

# City of Port Orchard

## Pedestrian Crossing Guidelines

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FEHR & PEERS

November 2016

# Agenda

- Project Scope
- Review Pedestrian Crossing Guidelines' evaluation process
- Review crossing treatment types



# Project Scope

- Provide guidance on how to evaluate appropriate crosswalk locations & treatments
- Developed based on national research



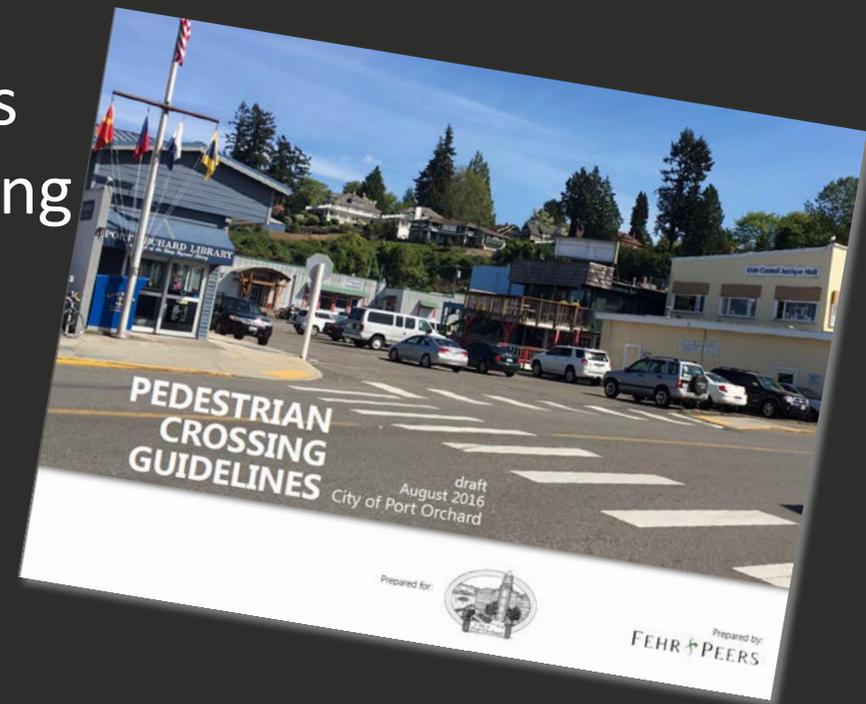
# Crosswalk Basics

- Provide connections to destinations
- Direct people to designated crossings & alert drivers to presence of pedestrians
- Crosswalks can't be marked everywhere:
  - Vehicles may become less compliant in yielding for pedestrians
  - Can impede traffic flow
  - Can increase vehicle collisions (rear-ends)
  - Increases maintenance costs

