



# Spokane Plan Commission Transportation Subcommittee Agenda

Meeting Scheduled for 1/3/2023

At 9:00 AM

Hybrid

## **VIRTUAL MEETING - SEE BELOW FOR INFORMATION**

**TIMES GIVEN ARE AN ESTIMATE AND ARE SUBJECT TO CHANGE**

### **Public Comment Period:**

3 minutes each Citizens are invited to address the Subcommittee on any topic not on the agenda

### **Briefing Session:**

9:00 - 9:30	1) Approval of the 12/6/2022 Meeting Minutes	
	2) Chair Report	Clifford Winger
	3) Secretary Report	Colin Quinn-Hurst
	4) Council Liaison Report	Jonathan Bingle
	5) Stakeholder Report	PCTS

### **Workshops:**

9:30 - 10:00	Safe Streets for All – Action Plan Preparation	City staff
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### **Adjournment:**

Next Plan Commission Transportation Subcommittee is scheduled for 2/7/2023

The password for City of Spokane Guest Wireless access has been changed:

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**Please note that public comments will be taken during the meeting, but the public is encouraged to continue to submit their comments or questions in writing to:**

[plancommission@spokanecity.org](mailto:plancommission@spokanecity.org)

The audio proceedings of the PCTS meeting will be recorded, with digital copies made available upon request.

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# Spokane PC Transportation Sub-Committee - Draft Minutes

**December 6, 2022**

City Council Briefing Center

Meeting Minutes: Meeting called to order at 9:00 AM by Clifford Winger

## Attendance:

- Subcommittee Members Present: Mary Winkes (Vice Chair), Charles Hansen, Paul Kropp, Raychel Callary, Eve McMenemy, Mike Tresidder, Rhonda Young
- Subcommittee Members Not Present: Clifford Winger (Chair), Charlene Kay, Michelle Pappas, Todd Beyreuther, John Vansant, Cindy Green
- Non-Voting Subcommittee Members Present: Council Member Jonathan Bingle
- *Quorum Present: no*
- Staff Members Present: Colin Quinn-Hurst, Jackie Churchill, Tyler Kimbrell

## Public Comment:

None

## Briefing Session:

Minutes from the November 1, 2022 meeting approved unanimously. Eve McMenemy change stakeholder report SRTC approved a TIP not a TIFF. The Amended minutes are approved.

### **1. Chair Report - Mary Winkes in place of Clifford Winger**

- Mary Winkes reported that the Plan Commission and the City has put together an Impact fee group and will meet for the second time in December in order to reassess impact fees.

### **2. Secretary Report - Colin Quinn-Hurst**

- Colin Quinn-Hurst reported that the Planning Department has hired a new Assistant Planner 1 named Della Mutungi. Della is from Eastern Washington University Master's Program of Urban and Regional Planning.
- Also the Comprehensive Plan Amendments for the Bicycle Network updates were approved by City Council.

### **3. Council Liaison Report - Johnathan Bingle**

- Council Member Bingle reported that he will meet with WSDOT to discuss infrastructure needs in Grandview Thorpe and other areas of the City. CM Bingle will also meet with Representative Riccelli on December 16.

### **4. Stakeholders Report -**

- Paul Kropp, Neighborhood Alliance, reported that peak hour traffic in the county is very blocked up and that roads around the school on 57th were not plowed well. He said that it wasn't clear who should be called to fix this problem. Additionally, Mr. Kropp would like to have a presentation about equity considerations for project selection during a PCTS meeting. He also suggested that WSDOT should present about the Children of the Sun trail connection the East Central neighborhood.
- Rachel Callary reported that she will attend the Transportation Research Board and will learn more about transit infrastructure and will advocate for accessible infrastructure.
- Mike Tresidder, Spokane Transit Authority (STA), reported that STA is wrapping up amenities installation on the City Line. There is an open survey about ridership their website as well.
- Rhonda Young, Bicycle Advisory Board (BAB), reported that there were two workshop items during the last Bicycle Advisory Board meeting which were the update on capital improvement project list and BAB priority list of bicycle projects. There were around 30 projects that were

ranked and the next step is to create a survey that can be shared with the public for their input.

- Charles Hansen, Whitman Neighborhood Council, PeTT Committee - NONE
- Eve McMenemy, Spokane Regional Transportation Council, stated that SRTC will adopt the equity framework, and is examining a list of regional projects will be going to SRTC for action.

### **Workshops/Presentations:**

#### **1. Division Bus Rapid Transit Update**

- Presentation provided by Hamid Hajjafari, STA
- Questions asked and answered
- Discussion ensued

#### **2. Bike Parking Code Update Project**

- Presentation provided by Tyler Kimbrell, City of Spokane Planner
- Questions asked and answered
- Discussion ensued

#### **3. Vision Zero Draft Resolution and Next Steps**

- Presentation provided by Colin Quinn-Hurst, City of Spokane Planner
- Questions asked and answered
- Discussion ensued

**Meeting Adjourned at 10:30 AM**

Next Plan Commission Meeting scheduled for Tuesday, January 3, 2023

# City of Spokane

## Risk-Based Street Safety Assessment

Date: March 2022

Crash Data Time Period: 2016-2020

Developed using the FHWA *Systemic Safety Project Selection Tool*

Prepared by:  
Integrated Capital Management



## Introduction

The City of Spokane is committed to reducing fatal and serious injury crashes within its transportation network. *Target Zero: Washington State Strategic Highway Safety Plan* provides a data-driven approach to achieving this goal through established priorities and strategies, including guidance on using the Federal Highway Administration's (FHWA) *Systemic Safety Project Selection Tool*. Following the methodology set forward in the *Target Zero* plan guides the City toward reducing fatalities and serious injury crashes through a proven approach.

Using the recommended, standardized methods of data analysis allows the City to efficiently direct resources towards efforts that create the greatest reduction of the most severe crash types. Using Washington State Department of Transportation's (WSDOT) crash data allows the City to efficiently sort crash types and locations, identify trends, select the most effective treatments, and undertake a logical approach to addressing the most critical locations and behaviors in the transportation network.

*Target Zero: Washington's Strategic Highway Safety Plan* provides a guidebook to carrying out this data-driven process. By identifying priorities, creating common goals, developing a common language, and offering a menu of solutions, the Plan helps identify the unique risks in our community and the most effective strategies for addressing them.

## Systemic Safety Project Selection

### Methodology

WSDOT provided data for this analysis for the dates January 1, 2016 through December 31, 2020, with data derived from accident reports provided by the Washington State Patrol.

This analysis seeks to identify trends in fatal and serious crashes and then propose solutions. In achieving this goal, the analysis follows five steps:

1. Classify fatal and serious crashes by crash type, and assign priority levels to each type,
2. Identify roadway characteristics associated with high priority crash types,
3. Identify locations within the City transportation network that have these characteristics,
4. Identify treatments for these locations, and
5. Prioritize projects.

### Step 1: Classify Crashes by Type and Assigning Priorities

In this step, WSDOT-provided data was sorted by crash type. Each crash type was then assigned a priority level, based on examples and approaches recommended in *Target Zero*. Based on this guidance, the selected priority levels are as follows:

- **Priority Level 1:** Contributing factors involved in 30% or more of fatal or serious injury crashes.
- **Priority Level 2:** Contributing factors involved in 10% to 30% of fatality or serious injury crashes.
- **Priority Level 3:** Contributing factors involved in all other fatality or serious injury crashes.

**Figure 1** quantifies the City’s crash types and compared to the same accident types in Washington State overall and indicate priority levels for each crash type. Priority 1 and 2 crash types have been highlighted.

The most prominent collision pattern is the “Vulnerable User Involved” at 43.3% of all Fatal/Serious crashes within the City of Spokane. This collision pattern has been selected as the focus of the analysis and project list for this round. Angle collisions were also explored for risk factors.

Figure 1. Analysis of WSDOT Crash data (2016-2020)

Overall Numbers	Fatal/Serious Crashes				All Crashes				Priority Level
	City of Spokane		City-Owned Streets Statewide		City of Spokane		City-Owned Streets Statewide		
<b>Total # of Collisions</b>	<b>381</b>	-	<b>5246</b>	-	<b>17126</b>	-	<b>278847</b>	-	
# of Fatal Collisions	53	13.9%	751	14.3%	53	0.3%	751	0.3%	
# of Serious Injury Collisions	328	86.1%	4494	85.7%	328	1.9%	4494	1.6%	
# of Drug/Alcohol-Related Collisions	63	16.5%	757	14.4%	1340	7.8%	14834	5.3%	
<b>By Collision Type</b>									
Vulnerable User Hit (Ped and Bike)	165	43.3%	2055	39.2%	952	5.6%	13229	4.7%	1
Hit Pedestrian	122	32.0%	1545	29.5%	633	3.7%	8175	2.9%	1
All Angle (T,left,right)	107	28.1%	1262	24.1%	7270	42.5%	104302	37.4%	2
Hit Fixed Object	56	14.7%	881	16.8%	1929	11.3%	30820	11.1%	2
Hit Cyclist	43	11.3%	510	9.7%	319	1.9%	5054	1.8%	2
Rearend	14	3.7%	255	4.9%	3443	20.1%	65619	23.5%	3
Overturn	9	2.4%	167	3.2%	91	0.5%	1423	0.5%	3
Sideswipe	7	1.8%	77	1.5%	880	5.1%	21306	7.6%	3
Head On	6	1.6%	170	3.2%	58	0.3%	1425	0.5%	3
Other	10	2.6%	179	3.4%	524	3.1%	12470	4.5%	3
<b>By Roadway Surface Condition</b>									
Dry	319	83.7%	3962	75.5%	12567	73.4%	194401	69.7%	1
Wet	46	12.1%	1169	22.3%	2472	14.4%	71149	25.5%	2
Ice	8	2.1%	42	0.8%	946	5.5%	4964	1.8%	3
Snow/Slush	4	1.0%	24	0.5%	920	5.4%	4547	1.6%	3
<b>By Light Condition</b>									
Daylight	208	54.6%	2832	54.0%	11535	67.4%	190101	68.2%	1
Dark (with and w/out streetlights)	156	40.9%	2129	40.6%	4702	27.5%	73592	26.4%	1
Dusk/Dawn	16	4.2%	252	4.8%	655	3.8%	11766	4.2%	3
<b>By Junction Relationship</b>									
Intersection Related	215	56.4%	2491	47.5%	10290	60.1%	140545	50.4%	1
Non-Intersection (Not Related)	147	38.6%	2307	44.0%	5678	33.2%	98809	35.4%	1
Driveway-Related	18	4.7%	426	8.1%	1135	6.6%	37126	13.3%	3
Roundabout Related	1	0.3%	22	0.4%	23	0.1%	2367	0.8%	3

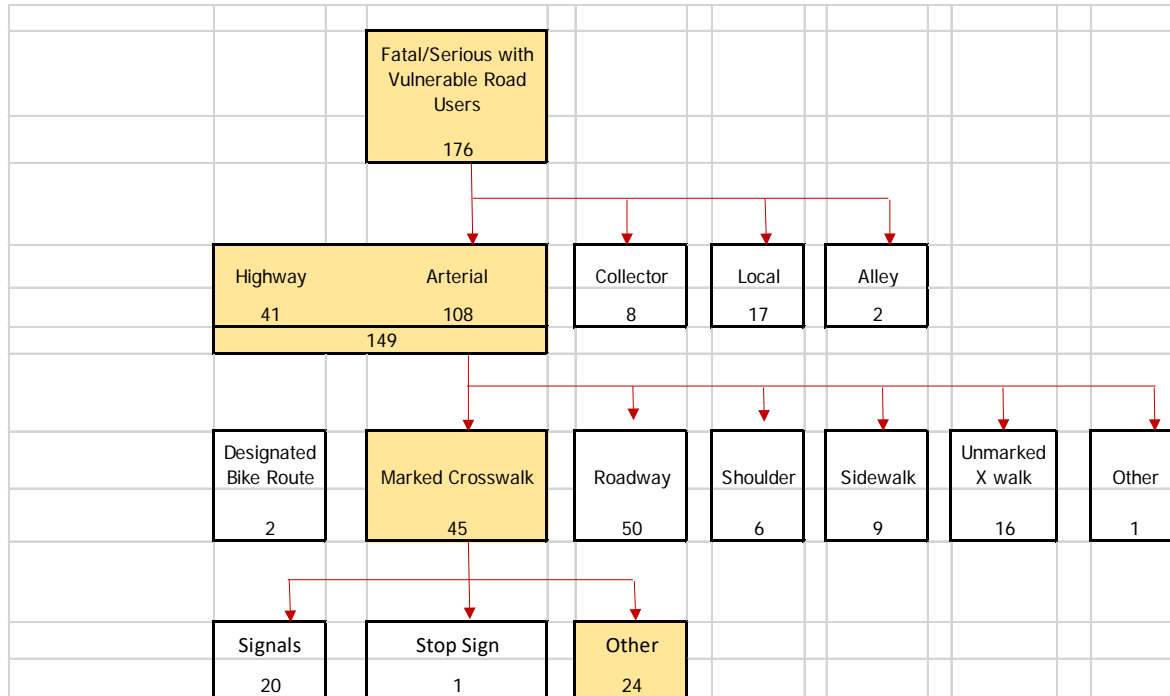
<b>By Roadway Curvature</b>									
Straight & Level	241	63.3%	3139	59.8%	12162	71.0%	179038	64.2%	1
Straight & Grade	55	14.4%	895	17.1%	1980	11.6%	41884	15.0%	2
Horizontal Curve	28	7.3%	386	7.4%	505	2.9%	11977	4.3%	3
Horizontal Curve & Grade	17	4.5%	302	5.8%	462	2.7%	9126	3.4%	3
<b>Hit Fixed Object Crashes Only - By Fixed Object Hit</b>									
Curb / Raised Island	12	22.2%	114	14.0%	142	7.8%	3014	9.5%	2
Tree / Stump (Stationary)	7	13.0%	190	23.3%	198	10.9%	4282	13.5%	2
Utility Pole	6	11.1%	105	12.9%	208	11.4%	3019	9.5%	2
Sign Post (Metal,Wood)	6	10.7%	52	5.9%	233	12.1%	2931	9.5%	2
Guardrail	4	7.4%	34	4.2%	44	2.4%	968	3.0%	3
Fence	3	5.6%	60	7.4%	276	15.2%	3687	11.6%	3
Earth Bank	3	5.6%	32	3.9%	33	1.8%	586	1.8%	3
Building	2	3.7%	29	3.6%	98	5.4%	1127	3.6%	3
Boulder (Stationary)	2	3.7%	8	1.0%	31	1.7%	398	1.3%	3
Roadway Ditch	2	3.7%	30	3.7%	20	1.1%	1191	3.8%	3
Ran Over Embankment	2	3.7%	26	3.2%	14	0.8%	511	1.6%	3
<b>By Contributing Circumstance</b>									
Inattention / Distraction	70	20.4%	1016	20.5%	3812	22.6%	88410	30.8%	2
Exceeding Safe Speed	63	18.4%	945	19.0%	1307	7.7%	22638	7.9%	2
Under Influence of Alcohol / Drugs	58	16.9%	751	15.1%	1135	6.7%	14676	5.1%	2
Failing to Yield	42	12.2%	608	12.2%	3607	21.4%	56677	19.7%	2
Failing to Yield to Ped / Cyclist	17	5.0%	241	4.9%	127	0.8%	2277	0.8%	3
Disregard Signal	14	4.1%	174	3.5%	709	4.2%	8086	2.8%	3
Following Too Close	8	2.3%	101	2.0%	2775	16.5%	30416	10.6%	3
Disregard Stop Sign	7	2.0%	67	1.3%	382	2.3%	4351	1.5%	3
<b>By Speed Limit</b>									
20 MPH	6	1.5%	121	1.9%	330	1.4%	9469	2.4%	3
25 MPH	78	19.2%	1465	23.6%	4935	20.5%	106139	26.5%	2
30 MPH	256	63.1%	1429	23.0%	14347	59.7%	97202	24.2%	1
35 MPH	41	10.1%	2398	38.6%	2939	12.2%	150816	37.6%	2
40 MPH	5	1.2%	440	7.1%	288	1.2%	21506	5.4%	3
45 MPH	12	3.0%	225	3.6%	500	2.1%	11225	2.8%	3
<b>By Traffic Control</b>									
No Traffic Control	348	64.0%	4571	60.7%	17637	56.4%	292945	57.9%	1
Signals	130	23.9%	2121	28.2%	9740	31.1%	151608	29.9%	2
Stop Sign	57	10.5%	608	8.1%	3128	10.0%	46221	9.1%	2



## Step 2. Identifying Roadway Characteristics

The tree in Figure 2 shows how we started with fatal/serious vulnerable user crashes and found a pattern on arterials with uncontrolled marked crosswalks.

Figure 2: Tree for Fatal/Serious Crashes with Vulnerable User at Uncontrolled Marked Crosswalks



Each of the “other” (uncontrolled) collisions was reviewed for common characteristics and the following risk factors were identified. For details on the risk factor identification see Appendix A.

- Arterial
- Crossing Distance greater than 3 or more lanes
- Daily volume greater than 4,000 vehicles per lane
- Commercial land use within ¼ mile, extra point for grocery
- Transit route with stops
- Neighborhood has >10% or >18% homes w/out a vehicle
- School/Park within ¼ mile
- On bike plan map (or in process for update), extra point for regional trail access

## Step 3. Identify Priority Locations

Step 3 includes locating marked, uncontrolled crosswalks with the risk factors identified in Step 2 above. There are summarized in Figure 3. A few locations are unmarked crosswalks where citizens have expressed a desire to be able to safely cross the road. City staff coordinated with Spokane Transit Authority and Spokane Public Schools to determine the need for improvements at several of these locations. A few of the locations are also on our Bicycle Master Plan.

The following crosswalk locations are already funded for improvements and are left off the list: US 2 / Longfellow, US 2 / Rhoades-Weile, US 2 / Everett, Northwest/Elm, Francis/Cook, Greene/Carlisle, Indian Trail/Lowell, SFB/Cincinnati, Mission/Superior, Mission/Cook, and Nevada/Joseph.

Figure 3. Locations for Fatal/Serious Crashes with Vulnerable User at Uncontrolled Marked Crosswalks

Corridor	Location	Crossing Distance (# Lanes)	ADT / Lane	Presence of Risk Factors				
				Transit Route*	Land Use Commercial Grocery**	School or Park	Bike Route	% of homes w/out vehicle
29 <sup>th</sup> Ave	Arthur	4	5,150	F	C G		Y	
29 <sup>th</sup> Ave	Fiske	4	4,525	B	C G	P	Y	>10%
29 <sup>th</sup> Ave	Martin	4	5,150	F	C			
29 <sup>th</sup> Ave	Pittsburg	4	5,150	F			Y	
29 <sup>th</sup> Ave	Rosauers crosswalk	4w/ refuge	4,425	F	C G			>10%
Alberta	Longfellow	2+TWLTL	7,550	-	C G	S	Y	
Boone	Adams	4	2,300	B			Y	>18%
Browne (2)	Pacific	4	5,725	B	C		Y	>18%
Division (2)	Pacific	3	5,725	B	C		Y	>18%
Division (2)	Glass	6 w/ refuge	7,417	F	C			
Division (2)	Walton	6 w/ refuge	7,417	F	C	P		
Foothills	Astor	4	3,825	B	C			
Francis (291)	Belt	4+TWLTL	7,500	B	C		Y	
Francis	Cincinnati	4+TWLTL	6,400	B	C			>10%
Grand Blvd.	13 <sup>th</sup> Ave	4 w/ refuge	4,325	F	C		Y	
Indian Trail	Holyoke	4+TWLTL	4,700	B	C G	S		
Indian Trail	Woodside	4	4,700	B		S P	Y	
Market	Columbia	4	4,650	B	C	P	Y T	>10%
Monroe Street	Longfellow	4	3,950	F		S	Y	
Nevada	Cozza	4+TWLTL	6,025	B		P		>18%
Nevada	Sharpsburg	4+TWLTL	5,450	B		P		>18%
Nevada	Westview Ct.	4+TWLTL	4,525	B	C G			>18%
NW Blvd	Adams	4 w/ refuge	7,875	B	C	S	Y	>10%
Ray	23 <sup>rd</sup> ? 24 <sup>th</sup> ?	4	5,750	-		S P	Y	>10%
Regal	Thurston	4	5,275	F	C	S	Y	
Sunset Blvd	4 <sup>th</sup> Avenue	4 w/ refuge	4,675	B	C G		Y	>10%
Whistalks Way	River Ridge/Randol	4	4,500	F		S		>10%

\*Transit route with stops on the corridor – “B” is a basic route with 30 minute service. “F” is a frequent route with 15 minute service during the peak hours. Planned and funded transit routes such as the Central City Line are assumed to be complete with this analysis.

\*\* Land use is C for general commercial, G is added if a grocery store is present

Figure 4 is a scoring table to prioritize locations. The risk factors in Figure 3 were assigned a numerical score and added up. Pedestrian and cyclist collisions at the location are also provided to also aid in prioritization. The collision history column includes all ped/bike crossing type collisions at the location, not just serious injury and fatality.

