
Senior & Disabled Services

a division of LCOG

MEMO

To: Advocacy Committee Members
From: Kay Metzger
Subject: Springfield Main Street Website Information
Date: January 5, 2011

Advocacy Committee Members,

For your convenience, I have attached information printed from the website of the advocacy group that organized around pedestrian safety on Main Street in Springfield. I hope you find this interesting and informative. See you at our next meeting on Friday, January 14th.

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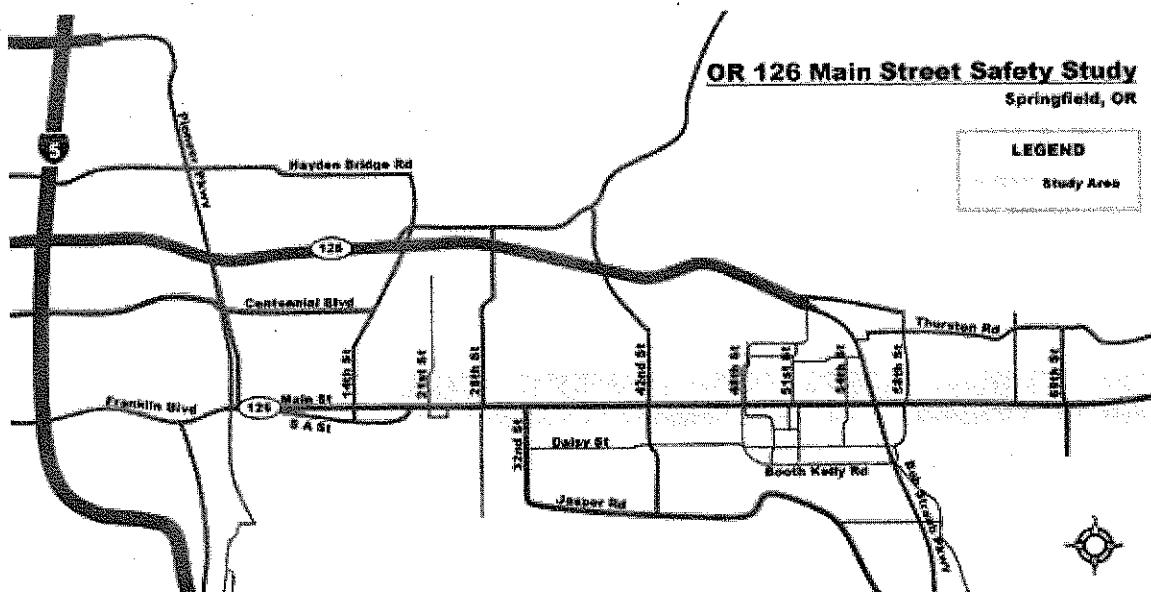
Background

The Oregon Department of Transportation (ODOT), the City of Springfield, and Lane Transit District are teaming up to conduct a study of OR 126 (Main Street) from 20th Street to 73rd Street in the City of Springfield. The study will evaluate the 5-mile length of highway and recommend solutions to create safer pedestrian crossings. Currently, it is difficult for pedestrians to safely cross parts of Main Street due to a lack of signalized intersections and crosswalks.

The Springfield City Council has endorsed an ODOT safety study for the corridor to identify ways to improve the safety of pedestrian crossings. The study is being funded by ODOT. The primary objectives of the study are to:

- Analyze pedestrian safety issues and recommend solutions to make pedestrian crossings safer.
- Identify overall pedestrian safety strategies for the corridor.
- Engage members of the community in a collaborative process to develop safety improvements and strategies that meet the needs of citizens and businesses of the City of Springfield and those who travel the corridor.

The study will include an analysis of crash data, traffic counts, bicycle movements, pedestrian crossing patterns and other data to pinpoint the trouble areas along OR 126 Main Street. This information will be used to recommend safety improvements in the area.



Pedestrian Crossing Enhancement Toolbox

This toolbox summarizes several potential pedestrian crossing enhancements which can be applied to crossing locations along the Main Street (OR 126) corridor in Springfield. Each crossing location should be reviewed to determine the appropriate combination and application of treatments.

