

Washington Street Traffic Calming Demonstration

Informing the Comprehensive Street Program

Council Transportation Committee Briefing
November 18, 2020

Recap: Two Foundational Principles

1. Street function must be evaluated for impacts – City responsibility in terms of managing the transportation network. This principle includes evaluating unintended consequences. Traffic calming does not equate to lowering volumes of arterial streets.
2. Lower vehicle speeds and improve safety. This principle is the root reason for traffic calming.

The City arterial streets are part of the State and National Transportation System



Recap: Applying Best Available Science

Large open roads with wide shoulders encourage higher speeds. Based on 1950's design principles for moving high volumes of traffic quickly.



Typical Rural Arterial – Not well suited for urban environment

Recap:

Applying Best Available Science

Studies have shown traffic calming is best achieved by changing the driver's experience such that the driver desires to travel slower for safety. Effective traffic calming results in reduced speed without additional enforcement of speed limits.



Narrowing lanes, creating constrictions and the feeling of constriction naturally slows traffic. Water Street is a great example with parked cars. Street trees also create the perception of closed in road.

Recap: Washington Street Demonstration Outcomes

1. Example of working in partnership with neighborhood rather than individuals.
2. Development of common understandings.
3. Opportunity to consider options
4. Testing effectiveness: 60-day trial period
5. Funding partnership
 - Neighborhood funding materials
 - City providing labor for installation

Neighborhood Mini-traffic circle example, common in Seattle



Recap: Evaluation – NH Mini Circles

Effectiveness: Modeled after Seattle’s traffic circle program, they are effective in slowing traffic by changing sightlines, creating the perception of constriction, and forcing a slow turn when turning off the street. Typically these circles are 13 ft wide; however, due to constraints, we recommend a 6-8’ diameter circle.

Placement: Placement of circles depend on the intersection and utility conflicts. Typically, impacts to adjoining property owners are less than medians due to being located in an intersection. Pavement widening may need to happen to support pedestrian traffic and the shoulder.

Cost: NH Mini Circles are estimated at \$5,000 for materials assuming precast solutions can be utilized. Other factors such as paving shoulders and drainage add to the cost. This cost assumes that the City will do all the work except asphalt placement.



Test NH Mini Circle Installation

Circles were installed on a trial basis as illustrated below.



Test Installation for 60-day Trial Period Initiated Oct. 13, 2020

Test NH Mini Circle Installation

Circles were installed on a trial basis as illustrated below.



Test Installation for 60-day Trial Period

Actual Installation

Advanced Signing Installed



Test Installation for 60-day Trial Period

Emergency Vehicle Test

Note Trucks are allowed to cut the corner



Test Installation for 60-day Trial Period

Reflectors Installed

Temporary Paint didn't hold, replaced by reflectors



Reflectors:
Final installation
would include
paint and
reflectors

Test Installation for 60-day Trial Period

Pedestrian Areas Expanded

Permanent mini-circles will require paving of shoulders



Pedestrian areas expanded: Final installation would include paving of shoulders to create 5' pedestrian area

Test Installation for 60-day Trial Period

Test Installation

We will evaluate speeds and traffic operations over a 60-day trial period.