Figure 4. Scoring of Locations

Corridor	Location	Presence of Risk Factors							Risk Score	Ped-Veh Collisions
		Crossing Distance (# Lanes)	ADT / Lane	Transit Route*	Commercial Land Use	School Park	Bike Route	% of homes w/out vehicle		
29 <sup>th</sup> Avenue	Arthur	2	1	2	2	0	1	0	8	
29 <sup>th</sup> Avenue	Fiske	2	1	1	2	1	1	1	9	E573583 EA76668
29 <sup>th</sup> Avenue	Martin	2	1	2	1	0	0	0	6	
29 <sup>th</sup> Avenue	Pittsburg	2	1	2	0	0	1	0	6	
29 <sup>th</sup> Avenue	Rosauers crosswalk	1	1	2	2	0	0	1	7	E863974 E623667
Alberta	Longfellow	0	2	0	2	1	1	0	6	EA07223
Boone	Adams	2	0	1	0	0	1	2	6	E840581
Browne (2)	Pacific	2	1	1	1	0	1	2	8	E602256 EA64564 E752985 E585212 EA75808 EA44023
Division (2)	Pacific	2	1	1	1	0	1	2	8	E814288 E567127 E920950 E660401
Division (2)	Glass	2	1	2	1	0	0	0	6	
Division (2)	Walton	2	1	2	0	1	0	0	6	
Foothills	Astor	2	0	1	1	0	0	0	4	
Francis (291)	Belt	2	2	1	1	0	1	0	7	
Francis	Cincinnati	2	2	1	1	0	0	1	7	E720789 E574441
Grand Blvd.	13 <sup>th</sup> Ave	1	1	2	1	0	1	0	6	E641133
Indian Trail	Holyoke	2	1	1	2	1	0	0	7	
Indian Trail	Woodside	2	1	1	0	2	1	0	7	
Market	Columbia	2	1	1	1	1	2	1	9	
Monroe	Longfellow	2	0	2	0	1	1	0	6	
Nevada	Cozza	2	2	1	0	1	0	2	8	E589717
Nevada	Sharpsburg	2	1	1	0	1	0	2	7	
Nevada	Westview	2	1	1	2	0	0	2	8	
NW Blvd	Adams	1	2	1	1	1	1	1	8	
Ray	23 <sup>rd</sup> or 24 <sup>th</sup>	2	1	0	0	2	1	1	7	
Regal	Thurston	2	1	2	1	1	1	0	8	E724753
Sunset Blvd	4 <sup>th</sup> Ave	1	1	1	2	0	1	1	7	E713023
Whistalks	Randolph	2	1	2	0	2	0	1	8	EA06061

#### Step 4: Select Countermeasures

Following identification of locations, effective countermeasures are identified for each crash type and then applied to high-ranking locations, as shown in **Figure 5**. Countermeasures are evaluated through FHWA’s Crash Modification Factors (CMF) clearinghouse. The CMF clearinghouse contains safety countermeasures and scores its effectiveness at reducing crashes. The CMF rating estimates the reduced frequency of crashes following the installation of the countermeasure. For example, if the CMF is 0.70, the amount of crashes would be expected to be 70% of the existing number of crashes.

*Figure 5. CMF’s for Fatal/Serious crashes with Vulnerable User*

CMF	ID #	Countermeasure	Crash Type	Severity
0.75	#9017	Install advanced yield or stop markings and signs	Veh-Ped	All
0.54	#175	Add raised median with marked crosswalk	Veh-Ped	All
0.61	#176	Add raised median without marked crosswalk	Veh-Ped	All
0.41	#441	Provide intersection illumination	Veh-Ped	S, M
0.5 (?)	-	Add curb extensions (estimated CMF)	all	all
0.53	#9024	Install RRFB	Veh-Ped	All
0.43	#9021	Install PHB with advanced yield or stop markings	Veh-Ped	All
0.77	#319	Install traffic signal	All	All

Each of the crosswalk locations was evaluated using the recommendations in FHWA-SA-18-018 “Field Guide for Selecting Countermeasures at Uncontrolled Crossing Locations”. Most of the city arterials are posted at 30 mph, but when available speed studies were reviewed to help determine the proper countermeasure. Use of a crossing by a school was also used as a justification to install a more conservative measure. The FHWA-SA-18-018 table showing recommended countermeasures is provided in Appendix B. Since all of the crosswalk projects are located in locations with 4 or more lanes to cross, and mostly over 30 mph, the majority of the improvement recommendations involve installation of Pedestrian Hybrid Beacons, stop bars, lighting, and signage.

## Step 5: Prioritize Projects

The final step was to group the projects with similar treatments and prioritize them. **Figure 6** lists the countermeasures and final prioritized projects. Some projects with different risk scores have been packaged together to because they have the same improvements (RRFB, PHB or signal). Due to the length of the list, cost estimates were not developed for projects scoring below a 6 in “risk score”. Cost estimates are detailed in Appendix C.

Figure 6. Prioritized Systemic Project List (for Vulnerable User collisions)

	Corridor	Location	Risk Score	Ped-Veh Collisions	Improvement	Cost
-	29 <sup>th</sup> Avenue	Fiske	9	E573583 EA76668	PHB, signs, stop bar, illumination	Wait for 29 <sup>th</sup> /Ray signal project
1	Market	Columbia	9		PHB, signs, stop bar, illumination	\$1,745,000
1	Regal	Thurston	8	E724753	PHB, signs, stop bar, illumination	
1	Whistalks	Randolph	8	EA06061	PHB, signs, stop bar, illumination	
1	Nevada	Cozza	8	E589717	PHB, signs, stop bar, illumination	
2	Sunset Blvd	4 <sup>th</sup> Ave	7	E713023	RRFB, rebuild refuge island	\$250,000 *
2	29 <sup>th</sup> Avenue	Rosauers crosswalk	7	E863974 E623667	RRFB, signs, stop bar, illumination	
3	NW Blvd	Adams	8		PHB, signs, stop bar, illumination	\$800,000 *
3	29 <sup>th</sup> Avenue	Arthur	8		PHB, signs, stop bar, illumination	
4	Francis (291)	Belt	7		PHB, signs, stop bar, illumination	\$1,200,000 *
4	Ray	23 <sup>rd</sup> or 24 <sup>th</sup>	7		PHB, signs, stop bar, illumination	
4	Indian Trail	Holyoke	7		PHB, signs, stop bar, illumination	

\*Concept level estimates. Do not include a detailed cost breakdown.

## Spot Location Analysis

Spot locations for safety projects were selected by finding groups of fatal and serious collision patterns on the network. See Appendix D for detailed collision summaries and the cost-benefit analysis of proposed improvements.

### Division/Pacific and Browne/Pacific

Pacific Avenue crosses the Division-Browne couplet in downtown. Division and Browne are part of the Highway 2/395 corridor through the city. Pacific Avenue is designated as a bicycle route and is intended to be improved as a neighborhood greenway in the future running from Howard to Sherman. There are several facilities for homeless individuals in this area leading to a high number of pedestrian crossings at Pacific and in the block leading to the railroad viaduct. Pedestrian collisions in these locations have resulted in several serious and minor injuries. The collisions are correctable through the installation of traffic signals, improved lighting and curb extensions. The analysis in Appendix D shows a favorable cost-benefit ratio with these improvements.

### Maple/Rowan and Ash/Rowan

Rowan Avenue is a collector crossing the Maple-Ash couplet. The intersections both have school crossings for the Ridgeview Elementary walk route. The crash patterns show frequent angle collisions. A large percentage of

these are correctable through the installation of a traffic signal and curb extensions. The cost-benefit ratio analysis was favorable, but low, with this improvement.

### Highway 2/Spotted Road

Highway 2 is a busy state highway running through west Spokane and into Airway Heights. Speeds are in the 45-55 mph range at Spotted Road as it transitions from limited to managed access. Recent studies of the corridor have recommended a roundabout at this location. The crash patterns show angle collisions at the intersection and other speed-related collisions that could be corrected through a roundabout and splitter islands on the approaches. The cost-benefit ratio analysis was favorable, but low, with this improvement.

## Conclusion

In summary, this Risk-Based Safety Assessment followed Target Zero and used the Systemic Safety Project Selection Tool to identify key roadway characteristics associated with fatal and serious injury crashes occurring in the City of Spokane. After identifying locations with a high likelihood for such crashes, this assessment identified appropriate treatments for these locations. The resulting project list provides the City with a path forward for proactively addressing future fatal and serious injury crashes throughout the City’s transportation network.

## Recommendations for Future Updates or Grants

This document is expected to be updated periodically as mitigation measures are installed and new crash data comes available. There are several crosswalk locations that were considered for inclusion that did not make the final list due to lower pedestrian volumes or other concerns. These should be considered for any future efforts of a similar nature.

*Figure 7: Recommendations for further evaluation*

<b>Corridor</b>	<b>Location</b>
Nevada Street	St. Thomas More
Monroe Street	Central Avenue
3 <sup>rd</sup> Avenue	Cowley Street
Francis Avenue	Pittsburg Street
Wellesley Avenue	Nettleton Street

One of the other crash patterns with a high percentage of fatal and serious crashes was “angle” type collisions. The next update of this document should further explore the risk factors behind these types of crashes.

# Appendix B

## Pedestrian Crossing Treatments

Table 1. Application of pedestrian crash countermeasures by roadway feature.

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
<b>2 lanes</b> (1 lane in each direction)	① 2 4 5 6	① 5 6 7 9	① 5 6 ⑦ ⑨	① 4 5 6	① 5 6 7 9	① 5 6 ⑦ ⑨	① 4 5 6 7 9	① 5 6 7 9	① 5 6 9
<b>3 lanes with raised median</b> (1 lane in each direction)	① 2 3 4 5	① ③ 5 7 9	① ③ 5 ⑦ ⑨	① 3 4 5 7 9	① ③ 5 ⑦ ⑨	① ③ 5 ⑦ ⑨	① ③ 4 5 7 9	① ③ 5 ⑦ ⑨	① ③ 5 9
<b>3 lanes w/o raised median</b> (1 lane in each direction with a two-way left-turn lane)	① 2 3 4 5 6 7 9	① ③ 5 6 7 9	① ③ 5 6 ⑨	① 3 4 5 6 7 9	① ③ 5 6 ⑦ ⑨	① ③ 5 6 ⑨	① ③ 4 5 6 7 9	① ③ 5 6 ⑨	① ③ 5 6 9
<b>4+ lanes with raised median</b> (2 or more lanes in each direction)	① ③ 5 7 8 9	① ③ 5 7 8 9	① ③ 5 8 9	① ③ 5 7 8 9	① ③ 5 ⑦ 8 9	① ③ 5 8 9	① ③ 5 ⑦ 8 9	① ③ 5 8 9	① ③ 5 8 9
<b>4+ lanes w/o raised median</b> (2 or more lanes in each direction)	① ③ 5 6 7 8 9	① ③ 5 ⑥ 7 8 9	① ③ 5 ⑥ 8 9	① ③ 5 ⑥ 7 8 9	① ③ 5 ⑥ ⑦ 8 9	① ③ 5 ⑥ 8 9	① ③ 5 ⑥ ⑦ 8 9	① ③ 5 ⑥ 8 9	① ③ 5 ⑥ 8 9

Given the set of conditions in a cell,

- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.\*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

- 1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
- 2 Raised crosswalk
- 3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
- 4 In-Street Pedestrian Crossing sign
- 5 Curb extension
- 6 Pedestrian refuge island
- 7 Rectangular Rapid-Flashing Beacon (RRFB)\*\*
- 8 Road Diet
- 9 Pedestrian Hybrid Beacon (PHB)\*\*



# CITY OF TACOMA **LOCAL ROAD SAFETY PLAN**



## **A STRATEGIC RISK-BASED ASSESSMENT**

APRIL 2018







LEFT TURN  
YIELD  
ON GREEN

SO 15TH ST

SHARED  
LANE

CAUTION  
IF YOU CAN'T SEE  
MY MIRRORS  
I CAN'T SEE YOU  
PLEASE USE BELL

Happy Hour  
FREE  
MARTINI

Y SPA  
NAILS



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# Introduction

The City of Tacoma is committed to ending traffic-related deaths and serious injuries on City streets. Traffic collisions can be prevented through smarter street design, targeted enforcement, and meaningful public engagement. This Local Road Safety Plan is intended to serve as a precursor to a Vision Zero plan, which the City is committed to developing in the near future. There are two approaches to collision reduction – conducting spot treatments where previous collisions have occurred, and a systemic safety approach, which determines project locations based on high-risk roadway features correlated with specific serious collision types. This plan is based on the latter, systemic safety approach.

This is a data driven plan that uses collision trends and contributing risk factors to identify City street segments with characteristics that may lead to a higher risk of collisions. These street segments are then narrowed down to a discrete list of projects that the City can prioritize, which is key for implementing successful collision reduction strategies.

This program of improvements was developed using a strategy similar to the Washington State's Vision Zero plan – *Target Zero: Washington State Strategic Highway Safety Plan*, which highlights the importance of data driven collision reduction strategies. WSDOT's City Safety Program funds low-cost, systemic, near-term projects that will improve roadway safety.

## What is Vision Zero?

Vision Zero is a strategy to eliminate all traffic fatalities and serious injuries by promoting safe roadway design and smart behaviors. It encourages a culture of shared responsibility, where roadway designers, policymakers, and roadway users all work together to reduce serious and fatal collisions.

The Vision Zero concept originated in Sweden, where it was adopted as a national strategy in 1997. Several cities throughout the U.S. have adopted the Vision Zero goal, including Seattle, Portland, New York, San Francisco, Chicago, and Los Angeles. Despite the progress that has been made, pedestrian fatalities as a percentage of all collisions have been increasing nationally since 2007<sup>1</sup>. One explanation is increasing numbers of vehicle miles traveled. Researchers from the Governors Highway Safety Association found that the growing use of cell phones by drivers and pedestrians is a significant distraction that may be contributing to higher fatalities. This study also found that low light conditions and alcohol use are also contributing circumstances to recent fatal pedestrian collisions. While the City cannot directly change driver and pedestrian behavior, changes to the streetscape and surrounding land use can help reduce both collision frequency and severity. These increasing fatality rates show the importance of making Vision Zero a central priority for Tacoma, Washington State, and the nation at large.

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<sup>1</sup> *Spotlight on Highway Safety*. Governors Highway Safety Association (2016)

## Limitations on Use

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.



## Identification of Potential Risk Factors

To effectively reduce future collisions, the City must first understand the history of collision patterns. To do this, five years of collision data were combined with available land use and roadway data to analyze contributing factors and pull out the most pertinent trends. These were then organized into potential risk factors for fatal and serious injury collisions, and the City's street network was analyzed to identify locations with the most risk factors.

### WSDOT Summary Data Trends

WSDOT provided a Collision Database Summary for the City of Tacoma for the years 2012-2016. It included information such as collision type (e.g. hit pedestrian; rear end; hit fixed object), roadway characteristics (e.g. roadway curvature; lighting; posted speed limit), and contributing circumstances to the collisions (e.g. inattention; failure for pedestrian to use crosswalk; under the influence of alcohol or drugs). The data provided does not account for roadway geometry, such as number of travel lanes, intersection characteristics, nearby land uses, or any data normalization across the comparisons.

Of the collisions that occurred on "Tacoma responsible streets", about two percent of collisions involved victims killed or seriously injured (KSI). Over the five-year period, there were 334 KSI collisions and 14,647 non-serious injury collisions. Of all collisions, there were 236 collisions involving a bicyclist and 481 involving a pedestrian, a combined total of about five percent of all collisions.

The Collision Database Summary was examined to determine the most frequent roadway and circumstance characteristics in KSI collisions. Collision characteristics that were higher than the statewide or regional average (**Table 1**) or that occurred most frequently within the City (**Table 2**) were identified as potential priority areas for the City to examine. These also informed the risk factor analysis discussed later in the plan.

The collision characteristics that stood out as more common in the City of Tacoma compared to statewide were the percentage of KSI collisions occurring on 30 MPH roadways, cyclists disregarding signals, pedestrians failing to use the crosswalk, pedestrians crossing in unmarked crosswalks, and dark conditions with streetlights on. The most common circumstances reported in KSI collisions contributed by drivers were inattention/distraction and exceeding posted speed limits. A common factor in citywide KSI collisions was hitting a fixed object, such as striking a curb or raised traffic island.

Table 1: KSI Collision Conditions Based on Comparison to State and Western Washington

Category	Collision Conditions	City of Tacoma (% of KSI Collisions)	State of WA (% of KSI Collisions)	Western WA (% of KSI Collisions)	Difference
<b>Posted speed per driver</b>	30 MPH roadways	44%	28%	26%	16%
<b>Pedestrian contributing circumstance</b>	Pedestrian failure to use crosswalk	22%*	7%	7%	15%
<b>Pedal-cyclist contributing circumstance</b>	Disregard signal	15%*	5%	5%	10%
<b>Pedestrian facility use</b>	Collisions in unmarked crosswalks	17%*	12%	8%	9%
<b>Light condition</b>	Dark – street lights on	41%	35%	35%	6%
<b>Primary collision type</b>	Angle (T)	18%	15%	14%	3%

**Source:**

WSDOT, “Crash Data Summary for 2012-2016 for City of Tacoma,” 2018. Fehr & Peers, 2018.

\* Does not refer to the percentage of all KSI collisions citywide, but rather the share of KSI collisions for this category.

Table 2: KSI Collision Conditions Based on Frequency

Category	Collision Conditions	City of Tacoma (% of KSI Collisions)	Notes
<b>Driver contributing circumstance</b>	Inattention / distraction	14%*	The most common circumstance reported in KSI collisions contributed by drivers.
<b>Driver contributing circumstance</b>	Exceeding safe / stated speed	9%*	The second most common circumstance reported in KSI collisions contributed by drivers.
<b>Fixed object first struck</b>	Curb / raised traffic island	20%*	This is also a common factor for all citywide collisions – 18% of collisions that occur citywide due to hitting a fixed object involve striking the curb or raised traffic island first.
<b>Driver contributing circumstance</b>	Driver failing to yield	8%*	

**Source:**

WSDOT, “Crash Data Summary for 2012-2016 for City of Tacoma,” 2018. Fehr & Peers, 2018.

\* Does not refer to the percentage of all KSI collisions citywide, but rather the share of KSI collisions for this category.

## Methodology for Identifying Risk Factors

After identifying collision characteristics that warranted further review, the City looked at the complete WSDOT collision dataset for 2012-2016. When examining the data, it became apparent that there were different patterns pertaining to all KSI collisions and collisions involving a bicycle or pedestrian. While KSI collisions include collisions involving a bicycle or pedestrian, the City analyzed all collision data for bicyclists and pedestrians rather than just KSI collision data – these users are more vulnerable, and a change in conditions or situation can very quickly result in serious injury or fatality for these users. Therefore, reducing all bicycle and pedestrian collisions is complementary to Target Zero initiatives. For these reasons, Tacoma divided its risk factors into two categories – KSI collisions and all bicycle/pedestrian collisions.

To identify potential risk factors associated with KSI and bicycle/pedestrian collisions, the collision data were aggregated and analyzed for patterns. The WSDOT collision data were joined spatially in GIS to nearby contextual data, which included the following variables<sup>2</sup>:

- Bicycle facility type
- Signalized intersections
- Land use zoning, including Mixed Use and Regional Growth Centers
- Street classification
- Posted speed limit
- Location and type of street lighting

The frequency of a collision characteristic for KSI or bicycle/pedestrian collisions was compared with the average across all collisions to determine if there were factors specific to KSI or bicycle/pedestrian collisions. Factors that stood out could be indicators of risk factors present in the built environment that may lead to more KSI or bicycle/pedestrian collisions. Multiple variables were cross-referenced to analyze correlations, such as higher incident rates on certain street classifications and in proximity to certain land uses to pull out more nuanced data. Data were also normalized when possible, so that a predominance of one roadway type did not artificially inflate the results. Posted speed limit, roadway classification, and bike facility were normalized by the total lane-miles in the City to find the number of collisions per lane-mile. Land use was normalized by area.

While factors like time of day and weather were evaluated, they were not included in the final risk factor list, as the City can do little to control these variables. Likewise, most driver behavior characteristics (i.e. distracted driving) were removed from the risk factor list. Roadway characteristics and land use patterns are variables that the City can actively modify to create a safer roadway network.

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<sup>2</sup> While the City would have liked to analyze additional contextual variables, it was limited by data availability.



The risk factors identified are:

**KSI Collision Risk Factors**

- 1. Posted Speed Limit – Greater than or equal to 30 MPH
- 2. Land Use – Mixed Use and Regional Growth Centers
- 3. Street Classification - Arterials
- 4. Lighting Conditions
- 5. Alcohol use

**All Bicyclist/Pedestrian Collision Risk Factors**

- 1. Pedestrians Crossing the Roadway – Low Intersection Density
- 2. Lighting Conditions
- 3. Land Use – Intersections in Mixed Use and Regional Growth Centers
- 4. Posted Speed Limit – Intersections with speeds of 25 MPH to 35 MPH
- 5. Lack of Bicycle Facility on the Roadway
- 6. Intersections on Arterials



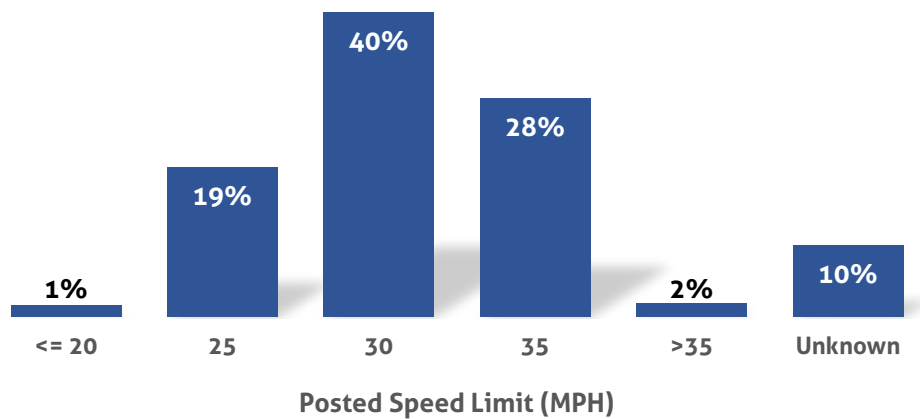
## Fatal and Serious Injury Collision Risk Factors

### 1. Posted Speed Limit – Greater than or equal to 30 MPH

*Posted speed limits greater than or equal to 30 MPH are considered a risk factor for KSI collisions.*

The collision database indicated that 70% of KSI collisions occurred on streets that had a posted speed limit of 30 MPH and 30% of KSI collisions occurred on streets that had a posted speed limit of 35 MPH and over. The majority of streets in Tacoma have a posted speed limit of 30 MPH (41%), 35 MPH (25%) and 25 MPH (22%). The percentage of KSI collisions that occurred on 30+ MPH streets was greater than the percentage of all collisions on these roadways.

