



Street and Pedestrian Safety Plan

Puget Sound Regional Council

JULY 24, 2020

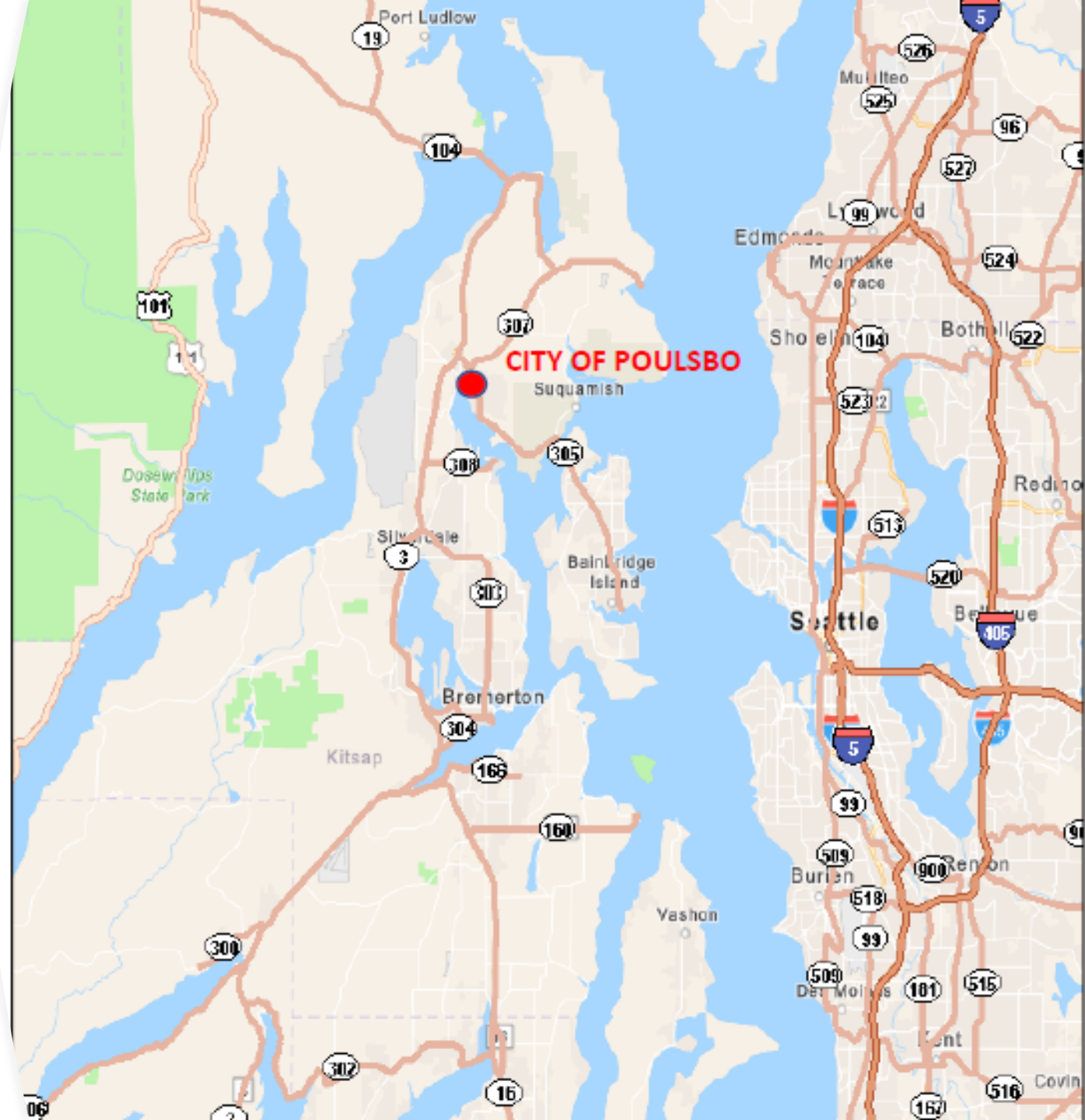


LOCAL ROAD SAFETY PLAN – SMALL CITY PERSPECTIVE

- Purpose and Goals
- Our Poulsbo Approach
 - Project Steps
 - Lessons Learned
- Value Provided
- Next Steps

LOCAL ROAD SAFETY PLAN – SMALL CITY

- Our city consists of
 - Little Norway surrounding the shores of Liberty Bay on the Kitsap Peninsula
 - Walkable city with extensive tourism and engaged community
 - City limits include 4.5 square miles and 60 miles of roadway
 - Approx. 11,200 population





Purpose and Goals – Why a Safety Plan?

