TOOLE DESIGN

CITY OF TACOMA:
VISION ZERO ROAD SAFETY AUDITS

RSA TECHNICAL MEMO #1: SOUTH TACOMA WAY

JUNE 2024 | FINAL

CONTENTS

This report is provided for informational purposes only, and all results, recommendations, preliminary concepts, cost opinions, and commentary contained herein are based on limited data available at the time of preparation. Further engineering analysis and design are necessary prior to implementing any of the recommendations contained herein. Toole Design makes no representations or warranties regarding the accuracy of the underlying source data. Motor vehicle crashes are complex occurrences that often result from multiple contributing factors. The success of these safety recommendations depends on multiple factors outside of Toole Design Group's control.

INTRODUCTION

The purpose of this study is to conduct a road safety audit (RSA) for a study area that includes one corridor segment and its intersections: S Tacoma Way between S 47th St and S 62nd St. This report was developed in accordance with the FHWA Road Safety Audit (RSA) guidelines and combines findings from crash data analysis and other available data.

SAFE SYSTEM APPROACH

The Tacoma Vision Zero Road Safety Audit is framed around the Safe System Approach (Figure 1). The Federal Highway Administration (FHWA) provides guidance on the Safe System Approach, which recognizes that road safety is a shared responsibility between those that design, build, operate, and use the road system. It recognizes that to reduce risks to humans all parts of the transportation system must be strengthened, so that if one part fails, the other parts still protect people.

Safe System Principles are illustrated in the outer ring of the graphic with the Safe System elements found on the inner ring: Safer People, Safer Vehicles, Safer Speeds, Safer Roads, and Post-Crash Care.

The Safe System Approach aims to eliminate fatal and serious injury crashes using a proactive approach that anticipates human mistakes- and reduces the severity of crashes that do happen, so the impact is less likely to be fatal or cause serious injury. The strategies and practices included in this memo are framed around safer people, safer vehicles, safer roads, safer speeds, and post-crash care.

Figure 1: Safe System Approach Wheel (Source: FHWA)

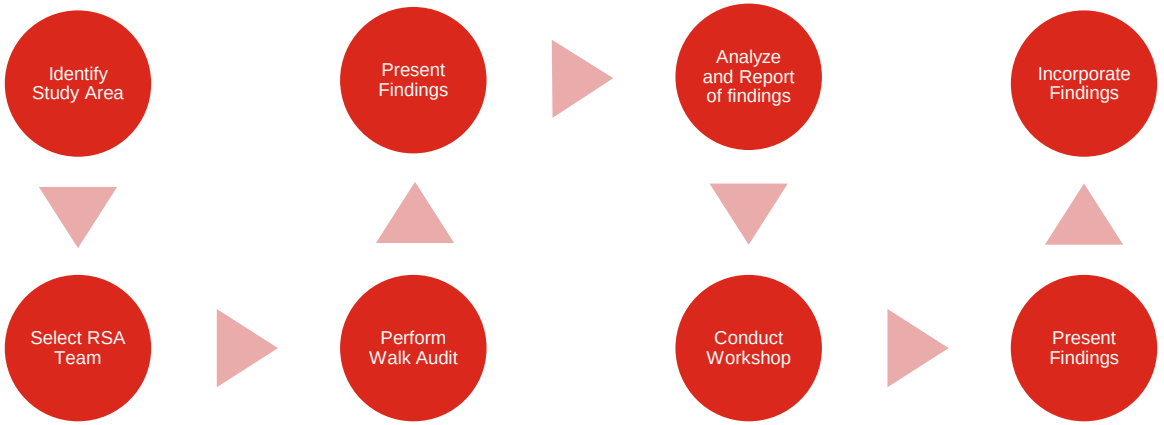
WHAT IS A ROAD SAFETY AUDIT?

PURPOSE

An RSA is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users. The aim of an RSA is to answer the following questions:

- What elements of the road may present a safety concern: to what extent, to which road users, and under what circumstances?
- What opportunities exist to eliminate or mitigate identified safety concerns?

PROCESS



STUDY AREA

The study area for this RSA is under the jurisdiction of the City of Tacoma. It includes one segment along South Tacoma Way. Parts of the segment are identified in the Tacoma Vision Zero Local Roads Safety Plan (LRSP) as both Arterial High Risk Network Priority Corridors[1] and as Neighborhood Business District (NBD) High Risk Network Priority Corridors.[2] The extents of South Tacoma Way are based on the High Risk Network limits determined through Tacoma's LRSP, which is shown as an appendix in Tacoma's Vision Zero Action Plan, and planned projects in Tacoma that can implement safety improvements. The S 60th St Improvement Plan related to the Sound Transit station upgrade is currently in preliminary design and can implement additional safety improvements identified through this RSA.

Table 1 describes the segments details and Figure 2 displays where the segment is located within the City of Tacoma.

Table 1: South Tacoma Way Segment Details

Extent	WSDOT Functional Classification	Tacoma Arterial Classification	Length	Speed Limit
From S 47th St to S 62nd St	Other Primary Arterial	Principal Arterial	0.96 miles	25MPH (47th-60th) 35 MPH (60th-62nd)

[1] Arterial High Risk Network Priority Corridors were prioritized based on analysis of three primary components: speed differential between posted speed and operating speeds; number of KSI crashes; and sliding window scores. These corridors strongly need roadway safety countermeasures focused on both reducing speed and improving safety.
[2] NBD High Risk Network Priority Corridors were prioritized based on analysis of three primary components: number of KSI crashes; sliding windows score; and speed differential between desired posted speed reduction and operating speeds. The highest priority corridors were those that had proven high speeds and high safety risk, with two or more KSI crashes and operating speeds of 10mph or more over the reduced speed limit.

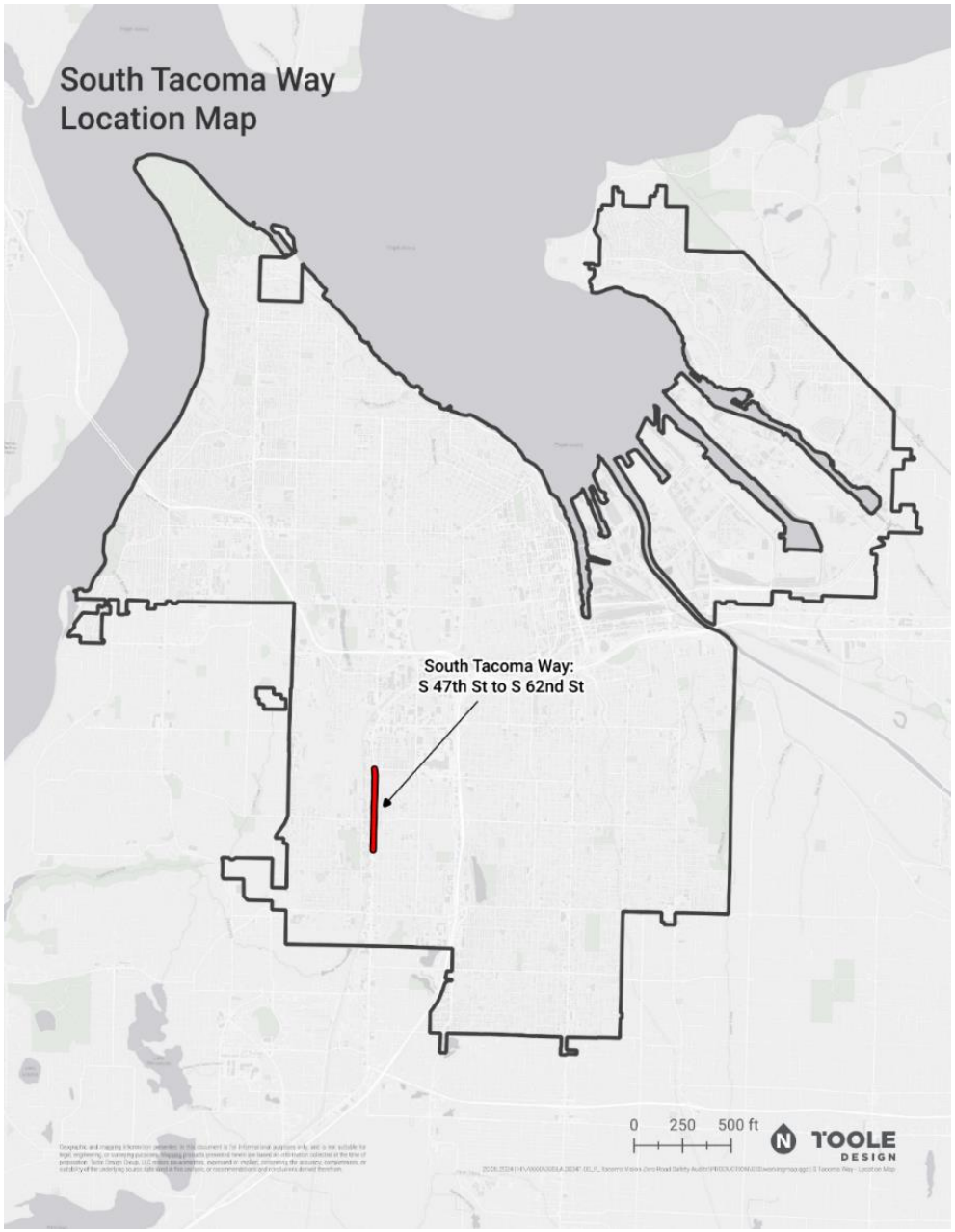


Figure 2: South Tacoma Way Location Map

NEIGHBORHOOD PROFILE

The segment includes the entire length of the South Tacoma Way Mixed Use Center (S 47th St to S 60th St) and South Tacoma Way Business District (S 47th St to S 58th St). Figure 3 displays the boundaries for these zones and includes nearby parks, schools, and key locations.

