High intensity Activated crossWalk (HAWK) signals

Rhode Island

December 2013
High intensity Activated crossWalk (HAWK) in RI

- Pedestrian Hybrid Beacons new device in MUTCD 2009
- Roundabouts and Flashing Yellow Arrow implemented by RIDOT
- “Complete Streets” legislation in June 2012
High intensity Activated crossWalk (HAWK) in RI

• PROJECT BACKGROUND

• 1R and Arterial Project along Elmwood Ave/Broad St (US 1) between Park Ave (RI 12) and I-95 (2.7/3.1 mi)

• Budget constraints led the RIDOT to divide the original project in three phases
High intensity Activated crossWalk (HAWK) in RI

- ELMWOOD AVENUE (US 1)
  - Urban Principal Arterial
  - Serviced by three transit lines (RIPTA)
    - 20 - T. F. Green / Cranston City Hall
    - 21 - Pastore Center
    - 22 - Warwick and Rhode Island Malls
High intensity Activated crossWalk (HAWK) in RI

- ELMWOOD AVENUE (US 1)
  - 4-lane cross section between Park Ave (RI 12) and Ontario St
  - Raised median between Thurston St and Ontario St
High intensity Activated crossWalk (HAWK) in RI

- ELMWOOD AVENUE (US 1)
  - 3-lane cross section between Ontario St and Broad St
  - Road diet within these limits (TWLTL)
High intensity Activated cross Walk (HAWK) in RI

- BROAD STREET (US 1)
  - 2-lane cross section between Elmwood Ave and I-95
Project Limits

Phase 1
Phase 2
Phase 3
High intensity Activated crossWalk (HAWK) in RI

• PHASE 1

• Between Park Ave (RI 12) and Roger Williams Ave (0.9 mi)

• 1R improvements - resurfacing, new sidewalks, wheelchair ramps, tree planting

• 4 traffic signals replaced - fiber optic

• Completed in 2009
High intensity Activated crossWalk (HAWK) in RI

• PHASE 2
  • Between Roger Williams Ave and Broad St (1.8 mi)
  • 8 traffic signals replaced - fiber optic
  • Road diet from Ontario St to Broad St
  • Completed in 2011
High intensity Activated crossWalk (HAWK) in RI

• PHASE 3
  • Between Roger Williams Ave and I-95 (1.8/2.2 mi)
  • 1R improvements - resurfacing, new sidewalks, wheelchair ramps, tree planting
  • 3 traffic signals to be replaced - fiber optic
  • Advertised in 2013
High intensity Activated crossWalk (HAWK) in RI

• SIGNAL IMPROVEMENTS
  • 4/8/3 traffic signals replacements
  • All existing signals
  • No actuation (fixed time cycles)
  • No pedestrian buttons
High intensity Activated crossWalk (HAWK) in RI

- **SIGNAL IMPROVEMENTS**
  - All new signals
    - Fully actuated
    - Pedestrian buttons and countdown timers
  - 1 signal is a pedestrian hybrid beacon
High intensity Activated crossWalk (HAWK) in RI

• ELMWOOD AVE @ DABOLL ST

• No actuation

• No conflicting vehicular traffic, only departures

• Fixed time allowed safe pedestrian crossing

• Public school and library nearby - used as school crossing
Elmwood Ave @ Daboll St

Traditional Traffic Signal

Pedestrian Hybrid Beacon
High intensity Activated crossWalk (HAWK) in RI

- ELMWOOD AVE @ DABOLL ST
  - Traditional traffic signal
    - Would remain green most of the time
    - Would become part of background
  - Low driver compliance
- What to do?
High intensity Activated crosswalk (HAWK) in RI

- Tucson’s HAWK solution for mid-block pedestrian crossings
- Positive results on Juneau, AK; Golden, CO; Washington, D.C.; Boise, ID; Champaign, IL; West Bloomfield, MI; St. Cloud, MN; Klamath Falls, OR; and Alexandria, VA
- In spring 2009 was not part of MUTCD
High intensity Activated crossWalk (HAWK) in RI

- Implemented in an experimental basis (FHWA)
- Texas Transportation Institute study - Transit Cooperative Research Program and National Cooperative Highway Research Program
- 97% motorist compliance (top 2)
### What is a HAWK Signal?

"HAWK" stands for High-Intensity Activated CrossWalk, a new pedestrian crossing signal proven to increase safety for pedestrians.

