



CITY OF KIRKLAND

Department of Public Works

123 Fifth Avenue, Kirkland, WA 98033 425.587.3800

www.ci.kirkland.wa.us

To: Marilynne Beard, Assistant City Manager

From: Daryl Grigsby, Public Works Director
David Godfrey, P.E., Transportation Engineering Manager

Date: September 5, 2007

Subject: PEDESTRIAN SAFETY UPDATE

RECOMMENDATION:

This memo is for information only.

BACKGROUND DISCUSSION:

A memo updating pedestrian safety efforts was on the Council's August 7th consent Calendar. Because of interest in the item, Council asked that the item be brought back as a regular item on a future agenda and that is the purpose of this memo. The memo from August is attached.

Since the August memo was written the Youth video has been finalized and we would like to show at least a portion of it to Council. Filming for a senior-oriented pedestrian safety video is scheduled for the second week of September. Deputy Mayor McBride and staff met with National Highway Traffic Safety Administration Northwest Regional Administrator John Moffat and Deputy National Administrator Jim Ports on August 30. Mr. Ports traveled from Washington, DC to visit the Northwest region. Mr. Moffat brought him to Kirkland because of the unique pedestrian safety program and treatments that have been developed here.

We have had a successful summer in terms of pedestrian accidents, with no pedestrian/vehicle accidents since March 2007.



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To: Dave Ramsay, City Manager

From: Daryl Grigsby, Public Works Director
David Godfrey, P.E., Transportation Engineering Manager

Date: July 25, 2007

Subject: PEDESTRIAN SAFETY

RECOMMENDATION:

This memo is for information only.

BACKGROUND DISCUSSION:

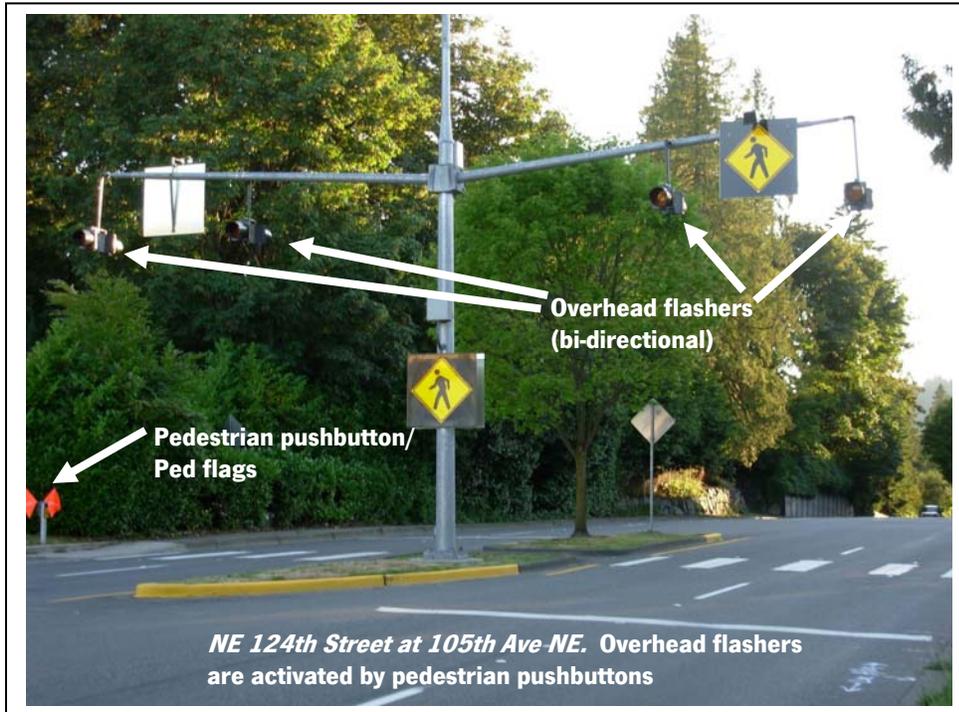
In response to a Council request, this memo is the fourth of a series of memos describing our pedestrian safety initiatives.

Flashing crosswalks

- Inspection We are continuing our regular inspection cycle looking at each location twice a month. The rate at which crosswalks are failing or need repair has been reduced and stabilized.
- Parts Most of our flashing crosswalks are the LightGuard brand crosswalk. In the past, we have had problems securing parts from this manufacturer due to unavailability. We now have a substantial supply of replacement parts for the LightGuard systems.
- Locations where treatments are changing. One location is out of service and not repairable without replacement; Juanita Drive at Juanita Beach Park. Another location has been abandoned in favor of activated overhead flashing lights controlled by pedestrian pushbuttons; NE 124th Street at 105th Avenue NE. The crosswalk at NE 124th Street and 107th Place NE is in need of complete pavement reconstruction to treat severe pavement damage. This will result in removal of the flashing crosswalk and installation of overhead flashing lights activated by pedestrian pushbuttons. Pedestrian Flags are available at the first two locations and will be made available at the third after it is reconfigured.

