

PROGRAMMATIC EVALUATION *of Posted Speed Limits*

City of Bainbridge Island
September 2022



PRESENTATION OVERVIEW

1. **Purpose**
of the study
2. **Overview**
of existing posted
speed limits
3. **Relationship**
between speed and
injury severity
4. **Successes**
in programmatic
speed limit changes
5. **Methodology**
for setting speed limits
6. **Proposed**
changes and recommendations

WHAT IS THE PURPOSE OF THE STUDY?

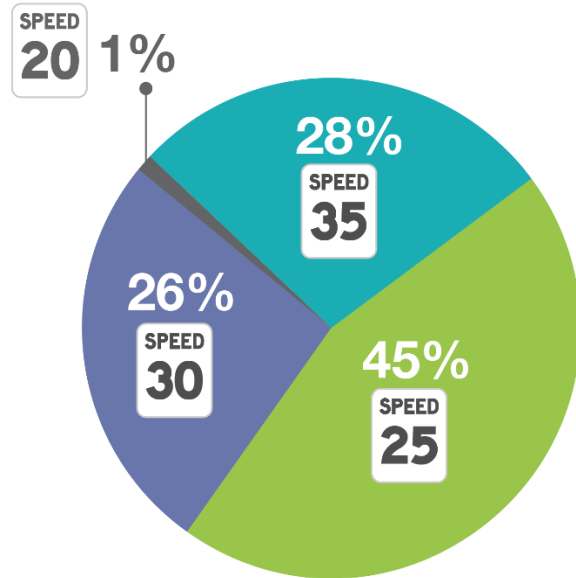
Purpose: *Propose a set of comprehensive speed limit changes to support consistency and avoid reviews on a case-by-case basis.*

KEY CONSIDERATIONS

- The need arose from a 2021 call for traffic calming projects where 334 requests were received from residents
- A comprehensive inventory of speed limits and speed/volume data was recently completed
- Speed limit changes should be based on a set of objective criteria and readily available data
- The City should strive for a consistent set of posted speed limits island-wide

OVERVIEW OF THE EXISTING POSTED SPEEDS

- Nearly 92 miles of designated arterials and collectors
- Posted speed limits range from 20 to 35 MPH



*Posted speed limits on
Bainbridge Island
arterials/collectors*

ROADWAY CLASSIFICATIONS

Roadways are grouped into classes, according to the level of demand they serve.

The City divides roadways into four functional classifications:

1. Principal arterial (SR 305)
 2. **Secondary arterial**
 3. **Collector**
 4. Local access (part of separate recommendation)
- These are the focus of this study*

WHAT ARE THE POSTED SPEED LIMITS?

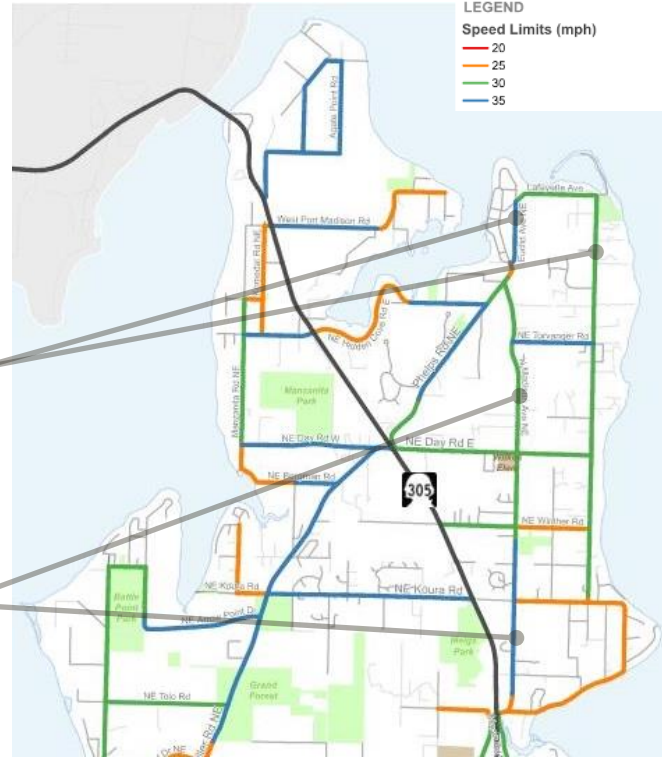
- Speed limits have not been set consistently in the past
- Similar roadways have different speed limits

