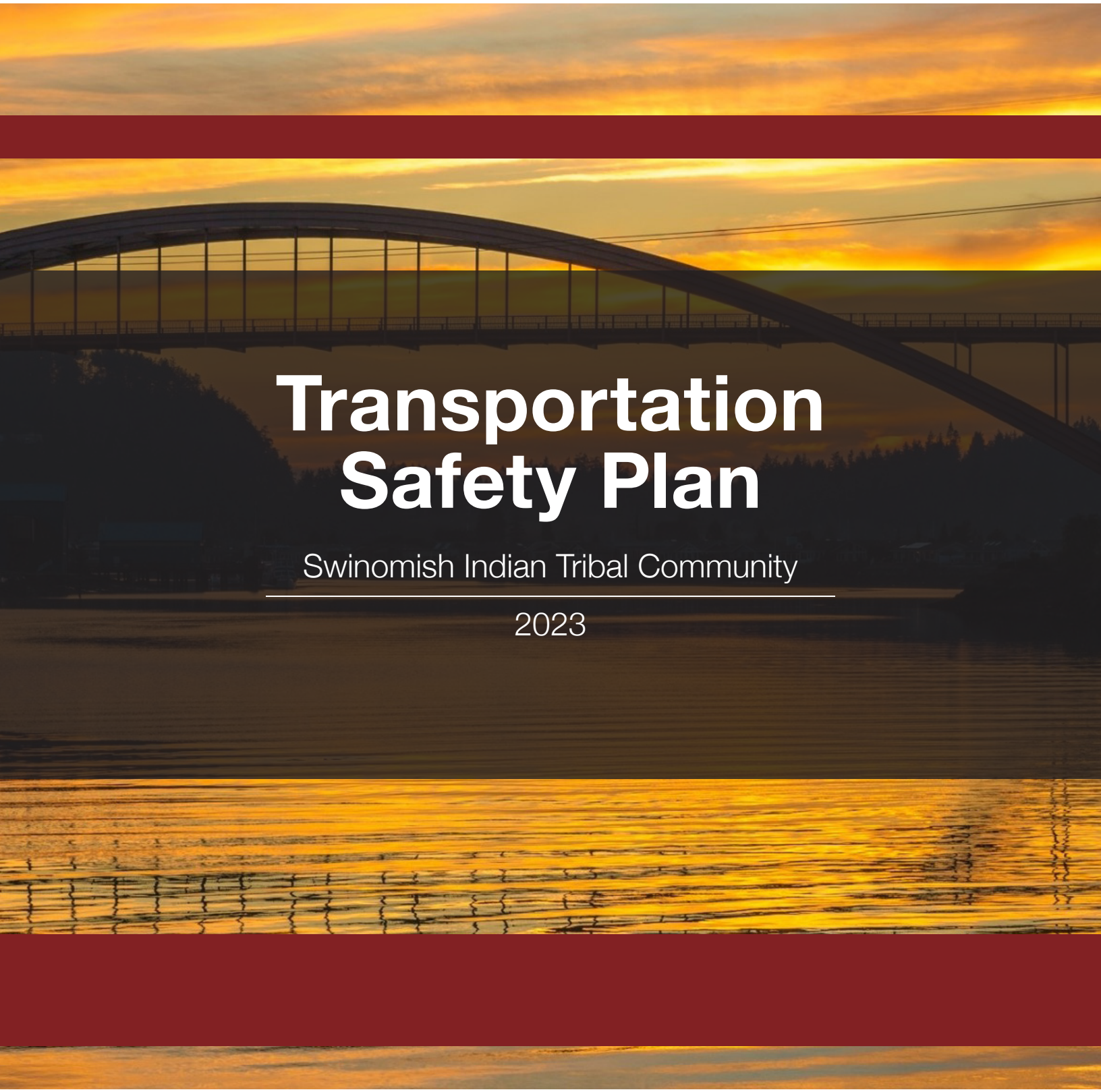


Transportation Safety Plan

Swinomish Indian Tribal Community

2023

SWINOMISH INDIAN TRIBAL COMMUNITY

Contents

Introduction

The Swinomish Indian Tribal Community (SITC) is committed to addressing multimodal transportation safety both on SITC-owned roadways and in partnership with Skagit County and the Washington State Department of Transportation (WSDOT) on roadways owned by other entities within the SITC reservation limits. **The SITC's commitment to transportation safety extends to users of all modes, economic means, ages and abilities.** SITC's commitment to safety aligns with WSDOT's Target Zero statewide transportation safety initiative. Identifying and mitigating transportation safety in a proactive manner helps the SITC to direct limited resources and grant funding requests to the projects with the highest priorities and the most potential impact on previous and future crashes. The analysis in the Safety Action Plan analyzes the past five years of documented crashes on the transportation system within the SITC.

The Safety Action Plan builds upon the processes established in the SITC's 2017 Transportation Safety Plan and includes elements of the Federal Highway Administration (FHWA)'s Road Safety Audit (RSA) process, WSDOT and FHWA's Local Road Safety Plan (LRSP) process, and the requirements of an Action Plan as identified by FHWA in the Fiscal Year (FY) 2022 Notice of Funding Opportunity (NOFO) for the Safe Streets and Roads for All (SS4A) grant. Each source of safety planning guidance is focused on a similar end goal, the proactive mitigation of safety risk factors on a transportation system, with a specific focus on active modes and users vulnerable to the most severe outcomes from crashes, users on foot, cycling or with mobility challenges that could be mitigated using standards and guidance established under the Americans with Disabilities Act (ADA).

Safety Plan Process

The SITC's Safety Plan follows the Local Road Safety Plan (LRSP) process developed by the Federal Highway Administration (FHWA) and promoted by WSDOT to proactively address safety concerns based on crash data. WSDOT's success with a similar program at the County level in reducing crash rates for targeted risk factors has led to the application of the LRSP process to cities to identify risk factors and targeted countermeasures. Crash data reports were analyzed to identify contributing risk factors that are overrepresented compared to statewide averages, or that contribute to a significant portion of the total crashes in the study period. Analysis includes a spatial study of the locations and groupings of crashes for trends and contributing factors related to roadway geometry and roadside conditions. Risk factors are prioritized and compared to the SITC's transportation network and existing infrastructure to identify effective countermeasures and a program of prioritized improvements.

Data Sources

Data for the SITC's Safety Action Plan comes from WSDOT resources, which are coordinated with the Washington State Patrol and the SITC Police Department through the SECTOR system. The data for the study is limited to a 5-year study period, January 1, 2017 through December 31, 2021. WSDOT verifies and calibrates crash data on a calendar year basis, therefore only data through the end of 2021 is included in the plan. Future updates to the plan will include a revised 5-year window

History of Safety Improvements

The SITC has identified and addressed safety projects in the past, including improvements identified in the 2017 Transportation Safety Plan. Recently completed projects include the Safe Routes to School project. The project added sidewalks and intersection improvements at Snee-Oosh Road and along Pioneer Parkway in the Swinomish Village area. The project was funded through the WSDOT Safe Routes to School program in 2013 and was completed in 2018. Elements of the Safe Roues to School project include

- Intersection improvements at Snee-Oosh and Pioneer Parkway
- Crossing improvements at Pioneer Parkway and Moorage Way
- Intersection improvements at Shelter Bay Drive and Pioneer Parkway.

Current Safety Planning Efforts

The Safety Action Plan will include the results of several concurrent safety planning efforts the SITC is engaging in. The current analysis follows the Local Road Safety Plan (LRSP) process outlined by FHWA to identify risk factors and countermeasures in the last 5 years of historical crash data to identify proactive projects that are likely to reduce crash rates, especially crashes with severe outcomes.

Other ongoing safety planning efforts which will be included in anticipated updates to the Safety Action Plan in 2023 include:

- Roadway Safety Audits on Snee-Oosh Road, Pioneer Parkway and Reservation Road, conduced using funding obtained in 2018 from the Tribal Transportation Program Safety Fund (TTPSF)
- Public outreach to obtain feedback on safety priorities and concerns in the community, updating information obtained in the 2017 Safety Plan
- A review of SITC policies and processes to improve transportation safety
- Identification of a transparent reporting process for safety data, planned projects and progress on obtaining funding, design and anticipated construction dates
- Commitment of the SITC to the goal of Washington State's Target Zero program, seeking to eliminate fatal and serious injury crashes on roads throughout Washington State, including in the SITC

The safety planning efforts planned for 2023, and included herein, meet six of the eight criteria outlined by FHWA in the 2022 identified requirements for a Safety Action Plan[1].

The SITC has also engaged in development of or updates to several other transportation plans with safety components in the last two years. Each of the planning documents listed is aligned with the safety plan, findings and recommendations contained herein and present a comprehensive approach to planning improvements to the SITC's transportation network.

- Long-Range Transportation Plan, updated 2022
- Transit Assessment and Opportunities, November 2022

1. *https://www.transportation.gov/sites/dot.gov/files/2022-06/SS4A_Action_Plan_Components.pdf*

Existing Conditions

Existing Transportation Infrastructure

The only two public road accesses to and from the Swinomish Reservation are the Rainbow Bridge (Pioneer Parkway to Maple Avenue) to La Conner to the southeast and Reservation Road to the north connecting to SR-20 and March's Point.

Roadways within the limits of the Swinomish Reservation fall into four categories of ownership and operation: SITC, Skagit County, WSDOT, and Private roadways. The map included as the appendix shows the extents of the roadways falling into each category.

The SITC has an interlocal agreement with Skagit County, signed in 2021 and extending until at least 2031, whereby the County maintains the majority of the SITC roadway network's signing and striping. Skagit County, through the interlocal agreement, maintains engineering and approval authority over many of the roadways within the SITC. SR 20, being a WSDOT-owned facility, requires partnerships with WSDOT in order to implement SITC desired changes for safety improvement.

While the SITC does not own and operate all roadways within the geographical limits of the Swinomish Reservation, the Safety Action Plan covers all roadways within the Reservation, regardless of ownership and operational responsibility. It is SITC's intent to partner with other agencies, including Skagit County and WSDOT, to develop and implement safety improvements that are warranted by the analysis of crash history.

Existing Significant Roadways

Pioneer Parkway is a Skagit County owned road that is the primary north-south roadway through the Swinomish Village area and connects Rainbow Bridge, with access to La Conner and points east, in the south to Reservation Road in the north. Pioneer Parkway is striped as two 11-foot lanes with a left-turn lane at Shelter Bay Drive north of Rainbow Bridge. An 8-foot wide paved west shoulder and 5-foot wide paved east shoulder exist from Shelter Bay Drive to Snee-Oosh Road. South of Shelter Bay Drive, there are only minimal paved shoulders, with curbed sidewalk on the west and south side of the road and a steep rocky berm on the east and north side. At Snee-Oosh Road, Pioneer Parkway ends, with the northbound leg of the intersection with Snee-Oosh transitioning to Reservation Road.