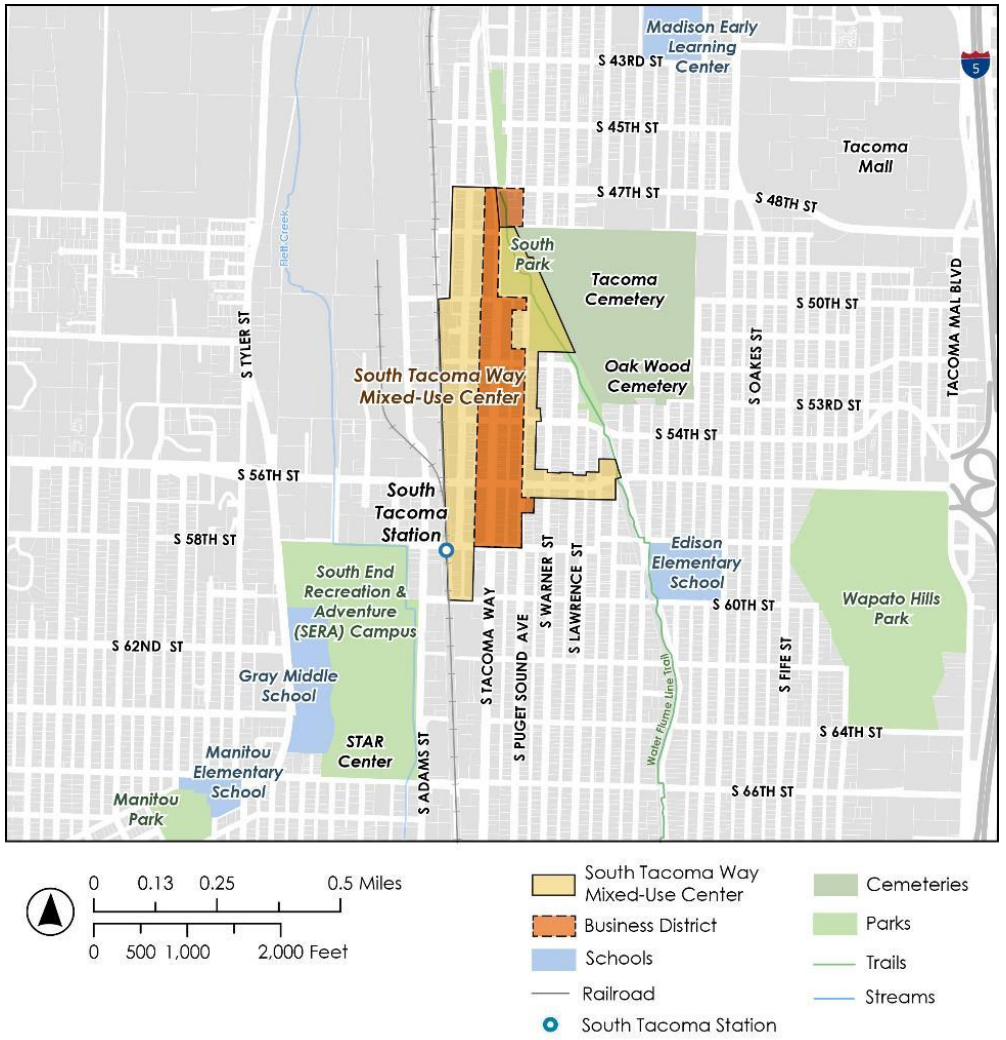


Figure 3: South Tacoma Way Neighborhood Map (Source Tacoma, 2023)

ZONING AND LAND USE

Current zoning within the South Tacoma Way Mixed Use Center (MUC) includes Commercial Industrial, Neighborhood Commercial, and Residential Commercial Mixed-Use zones. The maximum heights in these zones range from 45 to 75 feet. Primarily industrial and commercial zones surround the MUC. The surrounding neighborhood is mostly zoned for low-density single-family housing. As with all of Tacoma, this area will likely see zoning changes through the proposed Home in Tacoma zoning changes in late 2024.[3] Figure 4 shows the current zoning near the segment.

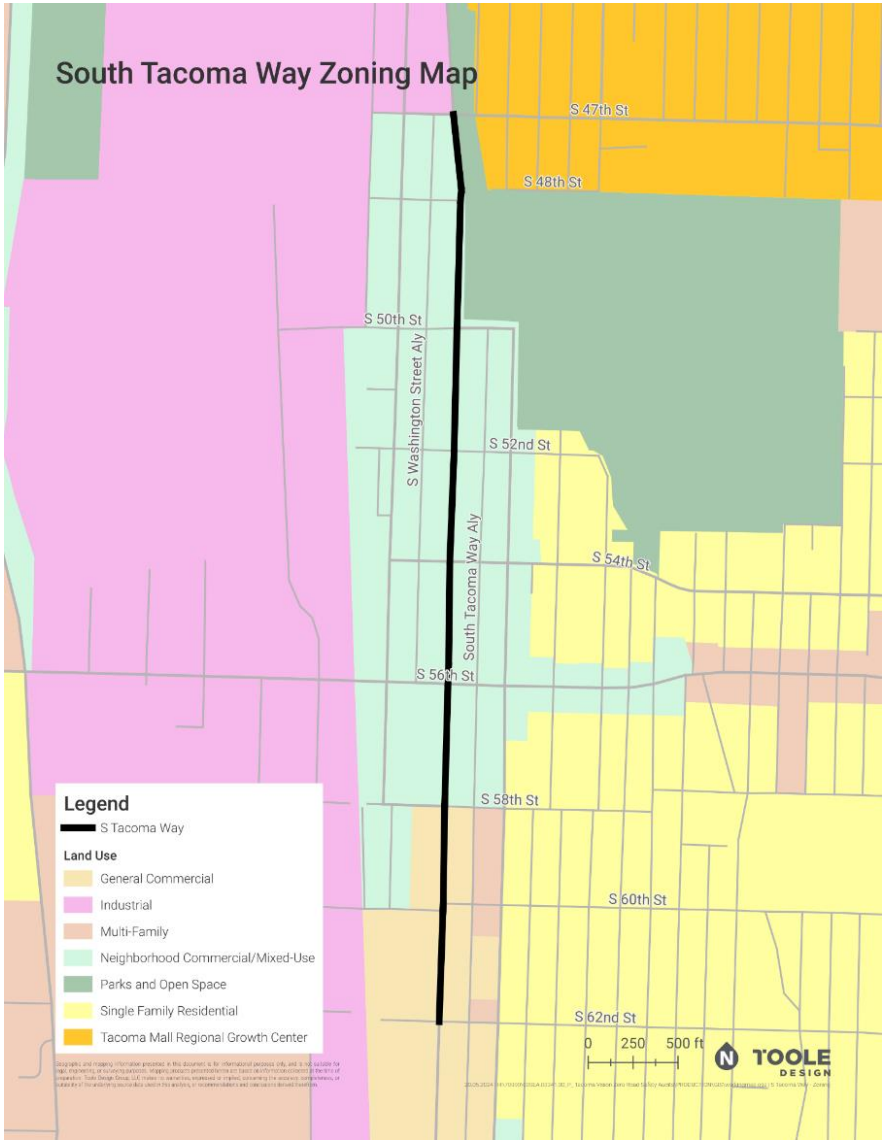


Figure 4: South Tacoma Way Zoning Map

[3] Home in Tacoma zoning changes will impact the South Tacoma Way neighborhood by:

- Allowing middle housing types and at least four units per lot on all residential lots in the neighborhood.
- Allowing multiplexes and small apartments along the S 56th St corridor.
- Allowing six to eight units per lot near desirable amenities like schools, Water Flume Trail, SERA parks, and Tacoma Mall.

CORRIDOR FACILITIES

Figure 5 displays facilities along South Tacoma Way. The map includes locations of existing bicycle facilities, traffic signals, stop signs and bus stops.

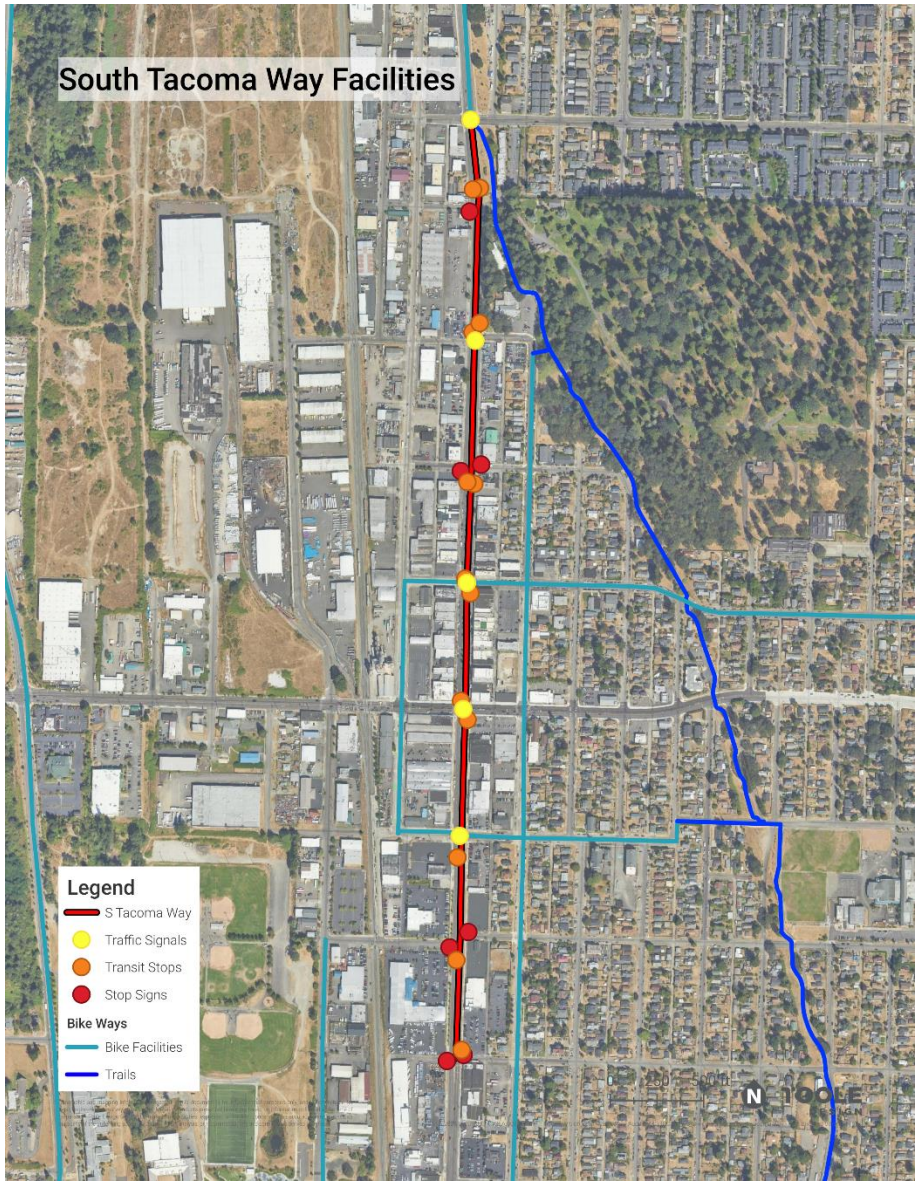
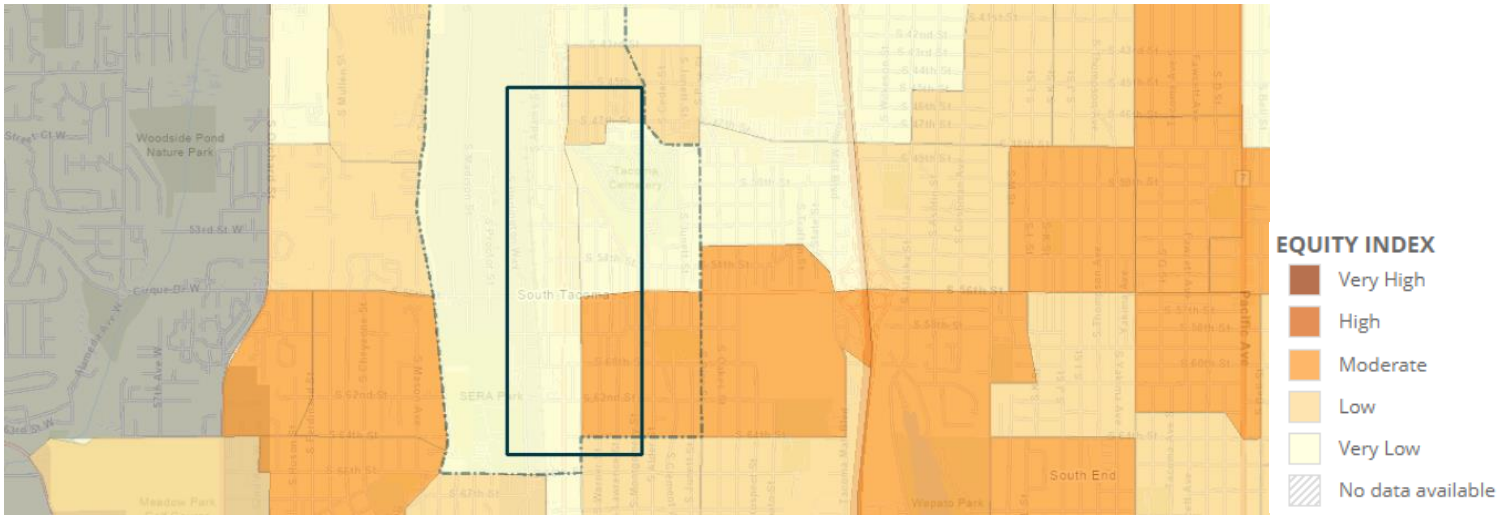