The toolbox includes the following treatment options:

- Median Refuge Islands
- Street Lighting
- Flasher/Beacon Improvements
 - Rectangular Rapid Flashing Beacon (RRFB) with Raised Median
 - Overhead Flashing Beacons (Standard and RRFB)
 - Pedestrian Hybrid Beacon- High intensity Activated Crosswalk (HAWK)
- Pedestrian Traffic Signal

The median refuge island and street lighting could either be a standalone improvement or could be combined with one of the flasher/beacon or pedestrian traffic signal improvements.

Cost Estimates

The cost estimates listed with each crossing enhancement are planning level cost estimates based on comparisons to similar, constructed projects. Cost estimates are listed per pedestrian crossing and where possible show the estimated Project Engineering (PE) and Construction Engineering (CE) costs.

Improvements Not Included

Items which were considered but left out of the Pedestrian Toolbox include:

- Curb Extensions: This would require additional right-of-way, which is not available, and would conflict with the bike lanes.
- Traffic Calming Measures: These measures (i.e. speed humps, narrow lanes) are not consistent with the 'arterial' and 'truck route' classifications of Main Street and the emergency services needs.
- Lowering Speed Limit: The speed limit is determined by roadway characteristics and the 85th percentile speed of traffic. Studies show that 'artificially' lowering the speed of a roadway is ineffective at garnering driver compliance. However, some of the other improvements may calm traffic and result in lower travel speeds. Therefore, after other projects have been implemented, future speed limit lowering investigation can be performed to see if lowering the speed is justified.
- On-Street Parking: This would require additional right-of-way which is not available.

- **In-Roadway Lighting:** These are highly susceptible to roadway damage (especially snow plows), cost intensive for both installation and maintenance, and are not approved by ODOT.
- **Grade-Separated Pedestrian Crossing (i.e., Pedestrian Bridge or Tunnel):** This measure would be very expensive and require significant right of way to address ADA needs. In addition, such crossings are not always used by pedestrians.

Median Refuge Islands

Description

Median refuge islands are raised curbs that provide a clear pedestrian area that are placed in the center of the roadway and separate opposing lanes of traffic. They can have a staggered or straight pedestrian cut-through or path configuration.

Objective

Median refuge islands provide a sheltered place (vertical deflection) in the median where pedestrians can wait for gaps in traffic. They also allow a two-stage crossing to occur where the pedestrian clears one direction of travel movement at a time on two-way streets. A refuge island with a staggered pedestrian cut-through or path requires the pedestrian to turn towards on-coming traffic before crossing, which encourages the pedestrian to take a better view of the on-coming traffic.

Advantages

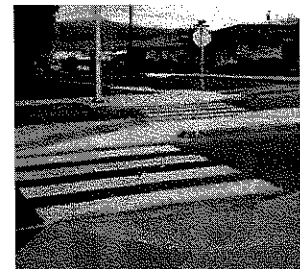
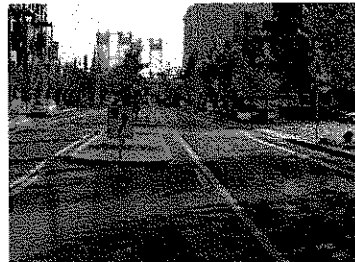
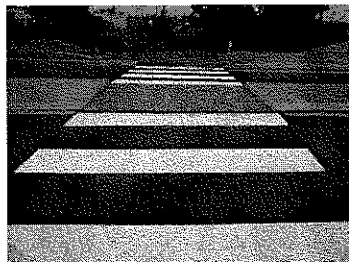
- Allows pedestrians to cross one direction of traffic at a time when crossing a two-way street
- Provides a protected area for pedestrians
- Reduces the size of individual gaps needed to make a safe crossing
- Provide a better view of oncoming traffic when using a staggered cut-through path

Disadvantages

- Added obstruction in roadway
- May need additional ROW to meet ADA requirements for ramps by sidewalks.
- Medians can conflict with left turn lane needs, adjacent private driveways and public streets
- ROW constraints may not allow.

Estimated Cost: \$30,000 per crossing (PE/CE: \$8,000)

Examples:



Street Lighting

Description

Street light poles are located near high-pedestrian and bicycle activity locations and can be added on one or both sides of the street. They can also be oriented toward pedestrian activity at key locations such as transit stops, bicycle conflict points and commercial land uses. Light levels should satisfy both the appropriate RP-8-05 recommended lighting levels and applicable ODOT/City of Springfield standards.