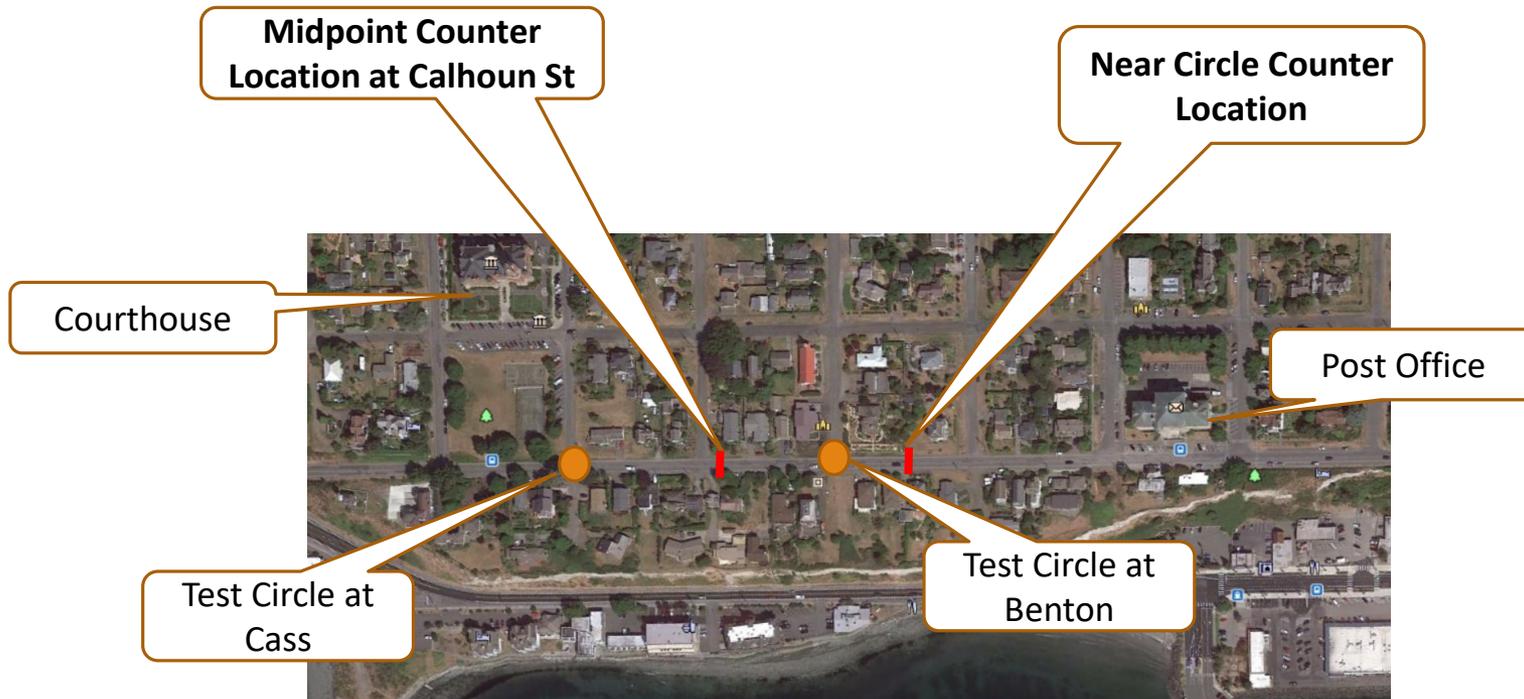
85th Percentile Speeds in October of 2019 was measured at approximately 28 mph.

Volumes in October 2019 ranged from 3,400 to 3,700 vehicles per day.



Test Data Locations – Oct 2020

Traffic volume and speed data was collected before and after the installation of the test mini-circles at the following locations



Test Data – Oct 2020

Volume Data

	Prior to Mini-Circle Installation Week of Sept. 21, 2020		After Mini-Circle Installation Week of Oct. 26, 2020	
Location	Average Daily Volume	Peak Hour Volume	Average Daily Volume	Peak Hour Volume
Midpoint (Calhoun)	2,715	271	2,657	286
Near Circle	2,616	264	2,716	289

- Peak hour is between 12:00 and 13:00.
- Busiest time of day is between 10:00 and 17:00 where traffic is over 200 vehicles per hour.