Figure 5: South Tacoma Way Facilities

CITY OF TACOMA EQUITY INDEX MAP

The City of Tacoma Equity Index is a tool which highlights areas of Tacoma where residents have the most access to opportunity and where residents are further away from opportunity.[4] The tool looks at five categories: livability, accessibility, economy, education, and environmental health. Areas that have the most access to opportunities are shaded the darkest or identified as “Very High” opportunity and areas where residents are furthest from opportunity are shaded the lightest or identified as “Very Low” opportunity. The following graphics describe the equity and opportunity of residents living near S Tacoma Way and show that the corridor is within “Very Low” to “Moderate” opportunity areas.



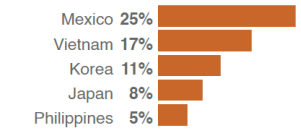
[4] City of Tacoma Equity Index, https://www.cityoftacoma.org/cms/One.aspx?portalId=169&pageId=175030

Equity Overview

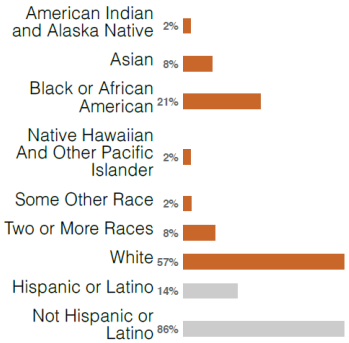
Population
5,444

Individuals with Disabilities
18%

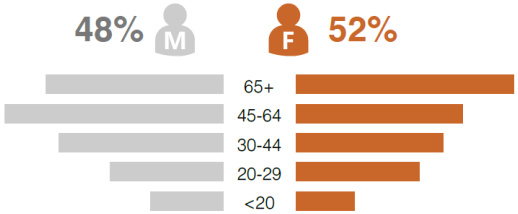
Top Countries of Immigration



Race & Ethnicity



Age & Gender



Foreign Born Population
12%

Limited English
4%

Livability

Average Life Expectancy
76

Insured Rate
89%

Pedestrian / Bicyclist Crashes
6

Median Home Value

253
Personal Crimes
Total in 2022-2023

913
Property Crimes
Total in 2022-2023

Owner Cost Burden
20%

Renter Cost Burden
55%

Accessibility

Voter Participation Rate
30%

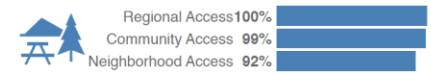
Households with Internet
93%

Sidewalks and Bikeways
0.04

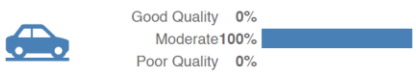
Household Vehicle Access
90%

Healthy Food Availability
0.22

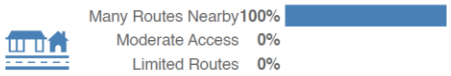
Parks & Open Space

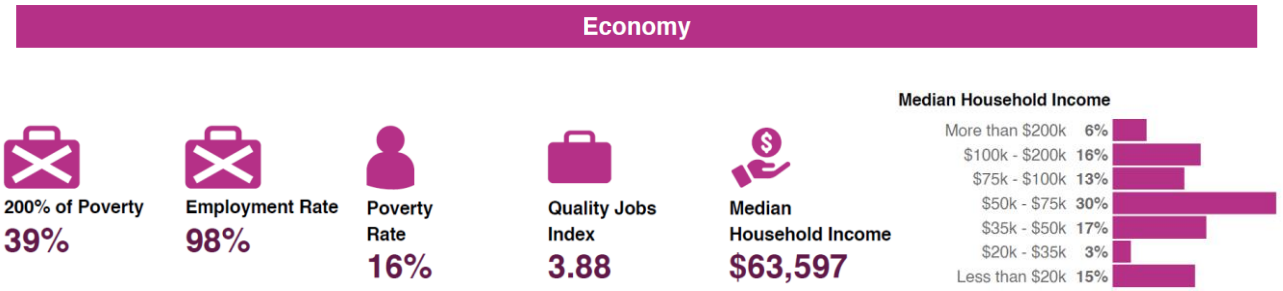


Average Pavement Condition



Transit Access Score





COLLISION HISTORY

The following sections include tables summarizing the killed and serious injury (KSI) crashes from 2017 to 2023 (Tables 2 and 3). Table 2 displays the crash mode and severity of crashes along the segment from 2017 to 2023. Figure 7 and Figure 8 illustrate the crash diagrams. Each crash includes a corresponding number based on crash location from north to south. The corresponding number in the collision diagrams relate to the ID column in Table 3, which includes additional crash details. Appendix B includes the S Tacoma Way Speed Study conducted in 2021 showing that about 80 percent of vehicles speed through this corridor per the Total Study Speeding Fact summary table for allbound travel. Speeding is defined in this study as traveling one or more mph over the speed limit. Appendix C includes traffic volume data collected in 2021 showing the amount and classification of vehicles passing through this corridor.

Table 2: Number of KSI Crashes by Severity in Study Area by Year, 2017-2023

	2017	2018	2019	2020	2021	2022	2023
Serious Injury	0	0	1	2	3	2	0
Fatal	0	0	0	0	0	0	0

Figure 6: S Tacoma Way KSI Crashes Map

Table 3: KSI Crash Details

ID	Injury Severity	Crash Modes	Crash Actions	Location Type	Intersection Control	Lighting	Contributing Factors	Year	Nearest Cross Street	Fixed Object
1	Suspected Serious Injury	Motorist	Going Straight Ahead – Entering at Angle	Intersection	Traffic Signal	Daylight	Speeding	2022	S 47th St	
2	Suspected Serious Injury	Motorist	Going Straight Ahead - Strikes Object	Intersection	Traffic Signal	Dark-Street Lights On	Distracted User	2021	S 50th St	Signal Pole
3	Suspected Serious Injury	Motorist	Going Straight Ahead - Strikes Object	Intersection	Partial Stop	Daylight		2019	S 52nd St	Fence
4	Suspected Serious Injury	Motorist	Going Straight Ahead - Struck Object	Mid-Block	N/A	Daylight		2020	S 52nd St	Signal Pole
5	Suspected Serious Injury	Pedestrian[5]	Going Straight Ahead-Legally Parked, 1 Unoccupied, 1 occupied	Mid-Block	N/A	Dark-Street Lights On	Impaired User	2022	S 56th St	
6	Suspected Serious Injury	Pedestrian	Going Straight Ahead Strikes Pedestrian	Intersection	Traffic Signal	Dark-Street Lights On	Impaired User	2020	S 56th St	
7	Suspected Serious Injury	Motorcyclist	Making Left Turn- Going Straight Ahead	Intersection	Partial Stop	Daylight		2021	S 60th St	
8	Suspected Serious Injury	Bicyclist	Going Straight Ahead Strikes Pedalcyclist	Mid-Block	N/A	Daylight		2021	S 60th St	

[5] This crash was categorized as a pedestrian crash, but the details of the report do not include pedestrian information. This crash was either misclassified, missing pedestrian details or counted an occupied parked car as pedestrian.