Pioneer Parkway has a 4-foot wide sidewalk on the south and west side from the Rainbow Bridge to Snee-Oosh Road. Recent intersection improvements at Shelter Bay Drive and Snee-Oosh Road have widened the sidewalks and added curb ramps that meet current best practices of ADA standards. At Pioneer Parkway and Moorage Drive, a curb extension, with marked crossing and solar powered rectangular rapid flashing beacons (RRFB) provide pedestrian connections to the east. There are no designated bike facilities on Pioneer Parkway.

The posted speed limit along Pioneer Parkway is 25 mph. In 2007, the roadway carried 4,000 daily trips.

Rainbow Bridge is a 2-way bridge on the south end of Pioneer Parkway owned by Skagit County and built in 1957. The bridge has two 10.5-foot lanes with a 3-foot wide sidewalk on each side. On the west approach, within the SITC, 4-foot wide sidewalks continue on the south side of the road, with an unpaved shoulder on the north side. Decorative railings are at the back of sidewalk on the bridge and approach, with a transition to guardrails on both sides west of the approach. The east approach to the bridge is owned by the Town of La Conner. The volume in 2007 was 6,500 daily weekday trips, with 560 trips during the PM peak-hour and 480 trips during the AM peak-hour. The posted speed limit on the bridge is 25 mph.

Reservation Road is a Skagit County owned road and the primary north-south roadway north of the Swinomish Village area, intersecting with Snee-Oosh Road and Pioneer Parkway. Reservation Road connects SR-20 at the north end of the SITC to the main residential areas in the south. Reservation Road has two 10-foot lanes, minimal shoulders, no sidewalks and no delineated bike facilities. The posted speed limit varies, with a posted 25 mph from Snee-Oosh Road to a point ¼ mile north, 35 mph north to Sahalie Road and 50 mph north of Sahalie Road. In 2007, Reservation Road carried approximately 2,000 daily trips at the south end of the roadway.

Snee-Oosh Road is a Skagit County owned road and the primary east-west road connecting the Swinomish Village area, at the intersection with Pioneer Parkway, with the residential areas on the west side of the SITC. At the western side of the SITC, Snee-Oosh Road turns and continues north along Similk Bay to intersect with Reservation Road, approximately 3.7 miles north. Snee-Oosh Road's section varies, with two 12-foot lanes, and 6-foot sidewalks on both sides of the road between Pioneer Parkway and 1st Street. From 1st Street to west of Squi-Qui Lane, the road has two 10-foot lanes and variable gravel shoulders on the north side of the road. West of Squi-Qui Lane, the two 10-foot lanes continue, and shoulders become more intermittent, with the majority of the length of the road having no hard shoulder and drainage ditches at the edge of the roadway. As the road turns north, between Chilberg Lane and Warren Street, there are some variable width shoulders that are used for residential on-street parking. North of Warren Street to the intersection with Reservation Road, the section returns to two 10-foot lanes with minimal shoulders. The posted speed limit is 25 mph between Pioneer Parkway and Swinomish Avenue. West of Swinomish Avenue, the speed limit transitions to 45 mph. In 2007, Snee-Oosh Road carried 1,850 daily vehicle trips.

1st Street is a SITC owned roadway, running north-south parallel to Pioneer Parkway in the Swinomish Village area. The road consists of 34 feet of unstriped, undefined pavement. The 34 feet is used for two lanes and occasional on-street parking at the curbs. There are continuous 5-foot sidewalks at the back of curb on both sides. For traffic calming, 3 speed humps are present on 1st Street. Sharrows are present for bicycle wayfinding and to raised awareness of the shared nature of the low volume, low speed street. The posted speed limit is 15 mph.

Casino Drive is a SITC owned roadway serving the westbound SR 20 interchange and the Swinomish Casino and Lodge. The road is two 12-foot lanes, with a left turn lane from both directions into the west Casino entrance driveway. There are sidewalks present on the north side of the road, and a curb with no shoulder on the south side. Casino Drive terminates in a roundabout on its eastern extent that provides connection, through a second roundabout to the south, to Long John Drive and SR 20 eastbound.

Long John Drive is a SITC owned facility built in 2001 as an interchange connector to SR-20's eastbound interchange. The road has two 12-foot lanes, a 5-foot sidewalk on the south side, and an 8-foot paved shoulder on the north side.

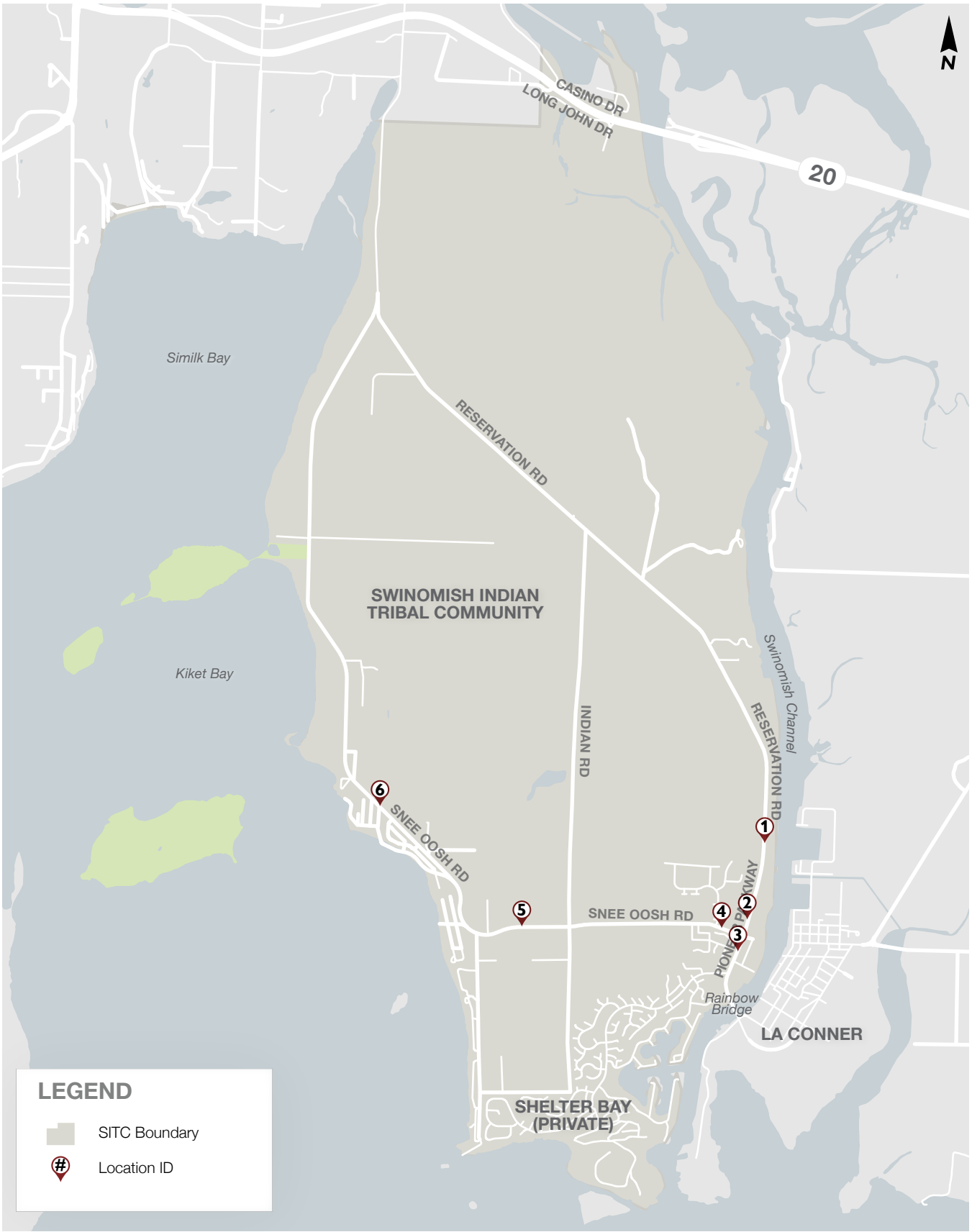
State Route (SR) 20 is a state-owned (WSDOT) limited access highway facility which has an AADT of 36,000 average daily trips (2021 WSDOT Traffic Counts). As a limited access highway, all local road connections to SR-20 are via two three-leg intersections, one on the north side of the road, connecting to Casino Drive, and the other on the south side of the road connecting to Long John Drive. The road is two lanes in each direction, with lane widths of 12 feet. There are paved shoulders on both sides of the road. The two directions of SR 20 are median-separated by vegetation with an average width of 50 feet within the SITC. At the eastern end of the SITC, SR 20 rises to a double bridge structure (Swinomish Channel Bridge) that carries the lanes over the Swinomish Channel. The posted speed limit is 55 mph on SR 20.

EXISTING OPERATIONAL CONDITIONS							
Location ID	Road name	Posted Limit	Functional Classification	Average Speed (mph)	85th Percentile Speed (mph)	Volume (VPD)	Expected Volume Range
1	Reservation Road	35	Rural major collector	49	55	1,410	300-2,600
2	Reservation Road	25	Rural major collector	48	54	2,449	300-2,600
3	Pioneer Parkway	25	Rural major collector	48	53	1,543	300-2,600
4	Snee-Oosh Road	25	Rural minor collector	26	30	2,296	150-1,110
5	Snee-Oosh Road	45	Rural minor collector	41	47	1,127	150-1,110
6	Snee-Oosh Road	45	Rural minor collector	41	48	719	150-1,110

Existing Operational Conditions

Traffic speed and volume measurements were obtained at six key locations throughout the SITC transportation network in January of 2023. The operational speed and volume of vehicles can help to inform the identification and prioritization of risk factors, as well as the application of countermeasures and the prioritization of projects. Speed and volume counts were obtained at six locations identified in the map in Figure 1. The speed and volume, compared to the posted limit, are summarized in the table above.

Functional classifications were obtained from WSDOT records . The expected volume range for roadways, based on functional classification, are obtained from the Guidelines for Amending Functional Classification in Washington State, October 2013, Tables 3-5 and 3-6.