Example #1

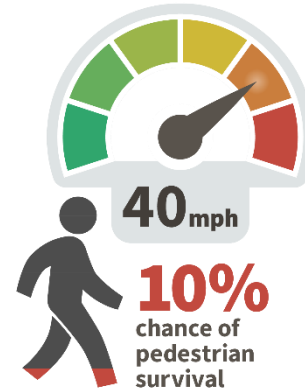
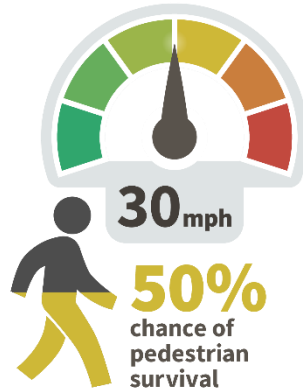
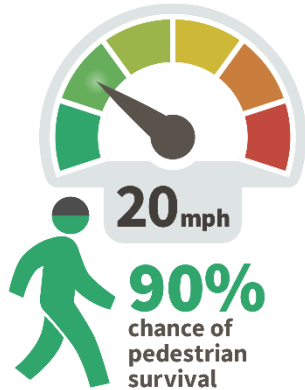
Euclid Ave is 35 MPH and Sunrise Dr is 30 MPH, but they have similar roadway characteristics

Example #2

N Madison Ave is 35 MPH on southern segment, but 30 MPH to the north



THE CASE FOR ADDRESSING SPEEDS

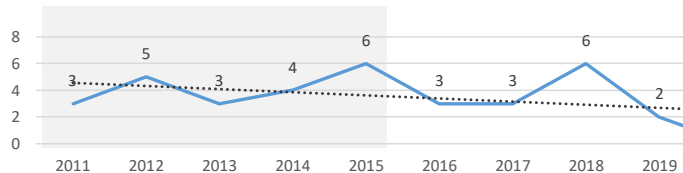


- Vehicle speed is directly linked to crash severity
- Risks for walkers and rollers increase exponentially as speeds increase

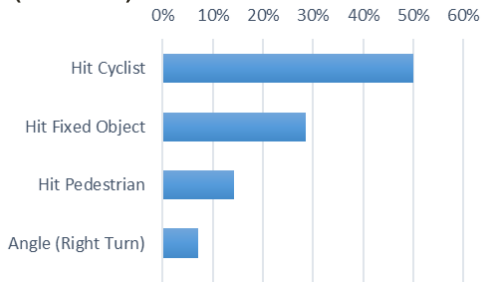
WHAT DOES THE CRASH DATA SHOW?

- Fatal and serious injury crashes continue to occur
- 65% of fatal and serious injury crashes involve a cyclist or pedestrian

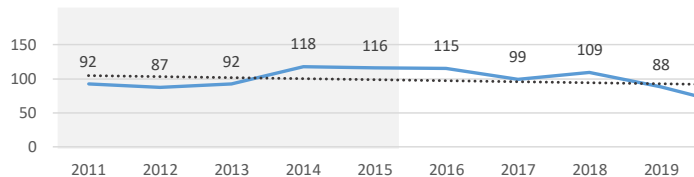
Bainbridge Island: Fatal and Serious Injury Crashes



Collision Type: Fatal and Serious Injury Crashes (2016-2020)



Bainbridge Island: All Crashes



*Source: WSDOT

CORRELATION TO SPEED LIMITS



Data supports the need to re-evaluate how speed limits are set, especially in areas where there is a higher mix of vulnerable users.



86%

**of serious/fatal crashes
were on roadways with
limits above 25mph**

MODAL PRIORITIES ARE CHANGING

- The land use context along our roadways has evolved since speed limits were first set
- More people are choosing to travel by other modes such as walking, biking, and transit



Yet speed limit setting practices have not been updated to reflect these changes

EXAMPLE CASE STUDIES OF PROGRAMMATIC SPEED LIMIT CHANGES



City of Seattle

- Default citywide speed limit reduced to 25 MPH in 2020



22%
decrease
in all crashes

18%
decrease in
injury crashes

- Case studies conducted in 2018 supported the change



10%
decrease
in 50th percentile

7%
decrease in
85th percentile

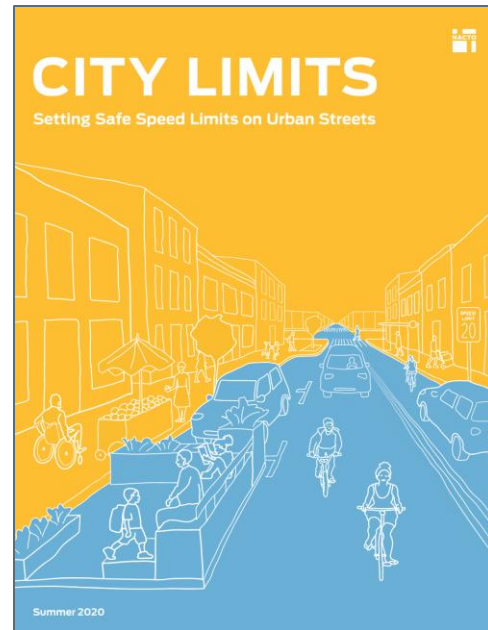
54%
decrease in
40mph speeders

BUILDING ON RECENT RESEARCH FROM *NACTO CITY LIMITS**

Provides a useful methodology
to approach programmatic speed
limit changes







- Set speed limits based on a methodology that measures conflict density and activity level
- Can be modified to fit the context of a community