- Growth in non-motorized use and tourism
- Address concerns and perceptions about speeding, pedestrian-vehicle conflicts, etc.
- Feedback from non-motorized advocacy groups
- Prerequisite to funding
- Address Comp Plan Complete Streets policy goals

Project Steps + Team

- ✓ Crash Data Analysis
 - ✓ Location Assessments
 - ✓ Advisory Committee Meetings (2)
 - ✓ Project List
 - ✓ Preparation of Safety Plan
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- ✓ Intense “In-House” Effort

Project Team

- Engineering
- Public Works
- Police
- Planning

Advisory Committee

- Kate Collins-Nunes, Planning Commission
- Rick Eckert, NKSD
- Dianne Iverson, West Sound Cycling
- Sandy Kolbeins, HDPA
- Jeff McGinty, City Council
- Molly Merrick, Citizen
- Jim Schlachter, Rotary



POULSBO SAFETY PLAN

- Recommended by federal and state policy
- Approach follows federal and state methods
- Data Evaluation
 - All accident data 2012-2017
 - Serious injury accident data 2007-2017
 - Review speed study data past ~ 10 years
- Identify key factors (risks) that are common to accidents
- Evaluate locations for potential engineering improvements
- Prioritize projects by type and location

Local Road Safety Plans

Information provided by Washington State Department of Transportation (WSDOT) Local Programs Division

Note: FHWA=Federal Highway Administration

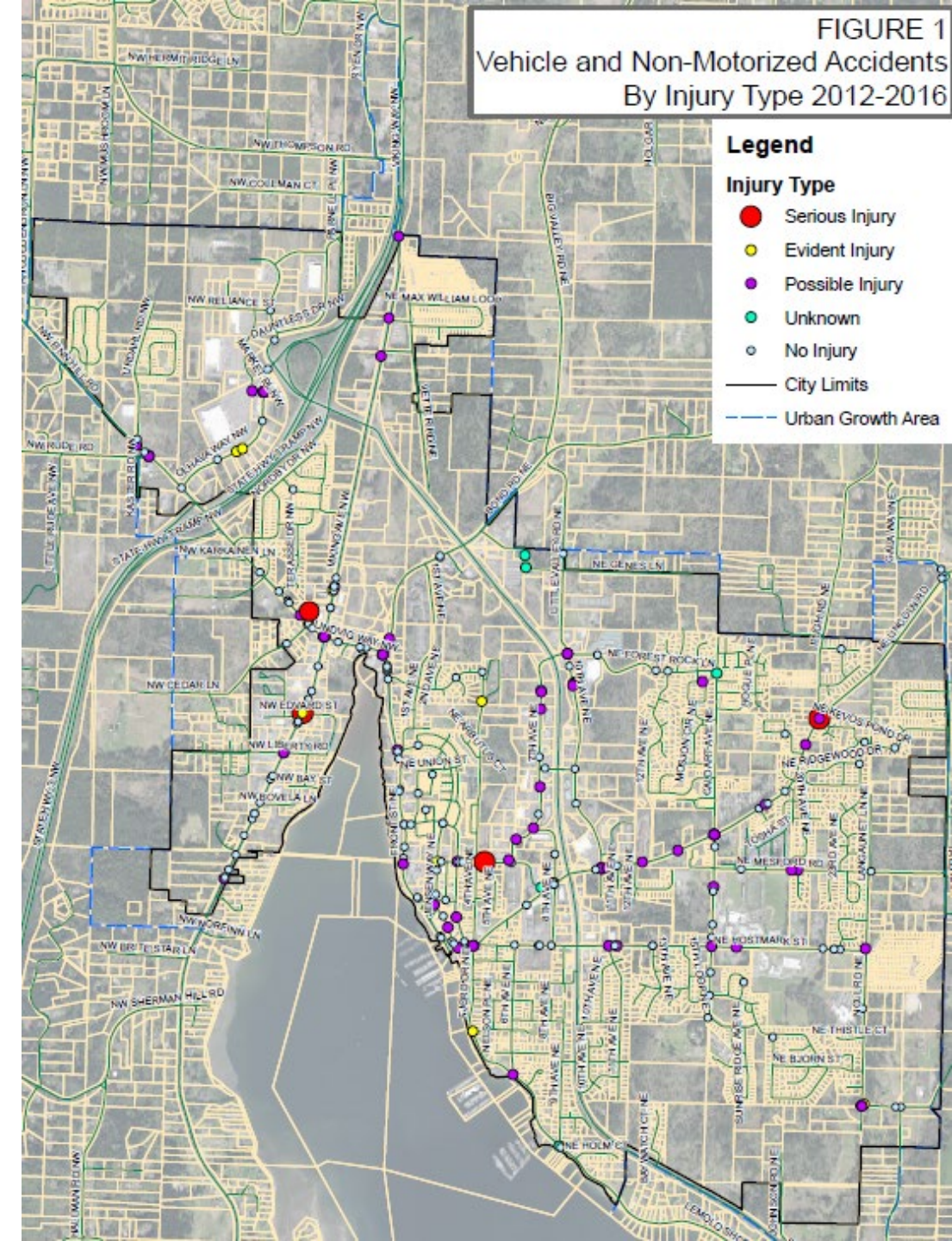
Definition: A local road safety plan presents an agency's data-driven analysis and prioritization of its roadways for traffic safety, based on the top crash type(s). A local road safety plan can be detailed or simple.