Significant Roadways

Swinomish Indian Tribal Community

Figure 1.6

Crash Data

During the 5-year study period (2017-2021), the SITC had **171 total crashes on all roads**, in all four ownership categories. Of the 171 crashes, 6 (3.5%) resulted in a serious injury and 2 (1.2%) resulted in a fatality.

Statistical Crash Data Analysis

The summary data for all crashes on all roads was compared to statewide statistics to identify any overrepresented causes of crashes related to the transportation user (drivers, cyclists and pedestrians) and the transportation environment (roadway geometry, characteristics, enhancements, etc.) on SITC roadways, compared to the typical Washington rural roadway. The SITC has experienced a low number of crashes resulting in a fatality or serious injury in the five-year study period. To avoid any statistical bias that could miss larger crash trends, the data for all crashes was analyzed for over representation of contributing factors in reports. Five categories of contributing factors are apparent in the data.

While improving the safety of the transportation system will require addressing safety and comfort of the most vulnerable users of active transportation, the crash data for the SITC does not include enough crashes with active modes to identify specific risk factors or trends. Distraction or inattention of the pedestrian was cited in both recorded crashes with pedestrians.

Total Crashes[1]								
	2017 - 2021[2]	%	2021	2020	2019	2018	2017	2011-2016[3]
Total # of Crashes	171	--	33	34	40	30	34	77
# of Fatal Crashes	2	1.2%	0	1	1	0	0	1
# of Serious Injury Crashes	6	3.5%	2	1	0	0	3	1

1. Under 23 U.S. Code § 409 and 23 U.S. Code § 148, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

2. Crash data obtained from WSDOT SECTOR records via public records request, November 2022

3. Crash data obtained from 2017 SITC Transportation Safety Plan

Rear End Crashes

Rear-end crashes are very overrepresented in the SITC crash data, with **the majority of the crashes of this type occurring on SR 20**. Rear-end crashes may result from traffic slowing sooner than expected, accelerating and then having to stop unexpectedly, or an inattentive driver, even one who is looking for oncoming traffic, rather than the actions of the vehicle in front of them. While there have been a high number of rear end crashes, none have resulted in a serious injury. 2019 had a significantly higher number of rear end crashes, while all other years averaged about 6 rear end crashes per year.

The rate of following too close being cited as a contributing circumstance is also high for SITC and is likely tied to the high rate of rear end crashes..

Rear End Crashes								
	Total Crashes (% of all crashes)				Serious Injury Crashes (% of all serious crashes)			
	SITC Roads		All WA Roads	All WA City Roads	SITC Roads		All WA Roads	All WA City Roads
Rear End	38	22.2%	28.9%	23.9%	0	0	7.5%	5.0%

Roadside Fixed Objects

The roadside fixed objects category includes anything outside the travel lane, typically involved in single-vehicle crashes. There are several crashes that involve tree stumps and utility poles at the roadside. But, the most often-hit fixed object (49% of all fixed object crashes) involve roadside drainage and side slope features, including earth banks, culverts and ditches.

A specific type of fixed object crash, hitting parked cars, occurred at a rate that is typical of an urban or suburban area.

Fixed Object Crashes								
	Total Crashes (% of all crashes)				Serious Injury Crashes (% of all serious crashes)			
	SITC Roads		All WA Roads	All WA City Roads	SITC Roads		All WA Roads	All WA City Roads
Hit Fixed Object (All)	65	38.0%	18.5%	11.1%	3	38%	27.5%	17.1%
Hit Tree/Stump	8	4.7%	--	--	1	33%	--	--
Hit Utility Pole	4	2.3%	--	--	0	0%	--	--
Hit Roadway Ditch	18	10.5%	--	--	0	0%	--	--
Hit Earth Bank	8	4.7%	--	--	1	33%	--	--
Hit Culvert	6	3.5%	--	--	0	0%	--	--
Hit Parked Car	14	8.2%	5.4%	8.8%	0	0%	1.7%	2.5%

Dark, No Street Lights

The rate of crashes that occurred in the dark, with no street lights present during the 5 year study period is more than double the rate of that for the rest of Washington State. In addition to the comparatively high number of crashes happening in areas with no street lighting, 37.5% of crashes involving a serious injury occurred in areas without illumination.

Crashes by Lighting Condition

	Total Crashes (% of all crashes)				Serious Injury Crashes (% of all serious crashes)			
	SITC Roads		All WA Roads	All WA City Roads	SITC Roads		All WA Roads	All WA City Roads
Daylight	103	60.2%	66.0%	67.5%	4	50%	54.3%	53.9%
Dark – Street Lights On	22	12.9%	19.7%	24.3%	1	12.5%	23.6%	35.6%
Dark – No Street Lights	30	17.5%	8.2%	2.2%	3	37.5%	15.6%	4.1%

Hitting Wildlife and Animals

The rate of crashes with wildlife and animals on SITC roadways is much higher than the rate on other Washington state roads. The rural nature of the majority of the Reservation's roadways is a potential cause for the high rate of wildlife crashes. Three of the eleven wildlife-related crashes occurred in the dark with no street lights, and one of the eleven occurred at dusk.

Wildlife/Animal Crashes

	Total Crashes (% of all crashes)				Serious Injury Crashes (% of all serious crashes)			
	SITC Roads		All WA Roads	All WA City Roads	SITC Roads		All WA Roads	All WA City Roads
Hit Wildlife/Animal	11	6.4%	1.9%	0.2%	0	0%	0.7%	0.1%

Driver Behaviors Contributing to Crashes

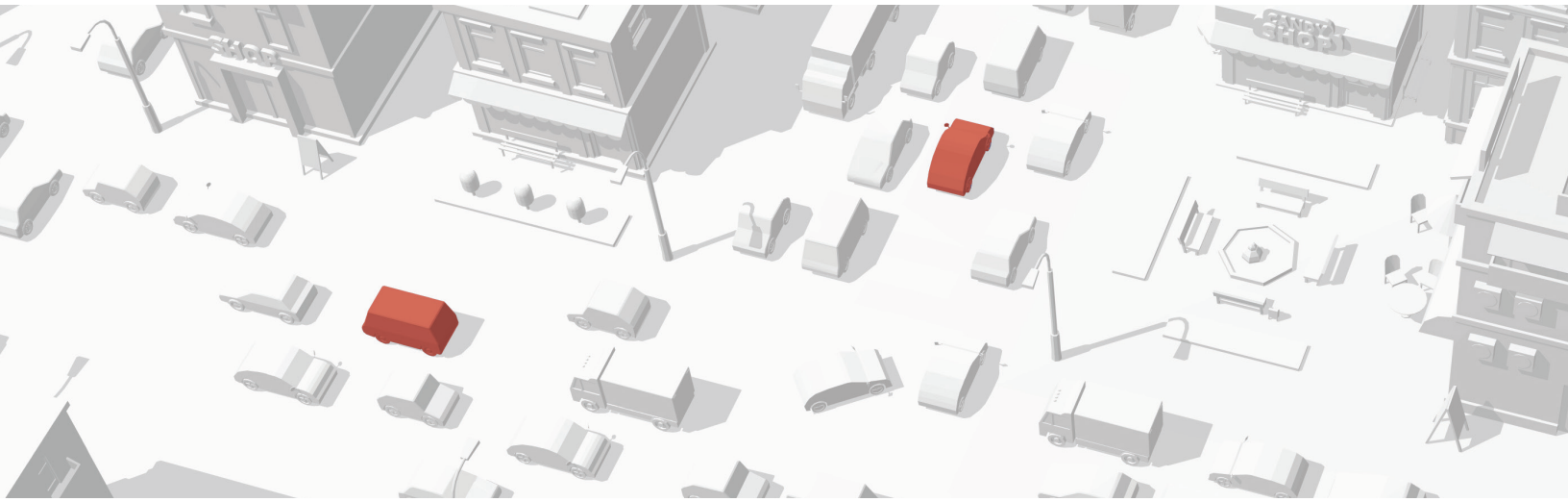
Crash data records show that driver behavior contributing circumstances, other than the influence of drugs and alcohol, are cited at comparable or lower rates for SITC than other Washington state roadways. Drug and alcohol related crashes represent just over 10% of all crashes during the study period, and 50% of the crashes that resulted in a serious injury or fatality. The rate of crashes citing drugs or alcohol involvement in the SITC data is above Washington state averages.

Driver Behavior Contributing to Crashes

	Total Crashes (% of all crashes)				Serious Injury Crashes (% of all serious crashes)			
	SITC Roads		All WA Roads	All WA City Roads	SITC Roads		All WA Roads	All WA City Roads
Under the Influence of Drugs and/ or Alcohol	20	11.7%	5.4%	4.9%	4	50%	18.5%	14.7%
Inattention/ Distraction	66	38.6%	27.4%	32.0%	3	38%	18.1%	21.2%
Following Too Close	19	11.1%	14.9%	9.5%	0	0%	2.8%	2.0%
Exceeding Safe/ Stated Speed	17	9.9%	15.2%	8.2%	2	25%	23.4%	18.7%

Comparison of Crash Data to 2017 Safety Study

The last SITC transportation safety study was completed in 2017 and looked at a 4 1/2-year period of crash data running from January 1, 2011 through April 1, 2016. Similar leading contributing factors were observed in the crash data and documented in the 2017 study to the five listed above for the current data period. Roadside fixed objects, especially ditches and earthen berms, were the highest percentage of total crashes. Drug and alcohol related crashes were also cited in the 2017 study, and was a contributing factor to the one fatal crash that was included in the 2011-2016 dataset for the previous study. Vehicles striking other parked vehicles was a notable risk factor in the 2017 study, but is not overrepresented in the crash data for the current study. Crashes with parked vehicles in the current study dataset occurred near or below statewide average rates.



Spatial Crash Data Analysis

SECTOR data was obtained for each reported crash in the SITC, including coordinates, to produce maps of reported contributing circumstances. Mapping of the crash data allows for identification of patterns by physical location and the roadway environment. The spatial analysis compliments the statistical analysis and helps to identify specific risk factors for future crashes. A selection of the maps generated are included in the Appendix.