** Used as a starting point, but modified for the City of Bainbridge Island*



**NACTO = National Association of
City Transportation Officials**

PROPOSED PROGRAMMATIC SPEED LIMIT SETTING METHODOLOGY

		Roadway Context		
		 A	 B	 C
Multimodal Safety Index	 1	SPEED 20	SPEED 25	SPEED 25
	 2	SPEED 25	SPEED 25	SPEED 30
	 3	SPEED 25	SPEED 30	SPEED 35

Multimodal / Safety Index

- History of safety issues
- Ped/bike activity

Roadway Context*

- Adjoining land uses, urban/rural character
- Roadway geometrics and topography
- Driveway density and intersection spacing

**Arterials & Collectors Only*

BUILT OFF ADOPTED PLANS

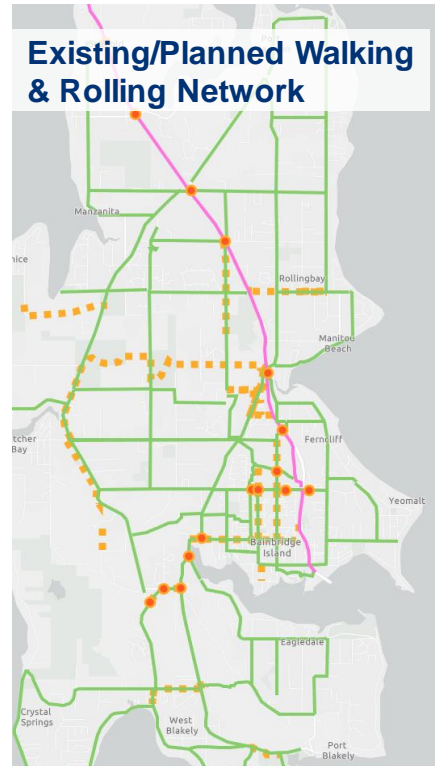
Bicycle Level of Traffic Stress



Maps illustrating “bicycle level of traffic stress” and walking/rolling infrastructure

Source: [Sustainable Transportation Plan](#)

Existing/Planned Walking & Rolling Network



SPEED LIMIT SETTING TOOL

Segment ID #	Roadway Name	Existing Roadway Characteristics		Scoring Criteria Outputs				Speed Increase? (if yes, -5 MPH)	More than 5 MPH Change? (if yes, +5 MPH)	Final Proposed Speed Limit
		Existing Speed Limit	Segment Length (mi)	Multimodal/Safety Index Score	Roadway Context Score	New Proposed Speed Limit	Speed Change from Existing			
1	Agate Pass Rd NE (north of NE Dolphin Dr)	35	0.45	3	B	30	-5	No	No	30
2	NE Dolphin Dr (east of SR 305)	35	0.49	2	B	25	-10	No	Yes	30
3	NE Hidden Cove Rd (Manzanita Rd NE to Spargur Loop Rd NE)	25	1.21	3	B	30	5	Yes	No	25
4	NE Hidden Cove Rd (Spargur Loop Rd NE to Phelps Rd NE)	35	0.27	3	C	35	0	No	No	35
5	Euclid Ave NE (north of N Madison Ave NE)	35	0.43	2	B	25	-10	No	Yes	30
6	NE Torvanger Rd (N Madison Ave NE to Sunrise Dr NE)	35	0.55	3	B	30	-5	No	No	30
7	Sunrise Dr NE (Day to Lafayette)	30	1.76	3	B	30	0	No	No	30

