To: CRCOG Transportation Committee
From: Jillian Massey, Senior Transportation Planner
Date: November 4, 2016
Subject: Connecticut Department of Transportation Traffic Safety Resources

Attached for your reference are some traffic safety resources developed by Connecticut Department of Transportation. Included are information sheets on HAWK (High-Intensity Activated Crosswalk) Pedestrian Signals, Retroreflective Signal Backplates, and Roundabouts.

This information along with other traffic safety engineering resources can be found on CTDOT’s Safety Engineering webpage located here:

If you have any questions or comments, please feel free to contact Jillian Massey at 860-522-2217 ext. 246 or jmassey@crcog.org
Definitions and Features

The HAWK (or High-Intensity Activated CrossWalk) pedestrian signal is a type of traffic control device designed to allow pedestrians to safely cross streets with high volumes of traffic. In an effort to increase pedestrian safety, the Connecticut Department of Transportation has begun an initiative to install HAWK signals at select locations throughout the state.

The HAWK signal is composed of a circular yellow signal centered under two horizontally-aligned circular red signals.

HAWK signals only operate when a pedestrian activates a push button at the pedestrian crossing. The signal activates stop control requiring vehicles to stop when a pedestrian crosses and then allows vehicles to move once pedestrians have finished crossing. Pedestrian signals will notify pedestrians when it is safe to cross the roadway.

The HAWK signal is one of the Federal Highway Administration’s Proven Safety Countermeasures, providing the following safety benefits:

- 69% reduction of pedestrian crashes
- 29% reduction of total roadway crashes

Isolated crossings with marked crosswalks will be the only locations eligible for HAWK signal installations.
### HAWK Pedestrian Signal Operation

The following demonstrates what motorists and pedestrians will experience when approaching a crossing with a HAWK pedestrian signal:

<table>
<thead>
<tr>
<th>Meaning:</th>
<th>What Motorists See:</th>
<th>What Pedestrians See:</th>
<th>Meaning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAWK is deactivated</td>
<td><img src="image" alt="Light" /></td>
<td><img src="image" alt="Hand" /></td>
<td></td>
</tr>
<tr>
<td>HAWK has been activated.</td>
<td><img src="image" alt="Light" /></td>
<td><img src="image" alt="Hand" /></td>
<td></td>
</tr>
<tr>
<td>Vehicle right of</td>
<td><img src="image" alt="Light" /></td>
<td><img src="image" alt="Hand" /></td>
<td></td>
</tr>
<tr>
<td>way is ending. Motorists</td>
<td><img src="image" alt="Light" /></td>
<td><img src="image" alt="Hand" /></td>
<td></td>
</tr>
<tr>
<td>will be required to stop.</td>
<td><img src="image" alt="Light" /></td>
<td><img src="image" alt="Hand" /></td>
<td></td>
</tr>
<tr>
<td>Stop</td>
<td><img src="image" alt="Stop" /></td>
<td><img src="image" alt="Person" /></td>
<td></td>
</tr>
<tr>
<td>Stop. Proceed if</td>
<td><img src="image" alt="Stop" /></td>
<td><img src="image" alt="Person" /></td>
<td></td>
</tr>
<tr>
<td>crosswalk is clear.</td>
<td><img src="image" alt="Stop" /></td>
<td><img src="image" alt="Person" /></td>
<td></td>
</tr>
<tr>
<td>HAWK is deactivated</td>
<td><img src="image" alt="Light" /></td>
<td><img src="image" alt="Hand" /></td>
<td></td>
</tr>
</tbody>
</table>

### Further Information on HAWK Pedestrian Signals

Additional information about HAWK pedestrian signals can be found at [http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_012.cfm](http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_012.cfm) or contact Joseph Ouellette at (860) 594-2721.

### References:

Reducing Red-Light Running Crashes

Nationwide crash statistics reveal that 200,000 crashes are attributed to red-light running annually. Of these crashes, 170,000 (85%) result in injury and 900 (0.5%) are fatal.¹

Retroreflective traffic signal backplates offer a potential low-cost countermeasure to reduce these crashes caused by driver inattentiveness and poor signal visibility (i.e. at night, in fog, or during heavy precipitation).