Significant Intersections

The SITC's transportation network has a limited number of significant intersections. Spatially, crashes have tended to cluster around several key intersections, although the contributing factors to crashes and the crash types at each intersection vary. The significant intersections include:

- SR 20 and Padilla Heights Road/ Eastbound Entrance – rear end crashes
- SR 20 and Casino Drive/Westbound Entrance – rear end crashes
- Shelter Bay Drive and Pioneer Parkway – angle and approach turn crashes
- Casino Drive and the Swinomish Casino driveway – angle and approach turn crashes
- Snee-Oosh Road and Pioneer Parkway – angle crashes
- Indian Road and Reservation Road – fixed object and wildlife crashes
- Snee-Oosh Road and Reservation Road – fixed object and wildlife crashes

Sidewalks not Present

Both of the crashes in the study period involving pedestrians, including one crash where the pedestrian was killed, occurred in areas where sidewalks or other dedicated spaces for active modes were not present. Narrow or missing shoulders and drainage ditches immediately adjacent to the edge of pavement present a risk factor for users of active modes who are especially vulnerable to serious injury or fatal crashes, compared to users in motor vehicles.

Roadside Objects and Ditches

Along Snee-Oosh Road and Reservation Road, especially along the north/south legs of each road between Swinomish Village and the intersection of the two roads in the northern part of the SITC, there are a number of fixed object crashes and vehicles running into roadside ditches. The crash type, which results from a base cause of lane departure, happens most frequently in undeveloped, natural areas along both roads.

Wildlife Crashes

Wildlife crashes tend to happen more often along the stretches of Snee-Oosh Road and Reservation Road that run through undeveloped, natural areas, north of Swinomish Village to the point where the two roads meet in the northern part of the SITC. Not all wildlife crashes have occurred in undeveloped areas, with two deer hit along Snee-Oosh Road near development in the southwest corner of the SITC.

Stakeholder Outreach and Feedback

The SITC's 2017 Safety Plan included a stakeholder and community outreach process that involved the SITC Planning and Community Development Department, Police, Tribal Senate, Public Works Department, Planning Commission and Health and Education and Social Services Committee (HESS), as well as outreach to the SITC community. Individual meetings were held in 2016 and 2017 with the SITC departments. A single public meeting was held in July of 2016 to gather public feedback. Feedback gathered among stakeholders for the 2017 safety plan highlighted concerns among community members about:

- Dedicated bike and pedestrian infrastructure
- The coverage of vehicle and pedestrian scale illumination
- Speeds of vehicles on SITC roadways

Additional stakeholder and public outreach is planned to occur in 2023 as part of the completion of the FHWA steps to create a safety Action Plan. The feedback gathered from the 2023 outreach will be compared to the 2017 feedback, and considered along with the crash data and analysis in developing and prioritizing safety improvement projects.

Risk Factors

Based on a combination of the statistical and spatial analysis of the crash data for the SITC, the following risk factors were identified. The risk factors will guide the SITC's implementation of countermeasures in a proactive effort to reduce future crashes. The risk factors are **presented in priority order**, based on the crash history, severity of past crashes, and vulnerability of users likely to be involved in crashes.

Risk Factor: High Speed Roadway Intersections

At the intersection of high-speed roadways with minor connections that enter from a slow or stop condition, there is a risk factor for crashes, especially of the rear-end type. Intersections that demonstrate the risk factor are SR-20 at Padilla Heights Road/ Eastbound interchange and Casino Road/Westbound interchange and Snee-Oosh Road and Reservation Road. High speed roadway intersection risk factors relate to intersection control type, acceleration for vehicles to match the speed on the higher speed facility and merge/diverge. Crash types can include rear-end, sideswipe and secondary effect crash types from near-miss conditions such as with roadside fixed objects and wildlife.

Risk Factor: Active Transportation

Active transportation risk factors for the SITC are based on the vulnerability of users, a network with missing connections and stakeholder feedback indicate the need to continue expanding the network of high comfort separated facilities for active modes. By moving away from relying on roadway shoulders and mixed traffic conditions, a well-connected active mode network not only increases safety, but can reduce the need for vehicle trips, and have an impact on public health by encouraging walking and biking for short-distance trips, if high comfort linear and crossing facilities are present.

Risk Factor: Roadside objects

Roadside object risk factors relate to the chances that objects outside the travel lane will be involved in a crash because of roadway geometry, visibility/ delineation or physical protection of the objects themselves. The highest priority roadside objects to mitigate, based on crash history, are:

- Open drainage ditches and culverts adjacent to travel lanes with minimal hard shoulders
- Utility poles and trees adjacent to travel lanes with minimal hard shoulders
- Earthen berms adjacent to travel lanes with minimal hard shoulders

Risk Factor: Insufficient Street Lighting

Insufficient or no street lighting is cited in a high percentage of the total crashes in the study period. A lack street lighting was cited in previous public outreach as a concern for the safety of drivers and active transportation users. Addressing street lighting can have combined effects of mitigating other risk factors for crashes.

Risk Factor: Variable Speed Limits

Variable speed limits, such as are present on Snee-Oosh Road and Reservation Road, can contribute to driver confusion or disregard, and increase vehicle speeds in areas where other risk factors, such as roadside objects or active transportation combine to present an elevated risk factor for crashes with severe outcomes. Standardizing speed limits with a transparent, consistent process can help to maintain predictability and compliance with speed limits that balance mobility with safety.

Risk Factor: Wildlife

Wildlife-related crashes are a concern for SITC roadways, although are difficult to mitigate. Roadside hazard mitigation and addressing driver behavior factors like speed can have an effect on mitigating wildlife crash risk factors.

Countermeasures

Countermeasures are the actions, including engineering, enforcement and education, that the SITC can take to proactively address the risk factors identified through the crash data analysis. To identify projects and programs that could address the risk factors for crashes, a full range of potential countermeasures was evaluated. Some countermeasures are unfeasible due to constraints on capital and long-term maintenance resources of the SITC. The SITC also requires agency partnerships in order to implement countermeasures on much of the roadway network, as there are limited roadways that are fully under SITC ownership and operation, as shown in the map in this document's appendix.

Proposed countermeasures fall into four general categories; acceleration/deceleration lanes, pedestrian and bicycle facilities, roadside hazard mitigation, and illumination. Each type of countermeasure is proven effective to address the risk factors identified for the SITC's transportation system.

The FHWA Crash Modification Factor (CMF) Clearinghouse database was used to assess the potential impact of implementing the countermeasures listed below. CMFs are research-backed estimates for the percentage reduction in future crashes that can be expected by individual treatments. The Clearinghouse identifies the quality of a study, and includes notes about the applicability to rural or urban areas, and some roadway characteristics to help guide users to the best match for their countermeasure. Not all countermeasures have a good match in the CMF Clearinghouse database, but approximations can be made to help identify effective safety countermeasures.

Countermeasure: Acceleration/ Deceleration Lanes

Acceleration and deceleration lanes on higher speed facilities help vehicles entering and exiting higher speed areas to match their speed to destination facilities and limit crash types that result from a speed mismatch such as rear end and sideswipe. The additional space afforded by acceleration and deceleration lanes can also provide a refuge for correction of errors in speed judgment or merging without resulting in a run-off-the-road or other lane departure crash, limiting not only the crash but the potential severity of a higher speed lane departure crash.

The CMF Clearinghouse's highest quality data related to the installation of acceleration and deceleration lanes is specific to lanes that are extended by approximately 100 feet, and do not exactly match the countermeasure proposed for the SITC[2]. The reduction in crashes from the CMF study is between 7 and 11%, which would roughly translate to 1-2 less crashes per year at SR 20.

Countermeasure: Pedestrian and Bicycle Facilities

Adding linear and crossing active mode facilities for pedestrians and bicyclists of all ages and abilities will help to complete the transportation network in the SITC[1] A well-connected active mode network can enhance the utility of transit, reduce vehicle volumes for short trips, can have a

2. https://www.cmfclearinghouse.org/study_detail.cfm?stid=14

positive impact on public health by encouraging exercise, and creates a more livable community.

Linear facilities for pedestrians include sidewalks, shared use paths and barrier-separated walkways. Bike linear facilities can include bike lanes, buffered bike lanes, shared use paths and trails, and wayfinding, such as sharrows, in mixed traffic, low speed/low volume locations.

Pedestrian crossing enhancements include upgrading existing crossings with rectangular rapid flashing beacons (RRFBs), evaluating the location of crossings compared to desirable crossing locations and visibility to drivers, curb extensions and bump outs, and ensuring connection to pedestrian facilities on both sides of the crossing.

According to the CMF Clearinghouse, installation of sidewalks can reduce all crashes between vehicles and pedestrians by 40%[3]. Installation of RRFBs on crosswalks can reduce vehicle/pedestrian crashes by 36%[4]. Installation of various linear bicycle treatments can have a wide range of impacts, but all reduce crashes between cyclists and vehicles, with the majority of treatments resulting in a reduction of more than 75%[5]. An additional benefit of adding curb, gutter and sidewalk to existing sections is the anticipated reduction of lane departure crashes, tied to the risk factor of roadside objects. CMF Clearinghouse indicates that future crash rates can be reduced by at least 11% through the installation of new curb and gutter[6].

Countermeasure: Roadside Hazard Mitigation

Mitigation of roadside hazards includes marking, signage and physical barriers such as guardrail to raise awareness of and protect roadside hazards including utilities, trees, ditches, and culverts. Other opportunities to mitigate roadside hazards include creating hardened shoulders for recovery at the roadside edge where no shoulder currently exists. Shoulders may require modification of existing drainage and may not be feasible in all locations due to topography or undesirable impacts to native vegetation.

The CMF Clearinghouse notes that installation of rumble strips, which profiled striping mimics, reduced crashes with roadside objects by 16%[7].

Countermeasure: Illumination

Evaluation of the existing lighting levels, where lighting is present, and identification of zones where lighting is not present help to establish a baseline condition for the SITC. Comparing existing light levels to recommended best practices for illumination, combined with the spatial analysis of crash locations, can help to identify locations where lighting may have the highest potential to mitigate future crashes.

A high-quality study in the CMF Clearinghouse indicates that providing illumination on rural roadways can reduce overall crashes by 30% and severe crashes by nearly 75%[8].

Countermeasure: Improved Driver Education

Driver education, through public messaging campaigns, the use of electronic signage to highlight critical messages and provide direct driver feedback and engineering review of existing signage and pavement markings to confirm alignment with best practices and an intuitive and self-enforcing transportation environment may mitigate direct and compounding driver behavior risk factors for future crashes.

3. https://www.cmfclearinghouse.org/study_detail.cfm?stid=665
4. https://www.cmfclearinghouse.org/study_detail.cfm?stid=503
5. https://www.cmfclearinghouse.org/study_detail.cfm?stid=274
6. https://www.cmfclearinghouse.org/study_detail.cfm?stid=147
7. https://www.cmfclearinghouse.org/study_detail.cfm?stid=544
8. https://www.cmfclearinghouse.org/study_detail.cfm?stid=14

Projects and Initiatives

Enforcement and Education Safety Programs

Education and enforcement are two key components of transportation safety, complimenting engineering projects. Non-engineering programs are typically ineligible for funding through safety grant programs, such as the Tribal Transportation Program Safety Fund (TTPSF). The Washington State Traffic Safety Commission (WTSC) Safety Grants program does fund education and enforcement efforts and programs, typically focused on school zones, and federally-recognized Tribes are eligible for WTSC funding.

