Improvements, Phase 3.** This project will continue construction of new arterial roads to provide access to economic development in the north Tribal Economic Zone.
- L-7 Indian Road Improvements.** This project will widen Indian Road to provide mobility and safety improvements. As part of the project, signage should be installed advising of travel by pedestrians and bicyclists.

Transit Projects

- L-8 Skagit Transit Service Improvements.** This improvement would increase Route 615 service frequency to hourly during weekdays. Service to the West Shore area should be considered.

Non-motorized Projects

- L-9 Village Trail Construction.** This project would complete trail construction as recommended in the 1999 *Swinomish Tribal Village Plan*. An estimated 6,125 linear feet of crushed rock trail will be built extending through the Village connecting the existing Village trail to residential areas, the tribal Longhouse, tribal services, employment, recreational areas and government facilities.

6.3 Transportation Planning Studies

To address other identified gaps in transportation planning and project needs, a number of special studies are proposed. These studies address existing multi-modal transportation deficiencies, future planning needs, and safety issues. Studies will be carried out as part of ongoing transportation planning activities as funding is available.

P-1 Reservation Non-motorized Plan. This project will designate a system of preferred bicycle routes, connecting Village trails, recommend improvement projects and next steps. Once approved, the Plan would be transmitted to the BIA and to federal, state, regional, County and local governments for funding and incorporation into their non-motorized plans.

P-2 Reservation Arterial Circulation Study. This study will examine the need for future arterial roadways within the Reservation. Emphasis is placed on ensuring connectivity between uses and on creating a safe and efficient circulation system that complies with Tribal policies and allows for transportation options.

P-3 North Economic Zone Transit Study. This study will examine additional future transit service, transportation demand management (TDM), and transit infrastructure needs in the north Tribal Economic Zone and make project recommendations. Study goals could include maximizing economic development within the area while minimizing transportation, parking, and environmental costs.

P-4 Reservation Roadway Engineering Design Standards. This project would develop Reservation road design standards that provide for transportation mobility and safety and reflect the unique cultural, economic, and environmental values of the Swinomish Tribal Community. According to IRR Program regulations:

“Tribes may propose road and bridge design standards to be used in the IRR Program that are consistent with or exceed applicable Federal standards. The standards may be negotiated between BIA and the tribe and included in a self-determination contract or self-governance agreement.” ^[1]

In developing Reservation roadway design guidelines, the Tribe should coordinate with the BIA and Skagit County Public Works to ensure that Reservation mobility and safety needs can be met in the most coordinated and cost-effective manner.

Table 22: Recommended Short-Range (2011-2016) Transportation Improvement Projects