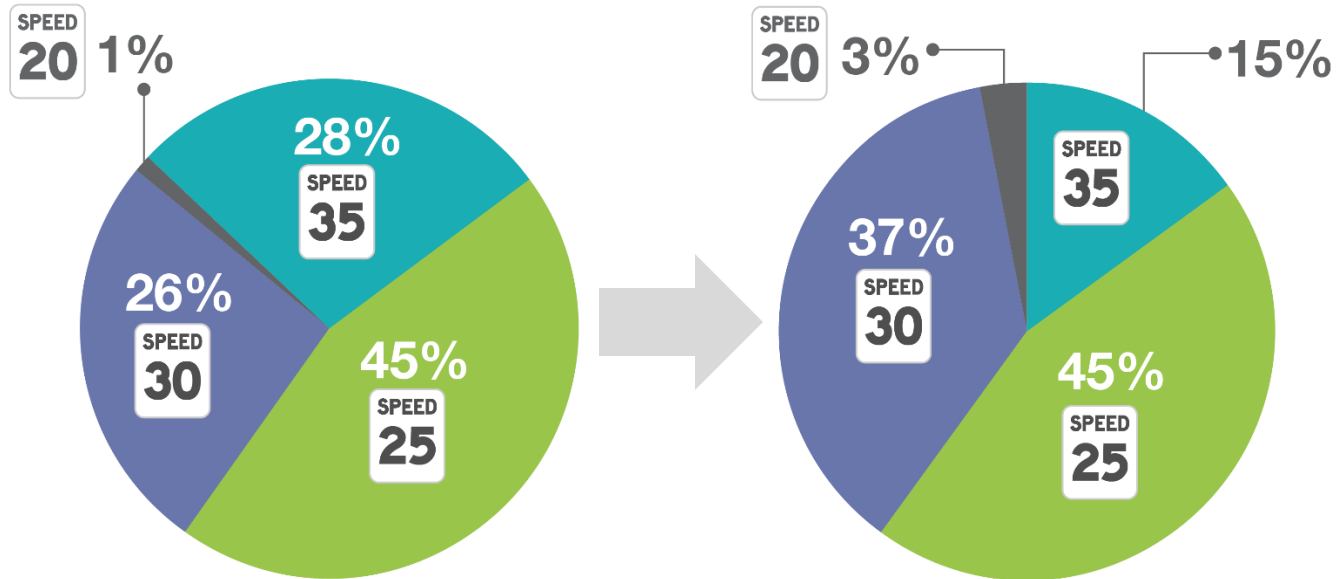
Tool 'scores' roadway segments and outputs New Proposed Speed Limit

Tool highlights how proposed speed limit varies from existing speed limit

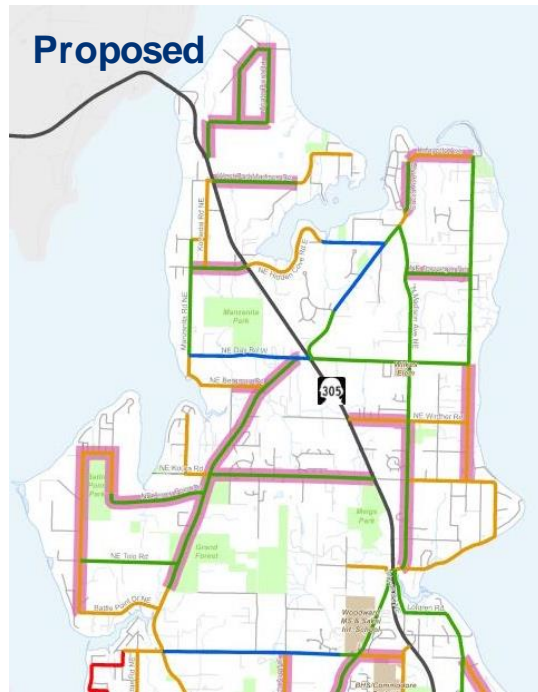
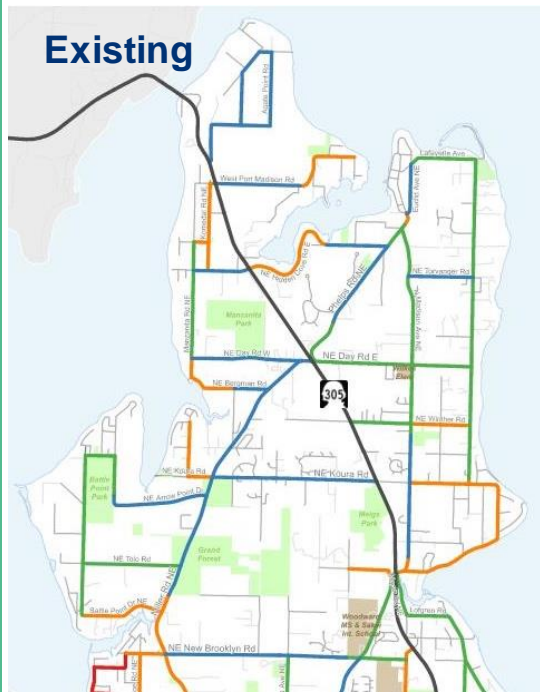
Tool provides final adjustments (+/- 5 mph) to proposed speed limit to ensure speed is not increased or decreased more than 5 mph at one time

OVERVIEW OF THE PROPOSED CHANGES

Secondary Arterials & Collectors (92 miles)



WHAT ROADWAY SPEED LIMITS WOULD BE MODIFIED?



