HAWKS, RRFBs and Other Pedestrian Crossings

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Mid-Block Pedestrian Crossing Options

- Pedestrian Refuge, raised crossing, neck down crossing, high visibility crosswalk
- Rectangular Rapid Flashing Beacon (RRFB) (no PPH requirement)
- High intensity activated crosswalk (HAWK) Pedestrian Hybrid Beacon (20 PPH)
- Grade Separated Crossings
Pedestrian Refuge Islands (18)
Osborn Pedestrian Refuges
Osborn Pedestrian Refuge
Pedestrian Refuge Example
Rectangular Rapid Flashing Beacon (RRFB)
Features of an RRFB
How a RRFB Operates

Motorists stop behind the advance yield markings until pedestrians and bicycles have cleared the intersection.

RRFB will flash when pedestrian is present.

Cyclists in the roadway yield to pedestrians and bicycles in the crosswalk.
64th Street and Osborn RRFB
64th Street and Osborn RRFB
64th Street and Osborn RRFB
Scottsdale Road HAWK

- Westin Kierland
- Kierland Commons
- Greenway Pkwy.
- Greenway-Hayden Loop
- Scottsdale Quarter
- Butherus Dr.
- Kierland Blvd.
Why HAWK Is Needed
HAWK Beacon Scottsdale Quarter
Finished Product
Finished Product
Double HAWK Pedestrian Crossing (aka PTERODACTYL)

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Double HAWK Pedestrian Crossing (aka; PTERODACTYL)

**CONCEPT**

<table>
<thead>
<tr>
<th>What Drivers See</th>
<th>What Pedestrians See</th>
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<tbody>
<tr>
<td>1. <strong>DARK</strong></td>
<td>Push the button.</td>
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<tr>
<td>2. <strong>FLASHING</strong></td>
<td></td>
</tr>
<tr>
<td>3. <strong>STEADY</strong></td>
<td></td>
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<tr>
<td>4. <strong>STEADY</strong></td>
<td>Start crossing.</td>
</tr>
<tr>
<td>5. <strong>ALTERNATING</strong> (like RXR)</td>
<td>Don't walk. Go if clear.</td>
</tr>
<tr>
<td>6. <strong>DARK</strong></td>
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Stop. Then go if clear.
Continue crossing.
Scottsdale Quarter HAWK Counts

• Just met the Warrants at 20 PPH in 2010
• November 2011 Pedestrian Counts showed 391 PPH during the highest hour
• November 2012 Pedestrian Counts showed 606 PPH with 4,710 Pedestrians on Saturday from 9 a.m. to 9 p.m. (vehicular volume on Scottsdale Road was approximately 38,000)
Grade Separated Crossings

Enhanced Crossings 110 total
Grade-Separated
Underpasses 40
Tunnels 50 *
Bridges 21

* 3 tunnels are closed pending path construction
Grade-Separated Crossings

McDowell Road Underpass west of Crosscut Canal

After

Before
Grade-Separated Crossings

Soleri Bridge and Plaza – Arizona Canal
Grade-Separated Crossings

Sweetwater Bridge over the Loop 101
Grade-Separated Crossings

Goldwater Underpass south of Arizona Canal – Looking west
Grade-Separated Crossings

Thompson Peak Parkway Underpass west of 90th Street
Grade-Separated Crossings

Indian Bend Wash – underpass during storm event
Grade-Separated Crossings

Arizona Canal Bridge west of Pima
Grade-Separated Crossings

Crosscut Canal bridge at Oak

Crosscut Canal bridge North of Thomas
Pinnacle Peak Pedestrian Underpass
Scottsdale Elite Pedestrian Crossing
Questions?

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Ped Volume vs. Compliance

Study of 12 Locations w/ State Law Yield Signing

Ped Volume (peds/hr)
(average for all hours studied)
Ped Volume vs. Compliance

Study of 13 Locations w/Rectangular Rapid Flash Beacon Signs

Compliance

Ped Volume (peds/hr)
(average for all hours studied)
Figure 1 – Pedestrian Crossing Treatment Flowchart

(Flowchart details and notes are not transcribed here.)
Osborn Pedestrian Refuge
Post Construction Observations

• Videotaped the crossing area
  – Thursday, Dec. 8, 2011 (9 AM -11 PM)
  – Saturday, Dec. 10, 2011 (11 AM - 6 PM)
    • 391 pedestrians during the highest hour
    • 1,960 pedestrians during the 7 hour period
• Collisions – 2 minor rear-end in Dec. 2011
• Main concern is drivers not understanding yield condition under the flashing red.
Pedestrian Element Section 8-10

- Should a grade separated crossing be provided?
- Is a traffic signal warranted? (over 100 pedestrians per hour PPH)
- Is a designated mid-block crossing appropriate?
- What specific measures should be installed?
Pedestrian Traffic Signal
Post Construction Observations

• November 2012 Pedestrian Counts:
  – Saturday from 9 AM - 9 PM
  – 606 PPH during the highest hour
  – 4,710 pedestrians
  – Vehicular volume on Scottsdale Road was approximately 38,000

• December 2012 counts:
  – Thursday from 9 AM - 9 PM
  – 223 PPH during the highest hour
  – 1,658 pedestrians
How to Use a HAWK

- **Drivers**: SEE: proceed with caution; DO: slow down; SEE: prepare to stop; DO: STOP! (pedestrian to crosswalk); DO: STOP! proceed with caution if clear; SEE: proceed if clear
- **Pedestrians**: SEE: push button to cross; DO: wait; SEE: start crossing; DO: continue crossing; SEE: push button to cross

City of Scottsdale, Arizona