How to build a plan in seven steps:

| Step | Plan element |
|--|--|
| 1. Analyze summary crash data to identify focus/priorities. An agency can order crash data from WSDOT here . | List of crash priorities based on data. |
| 2. Analyze individual fatal/serious crashes to identify factors present. See page 18 of FHWA's Systemic Safety Project Selection Tool , July 2013. This tool provides a list of factors to consider when determining key factors that are common to fatal and serious injury crashes on a roadway. This tool also walks you through a process to prioritize locations. | Description of factors & selection process. |
| 3. Select the most common factors. | |
| 4. Analyze the roadway network for presence of factors. | Prioritized list of roadway locations. |
| 5. Create prioritized list of roadway locations where factors are present. Education and enforcement efforts can also be noted but cannot be funded with federal Highway Safety Improvement Program funds (including WSDOT's City Safety and County Safety Programs). | |
| 6. Identify countermeasures to address prioritized locations. See Target Zero , Washington State's Strategic Highway Safety Plan. <ul style="list-style-type: none">• Lane departure examples (page 97)• Intersection examples (pages 104-105)• Pedestrian examples (pages 149-150)• Bicyclist examples (pages 173-177) | Description of countermeasures and selection process. |
| 7. Develop a prioritized list of projects. Examples: <ul style="list-style-type: none">• Install center and edge line rumble strips on the highest rated roadway segments (then the second highest rated segments, etc.)• Install high friction surface treatment on horizontal curves.• Evaluate and upgrade signing for size, type, and location to meet current standards.• Install compact roundabouts at the highest rated intersections.• Restrict access within 100 feet of intersections.• Add pedestrian refuge islands on the highest rated roadway segments.• Add leading pedestrian interval signal phasing at the highest rated intersections. | Prioritized list of projects. (With project cost as optional.) |

CRASH DATA ASSESSMENT

- 7 serious injury accidents 2012- 2017
- 22 serious injury accidents 2007-2017
- 17 serious accidents not impairment related
- Accident Type
 - User: Non-motorized (10 of 17)
 - Cause: Distraction/Failure to Yield
- Accident Location
 - Intersections and Driveways (18 of 22)
 - Left turns
- Prioritization
 - Site Specific – Iverson Street (3 accidents)
 - Systemic – Multiple intersections
 - Viking-Edvard intersection (2 accidents)
 - All others (1 each)



Accident Type - Prioritization Process

TARGET ZERO METHODOLOGY

- **Level 1:** Factors associated with 30% of crashes
- **Level 2:** Common, but not as frequent as Level one
- **Level 3:** Factors associated with less than 10% of serious injuries

Table 5: Summary of Serious Injury Accidents by Type, 2007-2017

| Accident Type | Total No. Accidents | No. Accidents due to Driver Impairment or Defective Equipment ¹ | Contributing Factors ² |
|------------------------|---------------------|--|-----------------------------------|
| Pedestrian - Vehicle | 7 | 0 | Failure to yield to pedestrian |
| Bicycle - Vehicle | 3 | 0 | Failure to yield to bicycle |
| Vehicle - Vehicle | | | |
| Left Turn | 6 | 3 | Failure to yield right of way |
| Rear End | 3 | | Inattention |
| Other | 1 | | |
| Vehicle - Fixed Object | 5 | 2 | Inattention, Speeding |

¹Based on WSDOT accident reports between 1/1/2007 and 11/21/2017. Includes specific incidents between Nov 2017 and December 2017