Test Data – Oct 2020

Speed Data

	Prior to Mini-Circle Installation Week of Sept. 21, 2020		After Mini-Circle Installation Week of Oct. 26, 2020	
Location	Average Speed	85% Speed	Average Speed	85% Speed
Midpoint (Calhoun)	26 mph	30 mph	23 mph	28 mph
Near Circle	25 mph	29 mph	22 mph	26 mph



Effects of Speed: Speed reduction improves pedestrian safety

Vehicle Impact Speed and Pedestrian Survivability



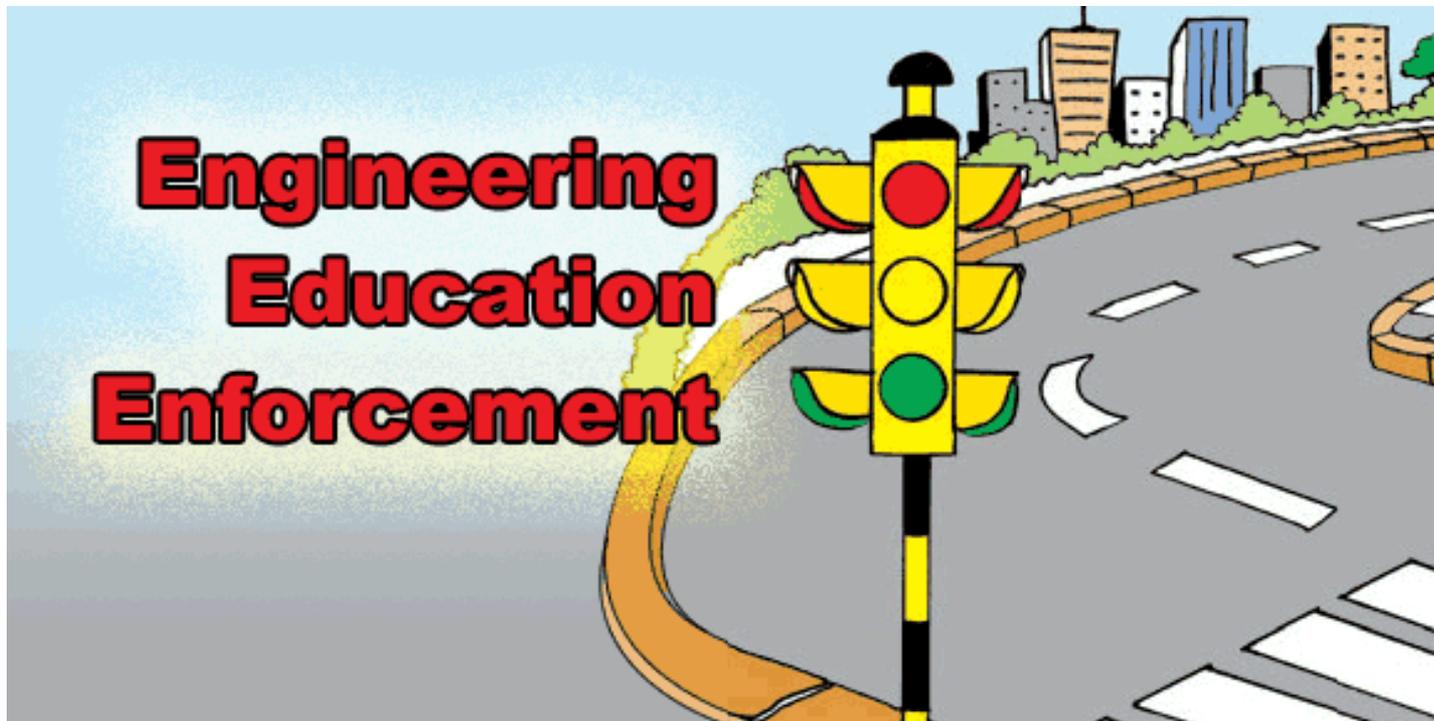
Source: Washington State Traffic Commission, Pedestrian Safety Advisory Council – 2016 Annual Report

Conclusions

The following two key conclusions are drawn from the data to date:

1. Traffic volumes did not change appreciably. This means that traffic re-routing did not occur to avoid the circles.
2. Speed reductions for both collection points was approximately 2-3 mph for the average speed and the 85% percentile speed. Commentary: Speed reductions between 30 and 25 mph is significant in terms of safety from severity of accidents.
3. The 85% percentile speed near the circles was 26 mph compared to 29 mph.
4. Several design revisions would be made including paved shoulders for bikes and pedestrians, striping a little bit narrower lanes and a slightly wider painted inner circle for greater traffic calming effect.