When Public Works' Signal Technicians originally assessed the Juanita Drive location a sunken head appeared to be the problem. After attempting the normal solution to correct the sinking they uncovered other damage. The wires buried in the pavement connecting the heads to the power supply have deteriorated beyond repair. The wires that connect the push buttons have also deteriorated severely. It is

believed that improper installation led to this condition. There is no way to repair the damaged wires. Our current plan is to not restore a flashing crosswalk at this location.



The location at NE 124th Street and 105th Avenue has a certain brand of in-pavement lights that are secured to the pavement by epoxy. This is the only such location in the City. Because the epoxy can only be used during warm and dry weather, timely repairs are limited. We have abandoned the in-pavement lights at this location and flashing lights have been hung from the mast arms. These lights are activated by the same push button that formerly activated the in-pavement lights, see photo above.

Severe pavement damage has occurred on NE 124th Street at the crosswalk near 107th Place NE. The nature of the damage requires full replacement of the pavement and removal of the existing flashing crosswalk. We plan to replace this location with a flashing overhead light configuration as installed at 105th Avenue.

Options for treatments at the three locations mentioned above include:

- Reinstallation of new flashing crosswalks. New flashing crosswalks are estimated to cost about \$35,000 each.
- Because of the existing wires at NE 124th Street locations, they could be retrofitted with overhead flashers relatively easily and inexpensively. Similar overhead flashers at the Juanita Drive location require a *wireless* overhead flasher system because of the damage to the wires. The cost of this is estimated at about \$20,000.



- High-intensity Activated crossWalk or HAWK Pedestrian Beacon. This treatment is used exclusively in Tucson Arizona and surrounding areas. Research shows that this is a highly effective treatment and although it is not currently in the Manual of Uniform Traffic Control Devices, it is anticipated that it will be adopted in the future. Pictures of a HAWK crossing beacon and a video showing its operation are available at <http://www.dot.ci.tucson.az.us/traffic/tspedestrian.cfm> . Written descriptions are at the end of this memo. The cost of a HAWK is unclear but probably on the order of \$50,000. It is expected that the maintenance costs for a HAWK would be low because it uses standard traffic signal parts.

HAWK beacons would be a logical choice for the NE 124th crossings because they are higher speed, higher volume, multi lane crossings. It would also be ideal to replace all three crossings (the two mentioned above plus the one at NE 124th and 103rd) with HAWK beacons for consistency. Otherwise, drivers could be faced with two or three different crossing warning systems. We hope that we can secure future grant funding to install HAWK crossings on NE 124th Street. The Juanita Drive crossing is a two lane, lower speed lower volume crossing which is adequately protected by the existing overhead signs, median and pedestrian flags.

Task force

The staff pedestrian task force has members representing Public Works (Transportation Engineering), Parks (Seniors and Youth Councils), IT (Multimedia Services), Police (Traffic) and CMO (Volunteer Coordinator). The group has been meeting monthly since February. The main purpose of the group is to keep each other informed of pedestrian safety initiatives and to encourage promotion of pedestrian safety efforts across departments. As a result of this work, the Pedestrian Safety for Dummies video was produced, a pedestrian safety video by the youth council is in final editing, Police have presented a pilot curriculum in an elementary school and a special program for the senior steppers kick-off was devised. The group hosted pedestrian activist Andrea Okomski of Pedestrian InRoads <http://www.pedinroads.org> to discuss pedestrian safety issues of mutual interest. One program that Ms. Okomski is interested in is obtaining state funding for promotion of pedestrian safety Public safety announcements to broader audiences. She may be asking for Kirkland's partnership if she approaches the legislature in the future.

Ped Flag research

A grant funded social marketing effort to increase usage of pedestrian flags is continuing. This spring, a total of 120 intercept interviews were conducted, with interviewers interviewing one pedestrian per hour and conducting a 2-3 minute survey. Given the primary purpose of the interview was to determine barriers to flag usage, 94 of the interviews were conducted with non-flag users, and the other 26 with users. Interviewers sought to obtain a mix of gender, age and whether the person was in a group, or walking alone. Highlights of findings follow:

- A total of 3090 people were observed (counted) in crosswalks, either walking alone or in groups. 267 of those pedestrians were carrying flags. Our base usage level is 8.6%.
- Although females appear to be a little more likely to use the flags, the difference is not dramatic. It appears that young children and youth and those over 60 are more likely than other age groups to use the flags.
- Pedestrians are more likely to use the flags when there is *heavy traffic* and at *night*. Wet pavement and rain do not make it more likely they will use the flags. In fact, they are more likely to use flags when it is *sunny*.
- Pedestrians with *strollers* are significantly more likely to use the flags. Those where there were *no in-pavement lights*, in a *group* and those whose *hands were not full* were also more likely than others to carry one. Having a pet does not dramatically increase usage.
- Although the sample is small (94 respondents), it appears that nonusers in the study sometimes do use the flags.
- When nonusers were asked their major reasons for not using the flag that day, perceptions that they are not at risk “top the list”, followed by lack of awareness of what the flags are for. Of importance as well were: the lack (at times) of availability of flags, feeling “silly” using them, as well as the effort involved in using them.
- Users and nonusers mention the need for more flags, better signage, more education, and a better flag design, if usage will be increased.