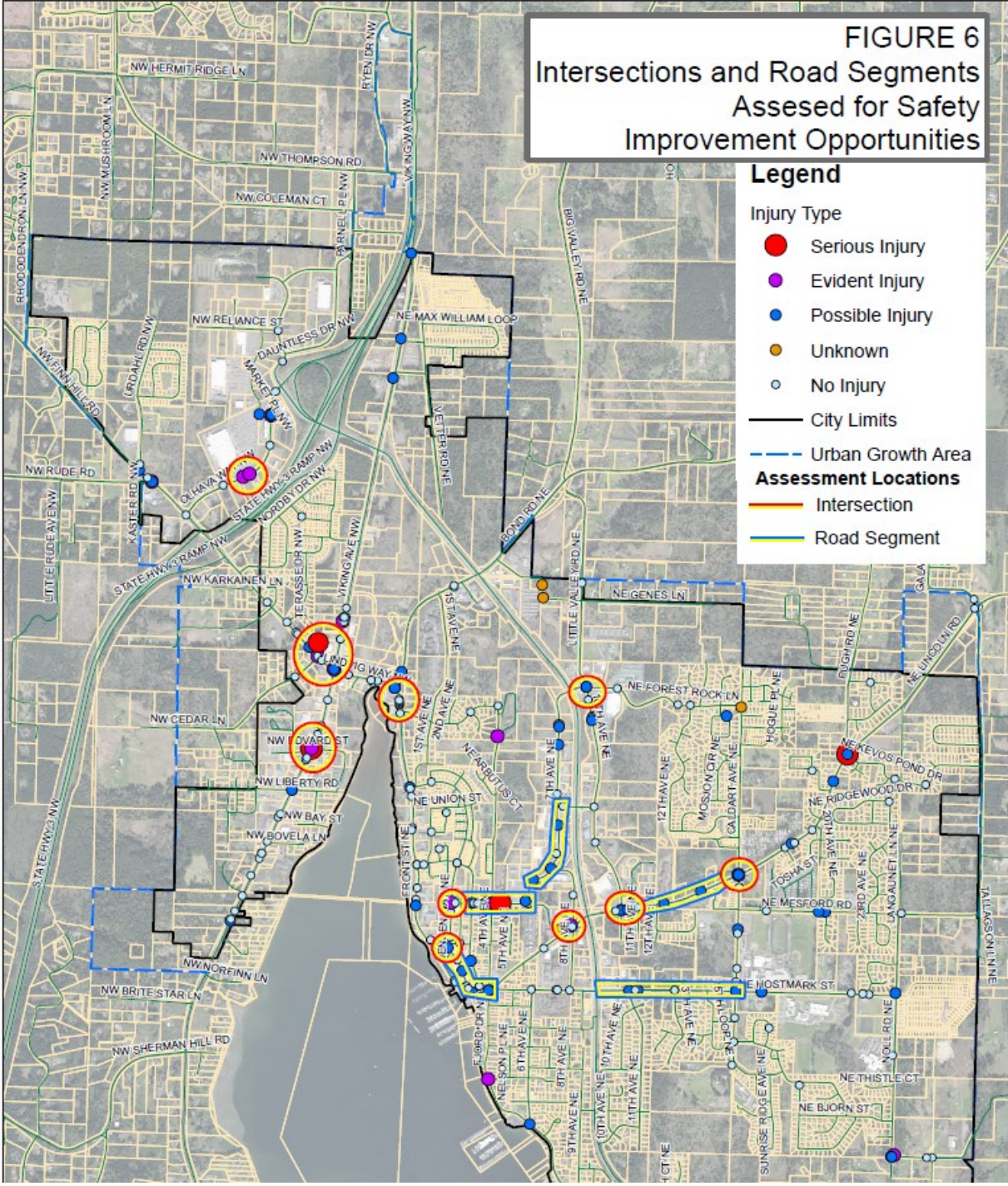
²Apparent primary Contributing Factor based on WSDOT accident data. Other contributing factors may have been applicable.

LOCATION ANALYSIS

Identified priority locations based on accident data:



10 intersections

5 street segments



LOCATION ASSESSMENT

Table A. Location Assessment Summary Matrix.

Legend:  Safety Enhancement Opportunity
 Existing Safety Feature
 Blank = Not Applicable

| | Signage and Striping | | | | | | | | | | Pedestrian Features | | | | | | | Roadway Features | | | | | | | | | |
|--|----------------------|----------------------------------|----------------------------|---------------------------------------|------------------|------------------|---------------------------------|--------------------------------|--------------------------------|---|-------------------------|------------------|-----------------------|-----------------|-----------------------------------|------------|-----------|------------------|-------------------|---------------------|----------------|--------------|------------------------------------|--------------------------|---------------------|--|--|
| | "REDUCE SPEED" Sign | Retr reflective Sign Post Sheets | Hand Held Pedestrian Flags | Sign Backplates w/ reflective borders | Radar Speed Sign | Stop Ahead Signs | Crosswalk Placement or Striping | Mid-Block Crosswalk Mitigation | Pedestrian Sidewalk or Walkway | Pedestrian Crossing Refuge Island (LPI) Pedestrian Light @ Signal | Missing Sidewalk or Gap | Raised Crosswalk | Rapid Flashing Beacon | Curb Extensions | Dedicated Left or Right Turn Lane | Roundabout | Road Diet | Site Distance | Crossing Distance | Road grade or slope | Street Parking | illumination | Access Management or Drive-Through | Constrained Right of Way | Raised Intersection | | |
| Intersections | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Viking Ave and Edvard St ¹ | | | ● | | ● | | | ● | ● | ▲ | | ▲ | ● | | ▲ | | | ▲ | | | ● | | ▲ | ● | | | |
| Viking Ave; Lindvig and Finn Hill Rd ² | | | ● | | | | ▲ | | ▲ | ▲ | ▲ | ● | | ▲ | | | ▲ | | ● | | ▲ | ● | ● | | | | |
| 10th Ave and Lincoln Rd ³ | | | ● | | | | ▲ | | | ▲ | | | ▲ | ▲ | | | | | | ▲ | | | | | | | |
| Front Street; Torval Canyon to Lindvig Rd ⁴ | | ● | ● | | | | | | | | | | ● | ▲ | | ● | ● | | | ▲ | ● | | | | | | |
| Front Street and Jensen Way | ▲ | ● | | ▲ | | ▲ | ▲ | | ▲ | | ● | ▲ | | | ● | ● | ▲ | | ▲ | ▲ | ● | ● | ● | | | | |
| 8th Ave and Lincoln Rd ⁵ | | ● | ▲ | | ● | | ● | ● | | ● | | | ● | | ● | ● | | | ▲ | ▲ | | ● | | | | | |
| Iverson St and Jensen St ⁶ | | ● | ● | | | ▲ | | ▲ | | | ▲ | ● | | ● | | ▲ | | | ▲ | ● | | | | | | | |
| Olhava Way and Market Place ⁷ | | ● | ● | | | ▲ | | | | | ▲ | | ▲ | ● | | ● | | | ▲ | ● | | | | | | | |
| Forest Rock Lane and 10th Ave ⁸ | | | ● | ● | | ▲ | | | | | ▲ | | ▲ | | | ▲ | | | ▲ | | | | | | | | |
| Caldart Ave and Lincoln Road | | | ● | | | ● | | ▲ | ▲ | | | ● | | ▲ | | | ▲ | | ▲ | | | | | | | | |
| Road Segments | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Front Street between Jensen and Hostmark | ▲ | | | ▲ | | | ▲ | ● | ▲ | ● | | | ▲ | ▲ | | | ▲ | | ▲ | ▲ | ● | ● | | | | | |
| Hostmark between SR305 and Caldart ⁹ | ● | | | | ● | | | | | | ● | ▲ | ● | | ▲ | | ● | ▲ | | ● | | | | | | | |
| Lincoln between 10th Ave and Caldart | | | | | ● | | | | | | | ▲ | | | ● | | | ▲ | ▲ | ● | | | | | | | |
| Iverson between Jensen and 7th ¹⁰ | | ▲ | | | | | | ● | ● | | ● | | ▲ | | ● | | ● | | ▲ | | | ● | | | | | |
| 7th between Iverson and Liberty | | | | | | ▲ | | ● | | | | ▲ | | | | ▲ | | | ▲ | | | | | | | | |