*Figure 1: KSI Collisions by Facility's Posted Speed Limit*



### 2. Land Use – Mixed Use and Regional Growth Centers

*To be located within a Regional Growth Center or a Mixed Use Center is considered a risk factor for KSI collisions.*

The number of KSI collisions per square mile in Mixed Use and Regional Growth Centers was much higher than the citywide average for all land uses. Focusing only on areas that have been classified as Mixed Use Centers and Regional Growth Centers, the most KSI collisions per square mile occurred within Regional Growth Centers. Mixed Use Centers make up 4.3 percent of the City's total area, and Regional Growth Centers make up 5.9 percent.

Table 3: Collisions Per Square Mile within Mixed Use and Regional Growth Centers

	<b>Total Collisions per sq. mi.</b>	<b>KSI Collisions per sq. mi.</b>
<b>Mixed Use Center</b>	561.06	14.38
<b>Regional Growth Center</b>	959.14	18.83
<b>Neither</b>	254.89	5.68
<b>Citywide Average</b>	<b>303.25</b>	<b>6.76</b>

**Source:**

WSDOT, "Crash Data Summary for 2012-2016 for City of Tacoma," 2018.  
 City of Tacoma GIS, 2018.  
 Fehr & Peers, 2018.

### 3. Street Classification – Arterials

*Minor and Principal Arterials are considered risk factors for KSI collisions.*

A large proportion of KSI collisions occurred on streets classified as minor and principal arterials. This was true for the total number of KSI collisions and for average KSI collisions per mile of roadway. These two street classifications usually have more lanes, more traffic, and faster speeds.

Table 4: KSI Collisions by Street Classification

<b>Street Classification</b>	<b>KSI Collisions</b>	<b>Percentage of KSI Collisions</b>	<b>Total miles of roadway</b>	<b>KSI Collisions per mile</b>
<b>Local</b>	71	21%	2044.0	0.03
<b>Collector</b>	55	16%	336.0	0.16
<b>Minor Arterial</b>	54	16%	93.4	<b>0.58</b>
<b>Principal Arterial</b>	154	<b>46%</b>	397.7	<b>0.39</b>

**Source:**

WSDOT, "Crash Data Summary for 2012-2016 for City of Tacoma," 2018.  
 City of Tacoma GIS, 2018.  
 Fehr & Peers, 2018.

### 4. Lighting Conditions

*Widely spaced lighting with insufficient wattage is considered a risk factor for KSI collisions.*

The analysis found that 41% of KSI collisions occurred in the dark when streetlights were on. While most streets in Tacoma have some streetlights present, lights that are spaced too far apart or that do not have high enough wattage may pose a risk of increased collisions. The majority of KSI collisions (22%) happened during the PM peak hour of 3:00 pm to 6:00 pm, and more KSI collisions occurred in the dark during the winter months and during the daylight for summer months, which is an important



consideration when planning for vulnerable users like cyclists and pedestrians. Locations in Tacoma that do not meet this analysis' lighting criteria are mapped in **Figure 2**.

Figure 2: Street Lighting Citywide

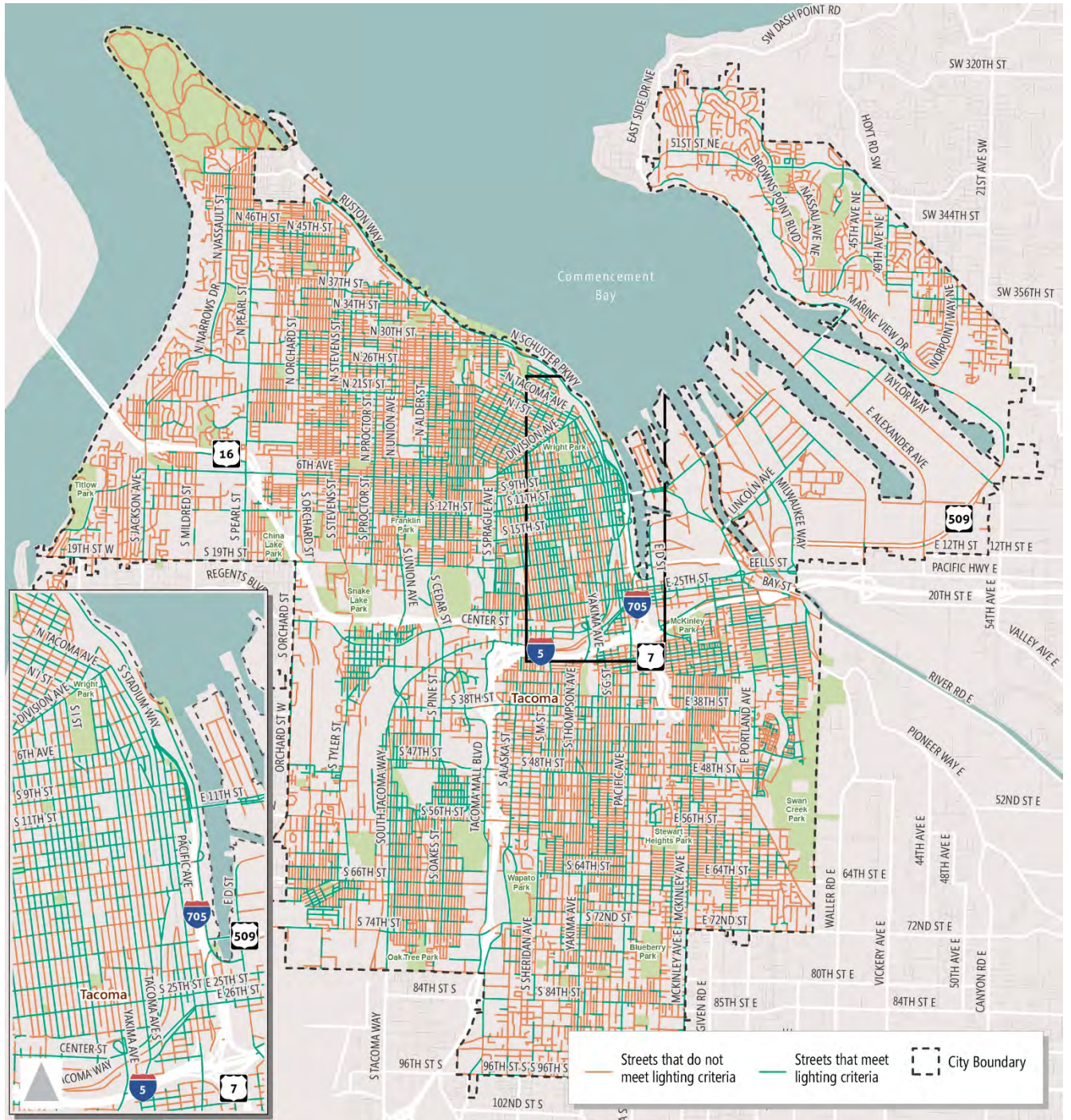
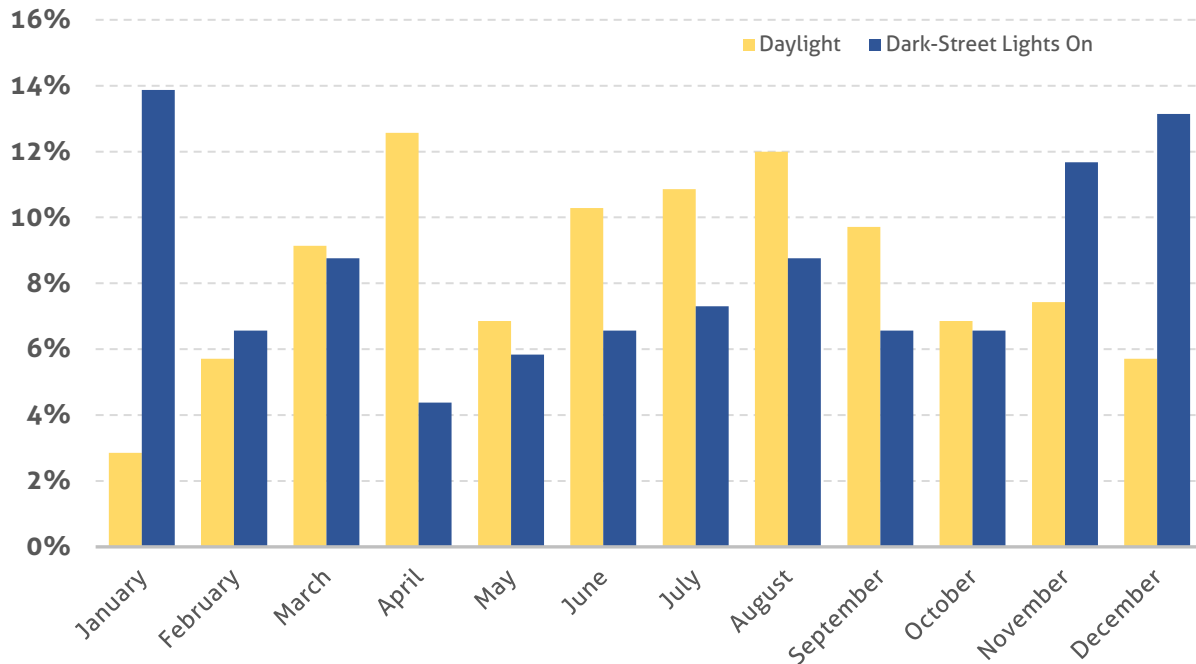


Figure 3: KSI Collisions by Month and Lighting Conditions



## 5. Alcohol use

Being “under the influence” of alcohol is considered a risk factor for KSI collisions.

Consumption of alcohol, drugs, or medications was a contributing circumstance in 13% of KSI collisions, compared to 5% of all collisions. Alcohol use was much more frequent than drug and medication use in these collisions. While this risk factor is not present in the roadway network, engineering solutions can be countermeasures to behavioral risk factors. Locations in Tacoma that have high instances of collisions relating to alcohol use are mapped in **Figure 4**.





Table 5: "Under the Influence" Collisions

	All Collisions	KSI Collisions
<b>Alcohol</b>	715	39
<b>Drugs</b>	53	3
<b>Medication</b>	11	1
<b>Total Collisions</b>	14981	334
<b>Percentage "under the influence"</b>	5%	13%

**Source:**

WSDOT, "Crash Data Summary for 2012-2016 for City of Tacoma," 2018.

City of Tacoma GIS, 2018.

Fehr & Peers, 2018.

## Bicycle and Pedestrian Collision Risk Factors

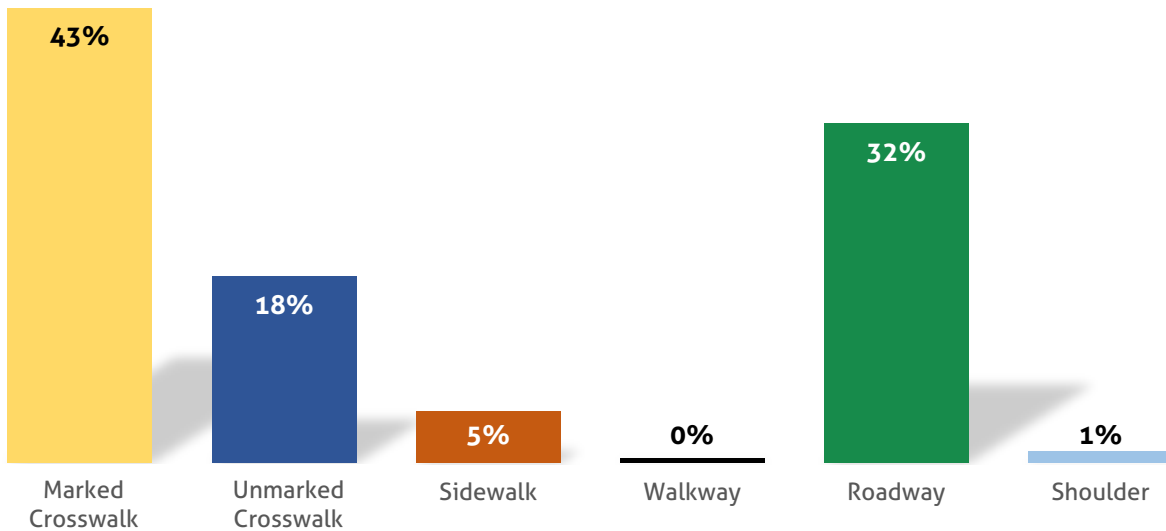
For the identification of pedestrian and bicycle risk factors, all collisions involving a pedestrian or a bicyclist were used instead of KSI collisions because the dataset is smaller, and the majority of collisions that involve a pedestrian or bicyclist result in injury.

### 1. Pedestrians on the Roadway – Low Intersection Density

*Pedestrians on the "roadway" are considered a risk factor for pedestrian collisions.*

While the greatest portion of collisions occurred in marked crosswalks, the City does not have a data inventory on marked or unmarked crosswalks, so this analysis could not consider these collision types. The next largest portion of collisions that involved a pedestrian occurred outside of a marked crosswalk or designated pedestrian facility (sidewalk/walkway). 32% occurred on the roadway, which is classified as jaywalking or a person walking in the lane (as opposed to the shoulder). This could be indicative of a lack of safe crossing opportunities in a given location, so this risk factor was evaluated by looking at intersection density – areas with the greatest spacing between intersections would contribute to pedestrians crossing the roadway outside of the marked crosswalk or intersection.

Figure 5: Pedestrian Collisions Based on Location

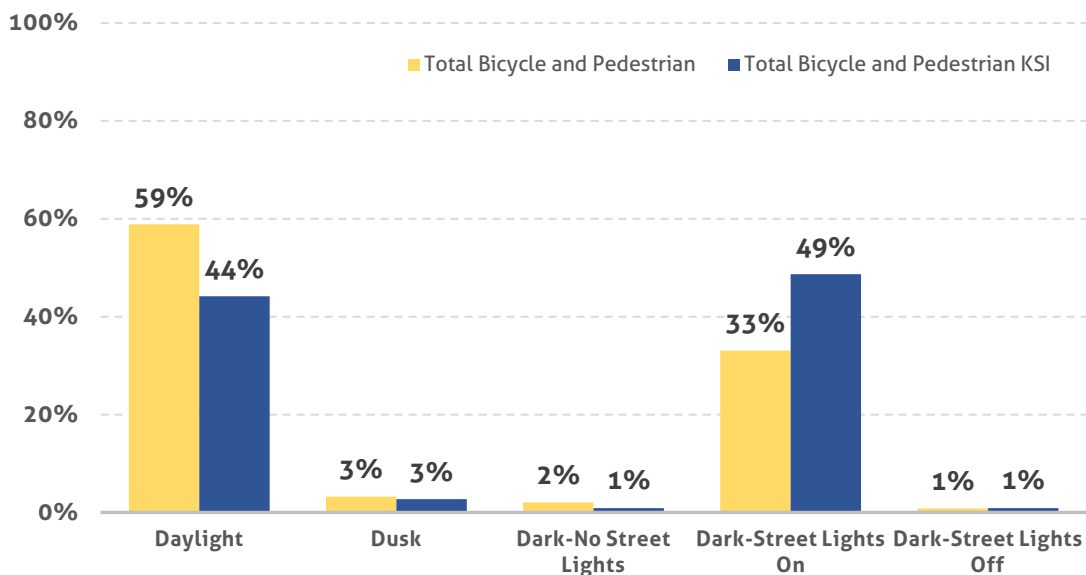


## 2. Lighting Conditions

Widely spaced lighting with insufficient wattage is considered a risk factor for pedestrian collisions.

Analysis showed that 33% of all pedestrian and bicycle collisions and 49% of KSI pedestrian/bicycle collisions occurred during the dark with street lights on. Street light spacing and adequate wattage are important factors in determining if lighting could be contributing to collisions along the roadway.

Figure 6: Collisions by Lighting Category





### 3. Land Use – Intersections in Mixed Use and Regional Growth Centers

*Intersections in Mixed Use and Regional Growth Centers are considered a risk factor for pedestrian and bicycle collisions.*

Both bicycle and pedestrian collisions were highest at signalized intersections in the Regional Growth Centers and Mixed Use Centers. This was identified as a risk factor because the proportion of bicycle and pedestrian collisions per square mile in Mixed Use and Regional Growth Centers was higher than the citywide average for all land uses.

*Table 6: Bicycle Collisions per Square Mile*

	<b>Signalized</b>	<b>Unsignalized</b>	<b>Midblock</b>
<b>Mixed Use Center</b>	<b>6.12</b>	4.24	4.71
<b>Regional Growth Center</b>	<b>6.85</b>	2.40	3.42
<b>Neither</b>	4.58	4.96	4.87

*Table 7: Pedestrian Collisions per Square Mile*

	<b>Signalized</b>	<b>Unsignalized</b>	<b>Midblock</b>
<b>Mixed Use Center</b>	<b>18.36</b>	7.53	9.89
<b>Regional Growth Center</b>	<b>23.28</b>	7.53	9.24
<b>Neither</b>	8.43	9.99	9.76

**Source:**

WSDOT, "Crash Data Summary for 2012-2016 for City of Tacoma," 2018.  
City of Tacoma GIS, 2018.  
Fehr & Peers, 2018.

### 4. Posted Speed Limit – Intersections 25 MPH to 35 MPH

*Intersections with posted speed limits from 25 MPH and 35 MPH are considered a risk factor for pedestrian and bicycle collisions.*

The majority of pedestrian and bicycle collisions were on streets with a posted speed limit of 25 MPH to 35 MPH. This differed from the KSI risk factor, as 25 MPH streets were a more common location for bicycle and pedestrian collisions specifically.

Figure 7: Pedestrian Collisions by Location and Posted Speed Limit

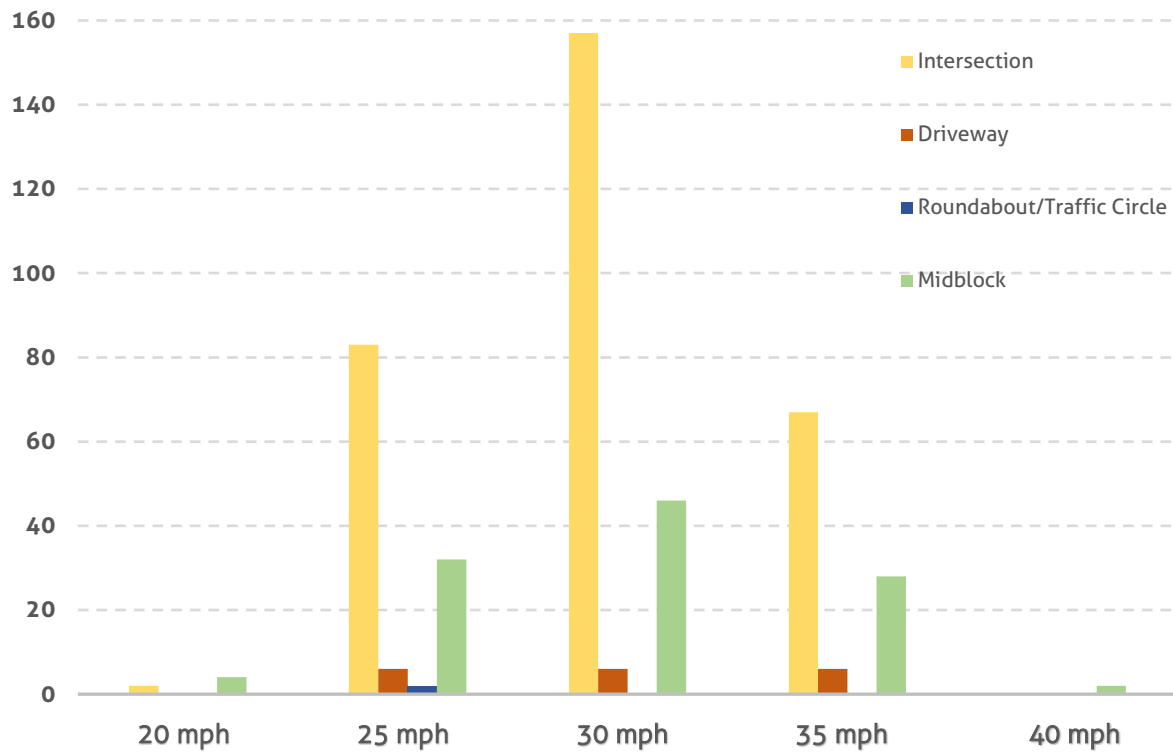
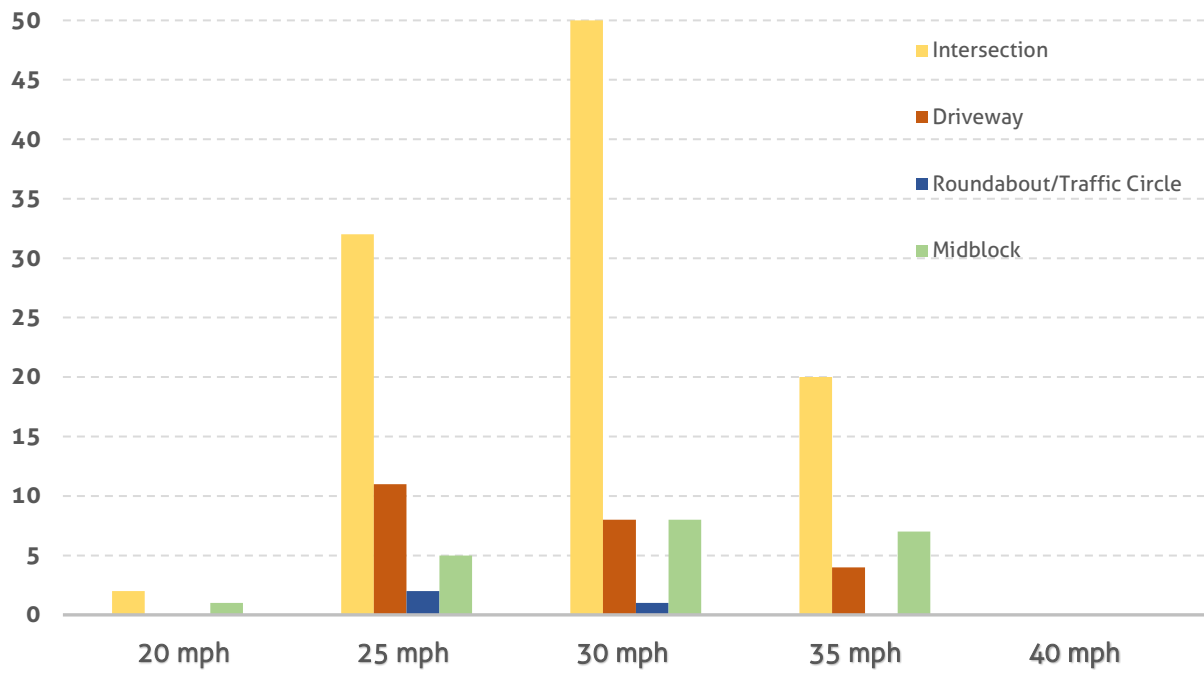


Figure 8: Bicycle Collisions by Location and Posted Speed Limit



## 5. Lack of Bicycle Facility on the Roadway

Lack of a bicycle facility on a Minor or Principal Arterial is considered a risk factor for bicycle collisions.