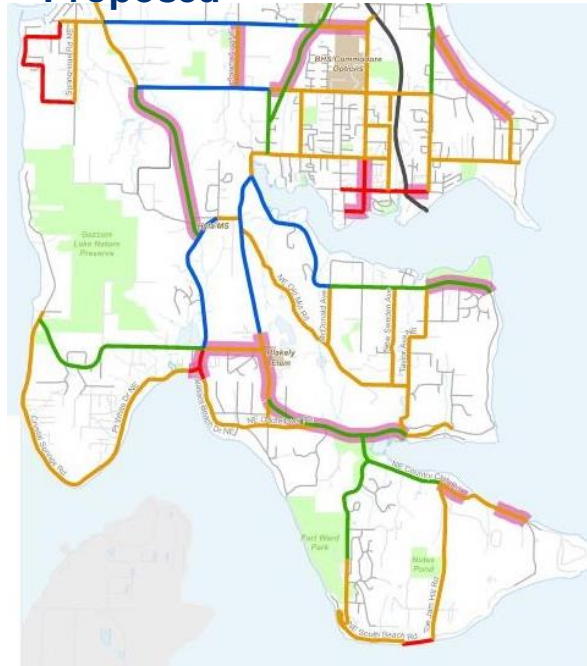
- LEGEND**
- Speed Limits (mph)**
- 20
 - 25
 - 30
 - 35
- Speed Limit Reductions**
-

WHAT ROADWAY SPEED LIMITS WOULD BE MODIFIED?

Existing









Proposed

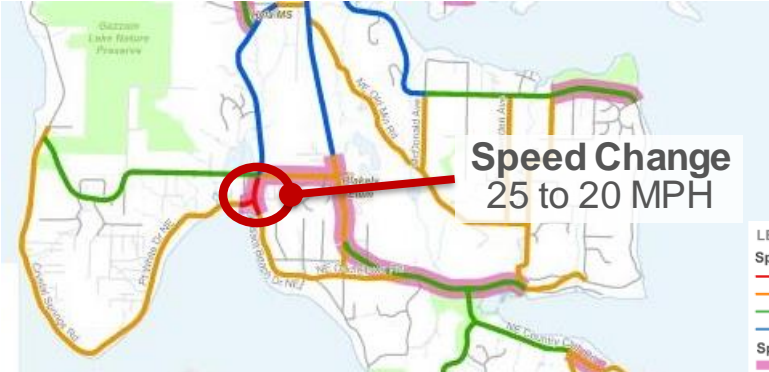


- LEGEND**
- Speed Limits (mph)
 - 20
 - 25
 - 30
 - 35
 - Speed Limit Reductions
 -

EXAMPLE 1 – LYNWOOD CENTER ROAD







Roadway Context

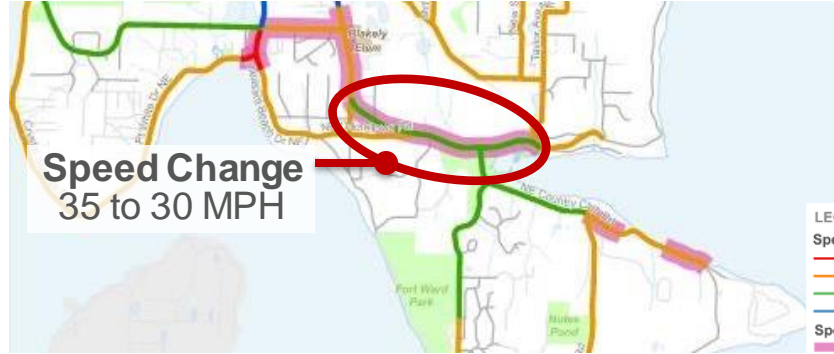
	 A	 B	 C
Multimodal Safety Index			
 1	SPEED 20	SPEED 25	SPEED 25
 2	SPEED 25	SPEED 25	SPEED 30
 3	SPEED 25	SPEED 30	SPEED 35



EXAMPLE 2 – BLAKELY AVENUE NE







Roadway Context

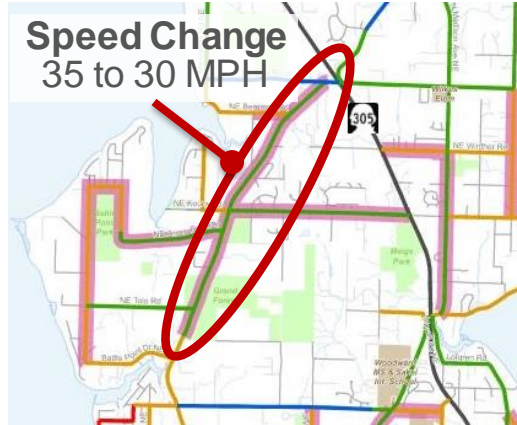
	 A	 B	 C
Multimodal Safety Index			
 1	SPEED 20	SPEED 25	SPEED 25
 2	SPEED 25	SPEED 25	SPEED 30
 3	SPEED 25	SPEED 30	SPEED 35