Potential new pedestrian flag design (left) Two sides of a potential new holder (center and right)

Understanding why people do and do not use ped flags suggested ways to increase usage. This led to a proposed design for the flags and holders (shown above). The new items are designed to make ped flag more mainstream, its purpose more obvious and to point out the safety benefits of using ped flag. These concepts were shown to a focus group in late June. The focus group reacted positively to the new flag

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design and other elements, but did not like the slogan "Take it to Make it". The new ped flag program is planned for roll out this fall.

Street Lighting

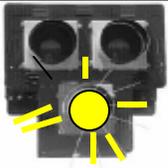
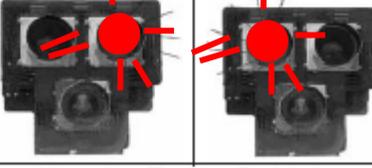
Results of a consultant's analysis of street lighting at 92 crosswalks on arterial and collector streets are being reviewed by staff. The consultant gave each crosswalk a ranking from 1 to 10 for each direction of travel and recommended that those ranked 3 and below be given highest priority for improvement. There are 24 crosswalks that have at least one approach rated 3 or below. At the other end for the spectrum, 13 crosswalks have both ratings at 8 or above.

DESCRIPTION OF HAWK BEACON

Table A-18. Red Device: HAWK Beacon Signals.

HAWK	
<p>A HAWK beacon signal provides yellow and red indications. The current configuration for a HAWK is two red lenses above a yellow lens in a "Mickey Mouse Ears" format. The HAWK beacon signal, used exclusively in Tucson and Pima County, Arizona, dwells in a dark mode until activated by a pedestrian by means of a pushbutton.</p> <p>The HAWK is currently not included in the <i>MUTCD</i>. Permission for experimentation is needed.</p>	<ul style="list-style-type: none">• Description: The objective of a HAWK (high-intensity activated crosswalk) signal is to stop vehicles to allow pedestrians to cross while also allowing vehicles to proceed as soon as the pedestrians have passed. It is a combination of a beacon flasher and a traffic control signal. This application provides a pedestrian crossing without signal control for the side street.• Operation: The inclusion of the alternating flashing red permits stop-and-go vehicle operations after a pedestrian has cleared the crosswalk.• Observations: Drivers are more likely to stop for a device that displays a red indication. Driver education has been an active component in those communities using a HAWK signal. Confusion may result from the dark beacon signal display, as drivers may interpret it as a power outage; however, that has not been a problem where implemented.
 <p>HAWK Signal</p>	
 <p>Close-Up of HAWK Signal Head</p>	

Table A-19. Red Device: Pedestrian Beacon.

Proposed Pedestrian Beacon		
<p>A pedestrian beacon is a proposed special highway traffic control signal used at some locations for pedestrians waiting to cross or crossing the street. A pedestrian beacon is proposed to be considered for installation at a midblock location that does not meet other traffic signal warrants to facilitate pedestrian crossings. The pedestrian phase for a pedestrian beacon would be activated by a pedestrian. The red portion of the cycle for vehicles consists of a sequence of a steady red indication (during the pedestrian crossing interval) followed by flashing red indications (during the pedestrian clearance interval).</p> <p>This device has been suggested to be included in future editions of the <i>MUTCD</i>.</p>		
<ul style="list-style-type: none"> Proposed Guidance for the <i>MUTCD</i>: If a traffic control signal is not justified under the signal warrants of Chapter 4C and if gaps in traffic are not adequate to permit reasonably safe pedestrian crossings, or if the speed for vehicles approaching on the major street is too high to permit reasonably safe street crossings for pedestrians, or if pedestrian delay is excessive, installing a pedestrian traffic control signal should be considered. Proposed Sign to Accompany a Pedestrian Beacon: <div style="text-align: center;">  </div> 		
		
Dark until Activated	Flashing Yellow for 3 to 6 s	Steady Yellow for 3 to 6 s
		
Steady Red during Pedestrian Interval	Alternating Flashing Red during Pedestrian Clearance Interval	
<p>Example of Phase Sequence for a Pedestrian Beacon</p>		