Driving under the Influence Education Programs

The SITC could partner with any number of agencies, including the Washington Transportation Safety Commission (WTSC), to conduct education and outreach programs to increase awareness of the dangers associated with driving under the influence of alcohol and/or drugs. Reduction of risky driver choices and behaviors would have a positive influence on mitigating future crashes, especially crashes with severe outcomes.

Speed Limit Education and Enforcement

The SITC has already implemented electronic speed feedback signage on Reservation Road. Expanding the number of speed feedback signs has been demonstrated to both educate drivers about the posted limit and enforce compliance with posted limits.

Obtaining regular speed data studies from outside vendors or using equipment available to Public Works departments such as sign-post mounted radar detection units for obtaining speed and volume data can help coordinate police response to ongoing elevated speed concerns. The data obtained not only can help maintain useful traffic operational data, it can be used to develop a program of targeted enforcement when speeding is demonstrated to be occurring. Using a data-based approach to enforcement helps to use limited enforcement resources more efficiently.

Speed Limit Study

Conducting a speed limit study would provide a framework for consistency and technical basis for the setting of speed limits and where speed limits change. Limiting the variability of speed limits on SITC controlled as well as Skagit County controlled roadways will help to increase predictability for drivers and compliance with speed limits, especially in the more urbanized areas near the Swinomish Village and the Swinomish Casino. Based on the results of the study, SITC would need to partner with Skagit County, based on the interlocal agreement, to make any changes to posted speed limits and modify signage.

Engineering Safety Projects

The following represents a prioritized listing of proposed engineering projects the SITC will seek to implement using a mix of funding from local funds, partnerships with WSDOT and Skagit County, and safety-related grants such as the TTPSF and SS4A program. The SITC will use the project listing to seek opportunities to combine safety projects with other infrastructure projects such as pavement preservation and utility maintenance or expansion as opportunities arise. The project listing will also be used to work with future development to seek partnership opportunities to implement the projects.

Not all projects are priorities for seeking funding in the short term (0-5 years) and may be modified in future Safety Plan updates.

*Project **01***

SR 20 Acceleration/Deceleration Lanes

Project 01 addresses the intersection of a major high speed roadway with two low speed minor connecting roads with the highest crash rate within the SITC. The existing roadway geometry at the intersections of SR 20 with Padilla Heights Road and S March Point Road does not provide deceleration or acceleration distance meeting current WSDOT standards for either direction of traffic on SR 20. To enhance the traffic operations and safety of the high speed traffic exiting SR 20 onto local roadways, conversion of multi-point intersections on the north and south sides of SR 20 to roundabouts is also included with the project.

The project would include an extension of the existing westbound shoulder bike path on the north side of SR 20, following Casino Drive to the two existing roundabouts at Knudson Lane. Bicycle traffic would then be able to connect on the low volume, low speed Long John Drive to Padilla Heights Road.

Estimated Project Costs:
$16,000,000-$20,000,000 design and construction

Time to Construct:
24-48 months from project design kickoff

Grant Opportunities:
Design & Permitting:
Tribal Transportation Program Safety Fund (TTPSF) - Fiscal Year 2023
Construction:
FHWA Nationally Significant Federal Lands and Tribal Projects (NSFLTP)

*Project **02***

Swinomish Village Sidewalk Gaps

Project 02 addresses gaps in the active mode network along Snee-Oosh Road and Pioneer Parkway near Swinomish Village. The project would seek to add sidewalks to the north side of Snee-Oosh Road from Squi-Qui Lane to 1st Street, with curb ramp and crossing improvements at either end, and illumination at the crossings and existing bus stop. The crossing improvements would also include replacement of wooden drainage ditch crossings on the south side, and improvement of the trail connection from crossings to the residential areas south of Snee-Oosh Road. The project would also add sidewalks to the east side of Pioneer Parkway, closing an existing 735-foot gap between previously completed Safe Routes to School improvements at Snee-Oosh Road and Moorage Way.

Overlay of Snee-Oosh Road within the project limits will help to provide a smooth walking surface and ensure uniform slopes on crosswalks. The project closes two sidewalk gaps and connects residential, educational, commercial and municipal destinations as well multiple transit stops.

The total length of sidewalk would be approximately 1,335 linear feet.

The project would need to be approved by and coordinated with Skagit County based on the inter-local agreement for maintenance and operation of Snee-Oosh Road and Pioneer Parkway.

Estimated Project Costs:
$1,350,000-$1,700,000 design and construction

Time to Construct:
18-24 months from project design kickoff

Grant Opportunities:

Tribal Transportation Program Safety Fund (TTPSF) - Fiscal Year 2023

Project ***03***

Swinomish Village Sidewalk Extensions

Project 03 extends the existing active mode network north of Swinomish Village along Reservation Road. Along with other active mode projects in the area, Project 03, creates a more connected active mode environment between single family residential areas, municipal, recreational, and commercial destinations. The project would add sidewalks on both sides of Reservation Road from the intersection with Pioneer Parkway and Snee Oosh Road, north 775 feet on the east side to the north driveway for the Swinomish Youth Center and other facilities, and 850 feet on the west side to the intersection with John K Bob Road. At the midpoint of the project, an existing marked crosswalk would be enhanced with a rectangular rapid flashing beacon (RRFB). The project connects to and extends recent improvements at the intersection of Pioneer Parkway and Snee Oosh Road. Completion of the project would provide a protected active mode link between residential areas to the west of Pioneer Parkway and Reservation Road, with the municipal, recreational and social services available at the Youth Center campus, Police Station, and Swadabs Park, the John K Bob ballfields and the tribal archives and longboat house along John K Bob Road.

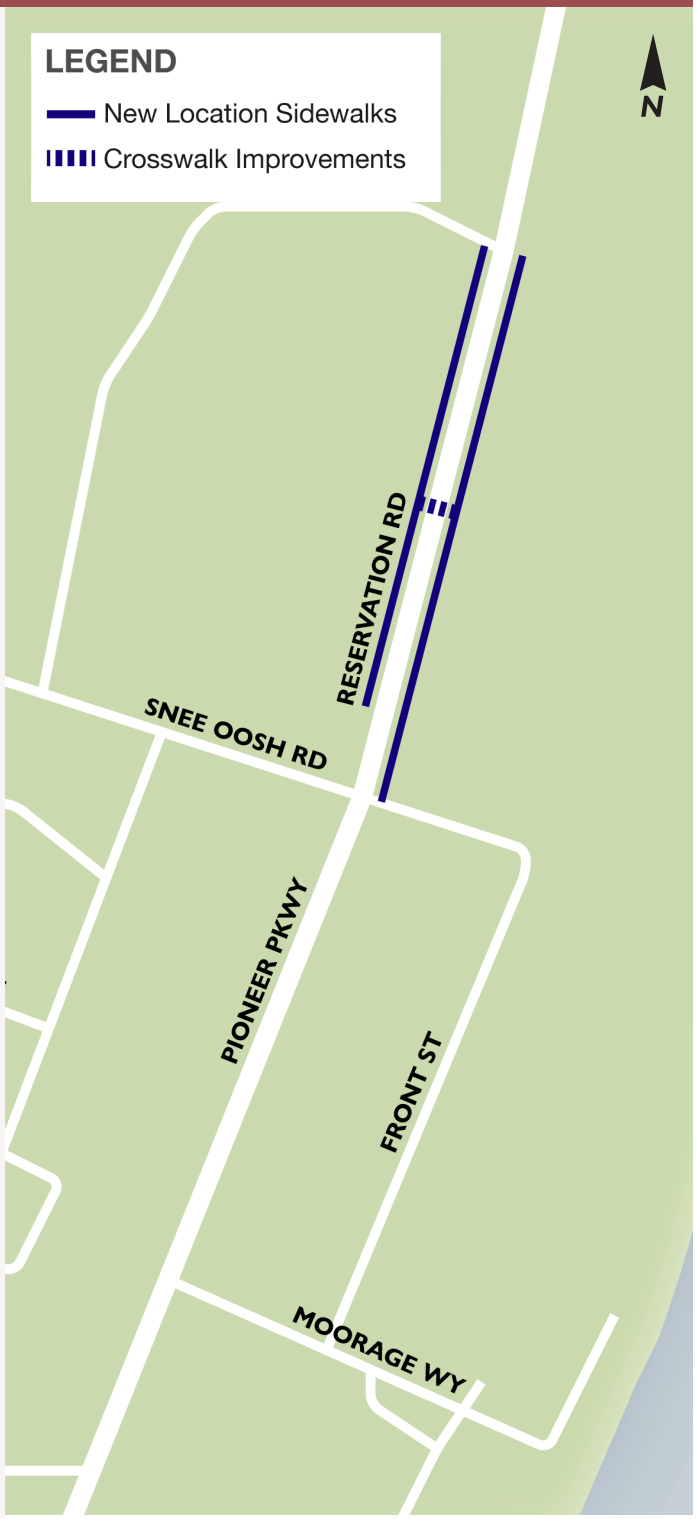
The total length of sidewalk would be approximately 1,625 linear feet, with one improved crossing and two driveway crossings.

The project would need to be approved by and coordinated with Skagit County based on the interlocal agreement for maintenance and operation of Reservation Road.