Project #	Project Name	Project Description	Project Type	Functional Classification	FGTS Designation	Transit Route?	Bicycle Facility?	Cost Estimate*
S-1	Swinomish Roundabout Extension	Construction of 800 feet of roadway from existing roundabout south of SR20 to serve economic development activities on the north end of the Reservation.	Road	BIA Class 4 Rural Major Collector	n/a	No	No	\$1,500,000
S-2	Reservation Maintenance Projects	Re-allocation of up to 25% of construction funds for road maintenance projects	Road	All Classes	n/a	n/a	n/a	\$30,358
S-3	North Economic Zone Road Improvements, Phase 1 (Swinomish Flats Road)	Reconstruct approx 1,000 feet of road north from the existing Long John Drive/Swinomish Flats roundabout and construct a new roundabout at the Swinomish Flats/Casino Drive intersection.	Road	BIA Class 4 Rural Major Collector	n/a	No	No	\$500,000
S-4	North Economic Zone Road Improvements, Phase 2 (Access Roads)	Construct approximately 1,000 feet of new access roads to serve the North Economic Zone.	Road	BIA Class 4 Rural Major Collector	n/a	No	No	\$500,000
S-5	SR 20 Safe Access Improvements	Design and construct acceleration and deceleration lanes and associated intersection improvements at the SR 20 intersections of South March's Point Road (SR 20 WB) and Padilla Heights Road (SR 20 EB) and at the intersections of Casino Drive with South March's Point Road and Long John Drive with Padilla Heights Road.	Road	BIA Class 4 Rural Major Collector	T-2	Yes	Yes	\$3,000,000 est.
S-6	Casino Drive Widening	Widen Casino Drive adding turn lanes.	Road	BIA Class 4 Rural Major Collector	n/a	Yes	Yes	\$500,000
S-7	Village Roads Reconstruction, Phase 1	Repair/reconstruction of Squi Qui Lane	Road	BIA Class 3 Local Residential Street	n/a	No	No	\$139,268
S-8	Village Roads Reconstruction, Phase 2	Reconstruct Moorage Way and Front Street in the Swinomish Village	Road	BIA Class 4 Rural Major Collector	n/a	No	No	\$275,000
S-9	Village Roads Reconstruction Phase 3	Reconstruct Keeah Avenue and Avenue "A", correcting crown and drainage deficiencies	Road	BIA Class 3 Local Residential Street	n/a	No	Yes	\$250,000
S-10	McGlenn Island Causeway and Fish Barriers Improvement Project	Reconstructed road to eliminate impediments to fish and water flows caused by the McGlenn Island causeway.	Road	BIA Class 3 Local Residential Street	n/a	No	No	\$685,000
S-11	Skagit Transit Route 615 Service Expansion	Increase route service frequency and extend to north Tribal economic zone, March's Point Park and Ride lot, and Downtown Anacortes	Transit	n/a	n/a	n/a	n/a	\$225,000
S-12	Village Non-motorized Safety Improvements – Design Phase	Safety improvements on Village roadways including Shelter Bay Rd, Pioneer Parkway, and First St including sidewalks on both sides, crosswalks and safety signage.	Non-motorized	Various	n/a	Yes	Yes	\$40,000

* Project costs are planning-level estimates.

Table 23: Recommended Long-Range (2017-2025) Transportation Improvement Projects

Project #	Project Name	Project Description	Project Type	Functional Classification	FGTS Designation	Transit Route?	Bicycle Facility?	Cost Estimate*
L-1	Snee-Oosh Road Intersection Improvements	Improve Snee-Oosh Road intersections with Pull and be Damned Road and Sunset Drive	Road	BIA Class 4 Rural Major Collector	T-4 (recommended)	Yes	Yes	\$(Per design report)
L-2	Pioneer Parkway/Shelter Bay Drive Safety Improvements	Construct pedestrian, traffic and drainage improvements at intersection	Road	BIA Class 2 Rural Minor Arterial	T-3	Yes	Yes	\$165,000
L-3	Snee-Oosh Road Corridor Safety Project	Reconstruct roadway from Reservation Rd to approximately one-mile west. Minor widening with intersection, pedestrian and transit access improvements.	Road	BIA Class 4 Rural Major Collector	T-4 (recommended)	Yes	Yes	\$1,600,000
L-4	Reservation Road Corridor Safety Project	Reconstruct roadway from Snee-Oosh Rd to approximately one-mile north. Minor widening with intersection, pedestrian and transit access improvements.	Road	BIA Class 4 Rural Major Collector	T-4 (recommended)	Yes	Yes	\$1,600,000
L-5	Reservation Road Reconstruction	Continue widening Reservation Road south from Snee-Oosh Road (north) to approximately one mile north of the Pioneer Parkway/Snee-Oosh Road Intersection	Road	BIA Class 2 Rural Minor Arterial	T-3	No	Yes	\$5,500,000
L-6	North Economic Zone Road Improvements Phase 3	This project would complete arterial roadway extension, construct a needed bridge, and provide interior roads to provide access to the planned developments South of SR 20.	Road	BIA Class 4 Rural Major Collector (recommended)	n/a	No	No	\$6,200,000
L-7	Indian Road Improvements	Widen Indian Road to provide mobility and safety improvements	Road	BIA Type 4 Rural Major Collector	n/a	No	Yes	\$1,200,000
L-8	Skagit Transit Service Improvements	Increase Route 615 service frequency to hourly during weekdays. Service to the West Shore should be considered.	Transit	BIA Class 4 Rural Major Collector	No	Yes	No	\$12,000
L-9	Village Walk Trail Construction	Complete trail construction as recommended in the 1999 <i>Swinomish Tribal Village Plan</i> . An estimated 6,125 linear feet of 10 foot wide crushed rock trail within the Village	Non-motorized	BIA Class 8 (recommended)	n/a	n/a	Yes	\$46,700

