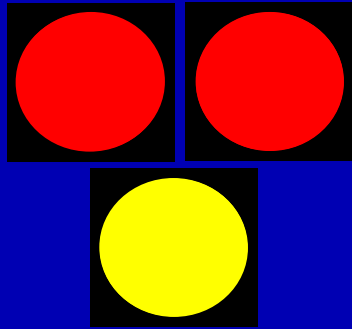


# Pedestrian Hybrid Beacons In Austin

ITS Texas Annual Meeting  
San Marcos, Texas



Gary W. Schatz, P.E., PTOE  
Austin Transportation Department  
November 10, 2011



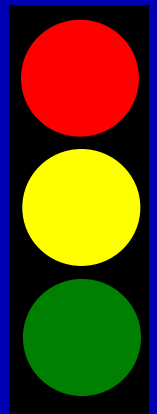
# ***Pedestrian Hybrid Beacons***






**Ronnie Bell**  
**Austin Transportation Department**

**&**

**NCUTCD Signals  
Technical Committee**





# ***Pedestrian WHAT? What is it and why are we talking about it?***

-  **FHWA issued new MUTCD - December 2009**
-  **TxDOT revising the Texas MUTCD as required**
-  **Pedestrian hybrid beacons are included in the proposed Texas MUTCD**





## *So, what is it?*

A pedestrian hybrid beacon is a special type of hybrid beacon used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street or highway at a marked crosswalk

## *Where are pedestrian hybrid beacons (PHB's) installed ?*

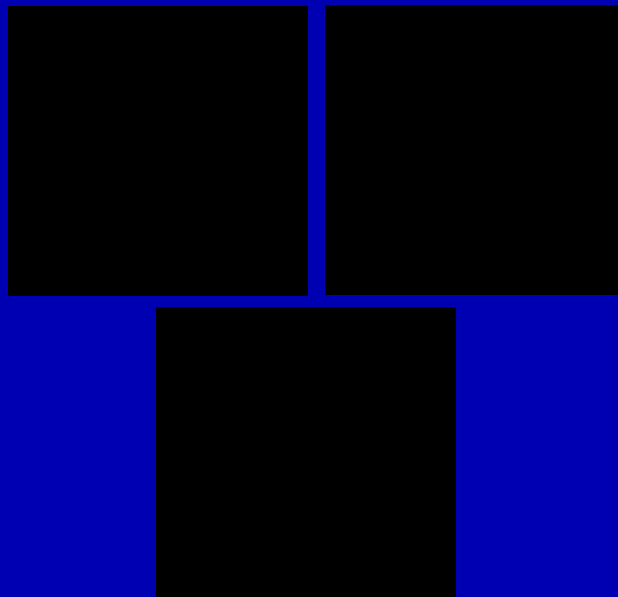
-  where typical traffic control signal not justified based on MUTCD warrants and engineering study, but
-  pedestrian crossings occur that may be difficult due to vehicular volumes

## ***A pedestrian hybrid beacon -***

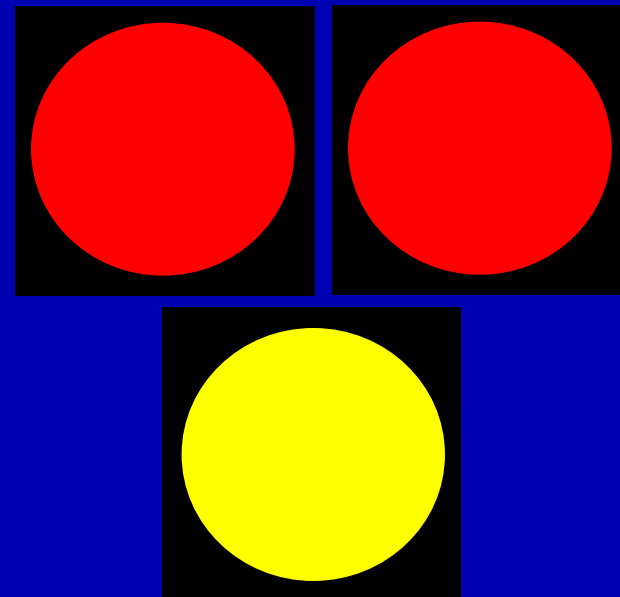
-  ***shall*** be used in conjunction with signs and pavement markings
-  ***shall*** only be installed at a marked crosswalk
-  ***shall*** have 3 signal sections - a CIRCULAR YELLOW indication centered below two horizontally aligned CIRCULAR RED indications
-  ***shall*** be pedestrian actuated