Estimated Project Costs:
$1,850,000-$2,150,000 design and construction

Time to Construct:
18-24 months from project design kickoff

Grant Opportunities:
Tribal Transportation Program (TTP)
Tibal Transportation Program Safety Fund (TTPSF)
WSDOT Ped-Bike Program
Safe Streets For All



Project ***04***

Roadside Hazard Delineation

A roadside hazard delineation project would be a low cost/high impact approach to ensuring visibility of roadside hazards to drivers and enhancing lane departure warnings within the existing footprint of targeted roadways. Snee-Oosh Road and Reservation Road have the highest number of roadside hazard crashes, and would be the target of the project. The recommended form of the project would include a mixture of elements that can be rapidly deployed including, but not limited to:

- **Profiled roadway striping** – profiled thermoplastic striping provides not only enhanced visibility and increased durability, but can provide a rumble strip effect without requiring additional roadway width or grinding into the existing pavement.
- **Object marker signage** – object markers can include signage that is applied directly to utility poles, significant trees, and culvert ends to highlight their presence to drivers, as well as reflective raised markers that can be installed on the road edge.
- **Vertical delineation posts** – plastic vertical posts with a highly reflective bar at the top can be used to delineate both the roadway edge and the presence of earthen berms and ditches. The posts do have a long-term maintenance cost. The flexibility in placement and the high reflectivity make the posts a highly effective roadside hazard mitigation strategy.
- **Guardrail** – guardrail used in strategic locations can provide positive protection for berms, ditches and utility poles. Guardrail also offers the opportunity to place elevated reflective markers, further enhancing the visibility of the roadway edge and changes in horizontal geometry.
- **Shoulder widening** – in some limited areas where favorable topography exists, there may be opportunities to widen the shoulder of the roadway, either paved or with a gravel surface, and relocate ditches further from the edge of the roadway. Shoulders offer recovery area for roadway departures, but can be expensive and/or difficult to permit based on environmental factors.

Based on the interlocal agreement with Skagit County, all of the elements of Project 03 would need to be coordinated with and approved by the County prior to installation.

Estimated Project Costs:
$150,000-$250,000 design and construction

Time to construct:
6-12 months from project design kickoff

Grant Opportunities:
To be determined

*Project **05***

Roadway Illumination

Evaluating the existing lighting levels on major roadways, including Pioneer Parkway, Reservation Road, Snee-Oosh Road, Moorage Way, and Front Street for compliance with best practices and recommendations for appropriate lighting levels for roadway and active mode use would help to identify gaps in the existing illumination. The project would include a public outreach component to assess the public's concern about the impact that illumination can have on the rural feel of the SITC, and the potential impact on wildlife.

The project budget includes the SITC-wide existing lighting levels assessment, the public outreach process and a budget for installation of several new lighting poles and associated electrical systems in high priority locations.

The new illumination would need to be approved by and coordinated with Skagit County based on the interlocal agreement for maintenance and operation of many of the targeted roadways within the SITC.

Estimated Project Costs:
$2,500,000-$3,000,000 design and construction

Time to construct:
18-24 months from project design kickoff

Grant Opportunities:
To be determined

2023

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Appendix

2017-2021 Data

Swinomish Indian Tribal Community

Fatal/Serious Injury Crashes Only

	2017-2021	%	2021	2020	2019	2018	2017	All WA Roads* 2017-2021	West WA Cities** 2017-2021
Overall Numbers									
Total # of Collisions	8	4.7%	2	2	1	0	3		
# of Fatal Collisions	2	25.0%	0	1	1	0	0		
# of Serious Injury Collisions	6	75.0%	2	1	0	0	3		
# of Drug/Alcohol-Related Collisions	3	37.5%	0	2	0	0	1	16.8%	13.7%
Total # of Fatalities	3	-	0	2	1	0	0		
Total # of Injuries	9	-	2	2	0	0	5		
By Collision Type									
Hit Fixed Object	3	37.5%	1	0	0	0	2	27.5%	17.1%
Angle	1	12.5%	0	1	0	0	0	18.9%	22.9%
Rearend	0	0.0%	0	0	0	0	0	7.5%	5.0%
Hit Parked Car	0	0.0%	0	0	0	0	0	1.7%	2.5%
Sideswipe (Same Direction)	0	0.0%	0	0	0	0	0		
Sideswipe (Opposite Direction)	0	0.0%	0	0	0	0	0		
Hit Cyclist	0	0.0%	0	0	0	0	0		
Overturn	1	12.5%	1	0	0	0	0		
Hit Pedestrian	1	12.5%	0	0	1	0	0		
Railway	0	0.0%	0	0	0	0	0		
Head On	1	12.5%	0	1	0	0	0		
Wildlife/Animal	0	0.0%	0	0	0	0	0	0.7%	0.1%
Other	1	12.5%	0	0	0	0	1		
By Roadway Surface Condition									
Dry	7	87.5%	2	2	1	0	2	74.9%	73.1%
Wet	0	0.0%	0	0	0	0	0	20.7%	25.1%
Snow/Slush	0	0.0%	0	0	0	0	0		
Ice	0	0.0%	0	0	0	0	0		
Standing Water	0	0.0%	0	0	0	0	0		
Sand/Mud/Dirt	0	0.0%	0	0	0	0	0		
Other	1	12.5%	0	0	0	0	1		
By Light Condition									
Dark-Street Lights On	1	12.5%	0	1	0	0	0	23.6%	35.6%
Daylight	4	50.0%	1	1	0	0	2	54.3%	53.9%
Dark-No Street Lights	3	37.5%	1	0	1	0	1	15.6%	4.1%
Dusk	0	0.0%	0	0	0	0	0		
Dawn	0	0.0%	0	0	0	0	0		
Dark-Street Lights Off	0	0.0%	0	0	0	0	0		
Other	0	0.0%	0	0	0	0	0		
By Junction Relationship									
Non-Intersection (Not Related)	5	62.5%	2	1	1	0	1	61.4%	44.9%
Intersection Related	2	25.0%	0	0	0	0	2	32.1%	46.8%
Driveway-Related	1	12.5%	0	1	0	0	0	6.2%	8.1%
Roundabout Related	0	0.0%	0	0	0	0	0		

2017-2021 Data Swinomish Indian Tribal Community	Fatal/Serious Injury Crashes Only								
								All WA Roads*	West WA Cities**
	2017-2021	%	2021	2020	2019	2018	2017	2017-2021	2017-2021
Hit Fixed Object Crashes Only - By Fixed Object Hit									
Fence	0	0.0%	0	0	0	0	0		
Utility Pole	0	0.0%	0	0	0	0	0		
Tree / Stump (Stationary)	1	33.3%	1	0	0	0	0		
Earth Bank	1	33.3%	0	0	0	0	1		
Mail Box	0	0.0%	0	0	0	0	0		
Guardrail	0	0.0%	0	0	0	0	0		
Culvert	0	0.0%	0	0	0	0	0		
Curb / Raised Traffic Island	0	0.0%	0	0	0	0	0		
Building	0	0.0%	0	0	0	0	0		
Fire Hydrant	0	0.0%	0	0	0	0	0		
Metal Sign Post	0	0.0%	0	0	0	0	0		
Concrete Barrier	0	0.0%	0	0	0	0	0		
Boulder (Stationary)	0	0.0%	0	0	0	0	0		
Wood Sign Post	1	33.3%	0	0	0	0	1		
Retaining Wall	0	0.0%	0	0	0	0	0		
Bridge Abutment	0	0.0%	0	0	0	0	0		
Guide Post	0	0.0%	0	0	0	0	0		
Roadway Ditch	0	0.0%	0	0	0	0	0		
Bridge Rail	0	0.0%	0	0	0	0	0		
Fallen Rock / Tree	0	0.0%	0	0	0	0	0		
Bridge Column	0	0.0%	0	0	0	0	0		
Rock Bank	0	0.0%	0	0	0	0	0		
Ran Over Embankment	0	0.0%	0	0	0	0	0		
Into River / Lake	0	0.0%	0	0	0	0	0		
Other Objects	0	0.0%	0	0	0	0	0		
By Contributing Circumstance									
Under Influence of Alcohol / Drugs	4	50.0%	0	3	0	0	1	18.5%	14.7%
Inattention / Distraction	3	37.5%	1	0	1	0	1	18.1%	21.2%
Following Too Close	0	0.0%	0	0	0	0	0	2.8%	2.0%
Exceeding Safe / Stated Speed	2	25.0%	1	1	0	0	0	23.4%	18.7%
Failing to Yield	1	12.5%	0	1	0	0	0	9.3%	11.7%
Operating Defective Equipment	0	0.0%	0	0	0	0	0		
Improper Backing	0	0.0%	0	0	0	0	0		
Improper Turn	0	0.0%	0	0	0	0	0	1.1%	2.2%
Improper U-Turn	0	0.0%	0	0	0	0	0		
Improper Passing	0	0.0%	0	0	0	0	0		
Disregard Signal	0	0.0%	0	0	0	0	0		
Over Centerline	0	0.0%	0	0	0	0	0		
Disregard Stop Sign	0	0.0%	0	0	0	0	0		
Apparently Ill	0	0.0%	0	0	0	0	0		
On Wrong Side of Road	0	0.0%	0	0	0	0	0		
Failing to Yield to Ped / Cyclist	0	0.0%	0	0	0	0	0		
Headlight Violation	0	0.0%	0	0	0	0	0		
Improper Signal	0	0.0%	0	0	0	0	0		
Other	2	25.0%	0	1	0	0	1		

2017-2021 Data

Swinomish Indian Tribal Community

Fatal/Serious Injury Crashes Only

								All WA Roads*	West WA Cities**
	2017-2021	%	2021	2020	2019	2018	2017	2017-2021	2017-2021
By Contributing Circumstance (Ped Only)									
Failing to Yield	0	0.0%							
Under Influence of Alcohol / Drugs	0	0.0%							
Inattention / Distraction	1	100.0%			1				
Failure to Use Crosswalk	0	0.0%							
Disregard Stop Sign	0	0.0%							
Disregard Signal	0	0.0%							
Hitchhiking	0	0.0%							
Exceeding Safe / Stated Speed	0	0.0%							
Failing to Yield to Ped / Cyclist	0	0.0%							
Following Too Close	0	0.0%							
Improper Passing	0	0.0%							
Other	0	0.0%							
By Contributing Circumstance (Bike Only)									
Failing to Yield	0	0.0%							
Inattention / Distraction	0	0.0%							
On Wrong Side of Road	0	0.0%							
Disregard Stop Sign	0	0.0%							
Exceeding Safe / Stated Speed	0	0.0%							
Under Influence of Alcohol / Drugs	0	0.0%							
Disregard Signal	0	0.0%							
Improper Passing	0	0.0%							
Failing to Yield to Ped / Cyclist	0	0.0%							
Over Centerline	0	0.0%							
Other	0	0.0%							