SOUTH TACOMA WAY COLLISION DIAGRAMS

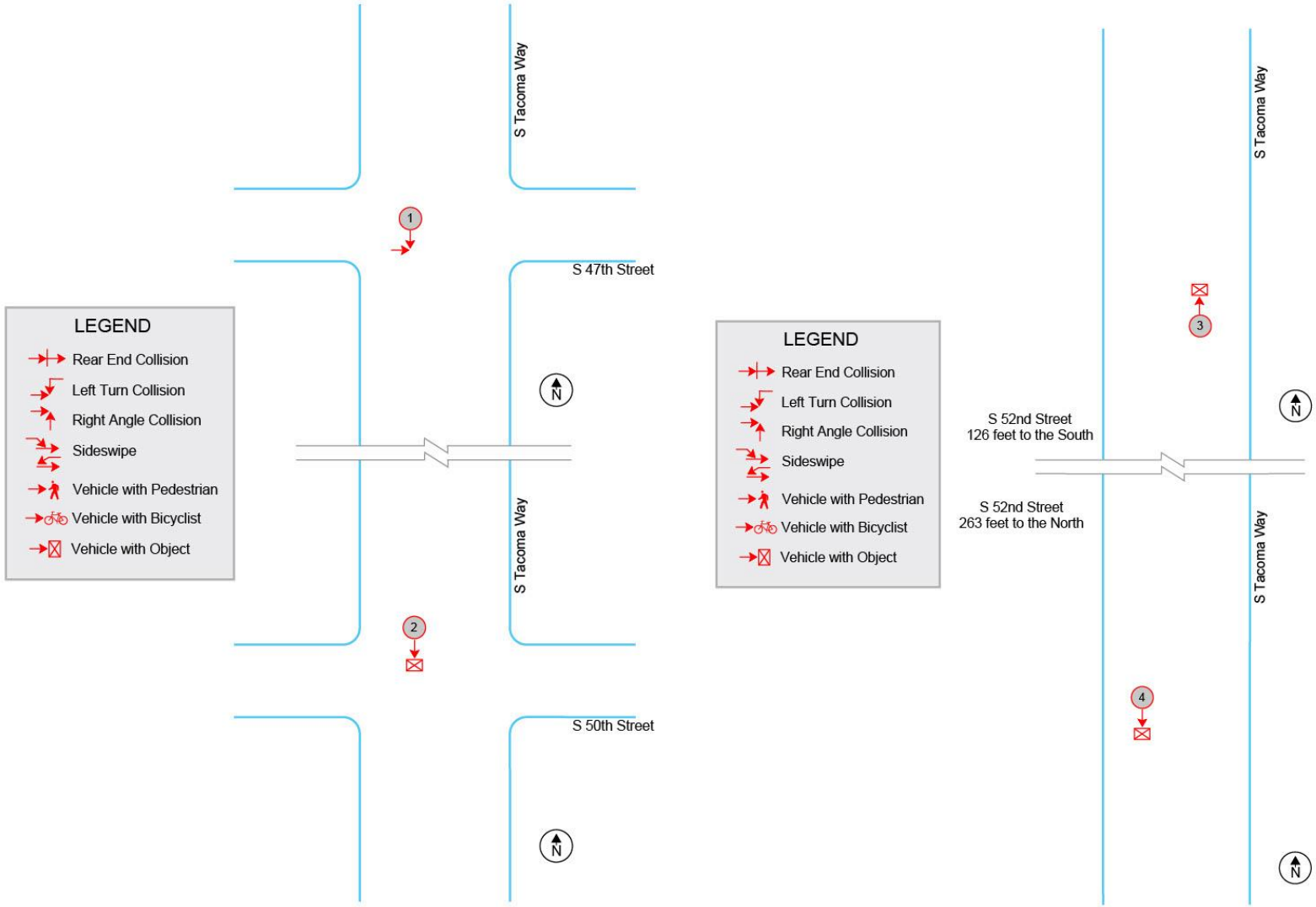


Figure 7: S Tacoma Way Collision Diagrams (Crashes 1-4)

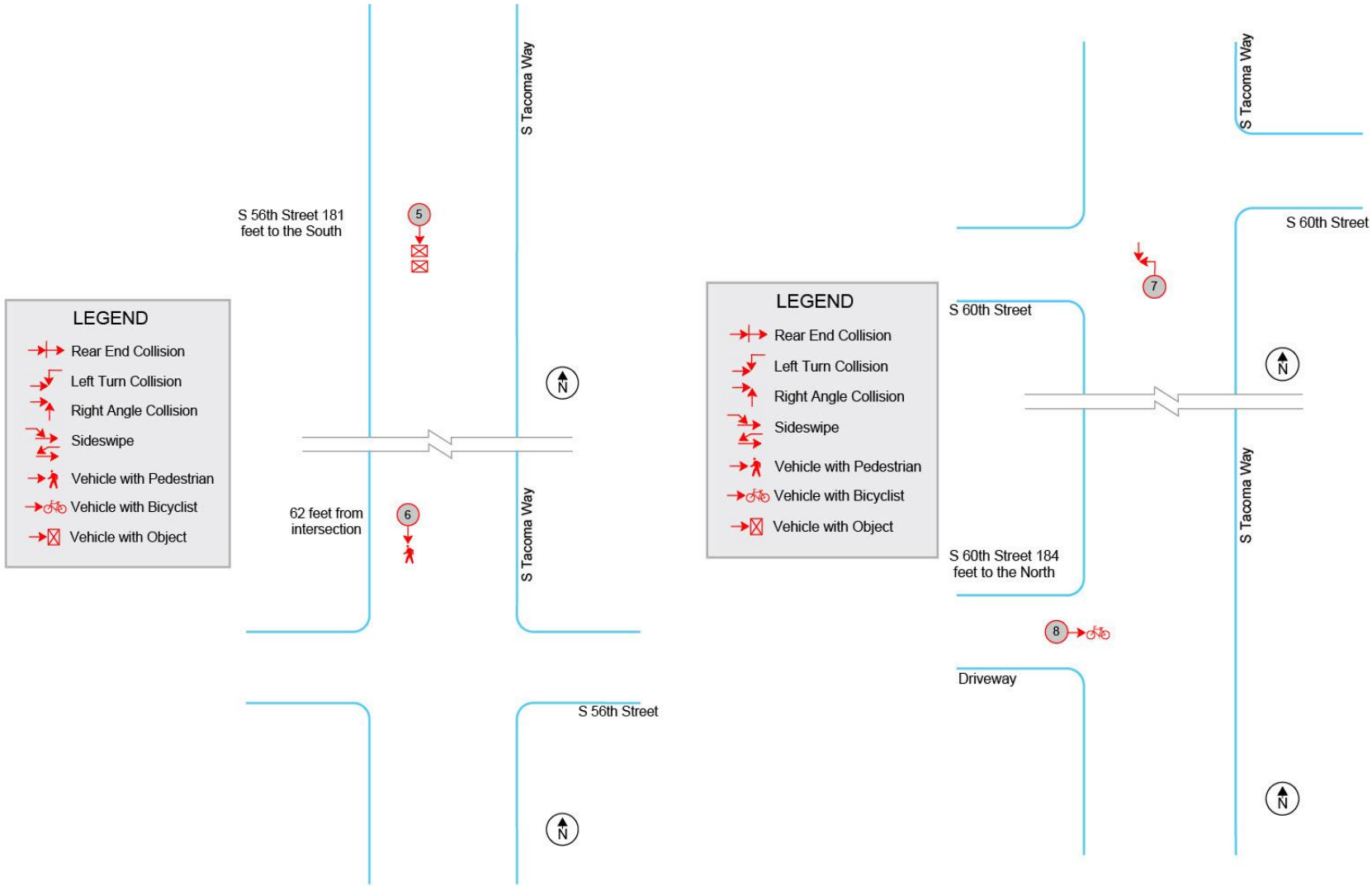


Figure 8: S Tacoma Way Collision Diagrams (Crashes 5-8)

WALKING AUDIT AND RSA WORKSHOP

On Thursday, May 23, 2024, the RSA team, comprised of City of Tacoma staff, consultant team, and a few community members, participated in a walking audit of South Tacoma Way. The walking audit is a formal safety performance examination of an existing roadway and intersections. The walking audit team thoroughly examines the corridor and estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users.

The walking audit included the following participants:

- City of Tacoma
  - Brian Churchill
  - Carrie Wilhelme
  - Grayson Reim
  - Vicki Marsten
  - Juilian Hulse
  - Leander Swan
  - Daniel Brewer
  - Sean Probst
  - Liz Kaster
  - Brandon Cheung
  - Anneka Olson
  - Neal Sartain
  - Madeline Borowski
  - Stephen Antupit
  - Adam Barnett
  - Glen Yotter
  - Matt Fleming
  - Luke Faulkner
  - Brian Wang
- Pierce Transit
  - Anna Peterson
- Community Stakeholders
  - Katherine Raz, Local Business Owner (Fernseed)
  - Perlita Payne, Tacoma Librarian
  - Jamie Gilmore, Tacoma Librarian
- Toole Design
  - Alex DuVall
  - Cody Wuestney
  - Michael Houston
  - Maimoona Rahim
- MAKERS
  - Queenie Gipaya
  - Rachel Miller
- DKS Associates
  - Sarah Keenan
  - Veronica Sullivan

On Friday, May 24, 2024, the RSA team held a virtual workshop to discuss the area in more detail. Workshop attendees included most people who attended the walking audit. The RSA team reviewed study area, segment packet provided in advance of the walking audit, and shared findings from the walking audit. The workshop followed this schedule:

Time	**Agenda**
8:30-8:45	Join & Attendance
8:45-9:00	Overview & Practice
9:00-9:10	Countermeasure Toolkit
9:10-10:00	Northern Extent
10:00-10:10	Coffee Break
10:10-11:00	Middle Extent
11:00-11:10	Coffee Break
11:10-12:00	Southern Extent
12:00-12:30	Wrap up and Next Steps

To promote brainstorming, the consultant team used the MURAL digital visual collaboration tool that provided the opportunity for simultaneous written input from all participants. The facilitator led a verbal discussion alongside to supplement the written inputs. Figure 9 shows a screenshot of the MURAL board used during the workshop and Appendix A provides “zoom in” of each of the subareas of the RSA study.

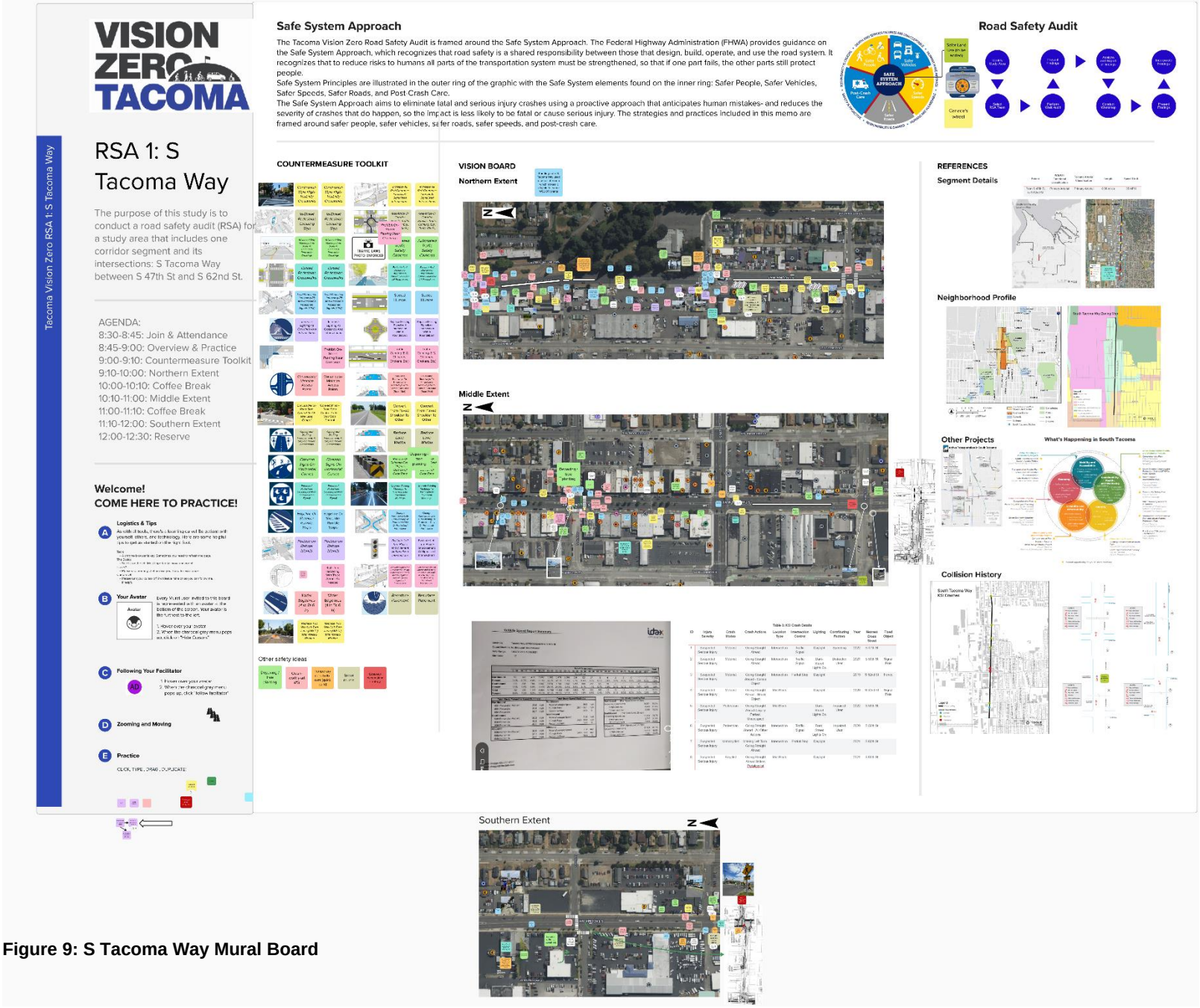


Figure 9: S Tacoma Way Mural Board

The quantity of feedback, comments, photos, and safety treatment recommendations provided was much greater than what can be captured in a typical brainstorm setting. The consultant team captured all verbal input shared by attendees to help inform the safety recommendations in the next section.