# Pedestrian Hybrid Signal Face

**Dark**

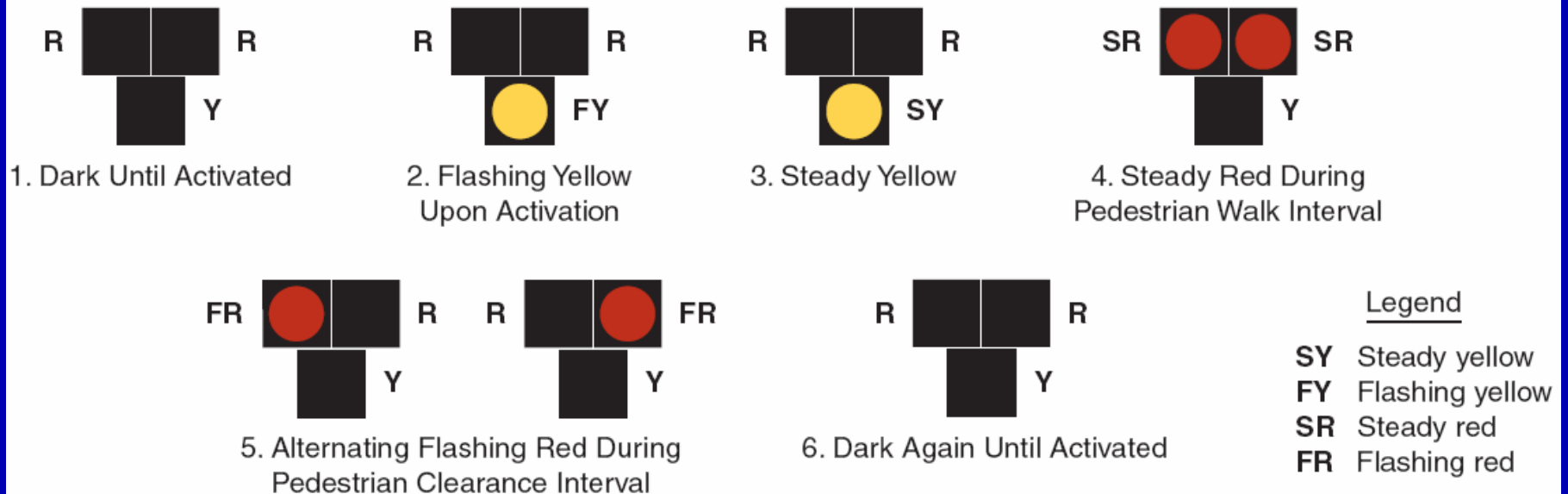


**Fully Illuminated**



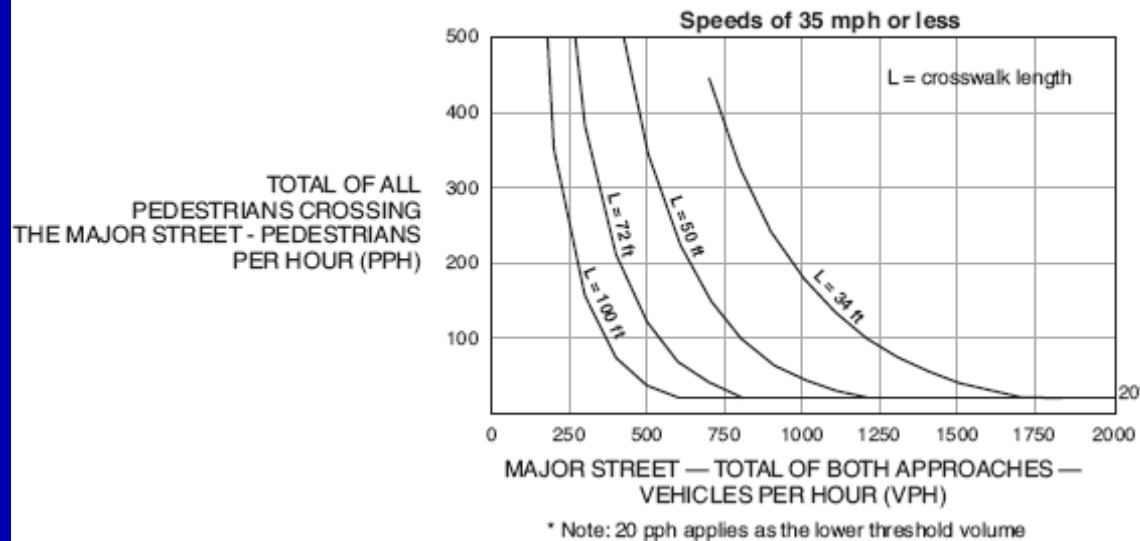
# MUTCD includes figure showing the sequence for a PHB

Figure 4F-3. Sequence for a Pedestrian Hybrid Beacon



**The MUTCD includes  
GUIDANCE figures regarding  
conditions under which the  
need for a pedestrian hybrid  
beacon should be considered**