Retroreflective backplates provide enhancements to a traffic signal’s visibility, including:

- Isolation of the traffic signal from background lighting, signs, and visual distractions
- Enhanced traffic signal visibility during power outages
- Alerts drivers of the upcoming signal after driving a long roadway section without signals.²

Proven Safety Benefits

The Federal Highway Administration has identified retroreflective traffic signal backplates as a proven safety countermeasure to red-light running crashes. Currently, more than 20 States are using retroreflective backplates.

15% Reduction in Vehicular Crashes³
37% Reduction in Injury Crashes³
50% Reduction in Late-Night & Early Morning Crashes³
Design of Retroreflective Traffic Signal Backplates

Backplates surround the signal housing to improve visibility of the signal. The backplates will have a two inch wide yellow, retroreflective border surrounding the signal housing to further enhance their visibility. Backplates provide a larger contrast area to help make traffic signals more visible in daylight, and the retroreflective tape improves signal visibility at night. All new state-owned traffic signals in Connecticut will be equipped with retroreflective backplates.

Further Information on Retroreflective Backplates

Additional information about retroreflective traffic signal backplates and the locations in which they will be installed can be found at [http://www.ct.gov/dot/cwp/view.asp?a=3199&q=546146](http://www.ct.gov/dot/cwp/view.asp?a=3199&q=546146) or contact Joseph Ouellette at (860) 594-2721.

References

2) Retroreflective Traffic Signal Backplates Brochure, Virginia Department of Transportation
Definitions and Features

A roundabout is a one-way, circular intersection in which traffic flows around a center island. All roundabouts have the following design features:

- Traffic entering the roundabout yields to traffic already in the roundabout.
- Pavement markings and raised islands direct traffic into a one-way, counterclockwise flow through the roundabout.
- Geometric curvature is designed to reduce the speed of entering vehicles.

Other roundabout features include truck aprons to accommodate large and emergency vehicles driving through the intersection and pedestrian crossings with splitter islands for increased pedestrian safety.

Roundabouts should not be confused with traffic circles, which are designed to control traffic with stop signs, traffic signals, or no formal control. Entering traffic does not always yield to traffic already in the traffic circle. Traffic circles also have a larger diameter circle and accommodate higher speeds.

Roundabouts provide multiple benefits over traditional intersections, including:

- Reduced delay and improved traffic flow
- Reduced speeds
- Less idling and air pollution
- Improved safety
- Reduced maintenance costs
- Longer service life compared to signalized intersections
- Aesthetically pleasing

Proven Safety Benefits

The Federal Highway Administration has identified roundabouts as a proven safety countermeasure for intersection design. Safety benefits of roundabouts include:

- 35% Reduction in vehicular crashes
- 89% Reduction in fatal crashes
- 76% Reduction in injury crashes
- 75% Fewer conflict points than four-way intersections

With roundabouts, head-on and high-speed right angle collisions are virtually eliminated.
Rules for Roundabouts

Drivers

- When approaching a roundabout, yield to any pedestrians or bicyclists in the crosswalk.
- Yield to all circulating traffic at the yield line.
- Enter the roundabout when sufficient space is available.
- Do not pass or change lanes within the roundabout.
- If there is more than one lane, use the left lane to turn left and the right lane to turn right.
- Do not stop in the roundabout. Clear the roundabout to allow emergency vehicles to pass.
- When exiting the roundabout, use the right turn signal to notify other drivers, pedestrians, and bicyclists.
- Yield to any pedestrians and bicyclists crossing within the crosswalk when exiting the roundabout.  

Pedestrians

- Stay on designated walkways when approaching and leaving the roundabout.
- Only cross at designated crosswalks. Do not cross to the center island.
- Enter the crosswalk only when there is an adequate gap in traffic. Do not assume all motorists will stop for pedestrians.
- Cross to the splitter island, which offers safe refuge between two different directions of traffic flow.
- Once there is an acceptable gap in traffic, cross to the other end of the crosswalk.

Bicyclists

- If comfortable riding with traffic, bicyclists may take the lane and circulate the roundabout. When entering the circle, bicyclists must yield to traffic already in the circle, ride at the speed of traffic in the roundabout, and use their right hand signal when exiting the roundabout.
- If uncomfortable riding with traffic, bicyclists may dismount their bike and cross the roundabout as a pedestrian at designated crosswalks.

Further Information on Roundabouts

Additional information about roundabouts can be found at http://www.ct.gov/dot/roundabouts or contact Joseph Ouellette at (860) 594-2721.

References