* Project costs are planning-level estimates.

7.0 PUBLIC INVOLVEMENT

The Tribe has developed or updated a number of other planning documents in recent years, each with particular links to transportation issues and planning, and this update to the Swinomish Transportation Plan builds upon and incorporates the collaboration and results of many of those respective planning activities. These activities include update of the Tribe's Comprehensive Economic Development Plan, development of a new Capital Facilities Plan for the Swinomish Village campus, and a Master Development Plan for the north end of the Reservation, as well as a landmark Climate Change Impact Assessment and Action Plan. Each of these respective planning efforts involved the input of many tribal officials and staff along with review of planning documents in public meetings and hearings as part of the Tribal approval process. Information on these plans has also been presented at annual General Council meetings attended by Tribal members. Through consideration of issues such as the impact of development activity on the Reservation, changes in employment and population patterns related to development activity, promotion and attraction of new business opportunities to the Reservation, and potential climate impacts, the reach of public involvement in this Transportation Plan update becomes significantly broader by virtue of public involvement in previous planning efforts.

Federal regulations prescribe expectations for public involvement in the process of updates to transportation plans, and while the process for this update honors those requirements, the scope of public involvement is, by reference, considerably larger. The formal process for public review and Tribal approval of this update will, by design, exceed the statutory requirements, based on the desire to allow ample opportunity for review of this major update. It is the desire of the Tribe that this document serves the intended constituents as appropriately as possible. The public review and comment period will, therefore, be extended double the required timeframe, and multiple hearing points will be involved in Tribal review and approval, including with the Swinomish Planning Commission and Tribal Senate.

Appendix A – Intersection Level of Service Reports

Appendix B – Swinomish Tribal Economic Zone Employment Forecasts

Location	Land Use	Size	Estimated Employees
Phase 1 (Anticipated Completion 2012)			
North SR 20	Hotel with Restaurant	120 rooms	100
North SR 20	Casino Expansion	10,000 sq ft	10
North SR 20	Gas Station Convenience Store	4,500 sq ft	5
		Total employees	115
Phase 2 (Anticipated Completion 2014)			
North SR 20	Drive-up Espresso	200 sq ft	4
North SR 20	Amphitheater	5,000 seats	Inc.
North SR 20	RV Expansion	25 spaces	Inc.
North SR 20	Restaurant	4,800 sq ft	20
South of SR 20	Retail	25,000 sq ft	50
South of SR 20	Cultural Center (Recreational Community Center)	27,500 sq ft	20
South of SR 20	Boat Launch	45 slips	Inc.
South of SR 20	General Light Industrial	57,000 sq ft	32
South of SR 20	General Office	32,000 sq ft	104
South of SR 20	Retail	43,000 sq ft	85
South of SR 20	Fast Food with Drive-Through Window	7,000 sq ft	70
		Total employees	385
Phase 3 (Anticipated Completion 2017)			
North SR 20	Hotel Expansion	Up to 100 rooms	30
Phase 4 (Anticipated Completion 2017)			
South of SR 20	Research and Development	140,000 sq ft	200
South of SR 20	Recreational Lodge with associated cafe and retail	130 rooms	125
		Total employees	355
		Grand Total employees	855