78% of bicycle collisions in Tacoma occurred on streets that were not part of Tacoma’s bicycle infrastructure network. When bicycle collisions were further evaluated by roadway classification, the highest proportion per lane-mile occurred on minor and principal arterials that lacked bicycle infrastructure.

Figure 9: Bicycle Facility on the Roadway Where the Collision Occurred

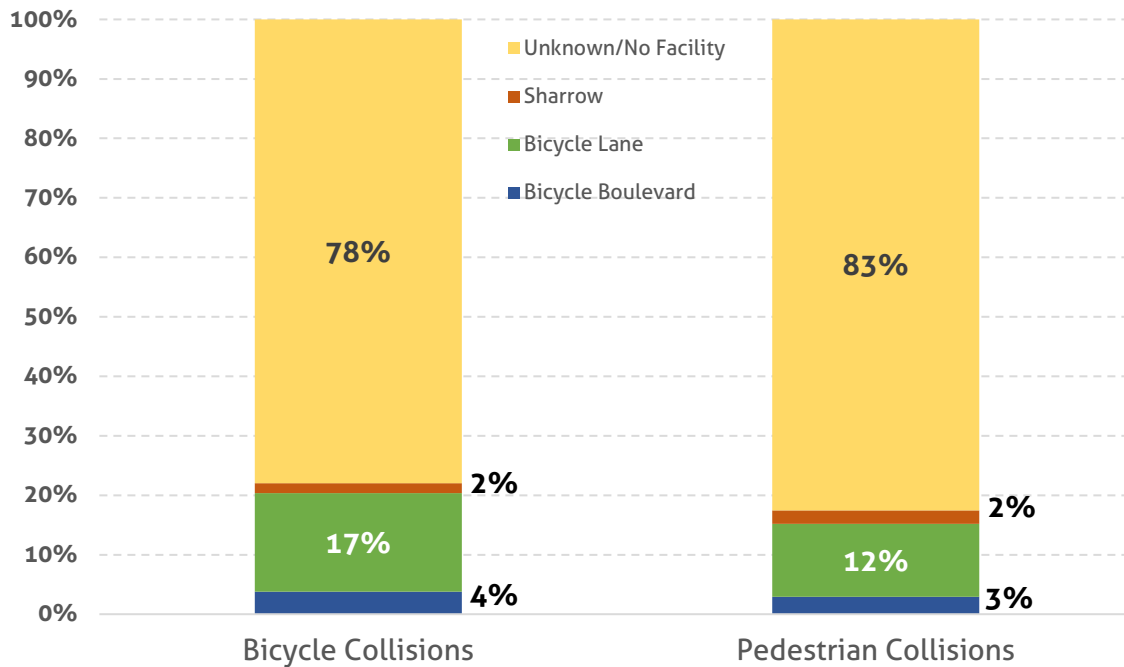


Table 8: Bicycle Collisions by Bicycle Facility and Road Classification

	Local	Collector	Minor Arterial	Principal Arterial
<b>Bicycle Boulevard</b>	0%	0%	1%	1%
<b>Bike Lane</b>	0%	3%	20%	3%
<b>Sharrow</b>	0%	0%	4%	0%
<b>Unknown/No Facility</b>	3%	12%	<b>25%</b>	<b>27%</b>

**Source:**

WSDOT, “Crash Data Summary for 2012-2016 for City of Tacoma,” 2018.  
 City of Tacoma GIS, 2018.  
 Fehr & Peers, 2018.

## 6. Intersections on Arterials

*Intersections on a Minor or Principal Arterial are considered a risk factor for bicycle collisions.*

When normalizing for amount of lane miles, Minor and Principal Arterials were found to be the most common location for bicycle collisions. Along all streets, 19% of bicycle collisions occurred at driveways, compared to only 8% of total collisions.

Table 9: Bicycle Collisions by Location and Street Classification

Location	Local	Collector	Minor Arterial	Principal Arterial
Intersection	42	33	25	57
Driveway	8	5	7	24
Roundabout/Traffic Circle	2	1	0	0
Midblock	5	3	6	18

**Source:**

WSDOT, "Crash Data Summary for 2012-2016 for City of Tacoma," 2018.  
City of Tacoma GIS, 2018.  
Fehr & Peers, 2018.

## Priority Project Selection

### Citywide Roadway Network Analysis

Utilizing the risk factors identified, all streets in Tacoma city limits were evaluated for the number of risk factors present. Roadways were flagged as high risk locations for KSI collisions if they had a posted speed greater than or equal to 30 MPH, were located in Mixed Use or Regional Growth Centers, were classified as a minor or principal arterial, had certain lighting conditions<sup>3</sup>, or a high density of alcohol-related collisions<sup>4</sup>. (See **Figure 10** for the locations that have the greatest number of KSI risk factors.) Roadway segments were flagged as high risk locations for bicycle and pedestrian collisions if they had certain lighting conditions<sup>4</sup>, low intersection density<sup>5</sup>, and lack of bicycle facility as risk factors. Intersections were flagged as high risk locations for bicycle and pedestrian collisions if they had a posted speed of 25-35 MPH (inclusive), were located on arterials, or were located in Mixed Use or Regional Growth Centers. (See **Figure 11** for the locations that have the greatest number of bicycle and pedestrian risk factors.)

**Figure 12** shows the cumulative breakdown of risk factors citywide. These locations include risk factors for both KSI and bicycle/pedestrian collisions and could benefit from a comprehensive improvement project.

<sup>3</sup> After discussion with City staff, lighting conditions that could be improved is defined as local and collector roadways that have streetlights with 100W or less, spaced more than 100 feet apart, and arterials that have streetlights with 150W or greater, spaced more than 150 feet apart.

<sup>4</sup> This risk factor flags roadways with the highest density of alcohol-related collisions (top 10%).

<sup>5</sup> Low intersection density was defined as locations with less than 150 intersections per square mile (the intersection density of a typical urban downtown). Source: Allan B. Jacobs, *Great Streets*, MIT Press, Cambridge, MA 1993.

As there were some shared risk factors between the KSI and Bicycle/Pedestrian criteria, these were combined for a total maximum risk factor score of seven. The locations that had the greatest number of total risk factors are shown in **Figure 13**.

Figure 10: Locations with the Greatest Number of KSI Risk Factors Present

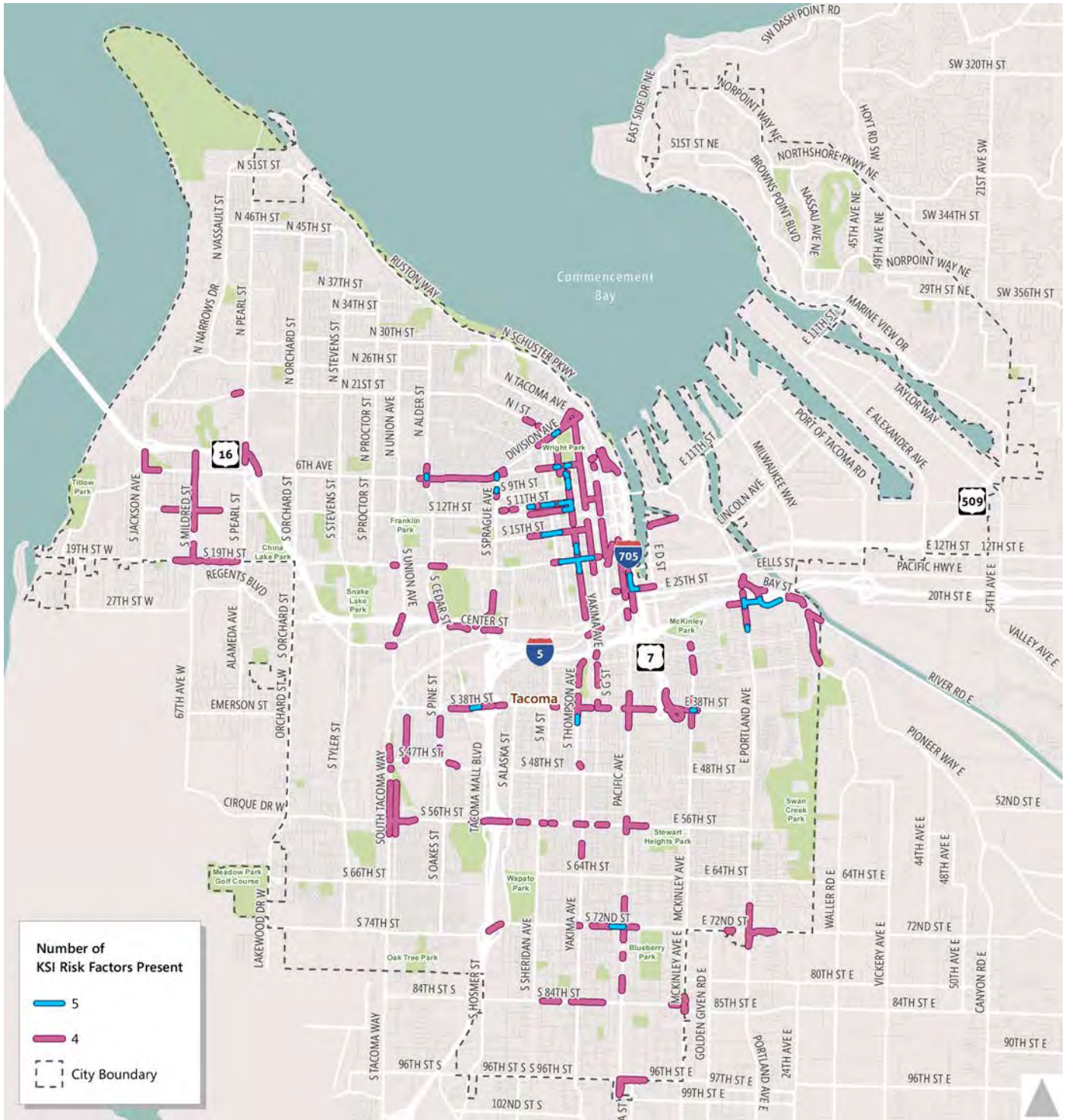








Figure 12: Map of All Risk Factors Citywide

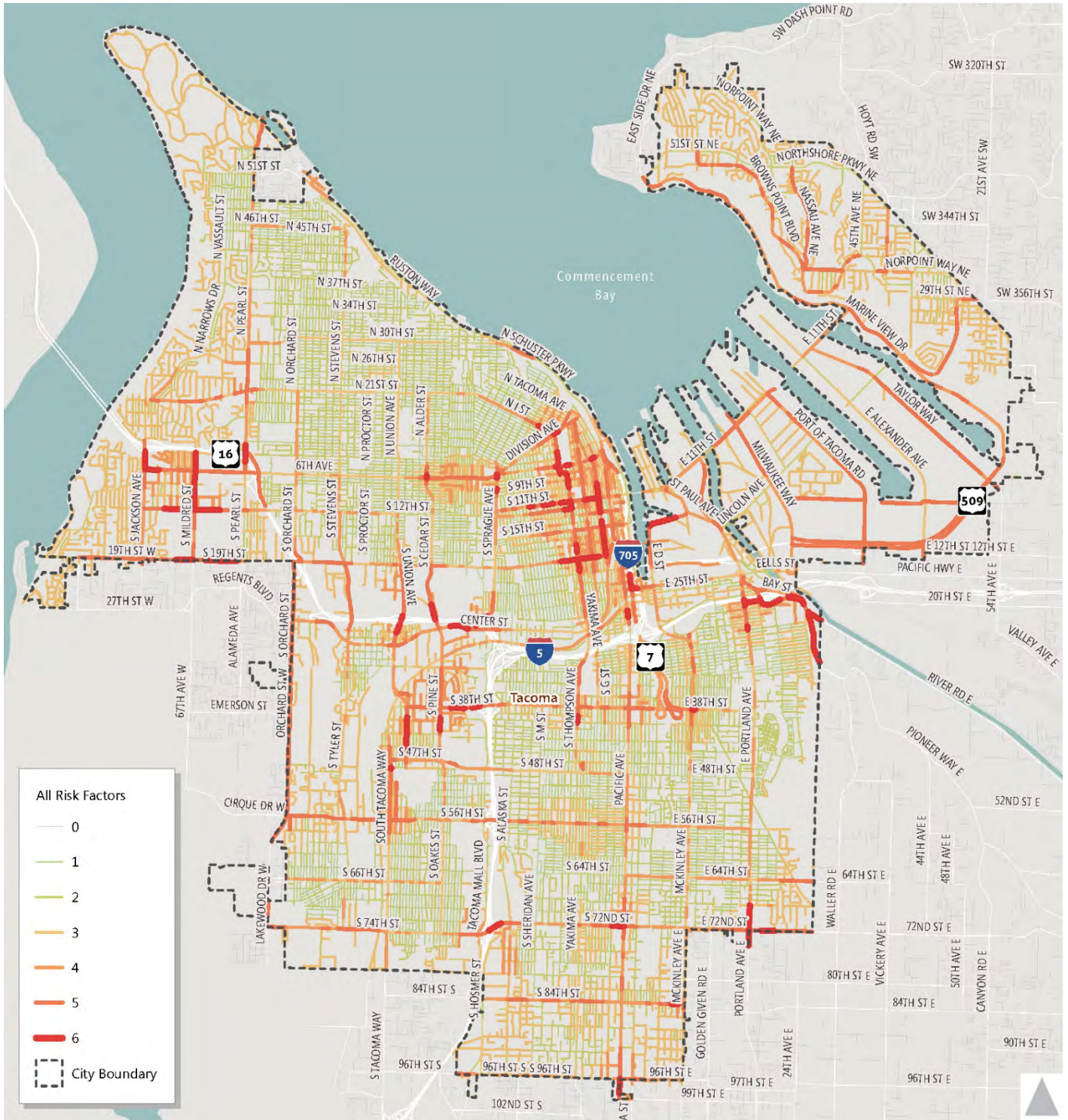
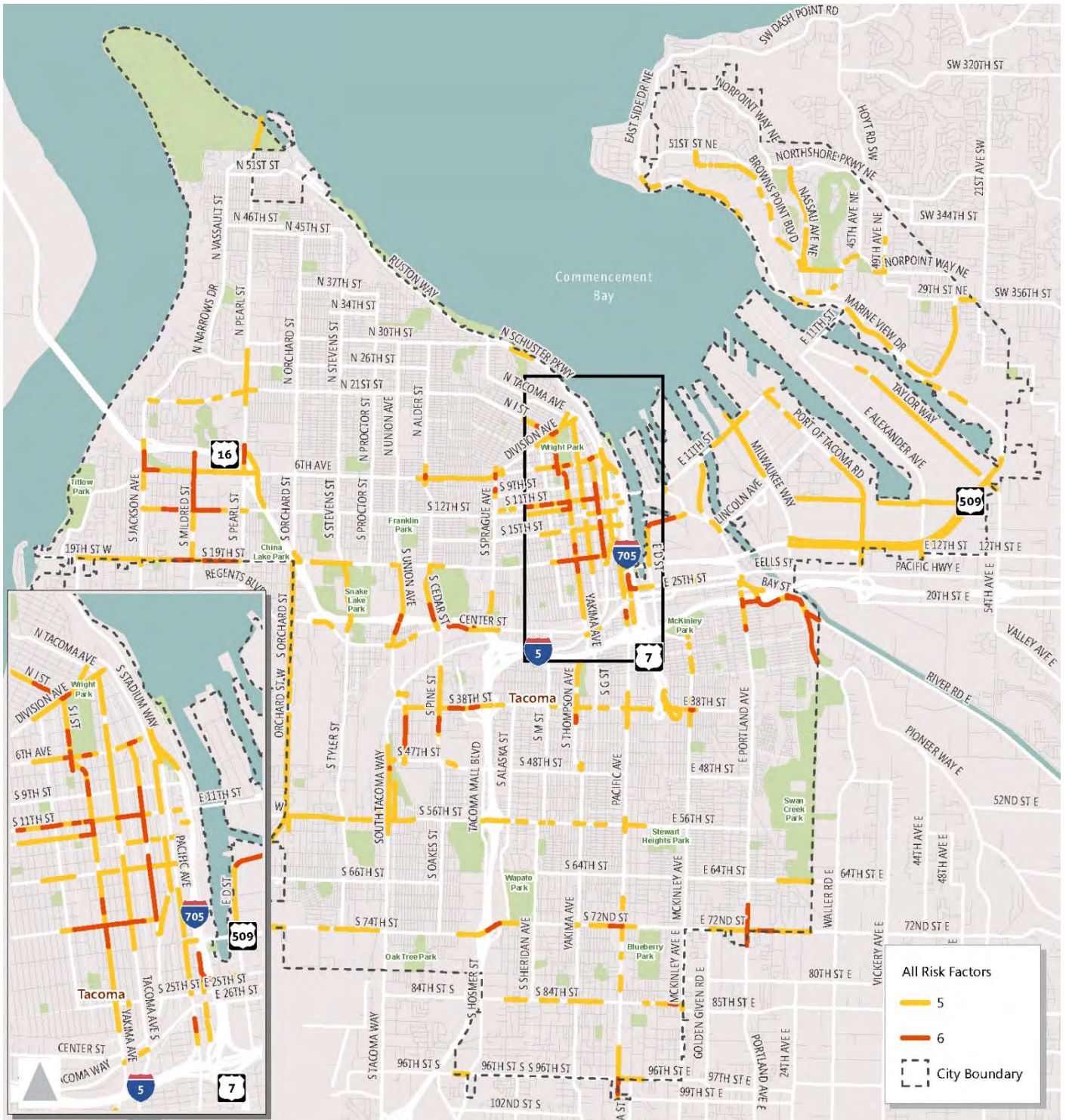




Figure 13: Map of Locations with Greatest Number of Risk Factors





## Priority Segments

The Priority Segments listed below were chosen due to the high frequency of risk factors within the segment and professional judgement based on knowledge of these segments. There were no segments in the City that had all seven risk factors, so the list contains segments that have a combination of five and six risk factors. **Figure 14** shows these locations on a map.