The following section summarizes the comments and suggestions from the team participating in the the walking audit and workshop. These suggestions were taken into consideration for the development of recommended improvement considerations shown in the Recommended Safety Treatments section of this memo.

NORTHERN EXTENT: SOUTH TACOMA WAY FROM S 47TH ST TO S 52ND ST

At the Intersection of S 47th St and S Tacoma Way

- The sidewalk disappears north of the intersection.
- The intersection needs better lighting.
- Existing bike lane north of S 47th is sub-standard. Need to decide on plan for bike facilities north of S 47th (protected bike lane or trail continuation).
- Add green bicycle lane for crossing intersection.
- Substandard crosswalk and limited sight distance on SW corner.
- Suggestion to review minor injury crash data for bicycle and pedestrians at this intersection.
- Need to modify planter hangers to not block pedestrian signal heads.
- Add pedestrian crossing countdown.
- Add Leading Pedestrian Intervals.
- Add pedestrian refuge islands.
- Businesses parking cars illegally causing sight distance issues.
- Gateway/placemaking strategy needed for business district and speed reduction zone. The limited ROW on West side of trail entrance has greater potential for gateway elements.
- Gateway/placemaking should include ped scale lighting on the trail and at intersection.
- Add 12" signal heads with reflective backplates.
- Consider protected/permitted left turns.
- Add right turn hardening with truck aprons as needed.

End of Water Flume Lane Trail at S 47th St and S Tacoma Way

Along S Tacoma Way between S 47th St and S 48th St

- The sidewalk is substandard along frontage. Curb is rolled and fails to protect sidewalk for motorists.
- Add curb along sidewalk on west side.
- Plant trees in landscape zone on east side.
- For depaving adjacent property, owner is responsible for vegetation unless it's a tree. Process is MOU with property owner.
- The sidewalk should be 7' wide minimum for arterial streets.
- Southbound bus stop on 47th needs shelter and lighting.
- Make outer lanes BAT lanes (transit and right turn only).
- Vegetation is overgrown. Trim to allow more space on sidewalk.
- Improve pedestrian crossings of cemetery driveways.
- Emerald City Orchid/Browns Flowers driveway is not ADA Compliant.
- install concrete sidewalk.
- Add pedestrian scale lighting and streetlighting for whole corridor.
- Add hardened centerline median.
- Consider fewer lanes or another traffic calming measures.
- Widen edge lanes 4in to 6in.
- Install "speed reduction ahead" signs.

At the Intersection of S 48th St and S Tacoma Way

- Substandard curb ramps.
- Update pedestrian crossing.
- Add truncated domes.
- Daylighting needed near intersections (prohibit on-street parking).

Along S Tacoma Way between S 48th St and S 50th St

- Where we don't see street trees, that's where vehicles park outside the curbline and effectively widen lane width...adding street trees in those segments with some "protection" could eliminate some of that behavior.

West side of street needs depaving between S 47th St and S 50th St

Dealerships habitually parking cars in pedestrian ROW

- Street has been overlaid without grinding first, resulting in short curb heights.
- Apply the same lighting design standards/treatment (pedestrian-scale lighting) seen between 50th and 56th.
- If restricting driveways to right-in/right-out, need to ensure locations to gain access to the other direction. Note: U-Turns are generally illegal in COT.
- Pierce Transit has concerns about medians or taking away lanes for future BRT space.
- Depaving /tree planting is needed.
- Mature tree roots warping sidewalk.
- Use signage and wayfinding for park and community center.
- Both of these bus stops need work. The northbound one has a terrible slope and the southbound one is not in a great location, being on top of the crosswalk.
- Need more bus shelters/ benches at bus stops.
- Dealerships parking cars on plantings strips, obstructing sidewalks.
- Replace two-way left turn lane with raised center median.

At the Intersection of S 50th St and S Tacoma Way

- Pedestrian crossing buttons are confusing. Could be updated.
- Roadway seriously concaved/ damaged. Needs improvement.
- Street parking begins south of here. Needs painted parking strip.
- Substandard ramps on the SW and SE legs of the intersection.
- Increase lighting at crossings and intersections.
- Add Leading Pedestrian Intervals (LPI)
- Install 12" signal heads with reflective backplates.
- Consider protected/permitted left turns.
- Add marked crosswalks.

Along S Tacoma Way between S 50th and S 52nd St

- Convert outer lanes to back in angle parking.
- Preserve mature trees.
- Substandard driveway and damaged sidewalk at multiple locations within this section.

Freight loading/unloading happening in travel lane

Concaved roadway in need of improvement

- Bus stops are not in optimal locations or do not allow enough room for pedestrians.
- Freight loading and unloading happening in the ROW but should happen in alley.

At the Intersection of S 52nd St and S Tacoma Way

- Pedestrians need to cross approx. 68 ft.
- Crosswalk in unmarked and substandard ramps.
- Update pedestrian crossing.
- Suggestion to close off access to S Tacoma Way from driveway immediately south of intersection.
- Cars do donuts in this intersection.
- Add truncated domes.

Skidmarks in intersection showing cars frequently “do donuts” here

MIDDLE EXTENT: S TACOMA WAY FROM SOUTH OF S 52ND ST TO S 58TH ST

Along S Tacoma Way between S 52nd St and S 54th St

- Pedestrian scale lighting begins here.
- Ramps do not meet ADA requirements.
- Inline storm crossing.
- Explore if trees along center median landscape need to be limbed up.
- Add bike corral and parklets at various points of the NBD.
- Driveway access to S Tacoma Way should be closes to protect pedestrians and bus stop users.
- Upgrade midblock crossing with raised crossing.
- Update pedestrian beacon to Rapid Flashing Beacon.

At the Intersection of S 54th St and S Tacoma Way

- There is limited lighting near intersection.
- Alighting from the back door bus is difficult and forces people into driveway area.
- There are substandard curb ramps here.
- South side of 54th St sidewalk needs repair.

Pedestrian median island between S 52nd and S 54th

- There is evidence of cars doing donuts in intersection.
- This is a good intersection for crashworthy art.
- Add temporary or quick build curb bulb outs that don't obstruct bicycle infrastructure.
- Add marked crosswalks.
- Add marked green bicycle crossings.
- Install 12" signal heads with backplates/reflectors.
- Look into Protected/Permitted left turns.

Along S Tacoma Way between S 54th St and S 56th St

- Depaving /tree planting needed.
- Fire station emergency call routing outbound is more critical northbound on S Tacoma Way than southbound. Treatments to slow traffic would be less impactful to fire trucks on southbound leg. 1-2 speed cushions are possible, but more than that slows down outbound fire trucks significantly.
- Restaurant seating area is on sidewalk - Could be standardized not infringe on the pedestrian access route.
- Cafe seating location "sticking out " - designate amenity zones.
- Potholes near midblock crosswalk.
- Trees reduce clearance and visibility for pedestrian in the center median - what is the balance.
- Reestablishing street trees in "islands" with back-in angle parking could also help with managing the vehicle parking onto sidewalk areas.
- Tire marks (donuts) in crosswalk.
- Update pedestrian beacon to Rapid Flashing Beacon.

At the Intersection of S 56th St and S Tacoma Way

- This intersection is coordinated with the signal at Washington for the trains.
- There's an automated red-light camera at 56th for EB traffic. Try to avoid saturating areas. City gets 22 speed cameras allotted.
- Add pedestrian crossing countdown.

No marked crosswalks at S Tacoma Way-S 54th St intersection

Along S Tacoma Way between S 56th St and S 58th St

- Needs traffic calming and something to make pedestrians feel safe. There's lots of pedestrian traffic here and could increase depending on future development.
- Vehicles parking on strip near sidewalk restricting pedestrian access.
- Depaving / tree planting needed near sidewalk.
- Add raised centerline median along section.

At the Intersection of S 58th St and S Tacoma Way

- Gateway/ placemaking strategy needed here.
- South Tacoma Sound Station - northern access point here.
- There is a proposal to move the PT bus stop at 62nd north to the 58th or 60th intersection (to enhance access to the South Tacoma Sounder Station.
- Update signal detection.

Crossing Island with dated pedestrian crossing beacons between S 54th and S 56th

Vehicles parking on strip near sidewalk restricting pedestrian access.

SOUTHERN EXTENT: S TACOMA WAY FROM SOUTH OF S 58TH ST TO S 62ND ST

Along S Tacoma Way between S 58th St and S 60th St

- Dealerships parking cars on sidewalk.
- There might or should be Sound Transit wayfinding to station on S Washington St.
- Roundabouts prevent the drag racing and donuts in the intersections better than other intersection treatments.
- There is increased speed on the roadway.
- On east side, overhead utilities conflict with proposed street trees.
- Here the road transition to 35 mph speed limit.

At the Intersection of S 60th St and S Tacoma Way

- There are no street signs at this intersection.
- The planned improvements for this intersection include bike infrastructure and marked crosswalks.

Dealership cars obstructing sidewalk path.

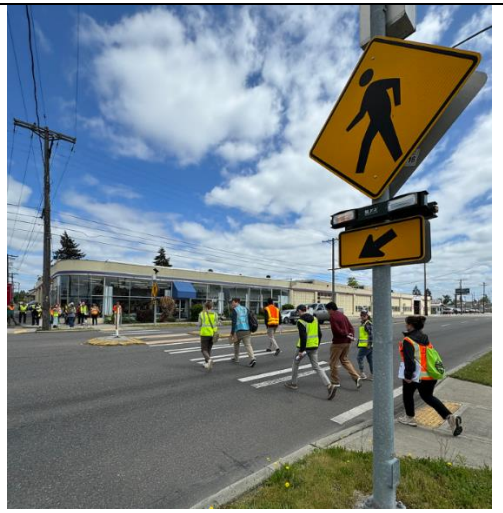
- Improve lighting at intersection.
- Add marked crosswalks.