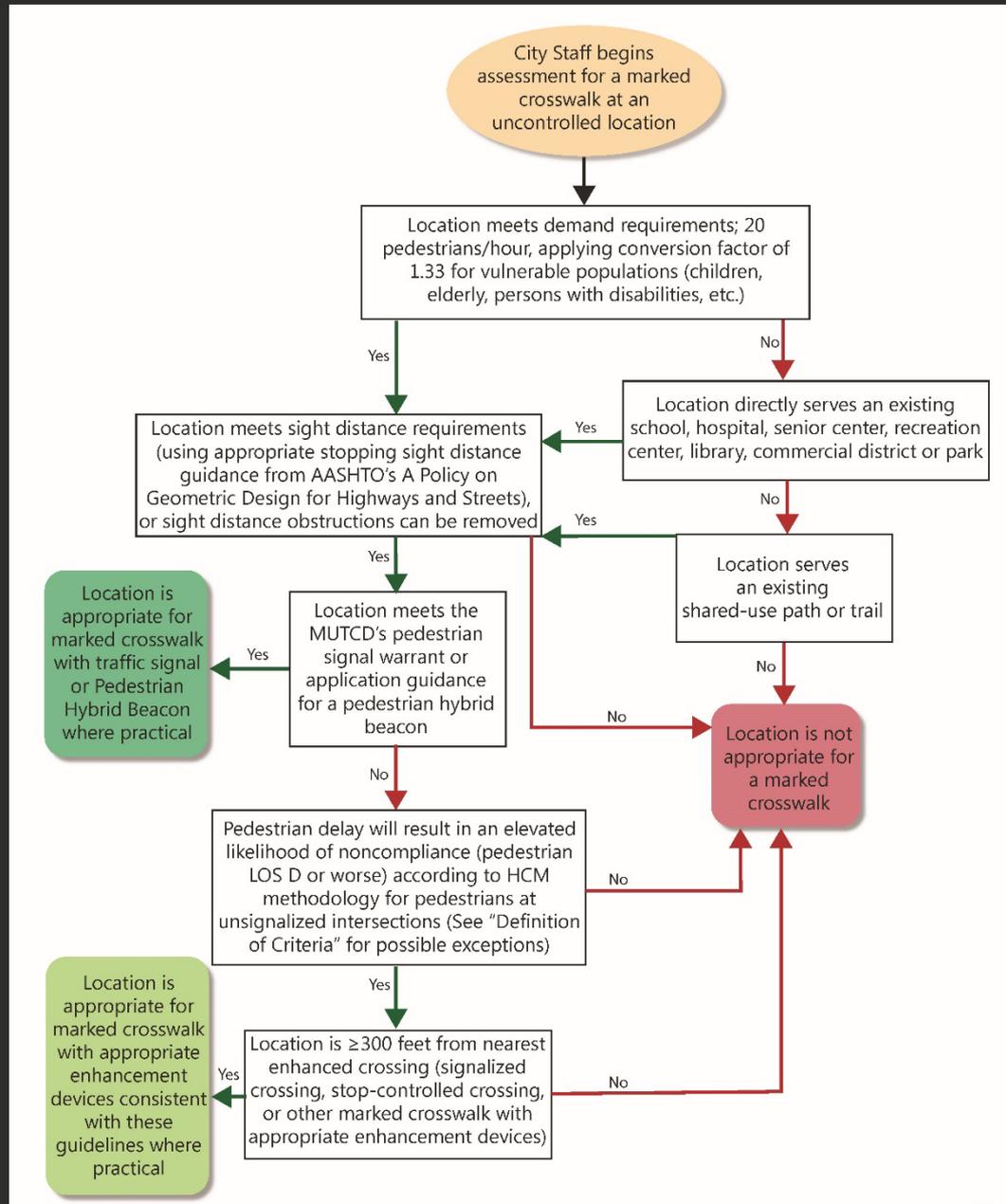


# Pedestrian Crossing Guidelines

- Document includes:
  - Flow chart to help evaluate a proposed crossing location
  - Reference table identifies the recommended crossing treatment based on location characteristics



# Site Evaluation Flow Chart



# Example Application Guidance

Table 2: Recommended treatment at marked crosswalks

Roadway Type	Vehicle ADT ≤9,000			Vehicle ADT >9,000 to 12,000			Vehicle ADT >12,000 to 15,000			Vehicle ADT ≥15,000		
	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph	≤30 mph	35 mph	40 mph
Two Lanes	A	A	B	A	A	B	A	A	C	A	B	C
Three lanes	A	A	B	A	B	B	B	B	C	B	C	C
Multilane (4 lanes with raised median)	A	A	C	A	B	C	B	B	C	C	C	C
Multilane (4 lanes with- out raised median)	A	B	C	B	B	C	C	C	C	C	C	C

Notes:

- A= Level A, B= Level B, C= Level C
- Explore geometric treatments prior to the implementation of the treatment identified in the table.
- RRFBs should be side-mounted and median-mounted where median is present and side-mounted and overhead mounted where median is not present.

# Treatment Level A

- Markings & Signing
  - Standard continental crosswalk
  - Crosswalk signing on side of road (and median)
  - Advanced yield sign on multilane roads



# Treatment Level B

- Rectangular Rapid Flashing Beacons
  - RRFB on higher volume/speeds/lane roadways
  - Crosswalk signing & RRFB on side of road (and median)
  - On multilane roads with no median, add advanced yield
  - Passive or actively push button RRFB



# Treatment Level C

- Level C – Pedestrian Hybrid Beacon/Signal
  - Use when Level A and B are not effective for safe crossings



- Flexibility in evaluation process for further review if:
  - Location serves community destinations such as schools, hospitals, recreational centers, trails, parks, etc.
  - Pedestrian delay is high, when research shows risky behavior is likely to occur