*While all of these segments are City priorities, they are listed in order of priority:*

1. McKinley Avenue E from E 36<sup>th</sup> Street to E 40<sup>th</sup> Street, and S 38<sup>th</sup> Street from McKinley Avenue E to E Spokane Street
2. S 19<sup>th</sup> Street from L Street to Jefferson Avenue
3. N Pearl Street from N 11<sup>th</sup> Street to N 9<sup>th</sup> Street (under SR 16)
4. S Pine Street from South Tacoma Way to S 47<sup>th</sup> Street
5. S Cedar Street from S 19<sup>th</sup> Street to Center Street
6. Pioneer Way from Bay Street to city limits, also including River Road from Pioneer Way to city limits
7. 72<sup>nd</sup> Street E from Golden Given Road E to city limits
8. S Warner Street from S 38<sup>th</sup> Street to S 47<sup>th</sup> Street
9. Mildred Street from N 9<sup>th</sup> Street (Scott Pierson Trail) to S 12<sup>th</sup> Street (a continuation of the existing S 19<sup>th</sup> Street to S 12<sup>th</sup> Street project)
10. S 72<sup>nd</sup> Street at I-5, from S Prospect Street to S Alaska Street

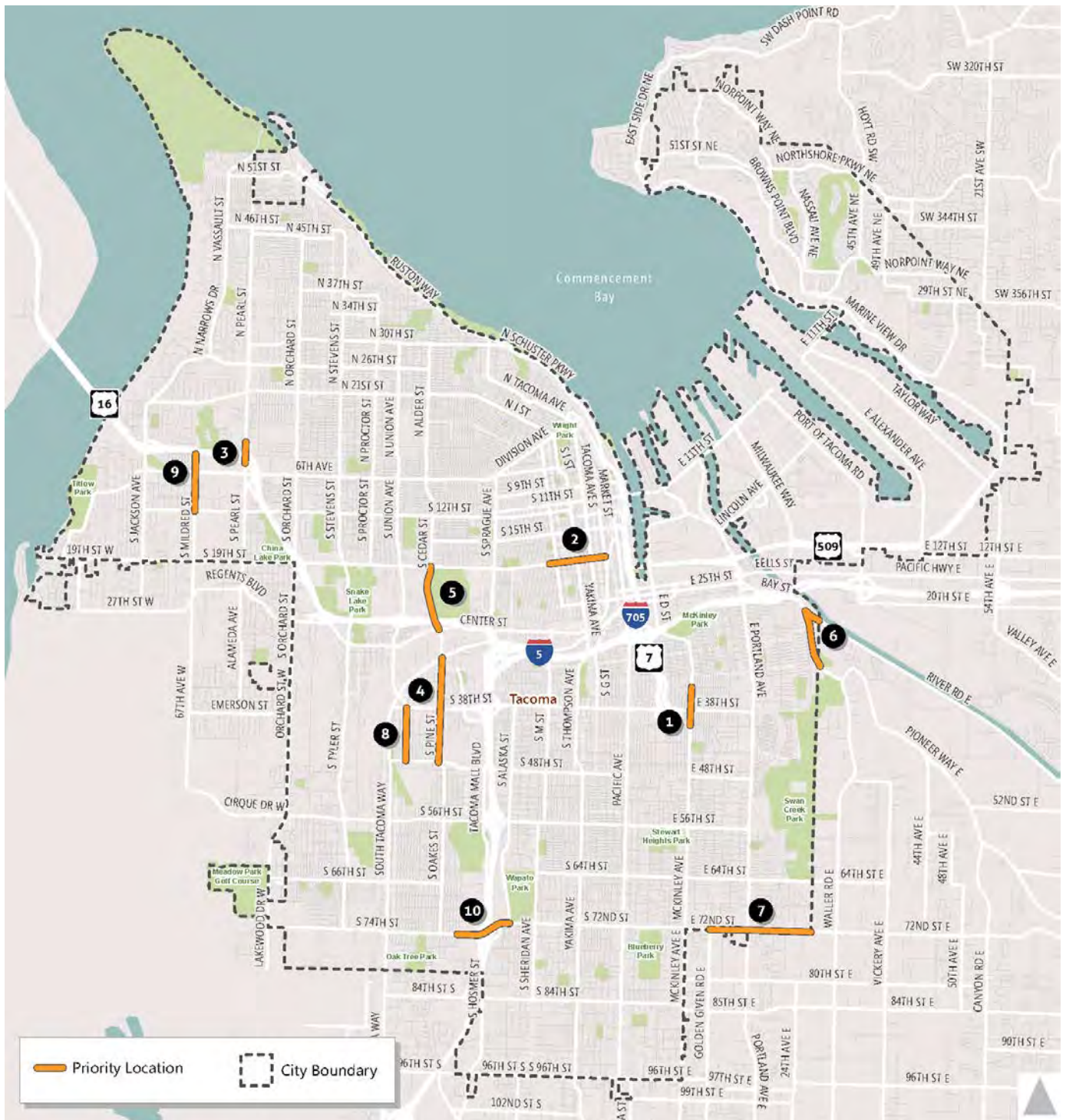
## Other High Risk Locations

These projects were not chosen for the priority project list but could be locations for future funding and safety projects and so are included for reference.

1. Division Avenue from S MLK Jr Way to Broadway
  - o Sound Transit TLE project
2. 6<sup>th</sup> Avenue from S MLK Jr Way to Broadway
  - o Good candidate for resurfacing and restriping with bike lanes
3. St Helens Ave/Market Street from S 6<sup>th</sup> Avenue to 19<sup>th</sup> Street
  - o Pierce Transit HCT project likely
4. S 11th Street from S Sheridan Avenue to Court C
  - o Streetscape Corridor Improvement project potential location
5. Earnest S Brazill Street from S Sheridan Avenue to Yakima Avenue
  - o Links to Opportunities project potential location
6. E 15<sup>th</sup> Street from SR 509 to St Paul Avenue
7. S Union Avenue from S Center Street to S 19<sup>th</sup> Street
8. Portland Avenue from E 32<sup>nd</sup> Street to I-5
  - o HSIP project underway

9. S 38<sup>th</sup> Street from Warner Street to I-5 northbound on/off ramps
  - Likely for a different HSIP project, but candidate for a complementary project
10. S Center Street from S Cedar Street to S Wilkeson Street
11. S Pacific Avenue from city limits to S 88<sup>th</sup> Street
  - HSIP project underway
12. S Thompson Avenue from the I-5 bridge to 40<sup>th</sup> Street
  - Good candidate for resurfacing and restriping with bike lanes
13. E Portland Avenue from 68<sup>th</sup> Street to 74<sup>th</sup> Street
  - HSIP project underway
14. N Alder Street from N 7<sup>th</sup> Street Alley to S 7<sup>th</sup> Street
15. S Sprague Avenue from S 8<sup>th</sup> Street to Division Avenue
  - Possible roundabout location
16. Pacific Avenue from 27<sup>th</sup> Street to 28<sup>th</sup> Street
17. S 72<sup>nd</sup> Street from D Street to Pacific Avenue
18. 84<sup>th</sup> Street from F Street to G Street
19. S Jackson Avenue from SR 16 to 6<sup>th</sup> Avenue, continuing along 6<sup>th</sup> Avenue to S Meyers Street
  - Likely for a different HSIP project, but candidate for a complementary project
20. S 12th Street from S Jackson Street to S Pearl Street
  - Good candidate for resurfacing and restriping with bike lanes
21. S 19th Street from Grandview Drive W to S Pearl Street
22. I Street from N 4<sup>th</sup> Street to Yakima Avenue; Yakima Avenue from I Street to S 27<sup>th</sup> Street
23. S Tacoma Way at 48<sup>th</sup> Street
24. 56<sup>th</sup> Street from S Hood Street to Washington Street
  - Current project underway

Figure 14: Priority Segment Locations



# Countermeasures

Countermeasures are actions that the City can take to potentially reduce the number and severity of KSI and bicycle/pedestrian collisions. These include a variety of roadway, lighting, and pedestrian facility changes, but also include programmatic actions such as education.

## Countermeasure Identification

To identify potential countermeasures, the City referenced material from WSDOT Target Zero<sup>6</sup> and from recent Vision Zero studies in California cities including Sunnyvale, CA<sup>7</sup> and Sacramento, CA<sup>8</sup>.

Countermeasures included changes to signage, physical access and speed restrictions, modifications to lanes, upgrades to signals, new or improved bicycle and pedestrian facilities, and education.

Over 40 countermeasures were selected based on their ability to address the risk factors identified within the City of Tacoma. The countermeasures applied to a location must be geographically and financially feasible and work with the City's priorities for the transportation network.

The countermeasures were evaluated based on efficacy, cost, and complexity. While the City is seeking low cost, low complexity, and highly effective safety improvements that target the primary risk factors, countermeasures that fall outside this criteria were still considered and could be appropriate depending on a priority location's unique circumstances. **Table 10** shows the list of countermeasures considered and their scoring.

## Application Along Priority Segments

Once countermeasures were identified and evaluated, these were cross-referenced with the ten priority locations to determine which measures were most appropriate along each corridor. Discussion with City staff, an understanding of needs and location priorities, and engineering best practice narrowed the countermeasure list for each location. When considering projects, the priorities mapped in the Tacoma Transportation Master Plan were considered for planned automobile, transit, and bicycle corridors.<sup>9</sup> Projects improving pedestrian safety were considered in all locations.

**Appendix A** shows the countermeasures considered for each priority location.

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<sup>6</sup> Washington State Strategic Highway Safety Plan "Target Zero" (2016)

<sup>7</sup> Sunnyvale Vision Zero (draft)

<sup>8</sup> Sacramento Vision Zero (draft 2018)

<sup>9</sup> City of Tacoma Transportation Master Plan (2015), page 104.

Table 10: Countermeasures Considered

Countermeasure Group	Candidate Engineering Countermeasure	Efficacy	Cost	Complexity
<b>Guide and Feedback Signs</b>	Speed indicator signs	Med	Med	Low
	Reduce posted speed limit	Low	Low	Low
<b>Physical Access Restrictions</b>	Median treatment	High	High	High
<b>Physical Devices for Speed Maintenance</b>	Speed humps, speed cushions, and speed tables	High	Low	Low
	Chicanes and narrowed intersections	High	Med	High
<b>Turning Movement Modifications</b>	Right turn on red restriction	Med	Low	Low
	Protected turns (turn pockets & signal phasing)	Med	Low	Low
	Left turn restrictions	High	Low	Low
<b>Traffic Signal Upgrade (Minor Operational Change)</b>	Leading bike interval	Med	Low	Low
	Leading pedestrian interval	Med	Low	Low
	Dilemma Zone Detection	Med	Med	Low
	Bicycle signal detection (pushbutton, loop detector)	n/a	Low	Low
	Add additional pedestrian crossing time	Med	Low	Low
	Add back plates with retro-reflective borders to signals, and improve visibility of signals and signs at intersections	Low	Low	Low
	Implement automated enforcement (photo red-light cameras) of red-light	Low	Low	High
<b>Traffic Signal Upgrade (Major Operational Change)</b>	New traffic signal	High	High	Med
	Signal timing improvements	High	Low	Low
	Add bicycle signals	Med	Med	Low
<b>Crosswalk Installation and/or Upgrade</b>	Pedestrian Hybrid Beacon	High	Med	Low
	New uncontrolled crosswalk (unsignalized)	Med	Low	Low
	High visibility crosswalks with advance stop or yield lines	Med	Low	Low
	New sidewalks to fill gaps	n/a	Med	Med
	Intersection, street-scale lighting	High	Med	Low

<b>Countermeasure Group</b>	<b>Candidate Engineering Countermeasure</b>	<b>Efficacy</b>	<b>Cost</b>	<b>Complexity</b>
	Pedestrian refuge islands and medians and shortening crossing distance	Med	Med	Low
<b>Corner Modifications</b>	Curb radius reduction with low-cost materials	n/a	Low	Low
	Bulb outs with low-cost materials	High	Low	Low
<b>"Rotary" Intersection Conversion</b>	Roundabouts	High	High	High
<b>New Bicycle Facilities</b>	Bike lanes	Med	Med	Low
	Buffered bike lanes	Med	High	Med
	Create bicycle boulevards on low volume, low speed streets	Med	Low	Med
	Separate shared-use or bicycle path	High	High	High
<b>Bicycle Facility Upgrade (Minor)</b>	Bike box	High	Low	Low
	Two-stage turn queue box	n/a	Med	High
	Green colored pavement	n/a	Med	Low
	Bike lane intersection treatments (mixing zones, bend-in/out, dashed line striping)	n/a	Low	Low
<b>Road and Striping Modification</b>	Lane narrowing	Med	Med	Med
	Increase road surface skid resistance using high friction surface treatments	n/a	High	High
	Install or increase illumination at locations with night time collisions	Med	Med	Med
	Redesign intersection approaches to improve sight distances and improve intersection visibility on approaches	Med	Low-High	Low-High
	Road diet	High	Med	High
<b>Education</b>	Implement Safe Routes to School programs and invest in constructing pedestrian and bicycle facilities near school	High	Med	Med
	Targeted Educational Campaigns (DD, Rideshare, Transit)	n/a	n/a	High

Efficacy is referencing the Crash Modification Factors Clearinghouse (FHWA, 2018). Efficacy is defined as follows:

- High = Proven to be effective based on several evaluations with consistent results
- Med = Generally accepted to be effective based on evaluations or other sources
- Low = Lower quality rating; limited evaluation or evidence; experimental; outcomes inconsistent and inconclusive between studies
- n/a = No source found

Fehr & Peers, 2018



## Prioritized Project List

The list below contains the City of Tacoma’s project priorities with an estimated cost for each. The projects are not listed in order of priority. **Please note that additional engineering study is needed prior to permit, design, and construction phases of any of the projects listed in this plan. Cost estimates are planning-level, so further analysis will be needed prior to design and construction.**

The City of Tacoma did not have a data inventory of some circumstantial geospatial data that could have better informed this analysis. This project list includes funding requests for data collection projects for use in future collision studies.

Table 11: Priority Project List

ID	Location	Project Description	Cost Estimate <sup>10</sup>
<b>Location-Based Projects</b>			
<b>1a.</b>	McKinley Ave E from E 36 <sup>th</sup> St to E 40 <sup>th</sup> St	On McKinley Avenue at 37 <sup>th</sup> Street, add ADA curb ramps, bulb outs, and additional street lighting at crossing, which would require shifting the bus stop to the south.	\$75,000
<b>1b.</b>	McKinley Ave E from E 36 <sup>th</sup> St to E 40 <sup>th</sup> St	Install an RRFB across McKinley Avenue at 36 <sup>th</sup> Street, assuming guidance is met. Add ADA curb ramps, bulb outs and additional street lighting at crossing.	\$95,000
<b>1c.</b>	McKinley Ave E from E 36 <sup>th</sup> St to E 40 <sup>th</sup> St	Add bike lanes on McKinley Avenue. Parking removal or widening would be needed.	\$14,000 (assumes parking removal)
<b>2a.</b>	S 19 <sup>th</sup> St from L St to Jefferson Ave	At 19 <sup>th</sup> Street/Fawcett Avenue, add enhancements to pedestrian crossings across 19 <sup>th</sup> Street, such as RRFBs or PHBs.	\$237,000
<b>2b.</b>	S 19 <sup>th</sup> St from L St to Jefferson Ave	At the 19 <sup>th</sup> Street/Tacoma Avenue and 19 <sup>th</sup> Street/Yakima Avenue intersections, add protected left-turn phasing (which would include signal cabinet/controller replacement), and high visibility crosswalks across all legs.	\$241,000 (per intersection)
<b>2c.</b>	S 19 <sup>th</sup> St from L St to Jefferson Ave	At the 19 <sup>th</sup> Street/J Street and 19 <sup>th</sup> Street/M.L.K. Jr Way intersections, add protected left-turn phasing (which would include signal cabinet/controller replacement).	\$203,000 (per intersection)
<b>2d.</b>	S 19 <sup>th</sup> St from L St to Jefferson Ave	At the 19 <sup>th</sup> Street/G Street and the 19 <sup>th</sup> Street/I Street intersections, add enhanced pedestrian crossings across 19 <sup>th</sup> Street including RRFBs or PHBs. At I Street, the crosswalk would need to be on the east leg due to vertical curvature.	\$237,000 (per intersection)
<b>2e.</b>	S 19 <sup>th</sup> St from L St to Jefferson Ave	At the 19 <sup>th</sup> Street/Market Street intersection, add protected left-turn phasing (which would include signal cabinet/controller replacement) and high	\$335,000

<sup>10</sup> 35% was added to the cost to account for preliminary engineering and construction engineering

<b>ID</b>	<b>Location</b>	<b>Project Description</b>	<b>Cost Estimate<sup>10</sup></b>
		visibility crosswalks across all legs, ADA compliant curb ramps, and ADA compliant pushbuttons.	
<b>2f.</b>	S 19 <sup>th</sup> St from L St to Jefferson Ave	At the 19 <sup>th</sup> Street/Jefferson Avenue intersection, add high visibility crosswalk striping across all legs, ADA compliant curb ramps, and potentially a median refuge island on 19 <sup>th</sup> Street.	\$70,000
<b>2g.</b>	S 19 <sup>th</sup> St from L St to Jefferson Ave	Install speed indicator signs in downhill portions of roadway (2 eastbound, 1 westbound).	\$41,000
<b>3a.</b>	N Pearl St from N 11 <sup>th</sup> St to N 9 <sup>th</sup> St (under SR 16)	Add the following trail crossing improvements: Widen both curb openings on each side of Scott Pierson Trail to 8 feet or more. (This may require one relocation and one additional drainage inlet.) Move the stop bar back from the crosswalk by a minimum of 8 feet to increase visibility. Consider relocating the chain link fence on the west side of the trail crossing back to increase sight lines. Add push button for bikes on the west side of Pearl Street on the south side of trail.	\$62,000
<b>3b.</b>	N Pearl St from N 11 <sup>th</sup> St to N 9 <sup>th</sup> St (under SR 16)	Increase lighting of the trail crossing location.	\$41,000
<b>3c.</b>	N Pearl St from N 11 <sup>th</sup> St to N 9 <sup>th</sup> St (under SR 16)	Add a raised median on N Pearl Street between Bantz Boulevard and N 11 <sup>th</sup> Street where left turns are not possible, maintaining access to Westside Estates driveway.	\$135,000
<b>3d.</b>	N Pearl St from N 11 <sup>th</sup> St to N 9 <sup>th</sup> St (under SR 16)	Reconstruct driveway at entrance to Westside Estates to improve pedestrian crossing across the driveway.	\$5,000
<b>3e.</b>	N Pearl St from N 11 <sup>th</sup> St to N 9 <sup>th</sup> St (under SR 16)	Tighten the turn radius of the northeast corner of the Bantz Blvd & N Pearl Street intersection and remove the taper to slow down right turning vehicles and shorten pedestrian crossing distance.	\$85,000
<b>3f.</b>	N Pearl St from N 11 <sup>th</sup> St to N 9 <sup>th</sup> St (under SR 16)	Add ADA compliant curb ramps at N Pearl Street and N 11 <sup>th</sup> Street. Consider adding crosswalk on south leg.	\$71,000
<b>4a.</b>	S Pine St from S Tacoma Way to S 47 <sup>th</sup> St	At the Pine Street/Tacoma Way, Pine Street/35 <sup>th</sup> Street, Pine Street/36 <sup>th</sup> Street, and Pine Street/38 <sup>th</sup> Street intersections, add high visibility crosswalks, ADA compliant curb ramps, and APS where applicable.	\$297,000
<b>4b.</b>	S Pine St from S Tacoma Way to S 47 <sup>th</sup> St	Install pedestrian hybrid beacon at 40 <sup>th</sup> Street, 42 <sup>nd</sup> Street, or 43 <sup>rd</sup> Street across S Pine Street. If at 40 <sup>th</sup> Street, it would need to be located on the south leg of the intersection.	\$237,000
<b>4c.</b>	S Pine St from S Tacoma Way to S 47 <sup>th</sup> St	Add pedestrian crossing across the north leg of the Pine Street/45 <sup>th</sup> Street intersection to better serve bus stops, restripe the existing crosswalks on the east and south legs, and add pedestrian push buttons.	\$60,000



<b>ID</b>	<b>Location</b>	<b>Project Description</b>	<b>Cost Estimate<sup>10</sup></b>
<b>4d.</b>	S Pine St from S Tacoma Way to S 47 <sup>th</sup> St	Fill sidewalk gaps on S Pine Street from S Tacoma Way to just south of S 36 <sup>th</sup> Street.	\$374,000
<b>5a.</b>	S Cedar St from S 19 <sup>th</sup> St to Center St	Install sidewalks on the west and east side of Cedar Street from Center Street to just north of the SR 16 overcrossing.	\$272,000
<b>5b.</b>	S Cedar St from S 19 <sup>th</sup> St to Center St	Replace narrow sidewalk on west side of Cedar Street from just north of the SR 16 overcrossing to the Allenmore Ridge Driveway.	\$380,000
<b>5c.</b>	S Cedar St from S 19 <sup>th</sup> St to Center St	Implement road diet from 19 <sup>th</sup> Street to Center Street going from two lanes in each direction with a center turn lane to a single lane in each direction, maintaining the turn lane. Add video vehicle detection for new lane configuration at S 19 <sup>th</sup> Street, S 23 <sup>rd</sup> Street, and Center Street intersections. Add buffered protected bike lanes (striped buffer with vertical separator) for entire corridor.	\$159,000
<b>5d.</b>	S Cedar St from S 19 <sup>th</sup> St to Center St	Upgrade the traffic signal at 23 <sup>rd</sup> Street & Cedar Street in the form of 12-inch signal heads with back plates with retro-reflective borders, APS pushbuttons, and countdown pedestrian heads. At this intersection, also add high visibility crosswalk striping, and upgrade curb ramps to be ADA compliant.	\$231,000
<b>6a.</b>	Pioneer Way from Bay St to city limits	Multimodal accommodations and connection improvements – add shared use path on west side of Pioneer Way along the entire corridor. This may require some retaining walls and significant drainage (ditch and culvert) construction. Add pedestrian scale lighting to the sidewalk. Select a fixture that minimizes light intrusion. At Pioneer Way & SR 167, compress the signal footprint and enhance pedestrian crossing(s).	\$7,830,000
<b>7a.</b>	72 <sup>nd</sup> St E from Golden Given Rd E to city limits	Provide the following pedestrian improvements: Fill sidewalk gaps from Portland Avenue to city limits. On 72 <sup>nd</sup> Street at the intersections with 12 <sup>th</sup> Avenue E, 20 <sup>th</sup> Avenue E, and E Grandview Avenue, add appropriate uncontrolled pedestrian crossing treatments, which will include ADA compliant curb ramps to serve the transit stops and may also include context-appropriate signing, striping, and beacons.	\$2,132,000
<b>7b.</b>	72 <sup>nd</sup> St E from Golden Given Rd E to city limits	Implement a 4 to 3 lane road diet east of Portland Ave.	\$45,000
<b>7c.</b>	72 <sup>nd</sup> St E from Golden Given Rd E to city limits	At the intersection of 72 <sup>nd</sup> Street/Portland Avenue, add ADA ramps on the east side corners and crosswalks to all legs.	\$31,000