COUNTERMEASURES FOR WIDE STREETS



Example of a **Raised Medians** pedestrian crossing



Example of a **Refuge Islands**

Medians and Pedestrian Crossing Islands in Urban and Suburban Areas



Median and pedestrian crossing islands near a roundabout.

Source: www.pedbikeimages.org / Dan Burden

SAFETY BENEFITS:

Raised Median

46%

Reduction in pedestrian crashes

Pedestrian Crossing Island

56%

Reduction in pedestrian crashes

Source: Desktop Reference for Crash Reduction Factors, FHWA-SA-08-011, September 2008, Table 11.

COUNTERMEASURES – WIDE STREETS



Leading Pedestrian Intervals

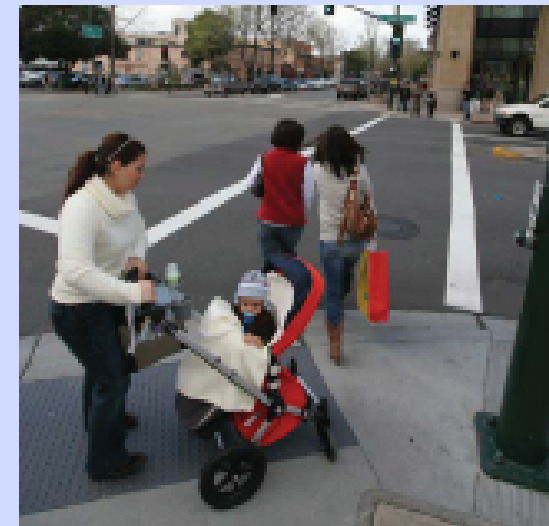
An LPI allows a pedestrian to establish presence in the crosswalk before vehicles are given a green indication.