Guiding Principles

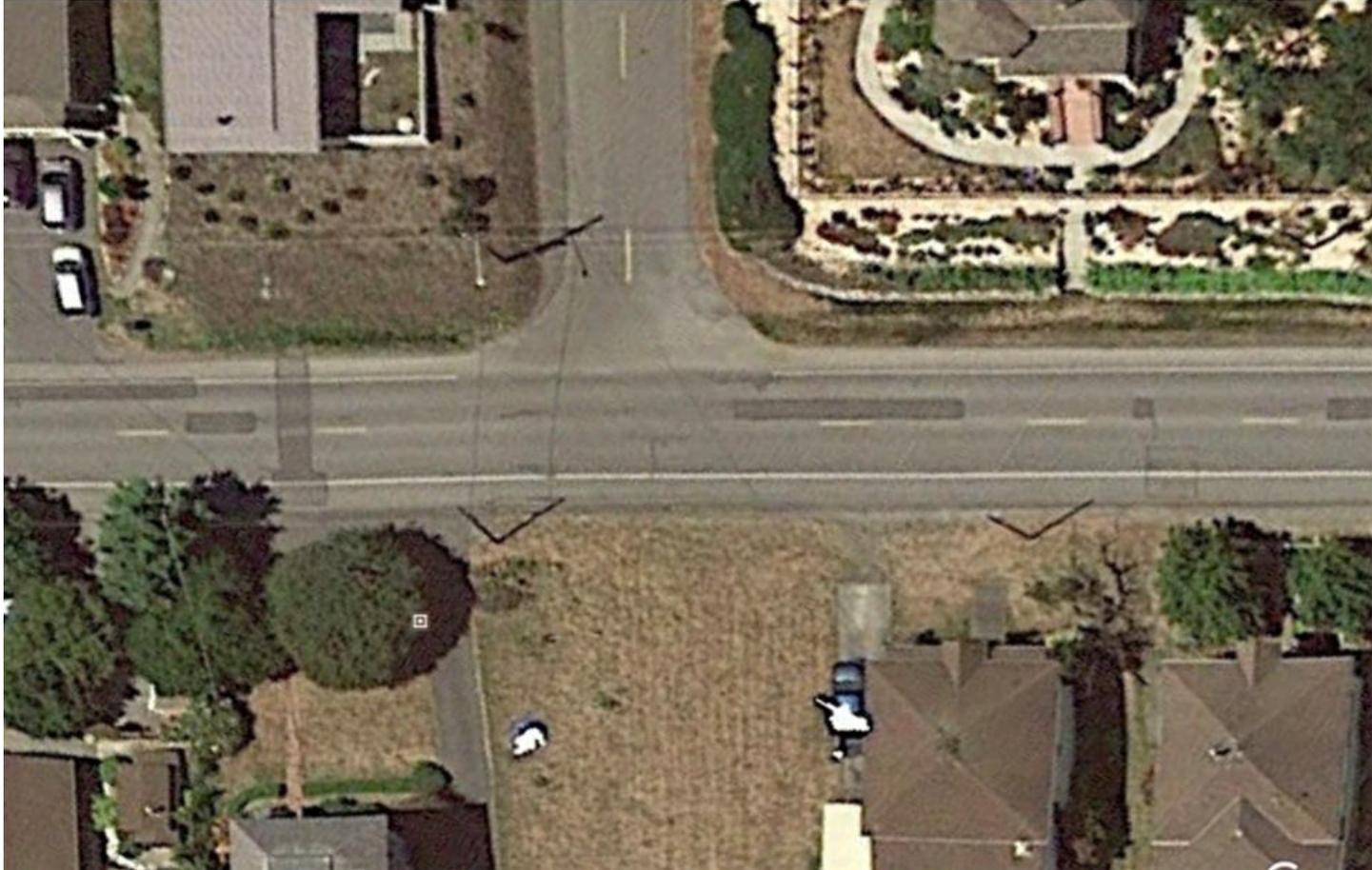


Design Revisions