<b>ID</b>	<b>Location</b>	<b>Project Description</b>	<b>Cost Estimate<sup>10</sup></b>
<b>8a.</b>	S Warner St from S 38 <sup>th</sup> St to S 47 <sup>th</sup> St	Provide intersection improvements at Warner Street & 38 <sup>th</sup> Street, such as signal modifications, pedestrian crossing improvements, and ADA accommodation.	\$405,000
<b>8b.</b>	S Warner St from S 38 <sup>th</sup> St to S 47 <sup>th</sup> St	Install buffered bike lanes from S 38 <sup>th</sup> Street to S 47 <sup>th</sup> Street. This will require removing parking from S 38 <sup>th</sup> Street to S 40 <sup>th</sup> Street, and removing the center turn lane south of S 40 <sup>th</sup> Street. Add video vehicle detection for new lane configuration at 47 <sup>th</sup> Street intersection.	\$72,000
<b>8c.</b>	S Warner St from S 38 <sup>th</sup> St to S 47 <sup>th</sup> St	Install buffered bike lanes from 40 <sup>th</sup> Street to 47 <sup>th</sup> Street.	\$36,000
<b>8d.</b>	S Warner St from S 38 <sup>th</sup> St to S 47 <sup>th</sup> St	At the Warner Street/40 <sup>th</sup> Street and Warner Street/45 <sup>th</sup> Street intersections, add corner bulb outs and high visibility crosswalks at 40 <sup>th</sup> Street, 43 <sup>rd</sup> Street, and 45 <sup>th</sup> Street.	\$176,000
<b>8e.</b>	S Warner St from S 38 <sup>th</sup> St to S 47 <sup>th</sup> St	Close sidewalk gaps on both sides of Warner Street between 43 <sup>rd</sup> Street and 47 <sup>th</sup> Street.	\$465,000
<b>8f.</b>	S Warner St from S 38 <sup>th</sup> St to S 47 <sup>th</sup> St	At the Warner Street/47 <sup>th</sup> Street intersection, add high visibility crosswalks on all legs, install ADA compliant curb ramps, and add vehicle video detection for new ramp positions.	\$85,000
<b>9a.</b>	Mildred St from N 9 <sup>th</sup> St (Scott Pierson Trail) to S 12 <sup>th</sup> St	Road diet from 6 <sup>th</sup> Avenue to S 12 <sup>th</sup> Street, reducing vehicle lanes from two in each direction to one in each direction plus a center turn-lane/median. Add video vehicle detection for new lane configuration at the intersection of 6 <sup>th</sup> Avenue & Mildred Street. Add buffered bike lanes from N 9 <sup>th</sup> Street to S 12 <sup>th</sup> Street.	\$75,000
<b>9b.</b>	Mildred St from N 9 <sup>th</sup> St (Scott Pierson Trail) to S 12 <sup>th</sup> St	Install sidewalk on the west side of N Mildred Street from 6 <sup>th</sup> Avenue to N 9 <sup>th</sup> Street.	\$257,000
<b>9c.</b>	Mildred St from N 9 <sup>th</sup> St (Scott Pierson Trail) to S 12 <sup>th</sup> St	Improve the N 9 <sup>th</sup> Street/N Mildred Street intersection by removing the northbound free right-turn, adding curb extensions, adding ADA compliant curb ramps, and highlighting/enhancing the connection across N 9 <sup>th</sup> Street to the Scott Pierson Trail.	\$23,000
<b>9d.</b>	Mildred St from N 9 <sup>th</sup> St (Scott Pierson Trail) to S 12 <sup>th</sup> St	Improve the 6 <sup>th</sup> Avenue/Mildred Street intersection by upgrading pedestrian push buttons, adding ADA compliant curb ramps, and striping crosswalks.	\$227,000
<b>9e.</b>	Mildred St from N 9 <sup>th</sup> St (Scott Pierson Trail) to S 12 <sup>th</sup> St	At the S 8 <sup>th</sup> Street/S Mildred Street intersection or the S 10 <sup>th</sup> Street/Mildred Street intersection, add an enhanced pedestrian crossing (RRFB, flashing LED sign, PHB, etc.), potentially add a median refuge island, and install ADA compliant curb ramps.	\$119,000 (per intersection)
<b>10a.</b>	S 72 <sup>nd</sup> St at I-5	Add auxiliary lane for westbound traffic starting at S Hosmer St turning right northbound onto I-5.	\$680,000

<b>ID</b>	<b>Location</b>	<b>Project Description</b>	<b>Cost Estimate<sup>10</sup></b>
<b>Data Request Projects</b>			
<b>11.</b>	Citywide	Add permanent bike counters at specific locations within the City (6 in-road locations and 6 trail locations). This project could be scaled back if necessary.	\$109,000
<b>12.</b>	Citywide	Conduct AM peak, mid-day, and PM peak pedestrian and bicycle counts at 20 key locations. This project could be scaled back if necessary.	\$11,000
<b>13.</b>	Citywide	Conduct a median and traffic island inventory.	\$26,000
<b>14.</b>	Citywide (240 centerline miles of arterials & 570 centerline miles of non-arterials)	Conduct a clear zone and fixed object inventory. Data collection on fixed objects within the clear zone, such as utility poles, trees, irrigation structures, etc. This project could be scaled back if necessary.	\$48,000 (arterials)  \$113,000 (non-arterials)
<b>15.</b>	Citywide (240 centerline miles of arterials)	Conduct a sidewalk and crosswalk inventory to identify where there are gaps in the network. This project could be scaled back if necessary.	\$36,000 (arterials)
<b>Other Projects</b>			
<b>16.</b>	190 sites	Add raised pavement markers to the 190 known locations of traffic islands and medians.	\$12,000

## Conclusion

Data propels the City to seek low cost, low complexity, and highly effective safety improvements that target the primary risk factors in Tacoma. The City identified and prioritized streets utilizing these specific risk criteria and selected countermeasures with opportunity to mitigate risk. The City will use this plan to inform future updates of the Transportation Master Plan, which is updated every two years in conjunction with the Comprehensive Plan update.

## Appendix A: Countermeasure-Project Pairing

The following table pairs the 10 priority project locations with the countermeasures that would be most likely to be implemented in each location based on corridor characteristics, roadway geometry, and the risk factors present. Lowercase 'x' indicates potential countermeasures that were not chosen for the final project list but could be considered for future projects, while uppercase 'X' indicates countermeasures that were included on the project list.

Countermeasure Group	Candidate Countermeasure	Mildred St	19th St	Cedar St	Warner St	Pine St	Pioneer Way/ River Rd	E 72nd St	Pearl St	McKinley Ave	S 72nd St
Guide and Feedback Signs	Speed indicator signs	x	<b>X</b>	x		x		x			x
	Reduce posted speed limit	x			x	x				x	
Physical Devices for Speed Maintenance	Speed humps, speed cushions, and speed tables				x					x	
	Chicanes and narrowed intersections				x					x	
Turning Movement Modifications	Right turn on red restriction		x	x					x		
	Protected turns (turn pockets & signal phasing)		<b>X</b>	x							
	Left turn restrictions			x							
Traffic Signal Upgrade (Minor Operational Change)	Leading bike interval	x		x		x					
	Leading pedestrian interval	x	x	x		x		x			

Countermeasure Group	Candidate Countermeasure	Mildred St	19th St	Cedar St	Warner St	Pine St	Pioneer Way/ River Rd	E 72nd St	Pearl St	McKinley Ave	S 72nd St
Traffic Signal Upgrade (Minor Operational Change)	Bicycle signal detection (pushbutton, loop detector)	x		x		x			<b>X</b>		
	Add additional pedestrian crossing time		x	x							x
	Add back plates with retro-reflective borders to signals, and improve visibility of signals and signs at intersections		x	<b>X</b>		x	x	x	x		x
	Implement automated enforcement (photo red-light cameras) of red-light		x	x	x	x	x	x	x	x	x
Traffic Signal Upgrade (Major Operational Change)	Signal timing improvements				<b>X</b>			x	x		
	Add bicycle signals			x		x					
Crosswalk Installation and/or Upgrade	Pedestrian Hybrid Beacon	<b>X</b>	<b>X</b>	x	x	<b>X</b>				<b>X</b>	
	New uncontrolled crosswalk (unsignalized)		x		x	x					
	High visibility crosswalks with advance stop or yield lines	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	x	<b>X</b>	<b>X</b>	<b>X</b>	
	New sidewalks to fill gaps	<b>X</b>		<b>X</b>	<b>X</b>	<b>X</b>	x	<b>X</b>			
	Intersection, street-scale lighting							x	<b>X</b>	<b>X</b>	x
	Pedestrian refuge islands and medians and shortening crossing distance	<b>X</b>	<b>X</b>			x	x		<b>X</b>		x

Countermeasure Group	Candidate Countermeasure	Mildred St	19th St	Cedar St	Warner St	Pine St	Pioneer Way/ River Rd	E 72nd St	Pearl St	McKinley Ave	S 72nd St
Corner Modifications	Curb radius reduction with low-cost materials		x		x	x					
	Bulb outs with low-cost materials	<b>X</b>	x		<b>X</b>	x				<b>X</b>	
New Bicycle Facilities	Bike lanes									<b>X</b>	
	Buffered bike lanes	<b>X</b>		<b>X</b>	<b>X</b>	x				x	<b>X</b>
	Separate shared-use or bicycle path			x		x	<b>X</b>			x	<b>X</b>
Road and Striping Modification	Lane narrowing	x		x	x		x		x		
	Increase road surface skid resistance using high friction surface treatments		x	x		x					
	Install or increase illumination at locations with night time collisions	x	x	x	x	x	<b>X</b>	x	x	x	x
	Redesign intersection approaches to improve sight distances and improve intersection visibility on approaches		x								
	Road diet	<b>X</b>		<b>X</b>	x			<b>X</b>			



Countermeasure Group	Candidate Countermeasure	Mildred St	19th St	Cedar St	Warner St	Pine St	Pioneer Way/ River Rd	E 72nd St	Pearl St	McKinley Ave	S 72nd St
Education	Implement Safe Routes to School programs and invest in constructing pedestrian and bicycle facilities near school	x							x	x	
	Targeted Educational Campaigns (DD, Rideshare, Transit)	x	x				x		x	x	x

**Source:**  
Fehr & Peers, 2018





ANTHEM  
BEVERAGE  
BISTRO

MAP

BILLANOE

21

1002

LINK TRANSIT

Link

MUSEUM





Seattle Department of Transportation

# SAFE STREETS AND ROADS FOR ALL (SS4A)

## Grant Proposal



**Seattle**  
Department of  
Transportation

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# PROJECT OVERVIEW

In 2015, the City of Seattle launched a Vision Zero program and published its [Vision Zero Action Plan](#): a commitment to end traffic deaths and serious injuries on city streets by 2030. Since then, Seattle has followed up with 2017 and 2019 updates to the 2015 action plan. In the places where we've focused and invested, we've seen significant improvements. However, overall trends are headed in the wrong direction. Since 2015, more than 1,200 people have been seriously injured and 181 people have been killed. The most vulnerable travelers (people walking,

rolling, and biking) and the most marginalized community members (Black residents and our neighbors experiencing homelessness) are disproportionately affected. High speeds and failure to yield to pedestrians are two of the top contributing factors to fatal crashes in Seattle.

Given these factors, our Safe Streets for All (SS4A) proposal focuses on implementing a variety of proven countermeasures that are heavily concentrated in our most disadvantaged and disinvested communities (SS4A Underserved







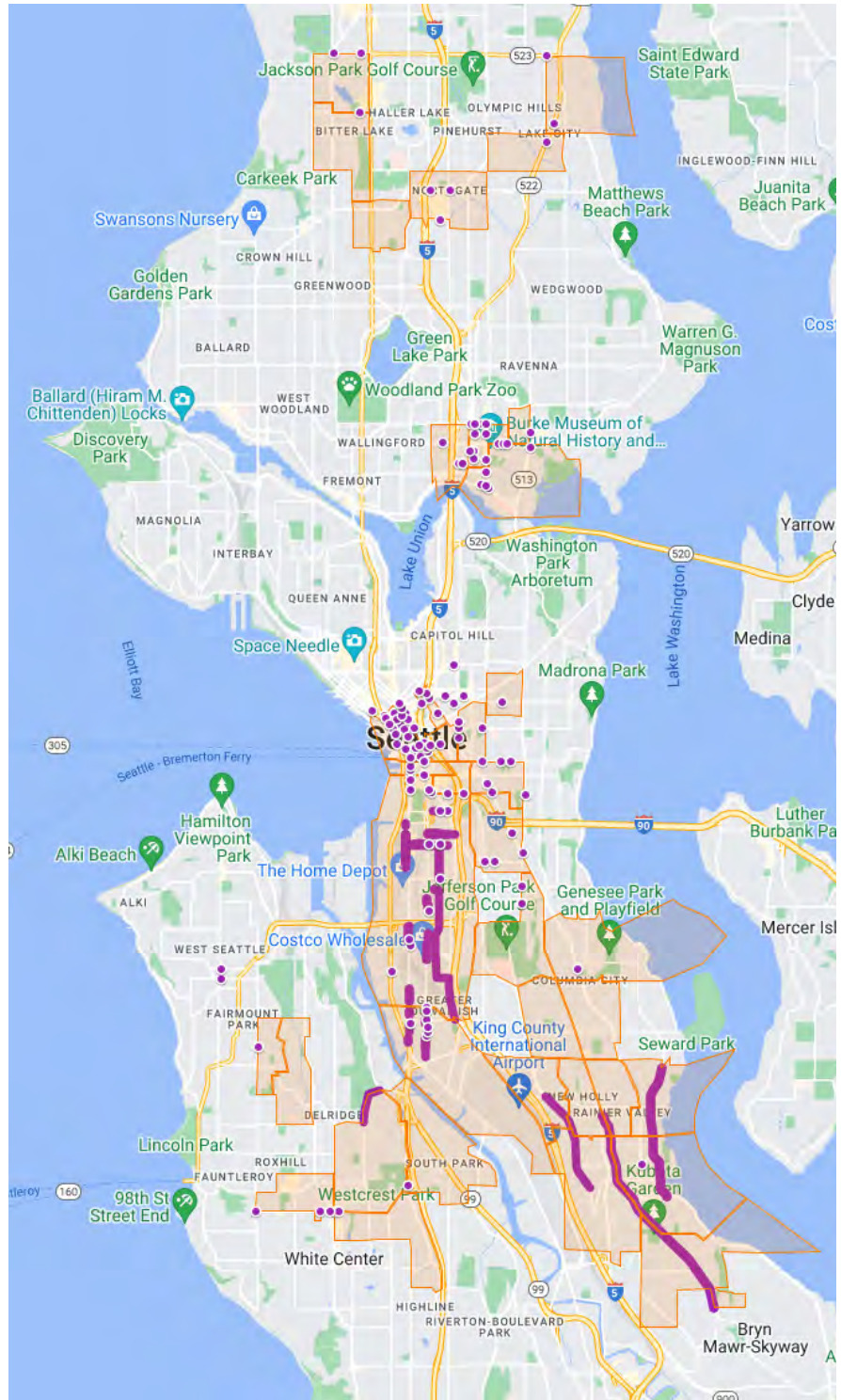
Communities census tracts). The proposed scope implements community-supported work directly from our local [Vision Zero Action Plan and its supporting plans and documents](#), including our [Pedestrian Master Plan](#), [Bicycle Master Plan](#), and [Bicycle and Pedestrian Safety Analysis \(risk factor analysis\)](#). This proposal's vision is also solidly founded on our recently published [Transportation Equity Framework](#), an innovative and forward-thinking tool that allows us to actualize our vision of racial and social justice. This proposal focuses on deploying a full package of low-cost, high-impact strategies primarily in Underserved Communities, with a particular emphasis on the most vulnerable travelers – people walking, rolling, and biking. Applying standard evidence-based interventions such as protected bicycle lanes, sidewalks,

leading pedestrian intervals, marked crosswalks, and traffic calming tools like speed cushions, in the areas of highest need improves safety for all travelers across broad regions of the city.

It is important to highlight that safety and social justice work also includes disability rights. Pedestrian interactions with motor vehicles bring safety risks, which are amplified for persons with disabilities, including those who use mobility devices, have low or no vision, or are Deaf-Blind. The boundary between the sidewalk and roadway is a physical barrier for people using mobility devices and can present additional safety issues for persons who cannot see where to safely cross the street.

# PROJECT LOCATION

Locations for spot and corridor projects were primarily selected from within Underserved Communities and prioritized within existing SDOT Action Plans. The projects focus on safe pedestrian access (sidewalks, accessible pedestrian push buttons, ADA ramps), safe pedestrian crossings (leading pedestrian intervals, curb extensions, pedestrian refuge islands, rectangular rapid flashing beacons), safe bicycling access (protected bike lanes), and vehicular speed management (arterial traffic calming).



**Purple:** Planned project locations for SS4A  
**Orange:** SS4A Underserved Communities census tracts



# SELECTION CRITERIA

## SAFETY IMPACT

Pedestrians are Seattle's most vulnerable travelers for fatal and serious injury collisions. People walking or rolling (using a wheelchair or mobility assistive device) are involved in 4% of total crashes, yet account for 53% of people killed between 2016 and 2020. In Seattle, 93% of pedestrian fatalities occur on arterial streets, the vast majority (80%) of which are multilane arterials with the fastest speeds and greater exposure risk to people walking and rolling along or across the street. **The top contributing factors to pedestrian crashes are high speeds and failure to yield to pedestrians, both of which relate to street design.**

Southeast Seattle and the SODO (south of downtown) neighborhood contain the highest concentration of Underserved Community census tracts as well as the most miles of multilane arterial streets and the highest concentration of pedestrian fatalities in the city. This area is collectively identified as Council District 2 (D2), and since it spans industrial areas as well as many nearby and downwind residential communities, the correlation with crash rates is not coincidental. The roads in our SODO manufacturing/industrial center were designed generations ago to maximize throughput of heavy trucks while de-emphasizing or even actively discouraging pedestrian and bicycle access. The nearby communities have suffered from a predictable cycle of declining property values, redlining, and on-going, multi-generational underinvestment.

From 2016 to 2020, 10 people have been killed while biking in Seattle. More than 70% of people killed in Seattle while biking were on a street where no bike facility was provided, and nearly two-thirds of people killed while biking were riding in southeast Seattle or the SODO neighborhood.

The Bicycle and Pedestrian Safety Analysis (BPSA) is Seattle's proactive tool used to indicate exposure risk at the intersection level for people walking, rolling, and biking. This tool highlights multiple risk factors, noting that intersection size (including the number of lanes and number of legs) is positively associated with pedestrian crashes. In addition, functional classification, particularly major and minor arterials, as well as high speeds, also have a significant and strong association with pedestrian crashes. Findings from the BPSA underscore the need to focus on safety improvements that promote predictability of all travelers, increase time and physical separation between modes, and provide more protection and accessibility for people crossing the street where high-risk factors exist.

In addition, people with accessibility needs have greater challenges navigating the pedestrian traveled way. Constructing accessible curb ramps with detectable warning surfaces provide the necessary accessible route for all users to cross streets in a predictable space, while accessible pedestrian signals (APS) notify persons with visual impairments when they have the walk signal to cross at a signalized intersection. It is especially important to add APS to intersections where leading pedestrian intervals (LPIs) exist in order to provide auditory cues in the absence of moving vehicle traffic. It is critical to address this need to further reduce burdens, especially within Underserved Communities, to create a fully inclusive public right-of-way.

Table 1 provides a summary of SS4A planned safety project treatment types to address known systemic crash patterns. All planned projects are on arterial streets where we see the most severe and highest number of serious injury and fatal collisions. Proposed treatments are described below, and the estimated effectiveness of each treatment is derived from FHWA's Crash Modification Clearinghouse.



**TABLE 1 : SAFETY TREATMENTS**

Treatment type	Targeting
111 signalized intersection treatments, including APS and LPI	40% of pedestrian serious injury and fatal collisions occur at signalized intersections
6 unsignalized intersection treatments	20% of pedestrian serious injury and fatal pedestrian collisions occur at unsignalized intersection
4.0 miles of protected bike lanes	70% of bicyclist fatal collisions occur where no bike facility is present
1.5 miles of new sidewalks	35% of pedestrian serious injury and fatal pedestrian collisions occur midblock along arterial streets
4.5 miles of arterial traffic calming treatments	

**Signalized Intersections**

40% of serious injury and fatal pedestrian collisions occur at signalized intersections. This increases to **75%** for people who utilize mobility devices and may be less visible to turning drivers at traffic signals. Additionally, signalized intersections account for **95%** of high-risk factor priority locations as identified in the Bicycle and Pedestrian Safety Analysis (see map in Appendix B).

We have identified the following countermeasures to address pedestrian safety at signalized intersections (111 locations identified):

- **Leading pedestrian intervals** are an FHWA-proven safety countermeasure with a 13% typical reduction in pedestrian crashes. Local data at 150 existing LPI locations show a 20% reduction in pedestrian crashes and 35% reduction in serious injury and fatal collisions with people walking. 45 locations identified for SS4A funding fall within the top 10% of citywide intersections for pedestrian risk factors, and 3 additional locations fall within the top 15%.
- **Accessible pedestrian signals and ADA-compliant curb ramps** are vital to providing people with disabilities, especially persons with vision impairments, the ability to navigate city streets and cross safely at intersections. Whereas sighted people can discern when an intersection is safe to cross, persons with visual impairments,

especially people who are Deaf-Blind, rely on the vibrotactile features within the APS to notify them when a roadway is safe to cross. Among the locations identified for treatment, 107 fall within the top 10% of citywide intersections for high pedestrian risk factors, 3 locations fall within the top 15%, and 110 locations identified are rated either severely deficient or completely deficient for accessible pedestrian signals and ADA ramps (no audible or vibrotactile signals, no curbs ramps meet current ADA standards). 62 of these locations address signalized intersections where Leading Pedestrian Intervals already exist but that are APS deficient.

- **Enhanced accessible wayfinding treatments** such as detectable crosswalks and tactile intersection maps have been identified at 1 location. These treatments support persons with visual impairments to navigate the public right-of-way at a skewed and complicated intersection near a service center for blind individuals.