# Questions?



# Example Required Stopping Sight Distance

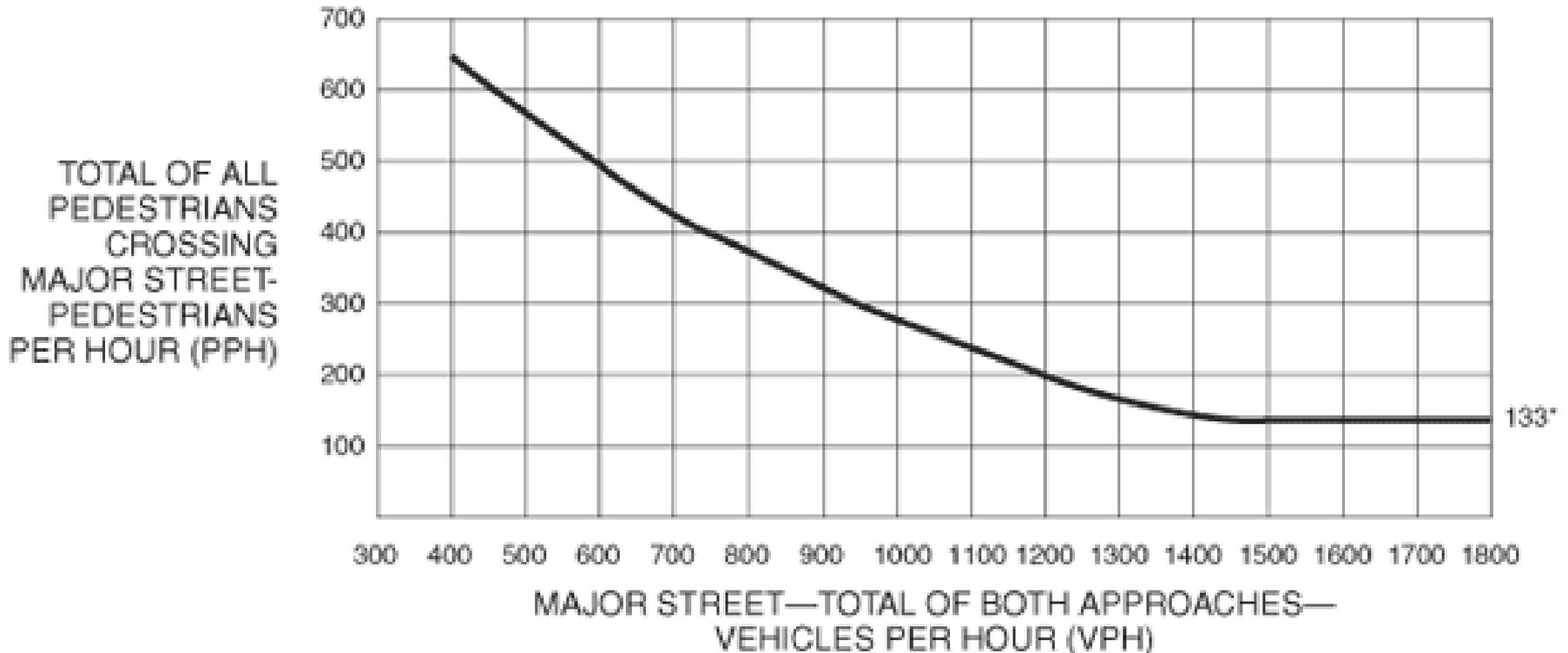
- Required stopping sight distance ensures vehicles can stop in time for pedestrians to safely cross
- Refer to *A Policy on Geometric Design of Highways and Streets* for stopping sight distance for roads with different grades

Table 1: Stopping sight distance on level roadways

Design Speed (mph)	Stopping Sight Distance (ft)
15	80
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495

# Example Signal Warrant

Figure 4C-7. Warrant 4, Pedestrian Peak Hour



\*Note: 133 pph applies as the lower threshold volume.

Source: Manual on Uniform Traffic Control Devices (MUTCD), 2009

# Pedestrian Hybrid Beacon (or HAWK signal)

## How does a HAWK Signal operate?

### INSTRUCTIONS

Drivers		Pedestrians	
.. will see this	.. will do this	.. will see this	.. will do this
	Proceed with Caution		Push the Button to Cross
	Slow Down (Pedestrian has activated the push button)		Wait
	Prepare to Stop		Continue to Wait
	STOP! (Pedestrian in Crosswalk)		Start Crossing
	STOP! Proceed with Caution if Clear	 	Continue Crossing
	Proceed if Clear		Push the Button to Cross



Educational Graphic from Lansing, MI.

Source: <http://bikewalkkc.org/blog/2016/02/all-about-the-new-hawk-signals-and-crosswalks-showing-up-on-the-streets-of-kc/>

# Proposed Site Evaluation

- Pedestrian demand is 20+/hour
- Appropriate road geometry so vehicles can stop for crossing pedestrians
- Pedestrian signal warrant in MUTCD, a national guiding document. Based on:
  - number of crossing pedestrians
  - traffic volume
  - crossing distance