Leading Pedestrian Intervals

SAFETY BENEFIT

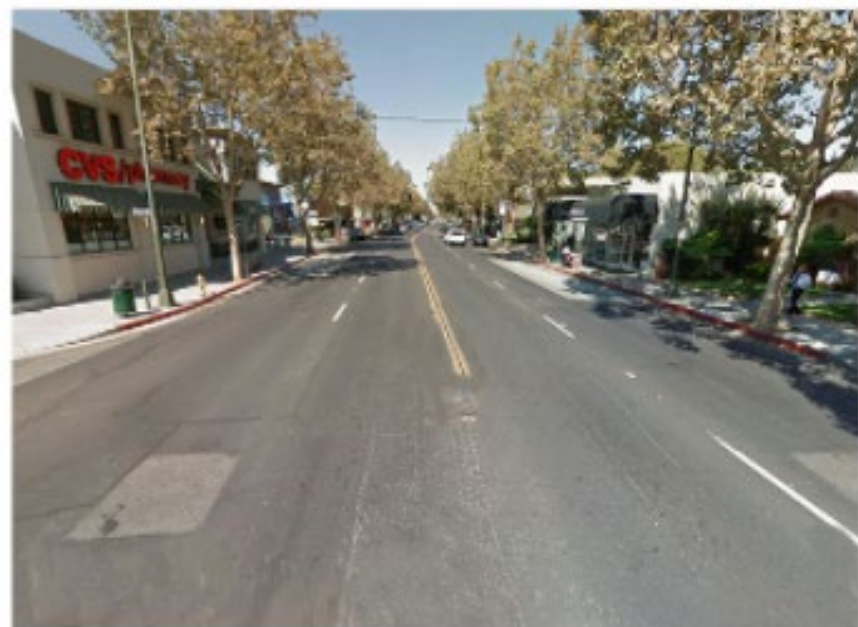
60%

Reduction in pedestrian-vehicle
crashes at intersections

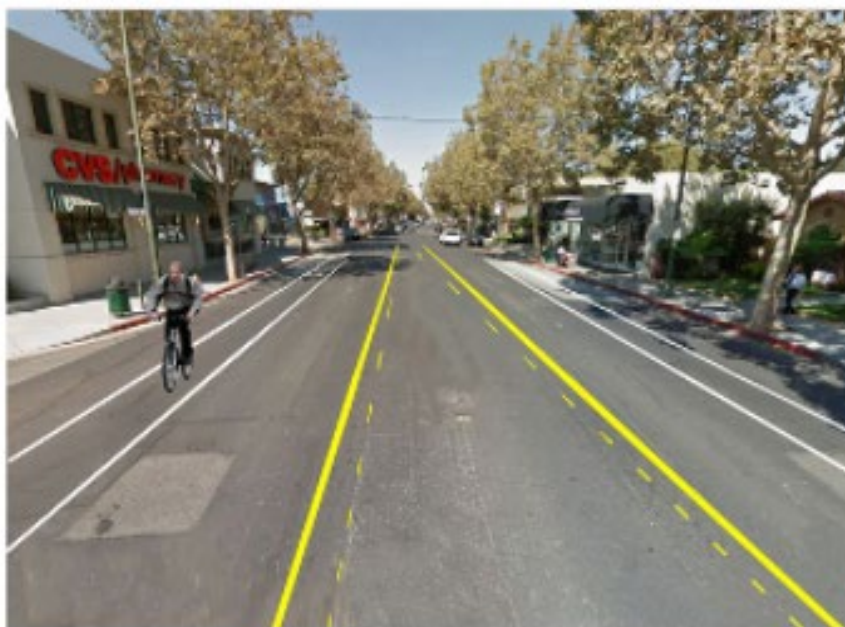


LPIs are beneficial at intersections
with high left-turning volumes.

ROAD DIET



Current



Proposed



Road Diets (Roadway Reconfiguration)

A "Road Diet," or roadway reconfiguration, can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life.

SAFETY BENEFIT:

4-Lane → 3-Lane

Road Diet Conversions

19-47%

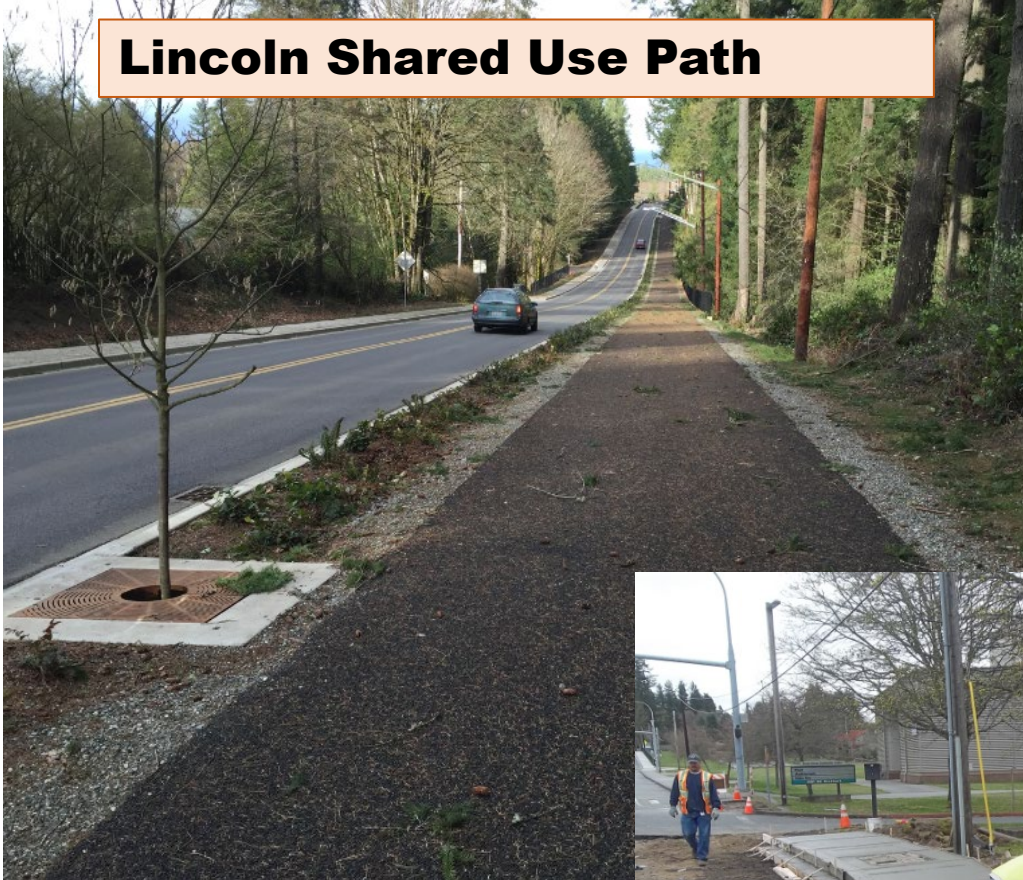
Reduction in total crashes

Source: Evaluation of Lane Reduction "Road Diet" Measures on Crashes, FHWA-HRT-10-053.