### Phasing Sequence in a HAWK

<table>
<thead>
<tr>
<th>Step</th>
<th>What Drivers See ...</th>
<th>What Pedestrians See ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>When not in use, the traffic signal is dark, and a solid DON'T WALK (raised hand) indication is displayed for pedestrians.</td>
<td>Proceed with caution.</td>
</tr>
<tr>
<td>2.</td>
<td>When a pedestrian pushes the button, the traffic signal flashes yellow for several seconds.</td>
<td>Slow down, prepare to stop. Pedestrian has activated the push button.</td>
</tr>
<tr>
<td>3.</td>
<td>After the flashing yellow interval, the traffic signal displays a solid yellow to give motorists enough time to stop.</td>
<td>Stop if safe to do so.</td>
</tr>
<tr>
<td>4.</td>
<td>After the solid yellow interval, the traffic signal is solid red, and the pedestrian signal displays a WALK (walking person symbol), indicating pedestrians that are allowed to cross the street.</td>
<td>Stop and remain stopped. Pedestrians in crosswalk.</td>
</tr>
<tr>
<td>5.</td>
<td>The traffic signal then flashes alternate red and the pedestrian signal flashes DON'T WALK. Drivers may proceed after stopping if there are no pedestrians in the crosswalk.</td>
<td>Stop. Then proceed with caution if clear.</td>
</tr>
<tr>
<td>6.</td>
<td>After the flashing DON'T WALK, the traffic signal is dark again and the pedestrian signal indication is a raised hand (DON'T WALK) until the next pedestrian pushes the button.</td>
<td>Proceed with caution.</td>
</tr>
</tbody>
</table>

**Phasing Sequence in a HAWK**
High intensity Activated crossWalk (HAWK) in RI

- RIDOT received approval from FHWA to install the 1st HAWK in New England
- At time of construction, closest one was in Alexandria, VA
High intensity Activated crossWalk (HAWK) in RI

• APPROVAL CONDITIONS
  • Public Outreach
  • MUTCD compliant signage at HAWK locations
  • ADA compliant crossings
  • Countdown pedestrian signals
  • Staff monitoring opening day for vehicular and pedestrian compliance
High intensity Activated crossWalk (HAWK) in RI

• PUBLIC OUTREACH
  • Press Release
  • Pamphlet in English and Spanish
  • Webpage
Rhode Island DOT News

www.ri.gov/DOT/press
RIDOT Release 71:11
June 20, 2011
Contact: Charles St. Martin 401-222-1362 x4007

NEXT-GENERATION TRAFFIC SIGNAL COMING TO PROVIDENCE

‘HAWK’ traffic signal to go live on Monday, June 27, 2011

The Rhode Island Department of Transportation (RIDOT) will be installing a new type of traffic signal next week that has been proven to increase pedestrian safety when crossing the street. The new signal is known as a “HAWK” signal, an acronym that stands for High-Intensity Activated CrossWalk.

The HAWK signal will be installed at the intersection of Elmwood Avenue and Daboll Street in Providence, the first of its kind in Rhode Island and in New England. HAWK signals were developed by the City of Tucson, Arizona in 2004. They have since been installed by many other states and in Washington, D.C.

“The Department is excited to bring proven technology to Rhode Island to enhance pedestrian safety,” RIDOT Director Michael P. Lewis said.

Studies have shown that more than 90 percent of motorists properly yield to pedestrians in crosswalks using HAWK signal. The HAWK signal at Elmwood Avenue and Daboll Street is replacing a conventional traffic signal for vehicles and pedestrians. It will be more effective at increasing motorist awareness of pedestrians in the crosswalk.
HAWK Pedestrian Signals

The HAWK Pedestrian Signals were developed by the City of Tucson, Arizona, to increase pedestrian safety at school crossing locations. The first five HAWK signals were installed in 2004, and today the HAWK is used at more than 80 locations in Tucson.

The HAWK signals also have been installed in other areas of the country including: Juneau, Alaska; Golden, Colorado; Washington, D.C.; Boise, Idaho; Champaign, Illinois; West Bloomfield, Michigan; St. Cloud, Minnesota; Klamath Falls, Oregon; and Alexandria, Virginia.