** - data provided by WSDOT for all roadways, select categories identified for comparison of SITC data to state*

*** - data provided by WSDOT for all roadways in incorporated cities in Western Washington, select categorie*

2017-2021 Data

Swinomish Indian Tribal Community

Total Crashes

	2017-2021	%	2021	2020	2019	2018	2017	All WA Roads* 2017-2021	West WA Cities** 2017-2021
Overall Numbers									
Total # of Collisions	**171**	-	33	34	40	30	34		
# of Fatal Collisions	**2**	**1.2%**	0	1	1	0	0		
# of Serious Injury Collisions	**6**	**3.5%**	2	1	0	0	3		
# of Drug/Alcohol-Related Collisions	**18**	**10.5%**	0	9	3	1	5	5.6%	5.2%
Total # of Fatalities	**3**	**-**	0	2	1	0	0		
Total # of Injuries	**67**	-	8	11	18	11	19		
By Collision Type									
Hit Fixed Object	**65**	**38.0%**	11	16	15	10	13	18.5%	11.1%
Angle	**21**	**12.3%**	5	4	5	5	2	25.6%	36.3%
Rearend	**38**	**22.2%**	6	6	13	8	5	28.9%	23.9%
Hit Parked Car	**14**	**8.2%**	1	3	4	3	3	5.4%	8.8%
Sideswipe (Same Direction)	**3**	**1.8%**	1	0	0	1	1		
Sideswipe (Opposite Direction)	**2**	**1.2%**	0	0	0	1	1		
Hit Cyclist	**2**	**1.2%**	0	1	0	0	1		
Overturn	**3**	**1.8%**	2	0	0	0	1		
Hit Pedestrian	**2**	**1.2%**	0	1	1	0	0		
Railway	**0**	**0.0%**	0	0	0	0	0		
Head On	**1**	**0.6%**	0	1	0	0	0		
Wildlife/Animal	**11**	**6.4%**	5	0	2	2	2	1.9%	0.2%
Other	**9**	**5.3%**	2	2	0	0	5		
By Roadway Surface Condition									
Dry	**123**	**71.9%**	26	20	26	23	28	67.7%	67.2%
Wet	**32**	**18.7%**	4	12	7	6	3	25.8%	29.6%
Snow/Slush	**1**	**0.6%**	0	0	1	0	0		
Ice	**11**	**6.4%**	3	0	5	1	2		
Standing Water	**0**	**0.0%**	0	0	0	0	0		
Sand/Mud/Dirt	**2**	**1.2%**	0	1	1	0	0		
Other	**1**	**0.6%**	0	0	0	0	1		
By Light Condition									
Dark-Street Lights On	**22**	**12.9%**	2	6	4	3	7	19.7%	24.3%
Daylight	**103**	**60.2%**	17	21	23	20	22	66.0%	67.5%
Dark-No Street Lights	**30**	**17.5%**	9	3	8	6	4	8.2%	2.2%
Dusk	**5**	**2.9%**	2	1	0	1	1		
Dawn	**5**	**2.9%**	2	0	3	0	0		
Dark-Street Lights Off	**1**	**0.6%**	0	1	0	0	0		
Other	**1**	**0.6%**	0	0	1	0	0		
By Junction Relationship									
Non-Intersection (Not Related)	**99**	**57.9%**	22	19	16	18	24	53.0%	36.2%
Intersection Related	**56**	**32.7%**	9	12	20	9	6	37.1%	49.6%
Driveway-Related	**12**	**7.0%**	2	2	4	2	2	9.1%	13.4%
Roundabout Related	**4**	**2.3%**	0	1	0	1	2		

2017-2021 Data Swinomish Indian Tribal Community	Total Crashes							All WA Roads*	West WA Cities**
	2017-2021	%	2021	2020	2019	2018	2017	2017-2021	2017-2021
Hit Fixed Object Crashes Only - By Fixed									
Fence	**0**	**0.0%**	0	0	0	0	0		
Utility Pole	**4**	**2.3%**	1	1	1	1	0		
Tree / Stump (Stationary)	**8**	**4.7%**	1	4	1	1	1		
Earth Bank	**8**	**4.7%**	1	1	3	2	1		
Mail Box	**2**	**1.2%**	0	1	0	1	0		
Guardrail	**2**	**1.2%**	1	0	0	0	1		
Culvert	**6**	**3.5%**	0	2	1	2	1		
Curb / Raised Traffic Island	**2**	**1.2%**	0	1	0	0	1		
Building	**0**	**0.0%**	0	0	0	0	0		
Fire Hydrant	**0**	**0.0%**	0	0	0	0	0		
Metal Sign Post	**0**	**0.0%**	0	0	0	0	0		
Concrete Barrier	**1**	**0.6%**	0	0	0	0	1		
Boulder (Stationary)	**1**	**0.6%**	0	0	1	0	0		
Wood Sign Post	**4**	**2.3%**	0	2	0	0	2		
Retaining Wall	**0**	**0.0%**	0	0	0	0	0		
Bridge Abutment	**0**	**0.0%**	0	0	0	0	0		
Guide Post	**0**	**0.0%**	0	0	0	0	0		
Roadway Ditch	**18**	**10.5%**	5	2	4	3	4		
Bridge Rail	**6**	**3.5%**	2	1	3	0	0		
Fallen Rock / Tree	**0**	**0.0%**	0	0	0	0	0		
Bridge Column	**0**	**0.0%**	0	0	0	0	0		
Rock Bank	**1**	**0.6%**	0	0	1	0	0		
Ran Over Embankment	**2**	**1.2%**	0	1	0	0	1		
Into River / Lake	**0**	**0.0%**	0	0	0	0	0		
Other Objects	**0**	**0.0%**	0	0	0	0	0		
By Contributing Circumstance									
Under Influence of Alcohol / Drugs	**20**	**11.7%**	0	11	3	1	5	5.4%	4.9%
Inattention / Distraction	**66**	**38.6%**	12	7	18	14	15	27.4%	32.0%
Following Too Close	**19**	**11.1%**	4	3	4	5	3	14.9%	9.5%
Exceeding Safe / Stated Speed	**17**	**9.9%**	4	4	4	1	4	15.2%	8.2%
Failing to Yield	**8**	**4.7%**	1	2	1	2	2	15.1%	19.1%
Operating Defective Equipment	**4**	**2.3%**	0	1	1	1	1		
Improper Backing	**3**	**1.8%**	2	0	1	0	0		
Improper Turn	**4**	**2.3%**	1	1	1	0	1	1.9%	3.1%
Improper U-Turn	**0**	**0.0%**	0	0	0	0	0		
Improper Passing	**1**	**0.6%**	0	0	0	0	1		
Disregard Signal	**3**	**1.8%**	2	1	0	0	0		
Over Centerline	**2**	**1.2%**	0	0	0	1	1		
Disregard Stop Sign	**2**	**1.2%**	0	0	1	1	0		
Apparently Ill	**1**	**0.6%**	0	1	0	0	0		
On Wrong Side of Road	**0**	**0.0%**	0	0	0	0	0		
Failing to Yield to Ped / Cyclist	**0**	**0.0%**	0	0	0	0	0		
Headlight Violation	**1**	**0.6%**	0	1	0	0	0		
Improper Signal	**1**	**0.6%**	1	0	0	0	0		
Other	**23**	**13.5%**	2	6	5	5	5		