EXAMPLE 3 – MILLER ROAD NE

Multimodal Safety Index

	Roadway Context		
	 A	 B	 C
 1	SPEED 20	SPEED 25	SPEED 25
 2	SPEED 25	SPEED 25	SPEED 30
 3	SPEED 25	SPEED 30	SPEED 35



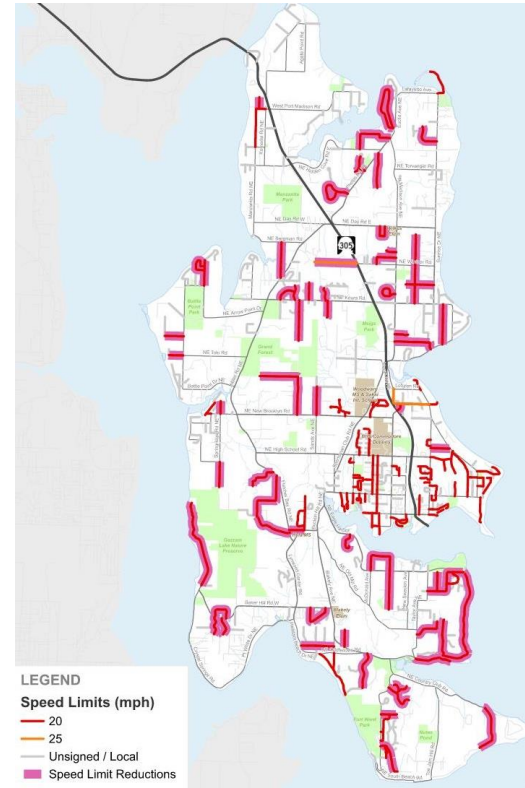
RECOMMENDATION #1



- **Adopt the new speed limit setting methodology** to modify speed limits without an engineering and traffic investigation, as required by RCW 46.61.415.
- **Accept the proposed changes to the posted speed limits** on secondary and collector arterials based on the new speed limit setting procedures.

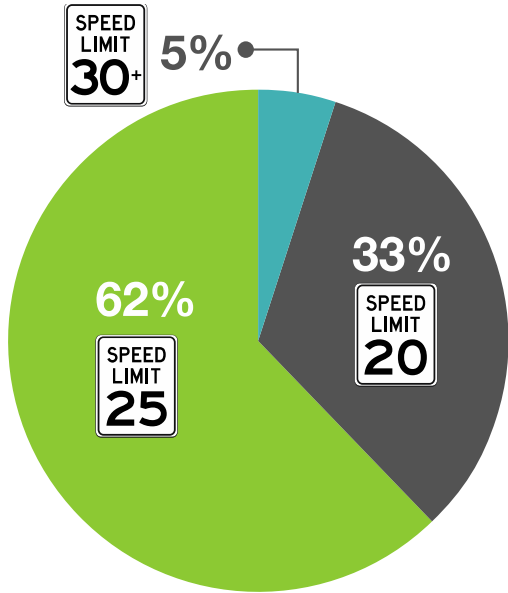
LOCAL ACCESS STREETS

- Roadways not designated as secondary or collectors, are “local access” streets
- Primarily serve residential areas, are low volume and low speed
- Approximately 58 miles of local access streets on the island
- RCW 46.61.415 allows local jurisdictions to “*establish a maximum speed limit of 20 MPH*” and may do so without an engineering and traffic investigation

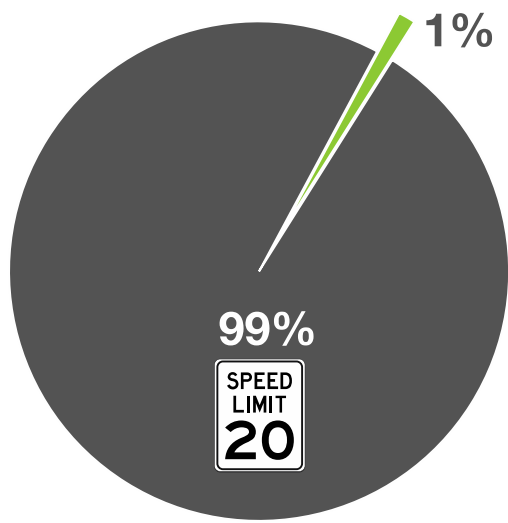


OVERVIEW OF THE PROPOSED CHANGES

Local Access Streets (58 miles)



Existing



1% Decrease to or remain at 25 MPH

Proposed

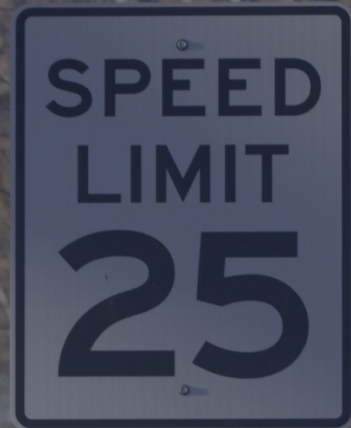
RECOMMENDATION #2



Set the default speed limit to 20 MPH for all public streets classified as “local access,” as allowed under RCW 46.61.415