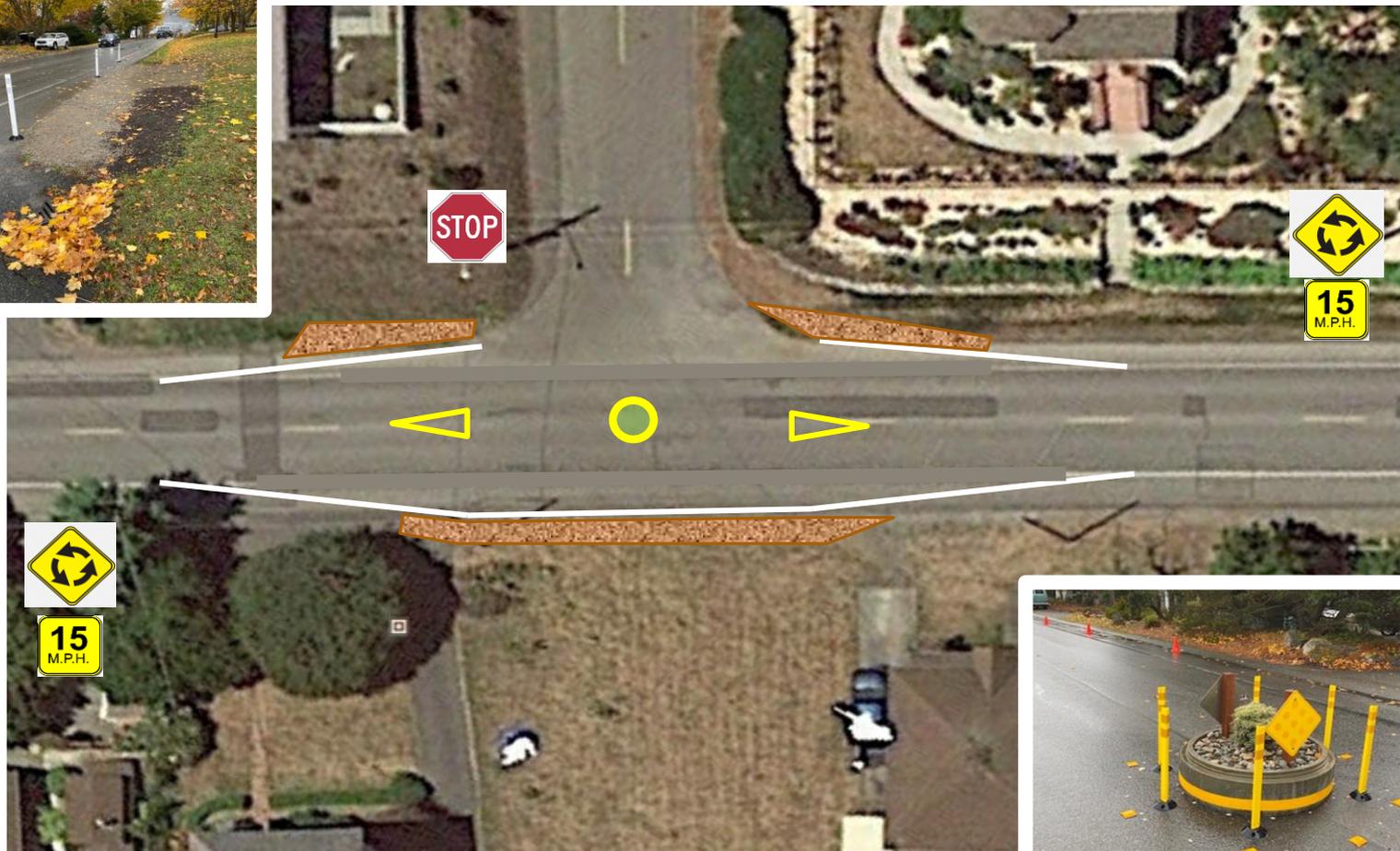
The following design revisions would be made for final installation:

1. Paving of shoulders for 5' pedestrian area.
2. Painting of center islands and white edge lines along with reflectors.
3. Install more prominent landscaping.
4. Narrow lanes a little more with paint with a slightly larger circle.
5. Install more prominent edge barriers/markers bollards just outside the paint.
6. Evaluation of elimination of center stripes along all or a portion of Washington St.
7. Education concerning mini-circles needs to be developed
8. Change warning signs

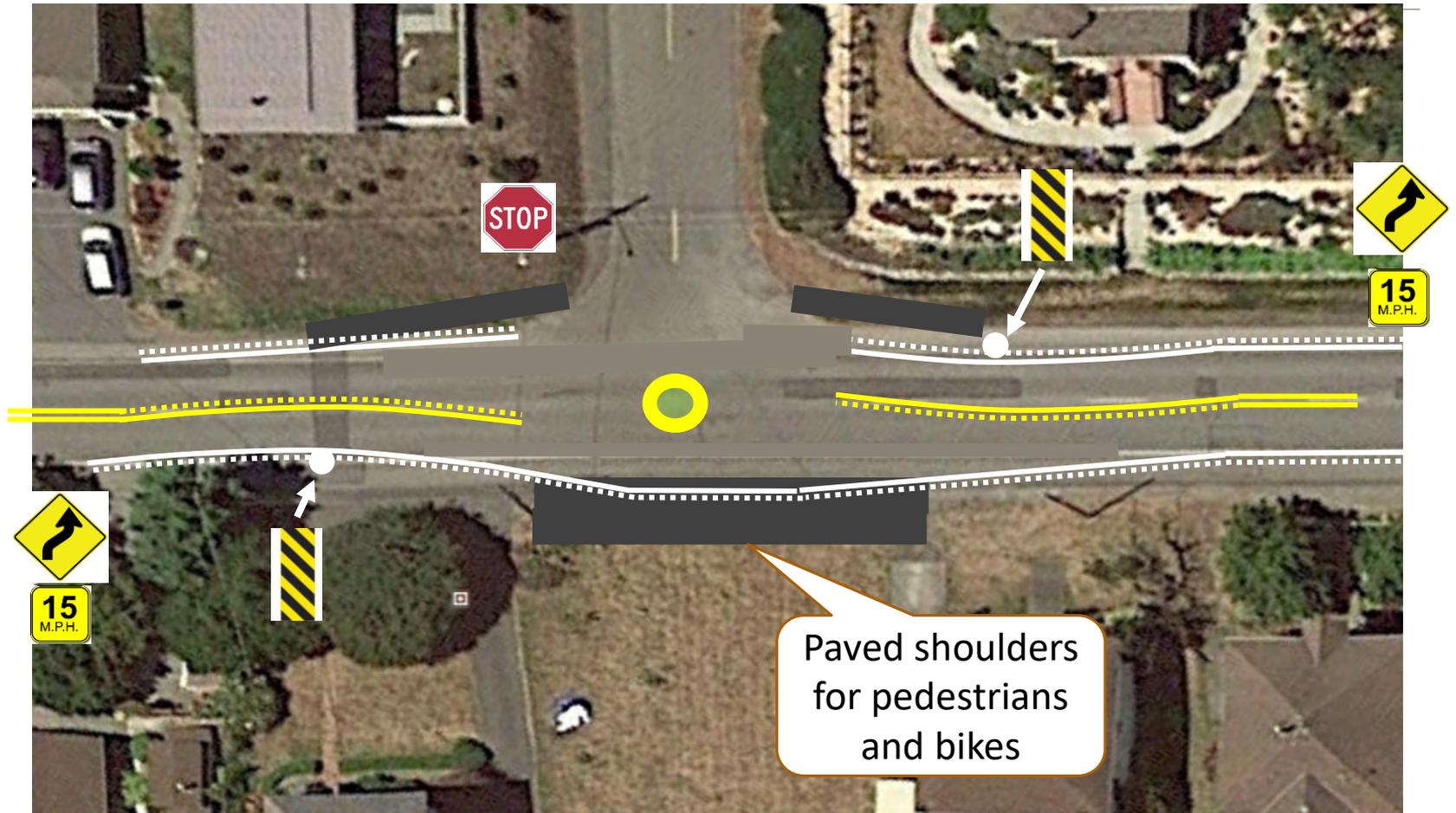
Benton Intersection



Test Configuration Schematic



Design Rev. Schematic



Striping



Landscaping - Visibility



Feedback To Date

Neighborhood Feedback – 11-9-20 Meeting

Public Comments: 36 recorded comments from individuals. Comment themes in no particular order:

- Roundabouts not necessary
- Difficult to make left turns
- Concern over creating hazard for motorists
- Pedestrian/bicycle/wheelchair hazard – Need sidewalk
- Use speed bumps instead
- Concern over emergency vehicle access
- Worry over diversion to other streets
- Better use of funds
- Issue speeding tickets
- Request to install on Lawrence Street

Adapting Seattle Exp. to Port Townsend

Seattle.gov
Mayor Jenny A. Durkan

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Traffic Circles

Traffic circles guide vehicles through an intersection around a central island, forcing vehicles to slow down. These slower speeds help reduce the number and severity of collisions. Landscaping in and around the traffic circle further improves neighborhood livability.

Neighborhood Traffic Operations

Phone: [\(206\) 684-0353](tel:2066840353)
Email: Neighborhood.Traffic@seattle.gov



How does SDOT decide where to install a traffic circle?

- SDOT reviews the three year collision history on every non-arterial intersection at the end of the year and prioritizes the intersections with the most collisions for improvements including traffic circles. Typically these are intersections with five or more collisions reported to the Seattle Police Department.

How can the community request one?

- The community may pursue funding through Your Voice Your Choice or Neighborhood Matching Fund.
- After receiving an application through one of the above programs, SDOT will review the collision history and street geometry at the intersection.