HAWK vs. Traditional Pedestrian Signals

HAWK and traditional signals are proven systems used in many other states that help pedestrians safely cross the street. Studies have shown that more than 90% of motorists properly yield to pedestrians in crosswalks using HAWK signals.

Questions & Concerns

If you have any questions about the HAWK signal, please contact:
Rhode Island Department of Transportation
Customer Service Office
401.222.2430
CustomerService@dot.ri.gov

A User's Guide for Pedestrians & Motorists

RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

English Pamphlet
Semáforos Peatonales HAWK

Los semáforos peatonales HAWK fueron desarrollados por la Ciudad de Tucson, Arizona para incrementar la seguridad peatonal en los cruces esenciales. Los primeros cinco semáforos HAWK fueron instalados en 2004, y actualmente son usados en más de 80 cruces peatonales en la Ciudad de Tucson.

Los semáforos HAWK han sido instalados también en otros lugares del país, como en Juneau, Alaska; Golden, Colorado; Washington, D.C.; Boise, Idaho; Champaign, Illinois; West Bloomfield, Michigan; St. Cloud, Minnesota; Klamath Falls, Oregon; y Alexandria Virginia.

Semáforos Peatonales HAWK vs. Tradicionales

Los semáforos tradicionales y los HAWK son sistemas empleados en muchos otros Estados para proporcionar más seguridad en el cruce de peatones.

Estudios demuestran que más de 90% de los automovilistas ceden el paso a los peatones en cruces con semáforos HAWK.

Preguntas e Inquietudes

Si tiene preguntas acerca del semáforo HAWK por favor contáctenos:
Departamento de Transporte de Rhode Island
Oficina de Servicios al Cliente
401-222-2450
CustomerService@dot.ri.gov

HAWK

High-Intensity Activated
CrossWalk

Semáforo para Cruce Peatonal de Alta Intensidad Activado

Una Guía del Usuario para Peatones y Automovilistas

DEPARTAMENTO DE TRANSPORTE DE RIOHE ISLAND

Spanish Pamphlet
RIDOT Website
High intensity Activated crossWalk (HAWK) in RI

- MUTCD COMPLIANT SIGNAGE AT HAWK LOCATIONS
- ADA COMPLIANT CROSSINGS
- COUNTDOWN PEDESTRIAN SIGNALS
  - Part of the signal design
Signal Plan
High intensity Activated crossWalk (HAWK) in RI

• STAFF MONITORING OPENING DAY FOR VEHICULAR AND PEDESTRIAN COMPLIANCE COUNTDOWN PEDESTRIAN SIGNALS
  • Traffic engineers monitored signal on opening day (June 27, 2011)
  • Performed field visits in following days
High intensity Activated crossWalk (HAWK) in RI

- CONSTRUCTION
  - Contract specifications allowed for change when school was on vacation
  - Change allowed pedestrians to become used to the new configuration in advance of full usage
  - Opening covered by media
High intensity Activated crossWalk (HAWK) in RI

• SAFETY
  • No pedestrian crashes from 2007 to opening day
  • No pedestrian crashes since opening day
  • No increase on any type of crashes
High intensity Activated crossWalk (HAWK) in RI

- **OPERATION**
  - Drivers
    - Confusion to unusual operation
    - Signal is dark most of the time
    - Drivers stop once signal starts flashing
    - Remain stop after alternating flashing red
High intensity Activated crossWalk (HAWK) in RI

- **OPERATION**
  - Pedestrians
    - Ignore buttons
    - Cross with available gap
High intensity Activated crossWalk (HAWK) in RI

- **OPERATION**
  - Effective traffic control device for signalized crossing for ALL pedestrians
  - Improve vehicular operations since they are not required to stop at every cycle
  - Good solutions for all modes of transportation
Pedestrian Hybrid Beacon
Pedestrian Hybrid Beacon
High intensity Activated crossWalk (HAWK) in RI

• CONCLUSIONS
  • Tucson’s HAWK have become Pedestrian Hybrid Beacons (MUTCD 2009)
  • First one in east coast north of Alexandria, VA
  • No increase on pedestrian or vehicular crashes
High intensity Activated crossWalk (HAWK) in RI

• CONCLUSIONS
  • Improved vehicular operations
  • Provides signal controlled crossing for ALL pedestrians
  • Good solutions for all modes of transportation
  • Evaluating more locations in RI
High intensity Activated crossWalk (HAWK) in RI

• QUESTIONS?