Photo: Mayor of Salt Lake City after passage of legislation changing the speed limit on local streets to 20 MPH

Q&A



CONTACT

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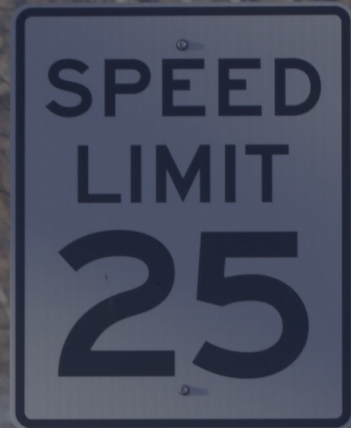


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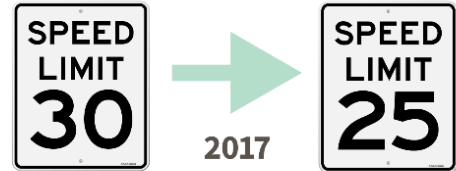
Francesca Liburdy



EXAMPLE CASE STUDIES OF PROGRAMMATIC SPEED LIMIT CHANGES

City of Boston

- Default citywide speed limit reduced from 30 MPH to 25 MPH in 2017
- Dramatically decreased high-end speeding – the number of vehicles traveling greater than 35 MPH declined by 30%



30%
decrease in
+35mph speeders



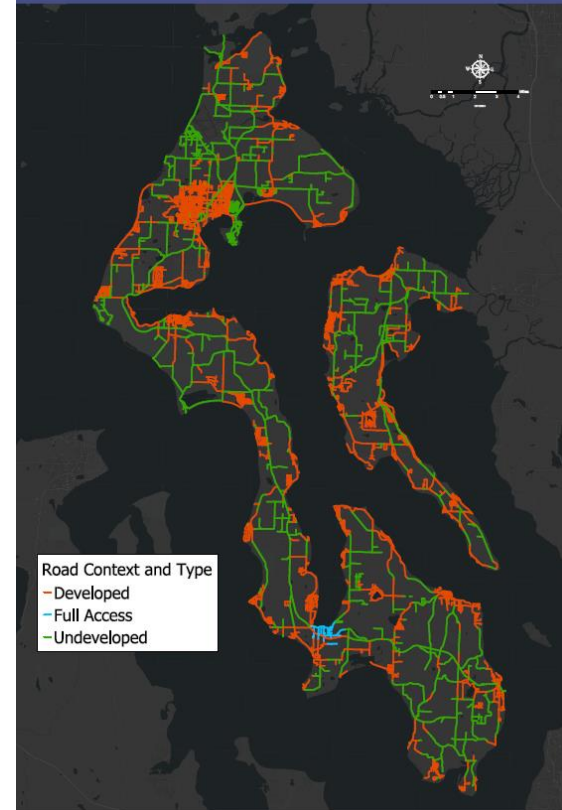
EXAMPLE CASE STUDIES OF PROGRAMMATIC SPEED LIMIT CHANGES

City of Shoreline

- Completed a study of six arterial segments
- Proposing to lower speed limits on 5 of the segments to 30 MPH

Island County

- Updated its speed limit policy for all rural roadways
- Utilized latest best practices to emphasize other factors beyond the 85th percentile speed



BUILDING ON RECENT RESEARCH

New Publications focused on Speed Limits and Vehicle Speeds

Washington State Injury Minimization and Speed Management Policy Elements and Implementation Recommendations

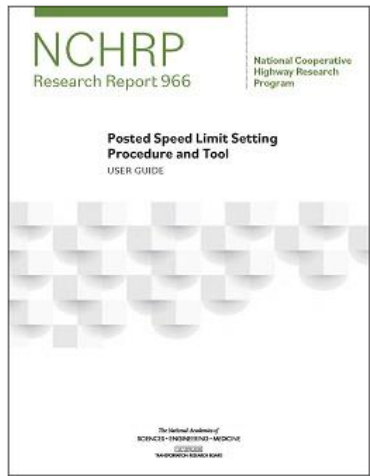
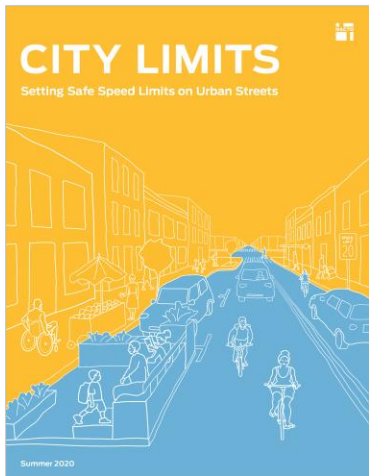
Prepared and Reviewed by:

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October 2020



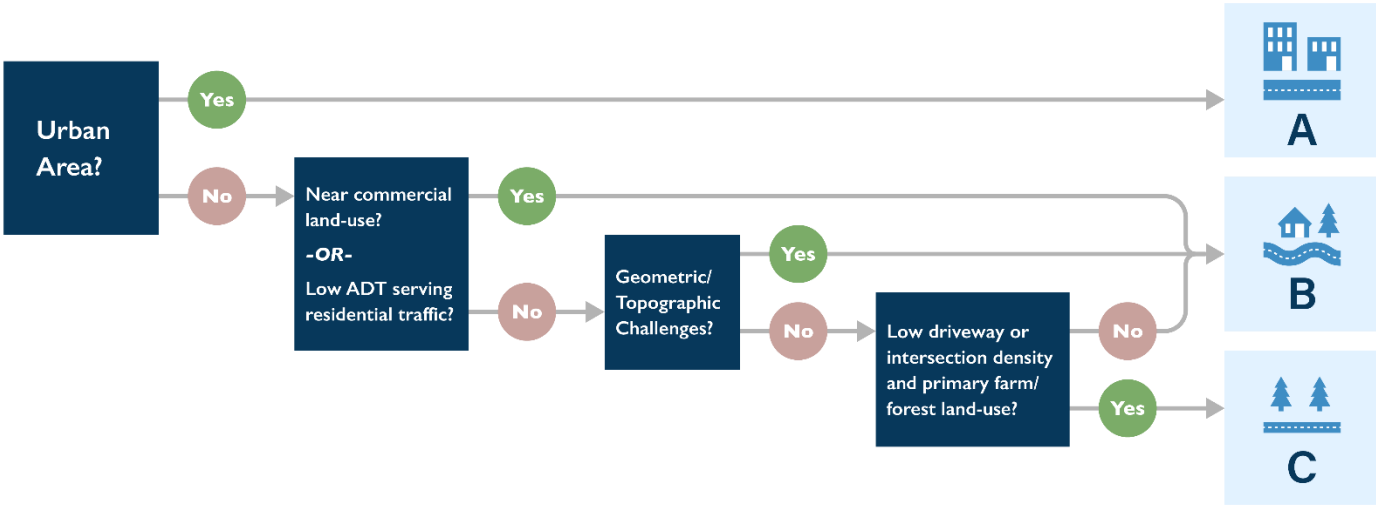
NACTO CITY LIMITS – SETTING SAFE SPEED LIMITS ON URBAN STREETS

Provides an Example Methodology

- Conflict density vs. activity level matrix
- Can be modified to fit the context of a community



ROADWAY CONTEXT CRITERIA



MULTIMODAL SAFETY INDEX APPROACH

Goal

To consider level of ped/bike activity and any safety concerns

- Higher ped/bike activity = lower speeds
- Lower ped/bike activity = higher speeds

Limitations to Measuring Ped/Bike Activity

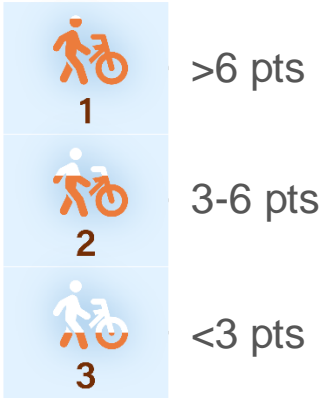
Little data exists to measure ped/bike activity so “bicycle level of traffic stress” and walking/rolling infrastructure is used as proxy


- Assumes locations with better infrastructure will have more multimodal activity
- Based on maps within the City’s Sustainable Transportation Plan


MULTIMODAL SAFETY INDEX SCORING


Criteria	Measure	Points
Bicycle Activity*	Highest Potential	2
	Modest Potential	1
	Lowest Potential	0
Pedestrian Activity**	Highest Potential	2
	Modest Potential	1
	Lowest Potential	0
Collision History or Safety Issue	Roadway has 3 or more collisions per million vehicle miles (MMM) OR at least one serious injury/fatal collision in last five years	3
	Roadway has 0.1 - 3 collisions per million vehicle miles (MMM) and no serious injury/fatal collision within the last five years	1
	Roadway has 0 collisions within last five years	0
On-Street Parking	Roadway has on-street parking available not separated by shoulder or bike lane	2
	Roadway has on-street parking separated by a shoulder or bike lane	1
	No on-street parking available	0

Scoring Index



1  >6 pts

2  3-6 pts







3  <3 pts

* Bicycle stress level, as identified in the Sustainable Transportation Plan, used as a proxy for level of activity.

** The presence of pedestrian facilities used as a proxy for level of activity.

EXAMPLE 4 – EAGLE HARBOR DR NE

Roadway Context

	 A	 B	 C
Multimodal Safety Index			
 1	SPEED 20	SPEED 25	SPEED 25
 2	SPEED 25	SPEED 25	SPEED 30
 3	SPEED 25	SPEED 30	SPEED 35