**Unsignalized Intersections**

20% of serious injury and fatal pedestrian collisions occur at unsignalized intersections. All locations targeted fall within the top 5% of citywide intersections for pedestrian risk factors in the BPSA. We identified the following

countermeasures to address pedestrian safety at unsignalized intersections (6 locations identified):

- **Marked crosswalks** are an FHWA-proven safety countermeasure and can reduce pedestrian collisions by 40%.
- **Rapid rectangular flashing beacons** are an FHWA-proven safety countermeasure and can reduce pedestrian collisions by 47%.
- **Curb extensions** reduce vehicle through and turning speeds and improve the visibility of pedestrians at crosswalks.

## Bicycle facilities

Two-thirds of citywide bicyclist fatalities have occurred in southeast Seattle and the SODO neighborhood. The areas targeted for SS4A bike projects lack comfortable and safe bicycle connections to the greater Seattle bike network. We identified the following countermeasures within Underserved Communities and along the high injury network to address bicyclist safety along arterial streets (4.0 miles of critical bike connections):

- **Protected bike lanes** can reduce bicyclist collisions by up to 92%.

## Sidewalks and arterial traffic calming

35% of serious injury and fatal pedestrian collisions occur along arterial streets between intersections. High speed is the leading contributing factor to arterial pedestrian collisions. We have identified the following countermeasures to address pedestrian safety along arterial streets that have high speeds and high pedestrian risk factors (6 miles total):

- Sidewalks are a proven safety countermeasure and can reduce collisions by 65%-89%; 1.5 miles of missing sidewalks have been identified that are within Underserved Communities, along high-speed multi-lane arterials, and on the high injury network.
- Arterial traffic calming treatments have been identified along 4.5 miles of arterial streets that have 85th percentile speeds 5-15 mph above the speed limit. 100% of the proposed SS4A traffic calming locations

are in Underserved Communities and are and on the high injury network.

- Speed humps slow vehicle speeds and reduce all crashes by 40-50%.
- Curb extensions reduce vehicle through/turning speeds, improve the visibility of pedestrians at crosswalks, and reduce pedestrian exposure.
- Raised medians can reduce all crashes by up to 39%.
- Raised crosswalks can slow vehicles and reduce pedestrian collisions by 46%.

## EQUITY, ENGAGEMENT, AND COLLABORATION

### Equitable safety investment in underserved communities

We primarily are focusing investment locations in Underserved Communities (approximately 97% of funding for this SS4A grant) and that corresponds to the majority of fatal and serious injury collisions in the City of Seattle. Sites that will be improved outside these Underserved Communities address key connectors or nearby destinations that serve the focus communities. The City utilizes a [Race & Social Equity Index tool](#) that specifically prioritizes increased investment within historically disadvantaged communities. It uses similar metrics to SS4A Underserved Communities related to race/origins, socioeconomic status, and health. Most safety treatments proposed in this application are focused in areas that currently experience some of the highest rates of socioeconomic inequality and that also have the highest proportions of people of color and immigrants in Seattle. Many safety treatment locations identified in this SS4A application have been unfunded but previously targeted for future safety dollars by Vision Zero staff using the Race & Social Equity Index prioritization.

### Transportation Equity Framework (TEF) – Community engagement

[Seattle's 2019 Vision Zero Update Report](#)

references a plan to more intentionally lead with equity and embed it as a core value into Vision Zero efforts. Staff from across SDOT (including

Vision Zero staff) worked hand in hand with a community Transportation Equity Workgroup over the past three years to develop [Seattle's Transportation Equity Framework](#) (TEF), published in 2022. The Workgroup is composed of financially compensated Black, Indigenous, and people of color (BIPOC) community members and leaders, representing community-based organizations and service providers with deep connections to communities of color across Seattle. The TEF framework was developed directly by the community workgroup, with City staff providing information and refinement to encompasses eight strategy areas (including Safety and Transportation Justice) and 220 specific tactics to advance racial equity within transportation. A number of specific tactics pertain to this proposal and our efforts to equitably advance Vision Zero in Seattle:

- *Tactic 37.1 Collaborate with and fairly compensate community-based organizations serving BIPOC and vulnerable communities to collect stories and narratives related to mental and physical safety; use stories as part of decision-making processes.*
- *Tactic 38.3 Identify new and less regressive federal, state and City funding and advocate to invest in pedestrian safety, including crosswalks, sidewalks, traffic calming, lighting, signal operations, etc.; include analysis from the Pedestrian Racial Equity Toolkit into this process.*
- *Tactic 40.2 Identify locations for new or upgraded pedestrian crossing opportunities to support access to transit.*
- *Tactic 42.1 Co-develop a working definition for "safety" with Transportation Equity Workgroup Members, as well as other BIPOC and vulnerable community members which then SDOT can use for the entire department.*
- *Tactic 43.4 Review SDOT policies, practices, standards, and funding allocation strategies to elevate / give priority to access and use of right-of-way (ROW) for people of all ages and abilities - people recreating, shopping, walking, rolling, riding bikes and transit.*

- *Tactic 44.1 Identify programmatic and policy opportunities from the findings of the racial equity toolkit on automated enforcement programs to address unintended consequences and work towards creating non-financial, restorative-based alternatives.*

Projects awarded SS4A funding will continue to undergo review and input from the Transportation Equity Workgroup for further refinement and collaboration with community stakeholders.

## Partnerships and engagement in underserved communities

In addition to engaging with the Transportation Equity Workgroup to develop and advance specific TEF tactics, Vision Zero staff are working in paid partnership with a local BIPOC-led working group called [Whose Streets? Our Streets!](#) (WSOS) on issues related to enforcement and policing in transportation. In the spring and summer of 2022, WSOS members are leading outreach to BIPOC community members to gather stories, lived experiences, and ideas related to transportation safety and the role of enforcement. This information will inform SDOT's future enforcement practices, which connects deeply to Vision Zero and a traditional reliance on in-person policing and automated enforcement. This level of partnership and engagement has pushed staff and leadership to think beyond traditional practices and offers direct connections to relying more on design interventions and the Safe System approach. **It has been because of this partnership and TEF Tactic 44.1 that we are currently reviewing unintended burdens of automated enforcement tools and why speed cameras (proven safety countermeasure) are not included in this SS4A application.**

## EFFECTIVE PRACTICES AND STRATEGIES

### Create a safer community

This proposal focuses on deploying a full package of low-cost, high-impact strategies primarily in Underserved Communities, with a particular emphasis on the most vulnerable travelers –

people walking, rolling, and biking. Applying standard evidence-based interventions such as protected bicycle lanes, sidewalks, leading pedestrian intervals, marked crosswalks, and traffic calming tools in the areas of highest need improves safety for all travelers across broad regions of the city. 32 of the 37 Underserved Community census tracts within Seattle (85%) have been prioritized for SS4A safety projects.

The locations identified for SS4A funding heavily invest in Seattle's most deficient intersections for Public Right Of Way Accessibility Guideline (PROWAG) elements (accessible pedestrian signals and ADA-compliant curb ramps) within Underserved Communities, furthering Seattle's equity and social justice goals to reduce barriers and support Seattle's commitment to accessibility. One SS4A location has been identified for advanced accessible tactile and wayfinding treatments to further pilot treatments that go beyond existing ADA standards. If successful, this would lay the groundwork for future expansion of treatments for persons with vision impairments, improving their access to navigate city streets and cross safely at critical intersections. The earlier Safety Impacts section highlights an emphasis on applying FHWA proven countermeasures and treatments with high crash reduction rates as found in the Crash Modification Factor Clearinghouse.

## Safe System Approach

In alignment with the National Roadway Safety Strategy, Seattle embraces the Safe System approach. Seattle's [Vision Zero program website](#) highlights the approach, including 3 key grounding principles that guide our work and this proposal:

- Traffic deaths and injuries are preventable
- Humans make mistakes and are fragile
- Success does not hinge on individual behavior, but on the design of a safe system

**Slow speeds:** The proposed SS4A treatments build on previous systemic and proactive safety work in Seattle such as reducing citywide speed limits to 25 mph. For example, the arterial traffic calming locations selected for SS4A funding are

outliers with high speeds that require additional treatments to slow speeds along those corridors.

**Safer streets:** Proposed SS4A treatments such as LPIs, protected bike lanes, and sidewalks separate different users in time and space and are proven to reduce collisions by providing greater tolerances for people to make mistakes.

With focused attention on the Safe Roads and Safe Speeds elements, our proposal spotlights street design changes that slow vehicle speeds, reduce conflict points, and minimize exposure for the most vulnerable travelers in the most disadvantaged and disinvested communities.

## CLIMATE CHANGE, SUSTAINABILITY, AND ECONOMIC COMPETITIVENESS

Many of these treatments will provide additional access for multimodal travel and modal shifts to reduce drive-alone vehicle use and greenhouse gases. New bike lanes and sidewalks will provide new, safe, and comfortable spaces for those who wish to walk, roll, and bike. The SS4A locations specifically focus on closing gaps within the pedestrian, bicycle, and ADA networks. These projects are focused heavily within the SODO neighborhood, which is primarily an industrial district with a diverse business community of retail and freight and lacking basic infrastructure. In addition, the proposed bike lane and sidewalk corridors will connect directly to the two major sports stadiums within SODO. These treatments will further increase access to SODO employment centers and increase multimodal access to people traveling to SODO destinations.

ADA curb ramp improvements and new accessible pedestrian signals will provide new alternative travel options for those with challenges navigating the public right-of-way by removing barriers and making it easier and more comfortable to navigate some of Seattle's most dangerous spaces (e.g., signalized intersections). These can provide options for non-motorized or transit-based trips and reduce the need to rely on paratransit services or other car share options.



# PROJECT READINESS

## PROJECT DELIVERABILITY AND RISK

Projects identified within this application are generally spot improvements with low complexity. They utilize standard treatments similar to others implemented within Seattle. These types of treatments allow for quick implementation. All projects are intended to fall within normal roadway standards without any need for exceptions to local, state, or federal roadway standards. In addition, no project falls within state jurisdiction roadways, and all locations are solely within City of Seattle right-of-way. No property acquisition is expected to implement all identified projects.

As we prepare to deliver this package of projects with federal aid, we've identified several primary risk factors and mitigation strategies to ensure timely project delivery:

1. **Sub-projects determined to be infeasible:** In our experience delivering large bundles of spot improvements across the city, including some packages with federal aid, it is common that certain locations are later determined infeasible or unnecessary. We've occasionally encountered situations where private development builds one of our sub-projects before our project begins, and other cases where geometric design challenges make our planned treatment technically infeasible. However, these cases are rare (typically 1-2% of the planned sites), and we are easily able to fulfill our

grant commitment by substituting other comparable locations nearby.

2. **National Environmental Policy Act (NEPA) documentation:** Diverse worksites across a wide area can present complications with NEPA. From similar projects, we've learned that these complications can delay NEPA approval by 2 to 4 months. We've incorporated this risk into our project schedule.
3. **Cost escalation:** As we begin engineering design work on this package of projects, we're aware that actual costs could increase beyond our current estimates. Fortunately, the treatments in this package are standardized, and their costs can be estimated with reasonable consistency. Finally, if cost escalation is an issue, our City Council and Levy Oversight Committee have consistently prioritized safety investments in our city and even requested us to divert new or additional revenues there. Additional local funds will be readily available for these projects if needed.

## PROJECT BUDGET

Table 3 in appendix E illustrates our intended use of federal and local funds to complete all project deliverables. \$7.5 million in local funds are available to match the \$30 million federal fund request and will remain unencumbered until the period of performance for this federal grant.

# FUNDS TO UNDERSERVED COMMUNITIES

## OVERVIEW

Projects identified for this application were intentionally targeted within underserved communities. 32 of the 37 underserved community census tracts within Seattle (85%) have been prioritized for SS4A safety projects and 97% of the total budget is proposed within underserved communities.

**TABLE 2: BUDGET PROPOSED IN UNDERSERVED COMMUNITIES**

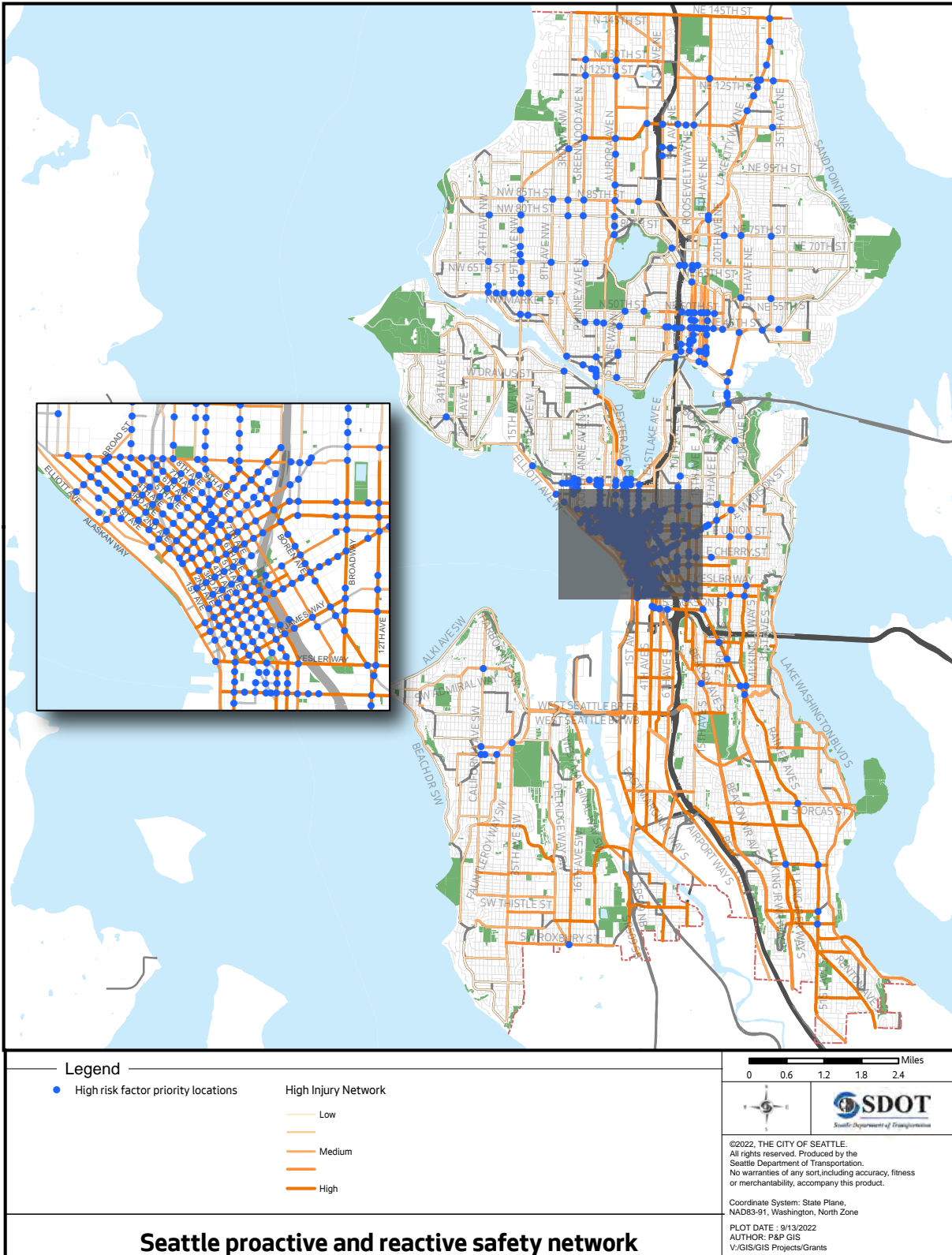
Project Type	Estimated Budget	Budget in Underserved Communities
Signalized intersection treatments (LPI, APS, ADA ramps/wayfinding)	\$15,200,000	\$14,980,000
Protected bike lanes	\$16,800,000	\$16,800,000
New sidewalks	\$2,800,000	\$2,800,000
Arterial traffic calming (speed humps, medians, etc)	\$1,500,000	\$1,500,000
Unsignalized pedestrian crossings (crosswalks, RRFB, refuge islands)	\$1,200,000	\$400,000
Total:	\$37,500,000	\$36,480,000
% of funds going to Underserved Communities		<b>97%</b>



# APPENDIX A. KEY INFORMATION TABLE

Application Name	Seattle Safe Streets
Lead Applicant	City of Seattle
If Multijurisdictional, additional eligible entities jointly applying	NA
Roadway safety responsibility	Ownership and/or maintenance responsibilities over a roadway network
Population in Underserved Communities	27%
States(s) in which activities are located	Washington
Costs by State (if project spans more than one State)	NA
Funds to Underserved Communities	\$36,480,000
Cost total for eligible activity (A) supplemental action plan activities in support of an existing Action Plan	\$0
Cost total for eligible activity (B) conducting planning, design, and development activities for projects and strategies identified in an Action Plan	\$5,625,000
Cost total for eligible activity (C) carrying out projects and strategies identified in an Action Plan	\$31,875,000
Action Plan or Established Plan Link	<p>2017 and 2019 updates to 2015 Action Plan</p> <p><a href="http://www.seattle.gov/documents/Departments/SDOT/VisionZero/2019_VZ_Update_Report.pdf">www.seattle.gov/documents/Departments/SDOT/VisionZero/2019_VZ_Update_Report.pdf</a></p> <p><a href="http://www.seattle.gov/documents/Departments/beSuperSafe/VZ_2017_Progress_Report.pdf">www.seattle.gov/documents/Departments/beSuperSafe/VZ_2017_Progress_Report.pdf</a></p>

# APPENDIX B. SEATTLE PROACTIVE AND REACTIVE SAFETY NETWORK



# APPENDIX C. TABLE OF LOCATIONS AND TREATMENTS

Project location	Limit 1	Limit 2	In historically disadvantaged community? (%)	General scope
ROOSEVELT WAY NE AND NE 43RD N ST			100%	Unsignalized intersection: New ADA ramps, marked crosswalks, RRFB's
8TH AVE NE AND NE 42ND ST			100%	Unsignalized intersection: New ADA ramps, marked crosswalks, bumpouts, RRFB, daylighting
HARVARD AVE E AND E OLIVE WAY			0%	Unsignalized intersection: New ADA ramps, marked crosswalks, bumpouts, RRFB (or ped refuge island)
BELMONT AVE AND E PIKE ST			0%	Unsignalized intersection: New ADA ramps, bumpouts, RRFB
HARVARD AVE AND SENECA ST			0%	Unsignalized intersection: Bumpouts, ped refuge islands, marked crosswalks, RRFB's
10TH AVE AND E PIKE ST			0%	Unsignalized intersection: ADA ramps, ped refuge island, RRFB's
RENTON AVE S	M L KING JR WAY S	CITY LIMITS	100%	Traffic calming: Curb extensions, speed humps, raised medians, raised crosswalks
SEWARD PARK AVE S	S MORGAN ST	RAINIER AVE S	100%	Traffic calming: Curb extensions, speed humps, raised medians, raised crosswalks
23RD AVE S AND RAINIER AVE S			100%	Tactile wayfinding crossing treatment and tactile signs
AIRPORT WAY S/6TH AVE S	S LUCILE ST	S FOREST ST	100%	Protected bike lane: In-street directional protected bike lanes
HIGHLAND PARK WAY SW	WEST MARGINAL WAY SW	SW HOLDEN ST	100%	Protected bike lane: East side 2-way seperated bike lane
BEACON AVE S	S MYRTLE ST	39TH AVE S	100%	Protected bike lane: Center running 2-way seperated bike lane



Project location	Limit 1	Limit 2	In historically disadvantaged community? (%)	General scope
1ST AVE S	S SPOKANE ST	S DAKOTA ST	100%	New sidewalk
1ST AVE S	1ST AVE S UP RR BRIDGE (SOUTH END)	E MARGINAL WAY	100%	New sidewalk
4TH AVE S	WEST SEATTLE BRIDGE EB OFF RAMP @ 4TH AVE S	S INDUSTRIAL WAY	100%	New sidewalk
4TH AVE S	S LUCILE ST	S MICHIGAN ST	100%	New sidewalk
S HOLGATE ST	1ST AVE S	8TH AVE S	100%	New sidewalk
11TH AVE NE AND NE 42ND ST			100%	Accessible push buttons, ADA ramps, and LPI
11TH AVE NE AND NE 43RD ST			100%	Accessible push buttons, ADA ramps, and LPI
14TH AVE AND E CHERRY ST			100%	Accessible push buttons, ADA ramps, and LPI
15TH AVE S AND S COLLEGE ST			100%	Accessible push buttons, ADA ramps, and LPI
17TH AVE S AND S COLLEGE ST			100%	Accessible push buttons, ADA ramps, and LPI
18TH AVE AND E UNION ST			100%	Accessible push buttons, ADA ramps, and LPI
1ST AVE NE AND NE NORTHGATE WAY			100%	Accessible push buttons, ADA ramps, and LPI
1ST AVE S AND OLSON PL SW			100%	Accessible push buttons, ADA ramps, and LPI
1ST AVE S AND S JACKSON ST			100%	Accessible push buttons, ADA ramps, and LPI
1ST AVE S AND S KING ST			100%	Accessible push buttons, ADA ramps, and LPI
1ST AVE S AND S WASHINGTON ST			100%	Accessible push buttons, ADA ramps, and LPI
20TH AVE AND E YESLER WAY			100%	Accessible push buttons, ADA ramps, and LPI
20TH AVE SW AND SW ROXBURY ST			100%	Accessible push buttons, ADA ramps, and LPI
23RD AVE S AND S DEARBORN ST			100%	Accessible push buttons, ADA ramps, and LPI
23RD AVE S AND S MCCLELLAN ST			100%	Accessible push buttons, ADA ramps, and LPI
2ND AVE AND CHERRY ST			100%	Accessible push buttons, ADA ramps, and LPI
30TH AVE NE AND LAKE CITY N WAY NE			100%	Accessible push buttons, ADA ramps, and LPI

