



# **City of Bainbridge Island**

## **Local Roadway Safety Plan**

(Strategic Risk-Based Assessment)

FINAL DRAFT

**April 2018**

Developed using the  
Systemic Safety Project Selection Tool

Prepared by K. Chris Hammer, P.E.  
Designated Traffic Engineer

City of Bainbridge Island — Public Works Department

## **Introduction**

The City of Bainbridge Island is committed to reducing fatalities and serious injury collisions on City maintained roads. As outlined in the Target Zero Washington State Strategic Highway Safety Plan, identification of collision trends and contributing factors, is key to implementing successful collision reduction strategies.

## **Reasons for Conducting Data Analysis**

The City of Bainbridge collects detailed collision information and retains it over time. This allows us to return to the data to review and determine if collision trends exist over a period of time. Additionally, the State of Washington has provided statewide collision data. With the two data sources, we can compare collision type incidents, predict where future accidents may occur and work to reduce accident types exceeding the average rate of occurrence. Targeting collision types and connecting factors allows the City to be efficient and cost-effective in identifying and implementing collision reduction strategies.

## **Washington State Target Zero Plan**

Washington State's Target Zero plan highlights the importance of data driven collision reduction strategies. Low-cost, near-term projects can be identified which will improve roadway safety through systemic and meaningful action.

## **Target Zero Priorities**

The City of Bainbridge utilized the Target Zero Priority matrix to identify locations and specific strategies, for three priority levels.

- Priority Level 1: Contributing factors that are involved in 30% or more of fatality or serious injury collisions.
- Priority Level 2: Contributing factors that are involved in 10% or more of fatality or serious injury collisions.
- Priority Level 3: Contributing factors that are associated with less than 10% of fatality or serious injury collisions but are common factors that will improve traffic safety for all users.

## **Identification of Relevant Risk/Crash Types**

Data sourcing

Data for the analysis was provided by WSDOT or was retrieved from the County Road Administration.

Board (CRAB) online system for 2012 through 2016. The data was entered from accident reports provided by the City of Bainbridge Police Department, Kitsap County Sherriff, or Washington State.

Patrol. City Police Department data was also utilized as summarized in the Island-wide Transportation Plan dated January 2017.

## Methodology

The three E's are being used to address safety topics: Education, Enforcement, Engineering. This report focuses on Engineering strategies, but also acknowledges that partnerships with law enforcement and other public safety agencies can result in a real and beneficial safety gain for the targeted risk group, as well as other motorists.

## System Collision Evaluation

Our data analysis began with data provided by Washington State Department of Transportation. Highlighted are factors that exceed the state average for collisions involving fatalities or serious injury collisions. By determining contributing factors, establishing a risk rating, and prioritizing sites with multiple features connected with higher risk rates, low cost safety projects can be targeted to provide the maximum benefit to the traveling public, reducing the risk of serious injury or fatality collisions on City roadways.

Appendix A includes the spreadsheet for 2012 – 2016 City of Bainbridge Island data that was provided by WSDOT. The spreadsheet contains Washington State overall average percentage rates for the state, compared to the same collision types for only Bainbridge Island. Areas where the City's rates exceed the average rates and point towards collision types and features are highlighted in the spreadsheet, which the City of Bainbridge Island has investigated further.

## Analysis of WSDOT data

There were zero fatal collisions and 21 serious injury collisions over the 5-year reporting period. The number of collisions involving serious injuries to cyclists was much higher for the City than average for Western Washington. Other serious injuries involved pedestrians and collisions with fixed objects.

Of the collisions involving cyclists, the vast majority occurred on roadways without shoulder facilities. Priority 2 contributing factors are those occurring in 10% to 30% of the collisions included exceeding the speed limit, inattentive driving, and driving on the wrong side of the road (presumed by cyclists).

Of the collisions involving pedestrians, the majority occurred in a marked crosswalk. Many also occurred in the roadway with none occurring on shoulders or sidewalks. Data was not sufficient to support any contributing factors. Mapping indicates that the majority of collisions involving pedestrians occurred on High School Road between SR305 and Madison Avenue.

For the crashes that occurred not involving pedestrians and bicyclists, 3 of 6 involved collisions with fixed objects. Of the collisions involving fixed objects, the priority 1 contributing factors, those occurring more than 30% of the time, included fallen tree/ stump, roadway ditch, and utility poles.

## Analysis of City Data

The City's crash data is summarized in the February 2017 Island-wide Transportation Plan. The data evaluated is from 2005 through 2014. The highest number of crashes and the highest number of injury accidents involving pedestrians and cyclists occurred on High School Road near Hildebrand and Madison. Additionally, higher number of accidents involving pedestrians and bicyclist occurred on Madison, Winslow Way, and Wyatt Way.

### **Merging the State and City data, we have developed the following priority levels:**

- Priority Level 1 – The vast majority (15 of 21) of serious injury collision involved bicyclists and pedestrians. For these serious injury accidents there were no Priority 1 contributing factors. It is notable that 5 of the 7 serious injury accidents involving cyclists occurred on roadways without shoulder facilities. For the serious injury collisions not involving cyclists and pedestrians 3 of 6 involved fixed objects. Priority 1 contributing factors are run-offs into ditches, collisions with trees, and collision with utility poles.