**REDUCE VEHICLE LANES &/OR WIDTH AND REPLACE WITH
NON-MOTORIZED FACILITIES, PARKING, LANDSCAPING**

WALKWAYS AND BIKE FACILITIES

Lincoln Shared Use Path



Hostmark Sidewalk and Bike Lanes



Walkways

SAFETY BENEFITS:

Sidewalks 65-89%

Reduction in crashes involving pedestrians walking along roadways

Paved Shoulders 71%

Reduction in crashes involving pedestrians walking along roadways



Example of a shared use path.

Source: pedbikeimages.org / Burden

Source: Desktop Reference for Crash Reduction Factors, FHWA-SA-08-011, Table 11.

Traffic Calming and Crosswalk Improvements



SYSTEMIC LOW COST IMPROVEMENTS



Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections



Example of countermeasures on the stop approach.

Source: ~~South Carolina~~ DOT

SAFETY BENEFITS:

10%

Reduction in injury and fatal crashes

15%

Reduction in nighttime crashes

PROPOSED PROJECTS

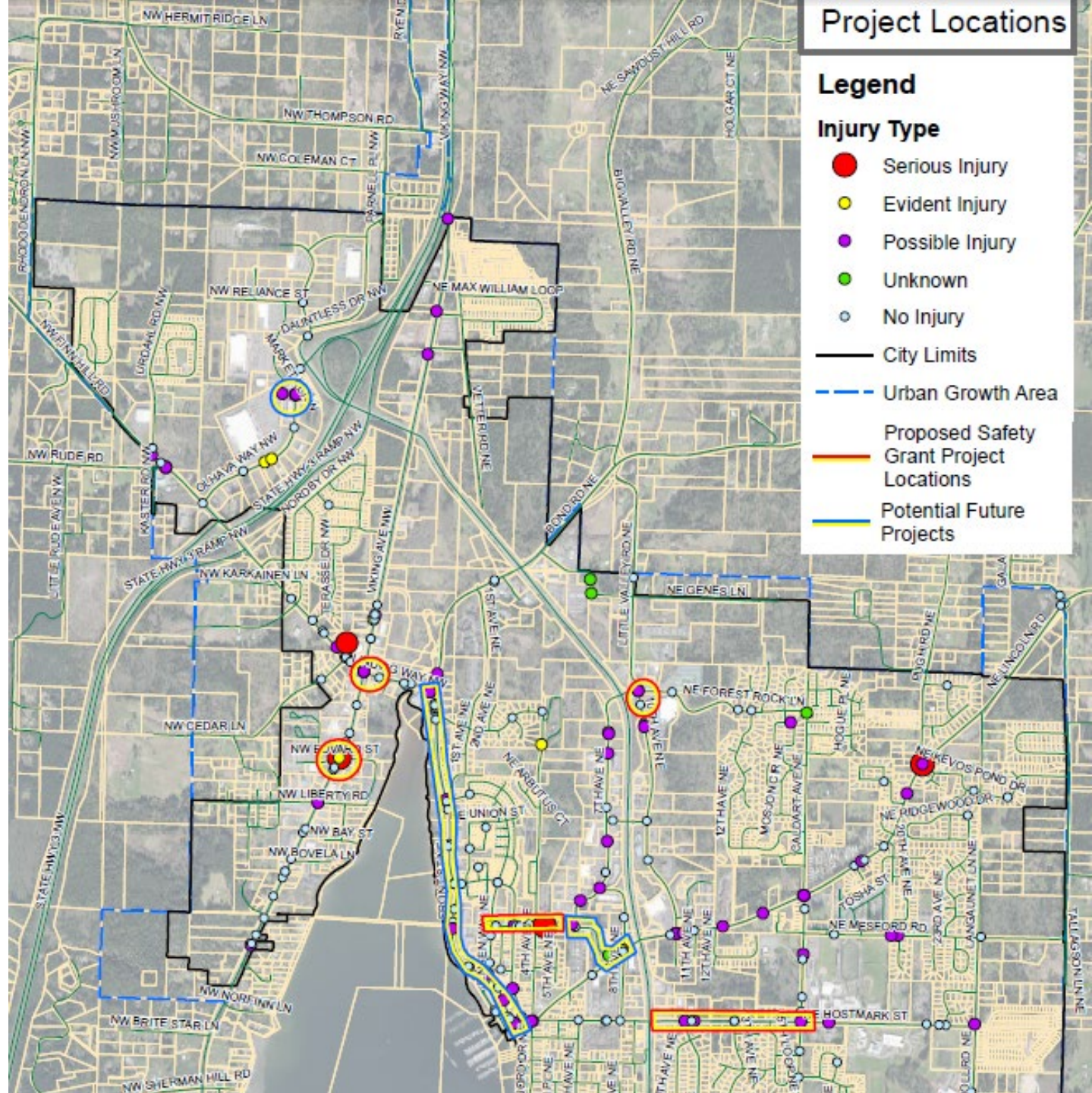
- Location
- Potential Risk Factors
- Potential Counter Measure
- Proposed Counter Measures
- Implementation Strategy
- Cost