Project location	Limit 1	Limit 2	In historically disadvantaged community? (%)	General scope
30TH AVE NE AND NE 145TH ST			100%	Accessible push buttons, ADA ramps, and LPI
3RD AVE S AND S JACKSON ST			100%	Accessible push buttons, ADA ramps, and LPI
4TH AVE AND PIKE ST			100%	Accessible push buttons, ADA ramps, and LPI
4TH AVE S AND S DAWSON ST			100%	Accessible push buttons, ADA ramps, and LPI
4TH AVE S AND S FIDALGO ST			100%	Accessible push buttons, ADA ramps, and LPI
4TH AVE S AND S LUCILE ST			100%	Accessible push buttons, ADA ramps, and LPI
4TH AVE S AND SEATTLE BLVD S			100%	Accessible push buttons, ADA ramps, and LPI
5TH AVE AND CHERRY ST			100%	Accessible push buttons, ADA ramps, and LPI
5TH AVE AND COLUMBIA ST			100%	Accessible push buttons, ADA ramps, and LPI
5TH AVE AND OLIVE WAY			100%	Accessible push buttons, ADA ramps, and LPI
5TH AVE AND PIKE ST			100%	Accessible push buttons, ADA ramps, and LPI
5TH AVE AND PINE ST			100%	Accessible push buttons, ADA ramps, and LPI
5TH AVE AND UNION ST			100%	Accessible push buttons, ADA ramps, and LPI
6TH AVE AND CHERRY ST			100%	Accessible push buttons, ADA ramps, and LPI
6TH AVE S AND S HOLGATE ST			100%	Accessible push buttons, ADA ramps, and LPI
6TH AVE S AND S LANDER ST			100%	Accessible push buttons, ADA ramps, and LPI
6TH AVE S AND S ROYAL BROUGHAM WAY			100%	Accessible push buttons, ADA ramps, and LPI
7TH AVE NE AND NE 42ND ST			100%	Accessible push buttons, ADA ramps, and LPI
7TH AVE S AND S DEARBORN ST			100%	Accessible push buttons, ADA ramps, and LPI
AIRPORT WAY S AND S ROYAL BROUGHAM WAY			100%	Accessible push buttons, ADA ramps, and LPI
BOREN AVE AND PINE ST			100%	Accessible push buttons, ADA ramps, and LPI
DEARBORN ST OFF RP AND S DEARBORN ST			100%	Accessible push buttons, ADA ramps, and LPI
DIAGONAL AVE S AND EAST MARGINAL WAY S			100%	Accessible push buttons, ADA ramps, and LPI

Project location	Limit 1	Limit 2	In historically disadvantaged community? (%)	General scope
GREENWOOD AVE N AND N 145TH ST			100%	Accessible push buttons, ADA ramps, and LPI
LINDEN AVE N AND N 130TH ST			100%	Accessible push buttons, ADA ramps, and LPI
LINDEN AVE N AND N 145TH ST			100%	Accessible push buttons, ADA ramps, and LPI
OLIVE WAY AND TERRY AVE			100%	Accessible push buttons, ADA ramps, and LPI
RAINIER AVE S AND S OREGON ST			100%	Accessible push buttons, ADA ramps, and LPI
RAINIER AVE S AND S WELLER ST			100%	Accessible push buttons, ADA ramps, and LPI
ROOSEVELT WAY NE AND NE 50TH ST			100%	Accessible push buttons, ADA ramps, and LPI
SEATTLE BLVD S AND S DEARBORN ST			100%	Accessible push buttons, ADA ramps, and LPI
SPRING ST AND WESTERN AVE			100%	Accessible push buttons, ADA ramps, and LPI
UNIVERSITY WAY NE AND NE 42ND ST			100%	Accessible push buttons, ADA ramps, and LPI
UNIVERSITY WAY NE AND NE 47TH ST			100%	Accessible push buttons, ADA ramps, and LPI
UNIVERSITY WAY NE AND NE 50TH ST			100%	Accessible push buttons, ADA ramps, and LPI
11TH AVE NE AND NE 47TH ST			100%	Accessible push buttons and ADA ramps
11TH AVE NE AND NE 50TH ST			100%	Accessible push buttons and ADA ramps
14TH AVE AND E YESLER WAY			100%	Accessible push buttons and ADA ramps
15TH AVE NE AND NE PACIFIC ST			100%	Accessible push buttons and ADA ramps
15TH AVE SW AND SW ROXBURY ST			100%	Accessible push buttons and ADA ramps
17TH AVE SW AND SW ROXBURY ST			100%	Accessible push buttons and ADA ramps
17TH SB AVE NE AND NE 45TH ST			100%	Accessible push buttons and ADA ramps
18TH AVE AND E YESLER WAY			100%	Accessible push buttons and ADA ramps
18TH AVE NE AND NE 45TH ST			100%	Accessible push buttons and ADA ramps
19TH AVE NE AND NE 45TH ST			100%	Accessible push buttons and ADA ramps
1ST AVE AND CHERRY ST			100%	Accessible push buttons and ADA ramps

Project location	Limit 1	Limit 2	In historically disadvantaged community? (%)	General scope
1ST AVE AND MARION ST			100%	Accessible push buttons and ADA ramps
1ST AVE AND PIKE ST			100%	Accessible push buttons and ADA ramps
1ST AVE AND PINE ST			100%	Accessible push buttons and ADA ramps
1ST AVE AND STEWART ST			100%	Accessible push buttons and ADA ramps
1ST AVE AND UNION ST			100%	Accessible push buttons and ADA ramps
1ST AVE AND UNIVERSITY ST			100%	Accessible push buttons and ADA ramps
1ST AVE S AND RAILROAD N WAY S			100%	Accessible push buttons and ADA ramps
1ST AVE S AND S MAIN ST			100%	Accessible push buttons and ADA ramps
23RD AVE S AND S HANFORD ST			100%	Accessible push buttons and ADA ramps
25TH AVE NE AND NE 44TH ST			100%	Accessible push buttons and ADA ramps
25TH AVE NE AND NE 47TH ST			100%	Accessible push buttons and ADA ramps
35TH AVE SW AND SW RAYMOND ST			100%	Accessible push buttons and ADA ramps
35TH AVE SW AND SW ROXBURY ST			100%	Accessible push buttons and ADA ramps
3RD AVE AND COLUMBIA ST			100%	Accessible push buttons and ADA ramps
3RD AVE AND JAMES ST			100%	Accessible push buttons and ADA ramps
3RD AVE AND PIKE ST			100%	Accessible push buttons and ADA ramps
3RD AVE AND PINE ST			100%	Accessible push buttons and ADA ramps
3RD AVE AND SENECA ST			100%	Accessible push buttons and ADA ramps
3RD AVE AND SPRING ST			100%	Accessible push buttons and ADA ramps
3RD AVE AND UNION ST			100%	Accessible push buttons and ADA ramps
3RD AVE AND UNIVERSITY ST			100%	Accessible push buttons and ADA ramps
3RD AVE AND YESLER WAY			100%	Accessible push buttons and ADA ramps
3RD AVE NE AND NE 103RD ST			100%	Accessible push buttons and ADA ramps
4TH AVE AND COLUMBIA ST			100%	Accessible push buttons and ADA ramps

Project location	Limit 1	Limit 2	In historically disadvantaged community? (%)	General scope
5TH AVE AND JAMES ST			100%	Accessible push buttons and ADA ramps
5TH AVE AND SENECA ST			100%	Accessible push buttons and ADA ramps
5TH AVE NE AND NE NORTHGATE WAY			100%	Accessible push buttons and ADA ramps
8TH AVE AND JAMES ST			100%	Accessible push buttons and ADA ramps
BOREN AVE AND PIKE ST			100%	Accessible push buttons and ADA ramps
BOREN AVE AND SENECA ST			100%	Accessible push buttons and ADA ramps
BROADWAY AND CHERRY ST			100%	Accessible push buttons and ADA ramps
BROADWAY AND E COLUMBIA ST			100%	Accessible push buttons and ADA ramps
BROADWAY AND JEFFERSON ST			100%	Accessible push buttons and ADA ramps
BROOKLYN AVE NE AND NE 50TH ST			100%	Accessible push buttons and ADA ramps
BROOKLYN AVE NE AND NE PACIFIC ST			100%	Accessible push buttons and ADA ramps
CALIFORNIA AVE SW AND SW ALASKA ST			0%	Accessible push buttons and ADA ramps
CALIFORNIA AVE SW AND SW OREGON ST			0%	Accessible push buttons and ADA ramps
DELRIDGE WAY SW AND SW ROXBURY ST			100%	Accessible push buttons and ADA ramps
LAKE CITY WAY NE AND NE 127TH ST			100%	Accessible push buttons and ADA ramps
LATONA AVE NE AND NE 45TH ST			100%	Accessible push buttons and ADA ramps
LENORA ST AND WESTERN AVE			100%	Accessible push buttons and ADA ramps
PIKE ST AND CONVENTION PL			100%	Accessible push buttons and ADA ramps
RAINIER AVE S AND S CLOVERDALE ST			100%	Accessible push buttons and ADA ramps
RAINIER AVE S AND S DEARBORN ST			100%	Accessible push buttons and ADA ramps
RAINIER AVE S AND S MASSACHUSETTS ST			100%	Accessible push buttons and ADA ramps
UNIVERSITY WAY NE AND NE CAMPUS EB PY			100%	Accessible push buttons and ADA ramps
UNIVERSITY WAY NE AND NE PACIFIC ST			100%	Accessible push buttons and ADA ramps



# APPENDIX D. SELF CERTIFICATION WORKSHEET

Instructions: This content is from Table 2 in the NOFO. The purpose of the worksheet is to determine whether or not an applicant's existing plan(s) is substantially similar to an Action Plan.

For each question below, answer "yes" or "no." If "yes," cite the specific page in your existing Action Plan or other plan(s) that corroborate your response, or cite and provide other supporting documentation separately.

An applicant is eligible to apply for an Action Plan Grant that funds supplemental action plan activities, or an

Implementation Grant, only if the following two conditions are met:

- Answer "yes" to Questions 3, 7, 9
- Answer "yes" to at least four of the six remaining Questions 1, 2, 4, 5, 6, 8

---

## 1. Are both of the following true?

- Did a high-ranking official and/or governing body in the jurisdiction publicly commit to an eventual goal of zero roadway fatalities and serious injuries?
- Did the commitment include either setting a target date to reach zero, OR setting one or more targets to achieve significant declines in roadway fatalities and serious injuries by a specific date?

**Response: YES**

*In February 2015, Seattle's Mayor made a public commitment to end traffic deaths and serious injuries on city streets by 2030. A number of media outlets covered this public announcement, including:*

[www.bloomberg.com/news/articles/2015-02-20/seattle-joins-a-growing-list-of-u-s-cities-to-adopt-the-vision-zero-approach-to-reducing-traffic-deaths](http://www.bloomberg.com/news/articles/2015-02-20/seattle-joins-a-growing-list-of-u-s-cities-to-adopt-the-vision-zero-approach-to-reducing-traffic-deaths)

## 2. To develop the Action Plan, was a committee, task force, implementation group, or similar body established and charged with the plan's development, implementation, and monitoring?

**Response: NO**

## 3. Does the Action Plan include all of the following

- Analysis of existing conditions and historical trends to baseline the level of crashes involving fatalities and serious injuries across a jurisdiction, locality, Tribe, or region;
- Analysis of the location where there are crashes, the severity, as well as contributing factors and crash types;

- Analysis of systemic and specific safety needs is also performed, as needed (e.g., high risk road features, specific safety needs of relevant road users; and,
- A geospatial identification (geographic or locational data using maps) of higher risk locations.

**Response: YES**

Our 2017 and 2019 Vision Zero reports (updates to the [2015 Vision Zero Action Plan](#)) highlight existing conditions and historical trends related to serious and fatal crashes. [Seattle's Bicycle and Pedestrian Analysis \(BPSA\)](#) provides extensive analysis of system safety needs and risk factors for the most vulnerable travelers, including geographic identification of higher risk locations.

- Vision Zero 2017 Progress Report, pages 5 – 7; [www.seattle.gov/documents/Departments/beSuperSafe/VZ\\_2017\\_Progress\\_Report.pdf](http://www.seattle.gov/documents/Departments/beSuperSafe/VZ_2017_Progress_Report.pdf)
- Vision Zero 2019 Update Report, page 1; [www.seattle.gov/documents/Departments/SDOT/VisionZero/2019\\_VZ\\_Update\\_Report.pdf](http://www.seattle.gov/documents/Departments/SDOT/VisionZero/2019_VZ_Update_Report.pdf)
- Bicycle and Pedestrian Safety Analysis, pages 20 – 21 (maps of highest priority locations by City Council District); [www.seattle.gov/documents/Departments/SDOT/VisionZero/SDOT\\_Bike%20and%20Ped%20Safety%20Analysis\\_Ph2\\_2420%280%29.pdf](http://www.seattle.gov/documents/Departments/SDOT/VisionZero/SDOT_Bike%20and%20Ped%20Safety%20Analysis_Ph2_2420%280%29.pdf)

**4. Did the Action Plan development include all the following activities?**

- Engagement with the public and relevant stakeholders, including the private sector and community groups;
- Incorporation of information received from the engagement and collaboration into the plan; and
- Coordination that included inter- and intra-governmental cooperation and collaboration, as appropriate.

**Response: YES**

Following the February 2015 initial launch of Vision Zero, SDOT convened a community coalition comprised of traffic safety and active transportation advocates (Cascade Bicycle Club, Seattle Neighborhood Greenways), as well as staff from Seattle Police Department. This occurred in December 2015 and into 2016, helping to inform the 2017 progress report update document. This group, in partnership with a number of SDOT staff and regular engagement with SPD and partners at Public Health – Seattle & King County was integral to informing Seattle's Vision Zero efforts.

**5. Did the Action Plan development include all of the following?**

- Considerations of equity using inclusive and representative processes?
- The identification of underserved communities through data; and
- Equity analysis, in collaboration with appropriate partners, focused on initial equity impact assessments of the proposed projects and strategies, and population characteristics?

**Response: YES**

Seattle's 2017 and 2019 Vision Zero reports include information regarding a Racial Equity Toolkit analysis done in partnership with Seattle Police Department on Vision Zero enforcement efforts (page 25 of 2017 report; [www.seattle.gov/documents/Departments/beSuperSafe/VZ\\_2017\\_Progress\\_Report.pdf](http://www.seattle.gov/documents/Departments/beSuperSafe/VZ_2017_Progress_Report.pdf))

The 2019 Vision Zero Update Report references coordination efforts with SDOT's Race and Social Justice Team as well as the then newly formed Transportation Equity Program (see page 2; [www.seattle.gov/documents/Departments/SDOT/VisionZero/2019\\_VZ\\_Update\\_Report.pdf](http://www.seattle.gov/documents/Departments/SDOT/VisionZero/2019_VZ_Update_Report.pdf)).

Since those reports have been published, the Vision Zero team has been an integral part of Seattle's Transportation Equity Framework development ([www.seattle.gov/transportation/projects-and-programs/programs/transportation-equity-program/equity-workgroup](http://www.seattle.gov/transportation/projects-and-programs/programs/transportation-equity-program/equity-workgroup)), working closely with a BIPOC community working group to identify and implement tactics related to improving safety for vulnerable travelers and reducing reliance on punitive practices such as in-person enforcement to advance transportation safety and mobility justice.

**6. Are both the following true?**

- The plan development included an assessment of current policies, plans, guidelines, and/or standards to identify opportunities to improve how processes prioritize safety; and
- The plan discusses implementation through adoption of revised or new policies, guidelines, and/or standards

**Response: YES**

Our 2019 Vision Zero Update Report references policy changes that have occurred through our Vision Zero program, primarily related to speed limit setting and the implementation of leading pedestrian intervals (see page 3). These new policies have led to the systemic deployment of LPIs and the citywide lowering of speed limits. [www.seattle.gov/documents/Departments/SDOT/VisionZero/2019\\_VZ\\_Update\\_Report.pdf](http://www.seattle.gov/documents/Departments/SDOT/VisionZero/2019_VZ_Update_Report.pdf)

**7. Does the plan identify a comprehensive set of projects and strategies to address the safety problems in the Action Plan, time ranges when projects and strategies will be deployed, and explain project prioritization criteria?**

**Response: YES**

The 2017 Vision Zero Progress report identifies specific strategies and projects as well as implementation timeframes. A list of safety corridors for implementation over the 2017 – 2024 timeframe is on page 17, followed by a map of high crash on page 18, indicating the top 100 arterial corridor segments with the highest history of fatal and serious injury crashes. Page 19 includes a list of projects particularly enhancing safety for the most vulnerable travelers. Projects related to education and engagement strategies are found on pages 20 – 24, with an emphasis and explanation of prioritization based on highest-need areas and historically underrepresented and underserved populations.

The 2019 Vision Zero Update report identifies specific high injury corridors of focus as well as efforts related to education and enforcement on pages 3 – 5. [www.seattle.gov/documents/Departments/SDOT/VisionZero/2019\\_VZ\\_Update\\_Report.pdf](http://www.seattle.gov/documents/Departments/SDOT/VisionZero/2019_VZ_Update_Report.pdf)

The Bicycle and Pedestrian Safety Analysis report identifies high priority, high risk locations and (see pages 20 – 21 for specific locations) and includes discussion of promising systemic countermeasures such as leading pedestrian intervals (see page 19). Page 19 also includes an explanation of “higher priority” as indicating locations that exhibit one or more characteristics found to be significantly associated with bicyclist or pedestrian crashes and/or have a crash history.

[www.seattle.gov/documents/Departments/SDOT/VisionZero/SDOT\\_Bike%20and%20Ped%20Safety%20Analysis\\_Ph2\\_2420%280%29.pdf](http://www.seattle.gov/documents/Departments/SDOT/VisionZero/SDOT_Bike%20and%20Ped%20Safety%20Analysis_Ph2_2420%280%29.pdf)

#### **8. Does the plan include all of the following?**

- A description of how progress will be measured over time that includes, at a minimum, outcome data.
- The plan is posted publicly online.
- 

**Response: YES**

In our initial 2015 Action Plan, we committed to providing progress report updates approximately every two years. Since then, we have published two additional reports that we have referenced heavily in the responses above. All of these documents are posted publicly online at <https://www.seattle.gov/transportation/projects-and-programs/safety-first/vision-zero/resources>.

In addition, the Seattle Department of Transportation has an online levy dashboard where the public can track progress on a number of projects, including Safety Corridors (tying directly to Vision Zero investments). This dashboard is available at [https://public.tableau.com/app/profile/city.of.seattle.transportation/viz/Levy\\_Dashboard\\_16141242942520/SafeRoutes](https://public.tableau.com/app/profile/city.of.seattle.transportation/viz/Levy_Dashboard_16141242942520/SafeRoutes).

#### **9. Was the plan finalized and/or last updated between 2017 and 2022?**

**Response: YES**

The 2015 Vision Zero Action Plan was updated in 2017, with a follow up document published in 2019. The Bicycle and Pedestrian Safety Analysis was most recently published in early 2020. All documents can be found at [www.seattle.gov/transportation/projects-and-programs/safety-first/vision-zero/resources](http://www.seattle.gov/transportation/projects-and-programs/safety-first/vision-zero/resources).



# APPENDIX E. TABLE 3: SUPPLEMENTAL ESTIMATED BUDGET

Table 3: Supplemental Estimated Budget	Local Funds	Federal Funds	Total Budget
Subtotal Budget for (A) supplemental action plan activities;	\$0.00	\$0.00	\$0.00
<b>Itemized Estimated Costs of the (A) supplemental action plan activities</b>			
No supplemental action plan activities	\$0.00	\$0.00	\$0.00
Subtotal Budget for (B) conducting planning, design, and development activities	\$1,125,000.00	\$4,500,000.00	\$5,625,000.00
<b>Itemized Estimated Costs of the (B) planning, design, and development activities</b>			
Signalized intersection treatments	\$456,000.00	\$1,824,000.00	\$2,280,000.00
Unsignalized intersection treatments	\$36,000.00	\$144,000.00	\$180,000.00
Protected bike lanes	\$504,000.00	\$2,016,000.00	\$2,520,000.00
New sidewalks	\$84,000.00	\$336,000.00	\$420,000.00
Arterial traffic calming	\$45,000.00	\$180,000.00	\$225,000.00
Subtotal Budget for (C) carrying out projects and strategies	\$6,375,000.00	\$25,500,000.00	\$31,875,000.00
<b>Itemized Estimated Costs of the (C) proposed projects and strategies</b>			
Signalized intersection treatments	\$2,584,000.00	\$10,336,000.00	\$12,920,000.00
Unsignalized intersection treatments	\$204,000.00	\$816,000.00	\$1,020,000.00
Protected bike lanes	\$2,856,000.00	\$11,424,000.00	\$14,280,000.00
New sidewalks	\$476,000.00	\$1,904,000.00	\$2,380,000.00
Arterial traffic calming	\$255,000.00	\$1,020,000.00	\$1,275,000.00
Total budget for A, B, and C	\$7,500,000.00	\$30,000,000.00	\$37,500,000.00
Subtotal funds to Underserved Communities			\$36,480,000.00
Percent of total funds to Underserved Communities			97%

Total federal funds requested: \$30,000,000

Local match available: \$7,500,000

The Seattle Department of Transportation  
700 5th Avenue, Suite 3800  
PO Box 34996  
Seattle, WA 98124-4996  
(206) 684-ROAD (7623)  
[www.seattle.gov/transportation](http://www.seattle.gov/transportation)



**Seattle**  
Department of  
Transportation

9.2022