Objective

Street lighting provides increased pedestrian and bicycle visibility during the night and the dawn/dusk periods of the day by providing contrast between the pedestrian and their surroundings.

Advantages

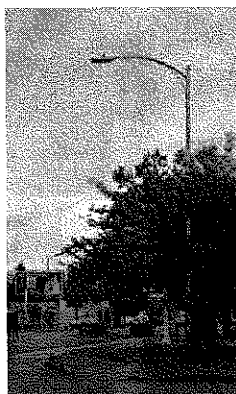
- Improved pedestrian and bicycle visibility during nighttime, dawn, and dusk hours
- Improved vehicle visibility for pedestrians and bicycles to judge gaps in traffic
- Greater pedestrian safety by providing improved visual recognition of approaching pedestrians and bicyclists.

Disadvantages

- Installation costs
- Maintenance costs
- ROW constraints may not allow installation of lighting

Estimated Cost: \$1,000 per light for utility pole mounted lights and approximately \$15,000 per pole for ODOT steel cobra head street light poles (including conduit, wiring and trenching). (PE/CE: \$4,000 per light or 27%)

Examples:



Pedestrian Actuated Rectangular Rapid Flashing Beacon (RRFB) with Raised Median

Description

The Rectangular Rapid Flashing Beacon (RRFB) is a special LED flashing device installed below a crosswalk sign and placed at marked, unsignalized crosswalk locations. The RRFB is pedestrian actuated with either hardwired or wireless pushbuttons. It can also be wireless and solar powered, which would make for easier installation (though monetary cost would be approximately equal due to higher equipment cost.)

Objective

The RRFB increases pedestrian visibility by attracting driver attention with the flashing beacons and making them aware of the pedestrian's presence. Studies to date have shown driver compliance rates around 80%.

Advantages

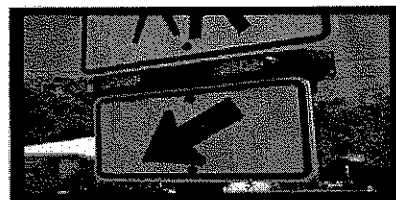
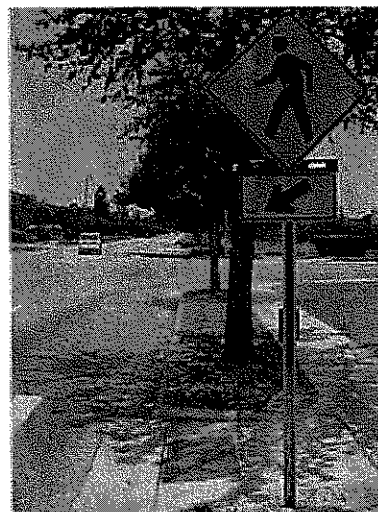
- High motorist compliance, while yielding low rear-end resulting vehicle crashes
- Improves pedestrian visibility and safety
- Allows for normal traffic flow when not actuated
- Solar or AC power capable
- Lower installation cost as compared to traffic signal pole type installations

Disadvantages

- Interim approval status with FHWA
- Larger roadways can make curb-side signing less obvious to motorists.
- Does not provide a 'red' condition which requires vehicles to stop.
- Can have a 'dimming' effect when power is low.

Estimated Cost: \$62,000 per crossing; includes installation of raised median (\$30,000) and four sign assemblies (\$8,000 each), which include RRFBs, solar panels, and wireless system. Note: only two sign assemblies are needed if no median is installed (PE/CE: \$16,500)

Examples:¹



¹ Pictures from Manual on Uniform Traffic Control Devices (MUTCD) website, <http://mutcd.fhwa.dot.gov/>, 6/16/2010.

Overhead Flashing Beacons (Standard and RRFB)

Description

Overhead flashing beacons are flashing amber beacons installed on traffic signal poles and mast arms along with overhead signs. Warning signs are typically placed in advance of the marked crosswalk or on signs located adjacent to the crosswalk entry. The flashing beacons can be programmed to either operate continuously or be pedestrian actuated. Recent proposals to the Federal Highway Administration (FHWA) for overhead installations have included the use of RRFB on the mast arm, in lieu of the standard flashing amber beacon. While this was approved for experimental use by FHWA at a crossing in the State of Washington, it has not been implemented in the field to date.