Along S Tacoma Way between S 60th St and S 62nd St

- The parking lane is mainly empty and looks like very wide edge lane.
- Advanced Flashing Beacon is buried in the trees.
- Consider changing speed limit from 35 to 30mph.
- Add temporary automated speed enforcement radar sign.
- Add advance warning speed limit change signs

At the Intersection of S 62nd St and S Tacoma Way

- Crossing is not allowed at the north side of the intersection.
- There's limited visibility to the flashing beacon due to trees.
- Upgrade the ped beacon to newer Rapid Flashing Beacons.
- RRFB is likely not appropriate given the number of lanes and travel speed.
- The median island is struck frequently.
- Improve lighting at intersection.
- Automated enforcement as folks enter the business district.
- Consider adding a median Rectangular Rapid Flashing Beacons.
- Add curb bulb-outs.



RRFB at end of project segment (S 62nd St and S Tacoma Way)

OTHER PROJECTS

There are many current and future projects happening near the RSA 1 study area. Figure 10 is taken from the draft South Tacoma Neighborhood Plan and attempts to capture all current and future projects in the area that may impact or be impacted by the recommendations in this memo.

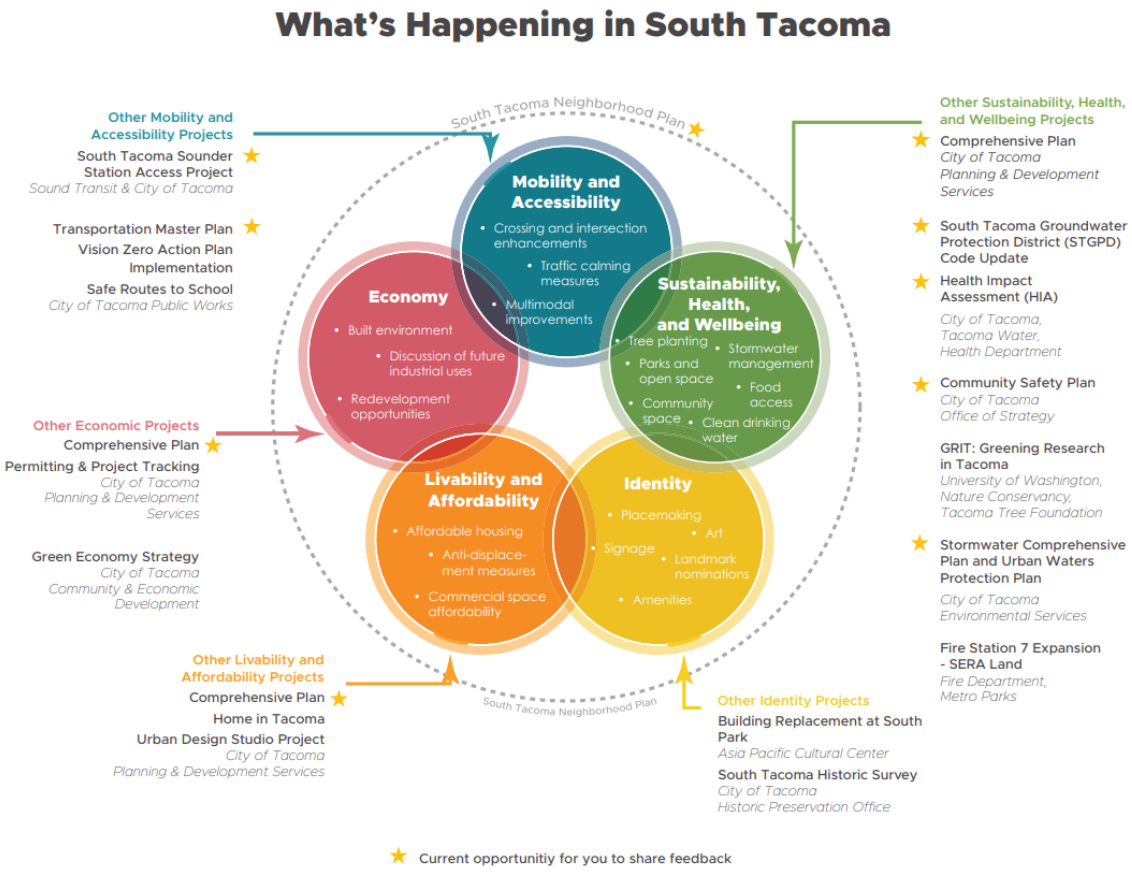


Figure 10: What's Happening in South Tacoma (South Tacoma Neighborhood Plan, 2024)

RECOMMENDED SAFETY TREATMENTS

As part of Tacoma's Vision Zero Action Plan, a list of roadway safety countermeasures was created, with the intent that Tacoma could quickly deploy those countermeasures to advance safety. The list of countermeasures was reviewed by Tacoma staff from various departments to ensure feasibility. This list of countermeasures resulted in the Safety Countermeasure Guide (the "Guide"), which provides instruction on how to use the Safety Countermeasure Toolkit (the "Toolkit"), both developed specifically for the City of Tacoma. The safety countermeasures featured in the Guide are not an extensive list of every available option to improve roadway safety, but rather a tailored list of proven countermeasures that have a demonstrated history of improving safety around context and crash causes that may be most effective in Tacoma. Refer to the full Guide and Toolkit for more comprehensive information, including safety benefits and considerations. While developing the following recommended safety treatments for RSA 1, the consultant team referred to both the Guide and the Toolkit, with the intent of streamlining the implementation of safety improvements along the corridor. Not all recommended safety treatments are in the Guide and Toolkit, but many of them are.

KEYS/LEGENDS

Estimated Implementation Cost Key	
$	<= $75,000
$$	$75,000-$150,000
$$$	$150,000-$300,000
$$$$	>= $300,000

Timeframe Key	
Near-term (Near)	<= 2 years
Intermediate (Int.)	2-5 years
Long-term (Long)	>= 5 years

Abbreviations	
ADA	America with Disabilities Act
APS	Accessible Pedestrian Signals
CMF	Crash Modification Factor
LPI	Leading Pedestrian Intervals
RRFB	Rectangular Rapid Flashing Beacon

CORRIDOR-WIDE: S TACOMA WAY FROM S 47TH ST TO S 62ND ST

LOCATION CODE	POTENTIAL IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF*	LEAD
		NEAR	INT.	LONG			
South Tacoma Way between S 47th St and S 62nd St	Update all existing signals to use 12" signal heads with reflective backplates. Evaluate whether the signal span needs to be replaced as part of this upgrade.	✓			$$-$$$$	0.85	CoT
	Evaluate all street lighting			✓	$$$$	0.792	CoT
	Install pedestrian scale lighting			✓	$$$$	-	CoT
	Refresh/replace thermoplastic pavement markings as needed throughout the corridor		✓		$	0.887	CoT
	Upgrade existing storm inlet grates with parallel openings to new standard inlet grates	✓			$	-	CoT

*Crash Modification Factor from CMF Clearinghouse. CMF is approximate for the general countermeasure. A specific CMF should be determined for each unique scenario. For selection of specific CMFs for specific locations in Tacoma, explore the CMF clearing house and apply all relevant factors. All CMFs reported are taken from Tacoma's Countermeasure Toolkit or FHWA's list of Proven Safety Countermeasures and should be used as a general reference.

NORTHERN EXTENT: S TACOMA WAY FROM S 47TH ST TO S 52ND ST

LOCATION CODE		POTENTIAL IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF*	LEAD
			NEAR	INT.	LONG			
South Tacoma Way and S 47th St	N1	Install right turn hardening with truck aprons as needed	✓			$$	-	CoT
		Change permissive left turn phasing to protected only or protected/permissive		✓		$	0.862	CoT
		Program existing pedestrian signals to include a leading pedestrian interval (LPI), after confirming APS and ADA compliant curb ramps are in place	✓			$	0.81	CoT
		Consider adding a sign "no right-turn-on-red" for the northbound right turn and eastbound right turn to reduce conflict with the bike trail	✓			$	-	CoT
South Tacoma Way between S 47th St and S 48th St	N2	Install new sidewalk, curb, and gutter			✓	$$$$	0.35	CoT
		Update bus stop to provide shelter and lighting		✓		$$	-	Pierce Transit/CoT
		Install traffic calming elements such as median, parallel parking, narrowing lanes, etc.		✓		$$$$	Dependent on chosen traffic calming	CoT
		Install edgelines	✓			$	0.839	CoT
		Plant street trees in landscape strip		✓		$$$	-	CoT/property owners
South Tacoma Way and S 48th St	N3	Install ADA compliant curb ramps		✓		$$$	-	CoT
		Program existing pedestrian signals to include a leading pedestrian interval (LPI), after APS and ADA compliant curb ramps are in place	✓			$-$$$$	0.81	CoT
South Tacoma Way between	N4	Install median in place of two way left turn lane			✓	$$$$	0.77	CoT
		Resurface pavement		✓		$$$$	0.858	CoT

S 48th St and S 50th St		Depave landscape strip and plant street trees			✓	$$$	-	CoT/property owners
		Install new sidewalk		✓		$$$-$$$$	0.35	CoT
South Tacoma Way and S 50th St	**N5**	Refresh/replace existing crosswalk marking to high visibility continential-style crosswalk marking on north and south legs (across South Tacoma Way)	✓			$	0.6	CoT
		Update all existing signals to APS with pedestrian countdown signal heads. Program existing signals to include a leading pedestrian interval (LPI), after APS and ADA compliant curb ramps are in place.		✓		$$$-$$$$	0.6	CoT
		Program existing pedestrian signals to include a leading pedestrian interval (LPI), after APS and ADA compliant curb ramps are in place	✓			$-$$$$	0.81	CoT
South Tacoma Way between S 50th St and S 52nd St	**N6**	Install edgeline between parking lane and travel lane for visual narrowing	✓			$	0.839	CoT
		Consolidate/minimize access points			✓	$$	0.56	CoT/property owners
		Install new sidewalk and driveways where existing are damaged and not ADA compliant		✓		$$$	0.35	CoT
		Replace two way left turn lane with raised median with consideration of access management			✓	$$$$	0.77	CoT
South Tacoma Way and S 52nd St	**N7**	Install high visibility continental-style crosswalk markings with ADA compliant curb ramps on all legs of intersection		✓		$$$$	0.6	CoT
		Shift southbound bus stop further south to avoid conflict with driveway		✓		$$	-	Pierce Transit/CoT
		Re-design bus stop curb extensions for both northbound and southbound to remove steep grading and better meet ADA			✓	$$$$	-	Pierce Transit/CoT
		Program existing pedestrian signals to include a leading pedestrian interval (LPI), after APS and ADA compliant curb ramps are in place	✓			$-$$$$	0.81	CoT

		Automated speed enforcement camera		✓		$$	0.46	CoT
		Close driveways near the intersection where businesses have an alternate driveway on S 52nd St			✓	$	0.56	CoT/property owners

*Crash Modification Factor from CMF Clearinghouse. CMF is approximate for the general countermeasure. A specific CMF should be determined for each unique scenario. For selection of specific CMFs for specific locations in Tacoma, explore the CMF clearing house and apply all relevant factors. All CMFs reported are taken from Tacoma's Countermeasure Toolkit or FHWA's list of Proven Safety Countermeasures and should be used as a general reference.