2017-2021 Data

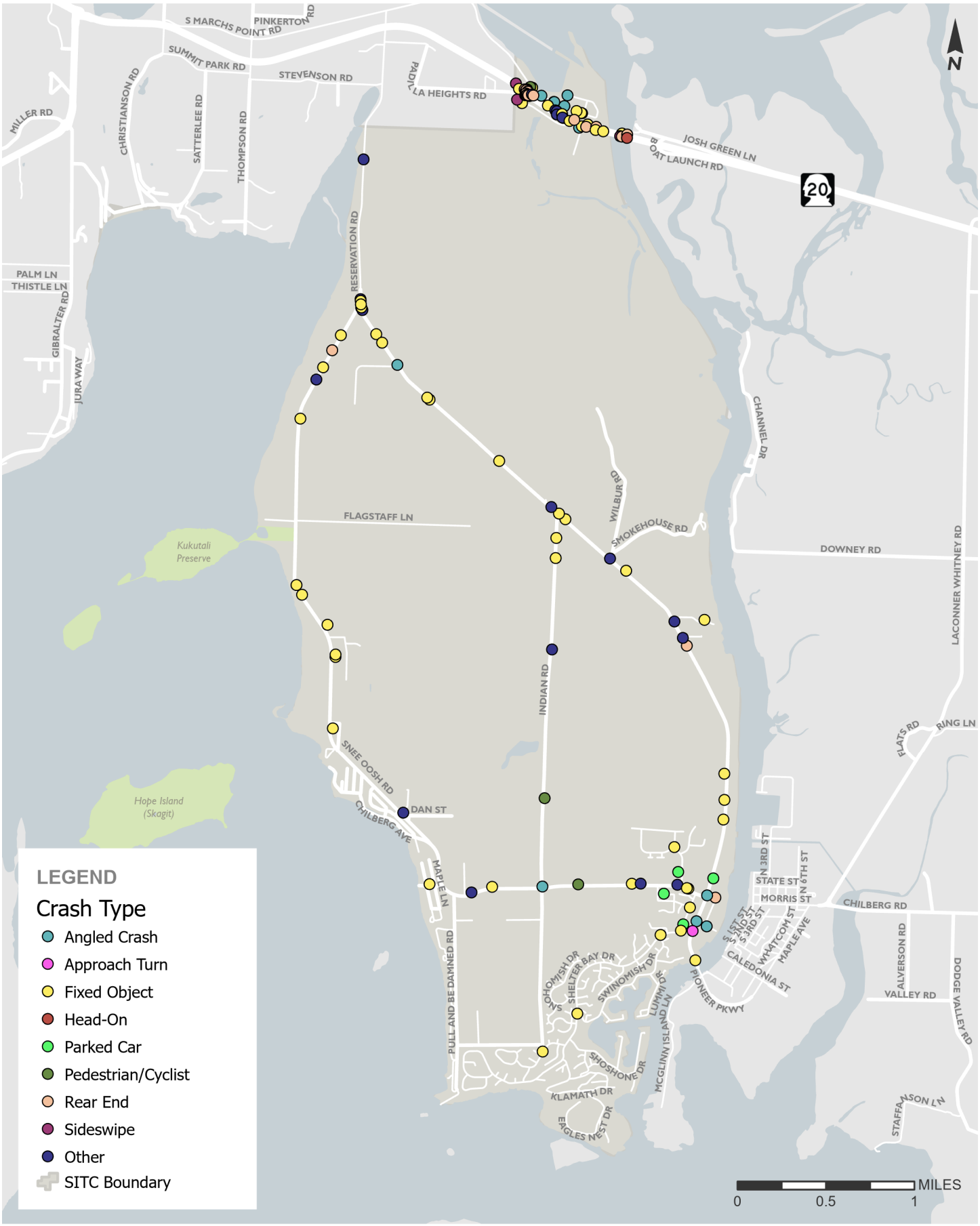
Swinomish Indian Tribal Community

Total Crashes

								All WA Roads*	West WA Cities**
	2017-2021	%	2021	2020	2019	2018	2017	2017-2021	2017-2021
By Contributing Circumstance (Ped Only									
Failing to Yield	**0**	**0.0%**							
Under Influence of Alcohol / Drugs	**0**	**0.0%**							
Inattention / Distraction	**2**	**100.0%**		1	1				
Failure to Use Crosswalk	**0**	**0.0%**							
Disregard Stop Sign	**0**	**0.0%**							
Disregard Signal	**0**	**0.0%**							
Hitchhiking	**0**	**0.0%**							
Exceeding Safe / Stated Speed	**0**	**0.0%**							
Failing to Yield to Ped / Cyclist	**0**	**0.0%**							
Following Too Close	**0**	**0.0%**							
Improper Passing	**0**	**0.0%**							
Other	**0**	**0.0%**							
By Contributing Circumstance (Bike Onl									
Failing to Yield	**1**	**50.0%**					1		
Inattention / Distraction	**0**	**0.0%**							
On Wrong Side of Road	**0**	**0.0%**							
Disregard Stop Sign	**0**	**0.0%**							
Exceeding Safe / Stated Speed	**0**	**0.0%**							
Under Influence of Alcohol / Drugs	**0**	**0.0%**							
Disregard Signal	**1**	**50.0%**		1					
Improper Passing	**0**	**0.0%**							
Failing to Yield to Ped / Cyclist	**0**	**0.0%**							
Over Centerline	**0**	**0.0%**							
Other	**0**	**0.0%**							

** - data provided by WSDOT for all roadwide averages*

*** - data provided by WSDOT for all roads identified for comparison of SITC data to statewide averages*



SWINOMISH INDIAN TRIBAL COMMUNITY

All Crashes, 2017 - 2022

2023 Transportation Safety Plan

transpogroup

FIGURE 1

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SWINOMISH INDIAN TRIBAL COMMUNITY

Swinomish Village Area Crashes, 2017-2022

2023 Transportation Safety Plan

transpogroup

FIGURE 2

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SWINOMISH INDIAN TRIBAL COMMUNITY

SR 20 Area Crashes, 2017-2022

2023 Transportation Safety Plan

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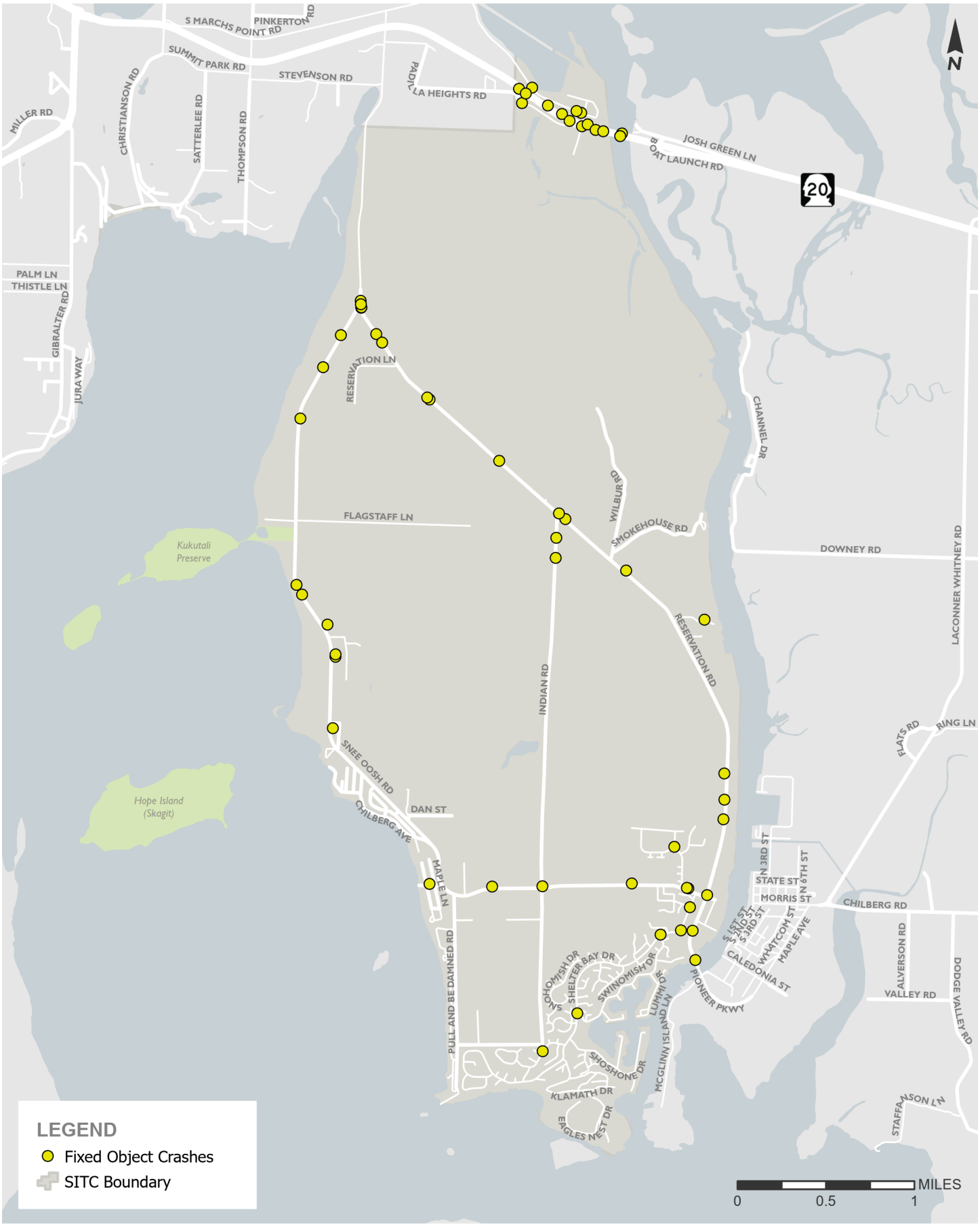
FIGURE 3

M:\22\1.22235.00 - Swinomish Indian Tribe Civil Engineering Support\GIS\ArcGISPro\Swinomish_CivilEngineeringSupport.aprx



SWINOMISH INDIAN TRIBAL COMMUNITY

Fixed Object Crashes, 2017 - 2022

2023 Transportation Safety Plan

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FIGURE 4

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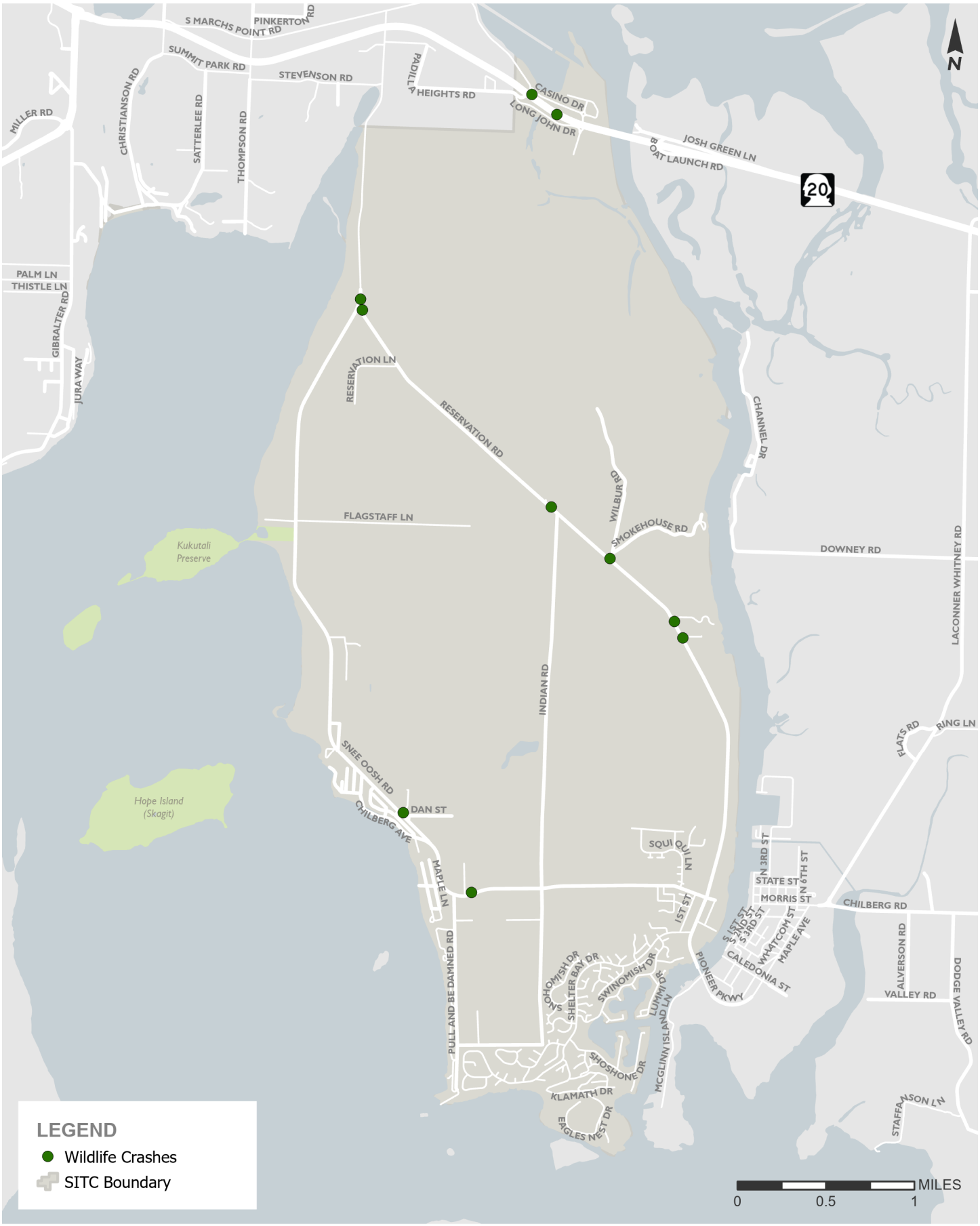

SWINOMISH INDIAN TRIBAL COMMUNITY

Wildlife Crashes, 2017 - 2022

2023 Transportation Safety Plan

transpogroup

FIGURE

5

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SWINOMISH INDIAN TRIBAL COMMUNITY

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Swinomish Reservation

Roads Ownership & Aerial Imagery