Countermeasures for Priority 1 contributing factors include those that are appropriate for reducing run-off the road collisions and removal of fixed objects. The focus is on higher volume secondary arterial and collector streets in suburban areas of the City with higher posted and 85% speeds.

- Priority Level 2 – For serious injury collisions involving bicyclists and pedestrians Priority 2 contributing factors where failing to yield, inattention/ distraction, and under the influence.

Countermeasures for Priority 2 contributing factors include those that are appropriate for improving visibility of and protection/ separation from the roadway for bicyclists and pedestrians. The focus is on higher volume secondary arterial and collectors in both urban and suburban areas, especially at crosswalks.

### **Risk Factors**

Based on the merged data, the City has determined that countermeasures should focus on the following risk factors:

#### Collision Involving Bicyclists

- At locations without facilities
- Speed
- Cyclists on wrong side of roadway (not riding with traffic)
- Inattention/ distraction
- Under the influence

#### Collisions involving Pedestrians

- In Crosswalk
- Driver failing to yield
- Pedestrians on wrong side of roadway (not walking facing traffic)
- Inattention/ Distraction
- Under the influence

#### Other Collisions:

- Obstructions such as ditches, trees, and utility poles
- Vertical curves
- Driveways
- Inattention/ Distraction
- Under the influence

### **Evaluation of the City's transportation systems**

Once the contributing factors have been determined, the next step is to evaluate the existing City road system to determine where the high-risk factors currently occur and to determine the appropriate countermeasures to address.

Much of the City's roadway network lacks shoulders that are of sufficient width for errant vehicles and to provide safe accommodation for non-motorized users. The City developed the Core 40 program in 2007 with the goal of providing shoulder improvements on secondary arterial roadways to accommodate 40 miles of connectivity for cyclists and enhance safety for all users. Core 40 projects are planned for all of the higher volume 35-mph posted speeds and higher secondary arterial locations. This program addresses the high incidents of serious injury crashes involving cyclists at roadway locations without shoulder facilities and the high percentage of crashes involving fixed objects.

To better assess risks of crashes involving fixed objects further study of clear zones is recommended for secondary arterial and higher volume collector streets. Also, the City has many older guardrails with outdated designs and of questionable conditions that may need replacement/ repairs. Further study is recommended to assess guardrails and clear zones including shoulder conditions and removal of objects. The various needs will then be prioritized on a risk management basis. Also, as utility poles are replaced, they are being located outside of clear zones for arterial and collector streets.

There are also some locations, mostly in the urban center of Winslow/ Downtown Bainbridge Island, where there are relatively higher number of crashes involving pedestrians. High School Road, from SR305 to Madison, has been identified as having the highest number of incidents in any concentrated area.

School zones are also an area of emphasis for safety enhancements. Sidewalks, trails, and signage, including radar speed feedback signs, are considerations for all school zones along secondary arterials.

### **Project Priority Selection**

The list below contains the project priorities for safety enhancements to reduce the risk of fatalities and serious injury collisions. The projects are listed in order of priority starting with the highest.

- Olympic Drive Non-Motorized Improvement Project. This project provides wider sidewalks and bicycle facilities on SR305/ Olympic Drive. The project is currently funded and under development.
- Core 40 Program - Miller Road and Fletcher Bay Road Shoulder Improvements. This project provides shoulders for bicyclists and pedestrians at locations with little to no gravel shoulders along one of the busiest secondary arterial roadways in the City. This project is currently funded and to be constructed in the summer of 2018.
- High School Road Signage and Safety Improvements. This project will provide rectangular rapid flashing beacons at crosswalks that are not always recognized by drivers and other safety related improvements. This project is identified in the City's Capital Improvement Plan but not budgeted at this time.
- Wyatt Way Reconstruction Project. This project provides sidewalks and bike lanes on a busy secondary arterial street that currently lacks non-motorized facilities. This project is funded and under development.
- Madison Sidewalk Improvement Project. This project involved sidewalk widening and addressing accessibility issues. The project is identified in the City's Capital Improvement Plan but not funded at this time.
- Future Core 40 Program - Shoulder improvements island-wide including the following higher volume arterials: Miller Road, Fletcher Bay Road, Valley Road, New Brooklyn Road, High School Road, Sportsman's Club Road, Eagle Harbor Drive, Lynwood Center Road, and Blakely Avenue.
- Future guardrail repairs/ replacements/ additions, shoulder maintenance, and obstruction removal to be prioritized based on further study.

### **Conclusion**

The City's focus for countermeasures is on improving driver recognition of crosswalks primarily in urban areas, including High School Road from SR305 to Madison, the location with the highest number of crashes involving severe injuries to pedestrians. The delivery of planned "Complete Street" projects constructing sidewalks and bike lanes will address network gaps and deficiencies resulting in meaningful safety enhancements at higher incident locations in the urban area of Winslow/ Downtown Bainbridge Island.

The delivery of planned shoulder widening improvement projects will provide meaningful safety enhancements over time for motorists and bicyclists based on review of the accident data. Further study of guardrails and clear zones and prioritizing guardrail replacements improvements, as well as addressing shoulder deficiencies and removal/ relocation of objects, will further reduce risks of fatal/severe injury crashes.

Education and outreach priorities include: Inattention/ distraction, driving under the influence, and how to safely bike and walk safely on the roadway.

**Attachments:**

Appendix A - Crash Data Summary 2012 – 2016  
Map, 2012 – 2016 Fatal & Serious Injury Crashes