- SDOT reviews the three-year collision history on every non-arterial intersection at the end of the year. We prioritize those with the most collisions for improvements, including traffic circles. Typically, these are intersections with five or more collisions reported to the Seattle Police Department.

Adapting Seattle Exp. to Port Townsend

- Seattle typically installs these on local access streets with Average Daily Traffic (ADT) volume with 6,000 cars per day or less. Washington Street is an arterial with an ADT of 3,700 pre-COVID.
- Seattle prioritizes installation investments based on accident history as the circles are proven to improve safety through traffic calming. The Washington Street installation is for traffic calming and safety looking forward.
- Seattle circles are typically larger (16 ft in diameter); however, they do use smaller circles in many instances. (See Fremont and 100th intersection below). The Washington Street circles are smaller at 8 ft in diameter given the street width.
- Seattle circles are typically installed in yield or uncontrolled intersections. Stop controlled intersections are also used in some locations. Washington Street intersections are a tee intersection and stop controlled on the side street.

Adapting Seattle Exp. to Port Townsend

- Roundabout, Compact Roundabout, Mini Traffic Circles, and Neighborhood Traffic Circles
- Neighborhood traffic circles function like a roundabout; however, motorists can turn left if the driver exercises reasonable care yielding to pedestrians, bicyclists, and oncoming traffic. In small intersections, larger vehicles turn left in front of the circle. These operations have been verified by the many circles installed by the City of Seattle.
- Roundabout require motorist to stay to the right side of the island per RCW 46.61.135.
- These traffic calming neighborhood circles are not designed to function the same as a roundabout or even mini-circles as they are sized for passenger cars and pickup design vehicles.
- Neighborhood circles are intended to break up sight lines down the street to induce slower speeds for the intersection and the entire stretches of roads between intersections.

Questions/Discussion