MIDDLE EXTENT: S TACOMA WAY FROM SOUTH OF S 52ND ST TO S 58TH ST

LOCATION CODE		POTENTIAL IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF*	LEAD
			NEAR	INT.	LONG			
South Tacoma Way between S 52nd St and S 54th St	M1	Enhance pedestrian crossing with RRFB (latest standard), update curb ramps to be ADA compliant, and evaluate raised crossing		✓		$$$$	0.64	CoT
		Trim median vegetation to maintain visibility (limb-up trees to 8')	✓			$	-	CoT
		Install bike parking corrals	✓			$	-	CoT
		Support businesses to install parklets or café seating	✓			$	-	CoT
		Prohibit on-street parking near crossings	✓			$	0.8	CoT
		Resurface pavement		✓		$$$$	0.858	CoT
		Evaluate 4 to 2 lane reconfiguration and evaluate back angled parking in place of parallel parking		✓		$	0.53 (lane reconf.)	CoT
South Tacoma Way and S 54th St	M2	Install high visibility continental-style crosswalk markings with ADA compliant curb ramps on all legs of intersection. Update all existing signals to APS with pedestrian countdown signal heads. Program existing signals to include a leading pedestrian interval (LPI), after APS and ADA compliant curb ramps are in place.			✓	$$$$	0.6	CoT
		Close driveways near the intersection where businesses have an alternate driveway on S 54th St			✓	$	0.56	CoT/property owners

		Program existing pedestrian signals to include a leading pedestrian interval (LPI), after APS and ADA compliant curb ramps are in place	✓			$- $$$$	0.81	CoT
		Install curb bulb-outs with planters or other vertical elements that work with the existing and planned bicycle infrastructure		✓		$$	-	CoT
		Install marked green bicycle crossing across intersection	✓			$	-	CoT
South Tacoma Way between S 54th St and S 56th St	**M3**	Enhance pedestrian crossing with RRFB (latest standard), update curb ramps to be ADA compliant, and evaluate raised crossing		✓		$$$$	0.64	CoT
		Trim median vegetation to maintain visibility (limb-up trees to 8')	✓			$	-	CoT
		Install bike parking corrals	✓			$	-	CoT
		Support businesses to install parklets or café seating	✓			$	-	CoT
		Prohibit on-street parking near crossings	✓			$	0.8	CoT
		Resurface pavement		✓		$$$$	0.858	CoT
		Evaluate traffic calming elements (e.g. speed cushions)		✓		$$	Dependent on chosen traffic calming	CoT
		Evaluate 4 to 2 lane reconfiguration and evaluate back angled parking in place of parallel parking		✓		$$$	0.53 (lane reconf.)	CoT
South Tacoma Way and S 56th St	**M4**	Evaluate whether the automated red-light camera for eastbound traffic on S 56th St should remain, or if an automated speeding camera on South Tacoma Way or S 56th Street is preferred, in order to avoid saturating corridors with automated enforcement		✓		$$	0.46	CoT
		Program existing pedestrian signals to include a leading pedestrian interval (LPI), after APS and ADA compliant curb ramps are in place	✓			$	0.81	CoT

South Tacoma Way between S 56th St and S 58th St	**M5**	Replace two way left turn lane with raised median with consideration of access management			✓	$$$$	0.77	CoT
		Plant street trees in landscape strips		✓		$$$	-	CoT/property owners
South Tacoma Way and S 58th St	**M6**	Evaluate gateway/placemaking strategy that also includes traffic calming elements, such as installing a raised median	✓			$$$	Dependent on chosen traffic calming	CoT
		Program existing pedestrian signals to include a leading pedestrian interval (LPI), after APS and ADA compliant curb ramps are in place	✓			$	0.81	CoT

*Crash Modification Factor from CMF Clearinghouse. CMF is approximate for the general countermeasure. A specific CMF should be determined for each unique scenario. For selection of specific CMFs for specific locations in Tacoma, explore the CMF clearing house and apply all relevant factors. All CMFs reported are taken from Tacoma's Countermeasure Toolkit or FHWA's list of Proven Safety Countermeasures and should be used as a general reference.

SOUTHERN EXTENT: S TACOMA WAY FROM SOUTH OF S 58TH ST TO S 62ND ST

LOCATION CODE		POTENTIAL IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF*	LEAD
			NEAR	INT.	LONG			
South Tacoma Way between S 58th St and S 60th St	**S1**	Install traffic calming elements such as median, parallel parking, narrowing lanes, etc.		✓		$$$$	Dependent on chosen traffic calming	CoT
		Plant low street vegetation in landscape strips	✓			$$	-	CoT/property owners
		Install edgeline between parking lane and travel lane for visual narrowing	✓			$	0.839	CoT
		Install wayfinding for Sound Transit station			✓	$$	-	Sound Transit

South Tacoma Way and S 60th St	**S2**	Update intersection to reflect S 60th St Improvement Plan per the Sound Transit south station redesign. Install high visibility continental-style crosswalk markings and curb bulb-outs with ADA compliant curb ramps in coordination with the S 60th St Improvement Plan.		✓		$$$$	-	CoT
South Tacoma Way between S 60th St and S 62nd St	**S3**	Evaluate revising posted speed limit from 35 to 30 mph per Tacoma's speed limit setting policy	✓			$	-	CoT
		Install edgeline between parking lane and travel lane for visual narrowing. Install edgeline on the outside of the outer travel lane whether parking remains or is removed.	✓			$	0.839	CoT
		Maintain landscaping around existing signing	✓			$	-	CoT/property owners
South Tacoma Way and S 62nd St	**S4**	Increase street lighting or other strategies to increase visibility of existing pedestrian refuge island, or upgrade RRFB crossing to a pedestrian signal		✓		$$$$	0.792	CoT

*Crash Modification Factor from CMF Clearinghouse. CMF is approximate for the general countermeasure. A specific CMF should be determined for each unique scenario. For selection of specific CMFs for specific locations in Tacoma, explore the CMF clearing house and apply all relevant factors. All CMFs reported are taken from Tacoma's Countermeasure Toolkit or FHWA's list of Proven Safety Countermeasures and should be used as a general reference.

NEXT STEPS

Tacoma should move forward on those short-term safety treatments deemed feasible and highest priority and track the effectiveness of those treatments. For short-term, intermediate, and long-term safety countermeasures, City staff are prioritizing all projects and evaluating the feasibility of those projects, and for those with promise begin identifying funding sources. This could include the development of grant applications to seek State and Federal funding.

The RSA findings should be revisited regularly, and Tacoma may consider conducting a follow-up RSA every 5 years, or on a schedule determined by the City during development of a citywide RSA program.

APPENDIX A: MURAL BOARD

Tacoma Vision Zero RSA 1: S Tacoma Way

VISION ZERO TACOMA

RSA 1: S Tacoma Way

The purpose of this study is to conduct a road safety audit (RSA) for a study area that includes one corridor segment and its intersections: S Tacoma Way between S 47th St and S 62nd St.

AGENDA:
8:30-8:45: Join & Attendance
8:45-9:00: Overview & Practice
9:00-9:10: Countermeasure Toolkit
9:10-10:00: Northern Extent
10:00-10:10: Coffee Break
10:10-11:00: Middle Extent
11:00-11:10: Coffee Break
11:10-12:00: Southern Extent
12:00-12:30: Reserve

Welcome!
COME HERE TO PRACTICE!

A Logistics & Tips
As with all tools, there's a learning curve! Be patient with yourself, others, and technology. Here are some helpful tips to get us started on the right foot.

Tech:
- A chrome browser is key. Sometimes you need to refresh the page.

The Basics
- See list on the left. Most importantly: move and zoom!

Issues?
- Please use meeting chat or raise your hand for assistance

Cursors Off:
- Please turn your cursor off. I will leave mine on so you can follow me, if helpful.

B Your Avatar
Every Mural user invited to this board is represented with an avatar at the bottom of the screen. Your avatar is the furthest to the left.

Avatar

1. Hover over your avatar
2. When the charcoal gray menu pops up, click on "Hide Cursors"

C Following Your Facilitator
AD
1. Hover over your avatar
2. When the charcoal gray menu pops up, click "Follow facilitator"

D Zooming and Moving

E Practice
CLICK, TYPE , DRAG , DUPLICATE!

Safe System Approach

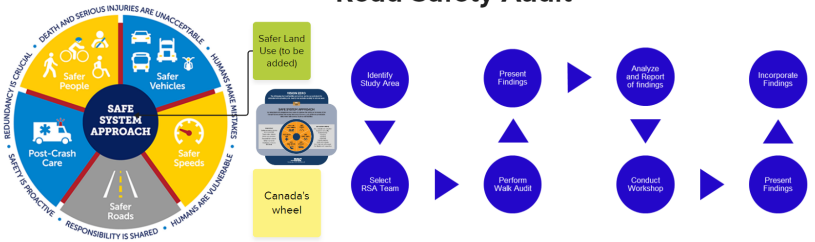
The Tacoma Vision Zero Road Safety Audit is framed around the Safe System Approach. The Federal Highway Administration (FHWA) provides guidance on the Safe System Approach, which recognizes that road safety is a shared responsibility between those that design, build, operate, and use the road system. It recognizes that to reduce risks to humans all parts of the transportation system must be strengthened, so that if one part fails, the other parts still protect people.
Safe System Principles are illustrated in the outer ring of the graphic with the Safe System elements found on the inner ring: Safer People, Safer Vehicles, Safer Speeds, Safer Roads, and Post-Crash Care.
The Safe System Approach aims to eliminate fatal and serious injury crashes using a proactive approach that anticipates human mistakes- and reduces the severity of crashes that do happen, so the impact is less likely to be fatal or cause serious injury. The strategies and practices included in this memo are framed around safer people, safer vehicles, safer roads, safer speeds, and post-crash care.