Objective

Overhead flashers are used to increase driver awareness when approaching a marked crosswalk at an uncontrolled location. NCHRP 562 documented wide ranging vehicle yielding compliance for these types of beacons. Compliance was generally higher when some form of pedestrian actuation was used in conjunction with the overhead flashing beacon installation.

Advantages

- Increase driver awareness
- Can be pedestrian activated

Disadvantages

- Does not provide a steady red signal indication requiring traffic to stop
- High installation cost
- Some maintenance costs

<u>Estimated Cost:</u>	Standard Flashing Amber:	\$80,000 per crossing (PE/CE: \$15,000)
	Overhead RRFB:	\$100,000 per crossing (PE/CE: \$15,000)

Examples:



Pedestrian Hybrid Beacon- High Intensity Activated Crosswalk (HAWK)

Description

A pedestrian hybrid beacon (commonly referred to as a HAWK) uses a Yellow-Red lens configuration (two red lens on top and yellow lens on bottom) to provide a signalized, mid-block pedestrian crossing. The pedestrian hybrid beacon is used to warn and control traffic to assist pedestrians in crossing a street at a marked crosswalk. This beacon system cannot be implemented where the minor street approaches are stop controlled.

Objective

The pedestrian hybrid beacon is designed to require traffic to stop for the pedestrian walk interval (steady red) and to allow traffic movement during the flashing 'don't walk' stage of the pedestrian crossing (flashing red). The pedestrian hybrid beacon also provides flashing yellow and solid yellow warning indication to traffic that indicates the upcoming 'walk' stage/steady red. NCHRP Report 562 documented compliance for this type of beacon crosswalk at upwards of 90%.²

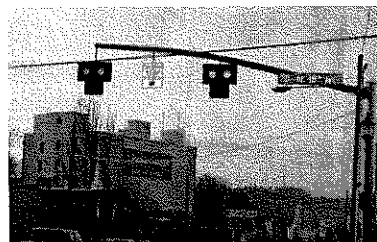
Advantages

- Provides a 'red' condition which requires vehicles to stop for pedestrians
- Can be installed at locations that do not meet typical traffic signal volume warrants
- Improves visibility of crossing and pedestrians
- Gives drivers an indication that conditions are changing with a flashing yellow and steady yellow indication, and provides a clearance interval
- Pedestrian actuated, not active all of the time
- MUTCD approved (Section 4F.02)

Disadvantages

- High installation and maintenance costs
- Drivers may stop for 'dark' signal, when HAWK is not actuated.

Examples:



Estimated Cost: \$150,000 per crossing (PE/CE: \$30,000)

² NCHRP 562, pg. 17.

Pedestrian Traffic Signal

Description

A pedestrian traffic signal is a traffic signal used to control traffic at mid-block crosswalks or locations with high pedestrian volumes that do not warrant a full traffic signal. Signals remain 'resting' in green until a pedestrian actuates a push button on either side of the crossing.

Objective

Pedestrian traffic signals provide the pedestrian an opportunity to cross at a controlled crosswalk during a steady red pedestrian walk interval where gaps in vehicle traffic may be insufficient for pedestrians to cross. They also increase driver awareness through the use of a standard traffic signal and stop bar configuration.

Advantages

- Increase driver awareness
- Provide pedestrians an opportunity to cross at controlled crosswalk during a steady red pedestrian walk interval
- Uses standard signal configuration
- Pedestrian activated

Disadvantages

- High installation and maintenance costs
- Stop condition disrupts traffic flow and could increase risk of rear-end collisions
- Resting in green for long periods of time may increase driver complacency
- Must meet MUTCD signal warrants for heavy pedestrian use. MUTCD pedestrian warrants are rarely met due to the high thresholds required.

Estimated Cost: \$150,000 per crossing (PE/CE: \$30,000)

Examples:³



³ Google Maps StreetView at 1549 NE Andresen Rd, Vancouver, WA. Copyright Google 2010. Downloaded – 6/16/2010.