| Location | Potential Risk Factors | Potential Countermeasures | Proposed Countermeasures General Description | Implementation Strategy | Est. Cost |
|--|---|---|--|---|-----------|
| SITE SPECIFIC PROJECT | | | | | |
| Iverson Street between Jensen Street and 4th | Sidewalk gap, site distance, crossing distance | Curb extensions, Road Diet, Access Management, Sidewalks | Sidewalk gaps, curb ramps, curb extensions, striping | Site Specific 2018 safety grant application | \$250,000 |
| SYSTEMIC SAFETY IMPROVEMENT PROJECT SITES | | | | | |
| Viking Ave - Edvard Street | Speeds, Crossing Distance, Site Distance, Driveway Conflicts | Systemic Improvements | Striping, Leading Pedestrian Interval (LPI), Access Control | Part of 2018 safety grant application | \$30,000 |
| Viking Ave - Finn Hill Road Intersection | Speeds, Crossing Distance | Systemic improvements | LPI, eliminate mid-block crossing at Fish Park | Part of 2018 safety grant application | \$25,000 |
| Forest Rock Lane - 10th Avenue Intersection | Speeds, turning movements | Road diet, striping | Lane Striping, Signs | Potential part of 2018 safety grant application | \$25,000 |
| Hostmark Street, SR305 to Caldart Ave | Road grade, speeds | Enhanced signage, curb extension, pedestrian light at Caldart Ave | Reflective signs, striping improvements, illumination | Part of 2018 safety grant application | \$30,000 |
| Front Street, Jensen to Peterson | Mid Block Crossings | Remove or enhance | Evaluate and remove or enhance existing mid-block crosswalks | Part of 2018 safety grant application | \$50,000 |
| Multiple locations ¹ | Pedestrian and driver distraction | Reflective post covers | Reflective sleeves on posts at stop controlled intersections | Potential part of 2018 safety grant application | \$15,000 |
| Total Systemic Improvements Grant Application | | | | | \$175,000 |
| Total Grant Applications | | | | | \$425,000 |
| FUTURE PROJECTS | | | | | |
| Front Street - Torval Canyon Intersection | Speeds, Crossing Distance | Road Diet and Curb Extension | Add parking lane E side Front St, curb extension SE corner Front - Torval CR, Refuge Island at Bond Rd | Coordinate with adjacent Liberty Bay Trail project (2020-2022) | TBD |
| Front Street, Jensen to Hostmark segment | Mid-block crossings, site distance, pedestrian and driver distraction | Road Diet, Access Management, Wider Sidewalks | Reconfigure Jensen - Front intersection, wider sidewalks | Future Complete Street project and grant application (2018 - 2020) | TBD |
| 8th Avenue - Lincoln Rd Intersection | Speeds, Crossing Distance, Site Distance | Striping, Road Diet, Curb Extensions | Curb extensions, dead end 8th Street at DF Creek, re-stripe, improved signs | Design and implement as part of SF Dogfish Creek basin retrofit grant, 2018~2019 design | TBD |
| Olhava Way and Market Place Intersection | Speeds, Crossing Distance, Site Distance, Turning Movements, Queues | Evaluate Intersection Control Options | Intersection study including traffic operations, level of service and safety elements. | Evaluate as part of future development proposals | \$30,000 |

¹ Potential locations consist of Fjord - Hostmark, Jensen - Front, Fjord - 6th Avenue, Pugh Road - Lincoln Road, 9th-Fjord, Sunset-Jensen, 4th-Viewmont.

Proposed Projects

- 1 site specific grant application (Iverson Street)
- 4 locations for systemic countermeasures grant application
- 4 projects that could be combined with other City capital projects
- 1 project to be evaluated as part of future development
- Review and concurrence from Advisory Committee





Lessons Learned

LESSONS LEARNED

- Engagement of the community and police department was key
- The short time frame was helpful to maintain a focused effort
- Limited accident data provided a guide
- Field analysis of counter measures at all locations was essential
- Educational element to the process, however we did not directly focus on the human behavior element of safety
- This project was a first step, there is always more to do.....





Value Provided

VALUE PROVIDED

- Update and expand safety plan as part of Complete Streets Plan; 2021-2022
- Currently implementing non-motorized safety measures for COVID response
- Continue work with elected official on funding options



Velkommen til Poulsbo

NEXT STEPS FOR THE CITY OF POULSBO

- Implement grant projects, systemic improvements and intersection modifications.
- Currently implementing non-motorized safety measures for COVID response
 - One Way Street with Designated Pedestrian Walkway
- Continue work with elected officials on funding options
- Update and expand safety plan as part of Complete Streets Plan; 2021-2022





Questions