COUNTERMEASURE TOOLKIT

Other safety ideas

Depaving / tree planting | Crash-worthy art (??) | Temporary curb bulb-outs (quick build) | Street murals | Gateway/ placemaking strategy

Road Safety Audit

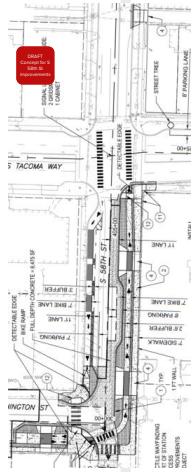


VISION BOARD

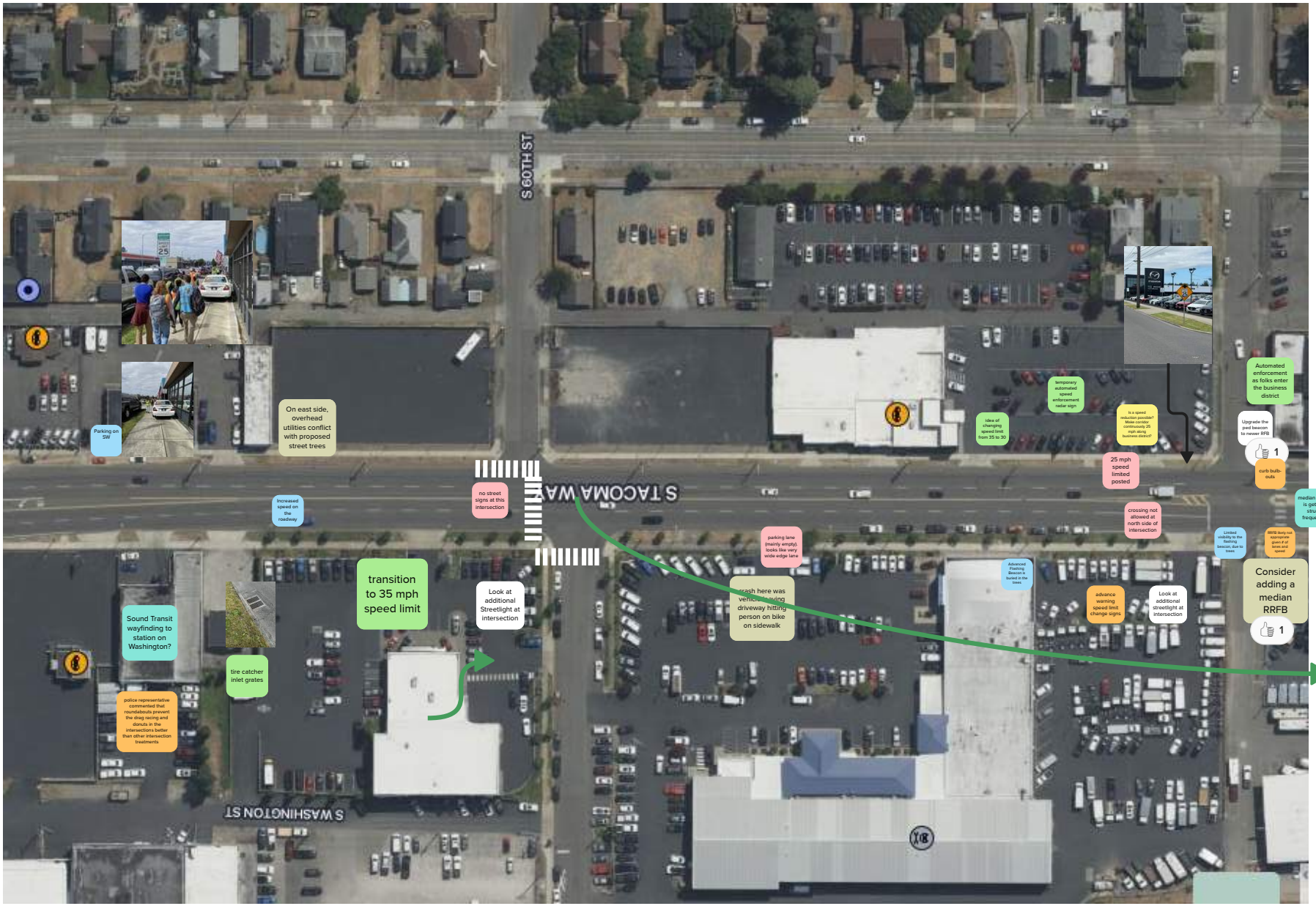
Northern Extent

Funding note: S Tacoma Way used to be a state route which makes it eligible for some WSDOT grants

Middle Extent



Southern Extent



DRAFT Concept for S 60th St improvements

APPENDIX B: SPEED STUDY

Vehicle Speed Report Summary

Location: Tacoma Way BTWN S 52nd St & S 54th St

Count Direction: Northbound / Southbound

Date Range: 10/27/2021 to 10/29/2021

Site Code: 17

	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
Study Total																		
Northbound	82	141	473	2,607	7,192	6,479	2,269	534	123	37	16	6	2	2	0	1	0	19,964
Percent	0.4%	0.7%	2.4%	13.1%	36.0%	32.5%	11.4%	2.7%	0.6%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Southbound	100	345	784	2,897	5,516	4,744	2,632	1,286	598	263	127	56	20	10	3	6	2	19,389
Percent	0.5%	1.8%	4.0%	14.9%	28.4%	24.5%	13.6%	6.6%	3.1%	1.4%	0.7%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	100%
Total	182	486	1,257	5,504	12,708	11,223	4,901	1,820	721	300	143	62	22	12	3	7	2	39,353
Percent	0.5%	1.2%	3.2%	14.0%	32.3%	28.5%	12.5%	4.6%	1.8%	0.8%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	100%

Total Study Percentile Speed Summary		
Northbound		
50th Percentile (Median)	29.6	mph
85th Percentile	34.9	mph
95th Percentile	38.7	mph
Southbound		
50th Percentile (Median)	30.3	mph
85th Percentile	40.3	mph
95th Percentile	49.5	mph
Allbound		
50th Percentile (Median)	30.0	mph
85th Percentile	37.1	mph
95th Percentile	44.5	mph

Total Study Speed Statistics		
Northbound		
Mean (Average) Speed	29.8	mph
10 mph Pace	25.1 - 35.1	mph
Percent in Pace	68.5	%
Southbound		
Mean (Average) Speed	31.8	mph
10 mph Pace	24.0 - 34.0	mph
Percent in Pace	51.5	%
Allbound		
Mean (Average) Speed	30.8	mph
10 mph Pace	24.0 - 34.0	mph
Percent in Pace	59.9	%

Total Study Speeding Fact		
Northbound (Post Speed Limit: 25 mph)		
Exceeding Speed Limit	16,661	83.5%
5 mph and over	9,469	47.4%
10 mph and over	2,990	15.0%
Southbound (Post Speed Limit: 25 mph)		
Exceeding Speed Limit	15,263	78.7%
5 mph and over	9,747	50.3%
10 mph and over	5,003	25.8%
Allbound (Post Speed Limit: 25 mph)		
Exceeding Speed Limit	31,924	81.1%
5 mph and over	19,216	48.8%
10 mph and over	7,993	20.3%

Mark Skaggs:425-250-0777
mark.skaggs@idaxdata.com

APPENDIX C: VEHICLE VOLUME STUDY

Location: Tacoma Way BTWN S 52nd St & S 54th St
Date Range: 10/27/2021 - 11/2/2021
Site Code: 17

	Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Tuesday			Mid-Week Average		
	10/27/2021			10/28/2021			10/29/2021			10/30/2021			10/31/2021			11/1/2021			11/2/2021					
Time	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	40	52	92	33	40	73	42	42	84	-	-	-	-	-	-	-	-	-	-	-	-	37	46	83
1:00 AM	35	18	53	23	23	46	28	22	50	-	-	-	-	-	-	-	-	-	-	-	-	29	21	50
2:00 AM	17	14	31	14	15	29	19	26	45	-	-	-	-	-	-	-	-	-	-	-	-	16	15	30
3:00 AM	25	15	40	24	13	37	34	19	53	-	-	-	-	-	-	-	-	-	-	-	-	25	14	39
4:00 AM	46	21	67	44	25	69	44	28	72	-	-	-	-	-	-	-	-	-	-	-	-	45	23	68
5:00 AM	149	40	189	140	35	175	138	54	192	-	-	-	-	-	-	-	-	-	-	-	-	145	38	182
6:00 AM	267	95	362	238	112	350	215	134	349	-	-	-	-	-	-	-	-	-	-	-	-	253	104	356
7:00 AM	377	182	559	359	160	519	345	162	507	-	-	-	-	-	-	-	-	-	-	-	-	368	171	539
8:00 AM	367	297	664	367	271	638	356	254	610	-	-	-	-	-	-	-	-	-	-	-	-	367	284	651
9:00 AM	369	352	721	367	322	689	369	346	715	-	-	-	-	-	-	-	-	-	-	-	-	368	337	705
10:00 AM	464	413	877	372	338	710	410	344	754	-	-	-	-	-	-	-	-	-	-	-	-	418	376	794
11:00 AM	413	439	852	426	350	776	460	426	886	-	-	-	-	-	-	-	-	-	-	-	-	420	395	814
12:00 PM	431	413	844	504	477	981	484	448	932	-	-	-	-	-	-	-	-	-	-	-	-	468	445	913
1:00 PM	499	506	1,005	500	491	991	521	529	1,050	-	-	-	-	-	-	-	-	-	-	-	-	500	499	998
2:00 PM	497	545	1,042	483	472	955	531	556	1,087	-	-	-	-	-	-	-	-	-	-	-	-	490	509	999
3:00 PM	503	603	1,106	517	718	1,235	593	637	1,230	-	-	-	-	-	-	-	-	-	-	-	-	510	661	1,171
4:00 PM	511	616	1,127	486	682	1,168	571	644	1,215	-	-	-	-	-	-	-	-	-	-	-	-	499	649	1,148
5:00 PM	537	621	1,158	497	723	1,220	470	609	1,079	-	-	-	-	-	-	-	-	-	-	-	-	517	672	1,189
6:00 PM	322	416	738	320	368	688	396	460	856	-	-	-	-	-	-	-	-	-	-	-	-	321	392	713
7:00 PM	243	254	497	233	213	446	309	298	607	-	-	-	-	-	-	-	-	-	-	-	-	238	234	472
8:00 PM	162	183	345	161	168	329	211	225	436	-	-	-	-	-	-	-	-	-	-	-	-	162	176	337
9:00 PM	127	143	270	131	105	236	185	172	357	-	-	-	-	-	-	-	-	-	-	-	-	129	124	253
10:00 PM	92	104	196	89	77	166	163	144	307	-	-	-	-	-	-	-	-	-	-	-	-	91	91	181
11:00 PM	67	76	143	63	64	127	119	130	249	-	-	-	-	-	-	-	-	-	-	-	-	65	70	135
Total	**6,560**	**6,418**	**12,978**	**6,391**	**6,262**	**12,653**	**7,013**	**6,709**	**13,722**	-	-	-	-	-	-	-	-	-	-	-	-	**6,476**	**6,340**	**12,816**
Percent	**51%**	**49%**	-	**51%**	**49%**	-	**51%**	**49%**	-	-	-	-	-	-	-	-	-	-	-	-	-	**51%**	**49%**	-

1. Mid-week average includes data between Tuesday and Thursday.

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