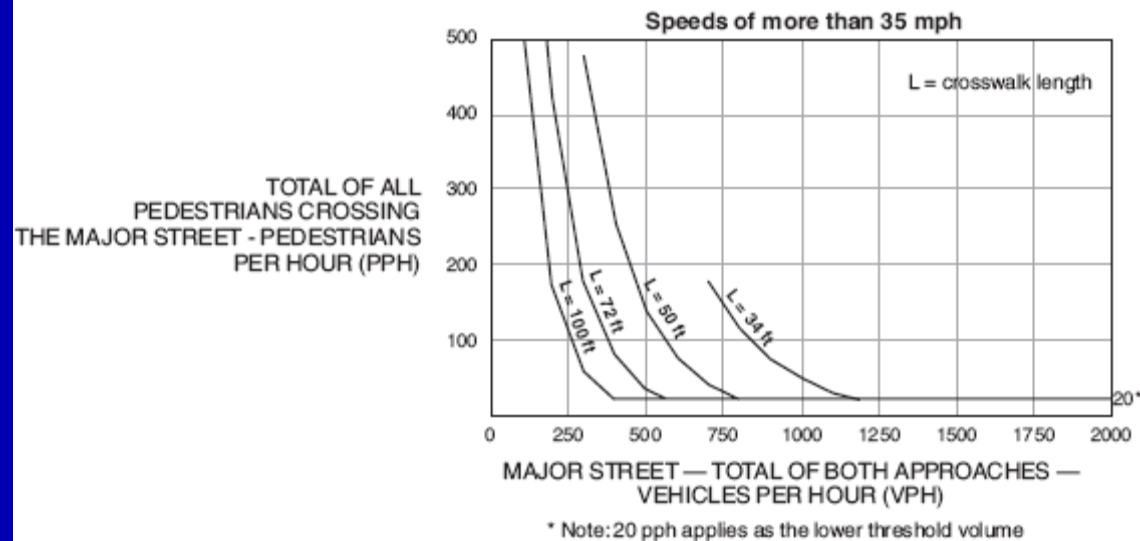
**Figure 4F-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways**



## “Low” speed roads

- $\leq 35$  MPH
- $\geq 20$  peds in an hour with vehicular volumes from 600 to 1700 depending on crossing length





**Figure 4F-2. Guidelines for the Installation of Pedestrian Hybrid Beacons on High-Speed Roadways**



## “High” speed roads

- $> 35$  MPH
- $\geq 20$  peds in an hour with vehicular volumes from 350 to 1150 depending on crossing length

## *How do PHB's operate ?*

-  Have yellow & red signal indications to control vehicular traffic on roadway being crossed
-  Have pedestrian signal heads for pedestrian traffic crossing the roadway
-  Vehicular indications dark between actuations
-  Pedestrian indications display steady **DON'T WALK** between actuations

*Note - there is an OPTION for pedestrian heads to be dark when located near roundabouts*

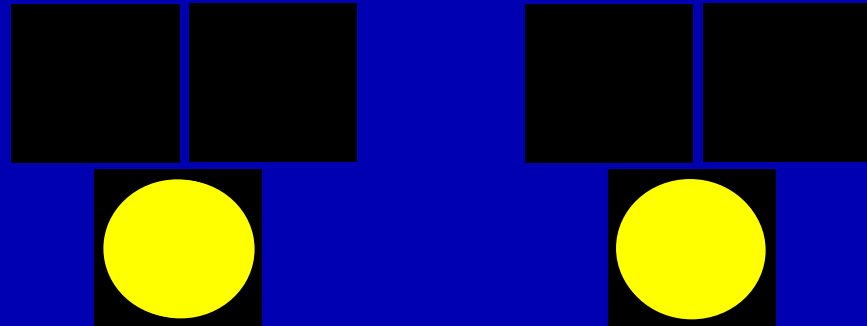
# ***Pedestrian Hybrid Beacon Sequence***

**Following the flashing circular yellow –**  
**Vehicular heads - steady circular yellow**  
**Pedestrian heads - remain steady DON'T WALK**

**Pedestrian  
Heads**



**Vehicular  
Heads**



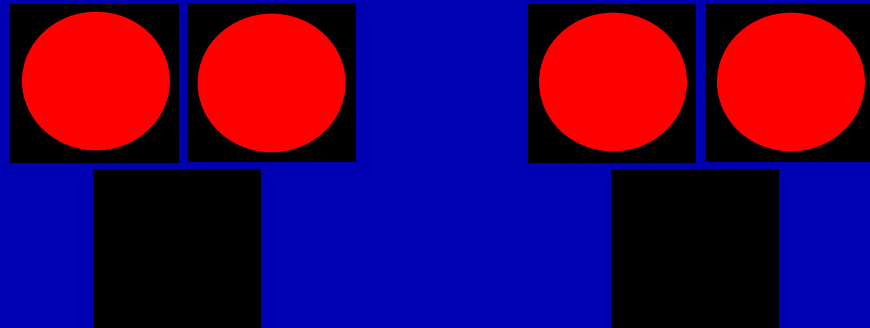
# ***Pedestrian Hybrid Beacon Sequence***

**Following the steady circular yellow –**  
**Vehicular heads - steady circular red**  
**Pedestrian heads - WALK**

**Pedestrian  
Heads**



**Vehicular  
Heads**



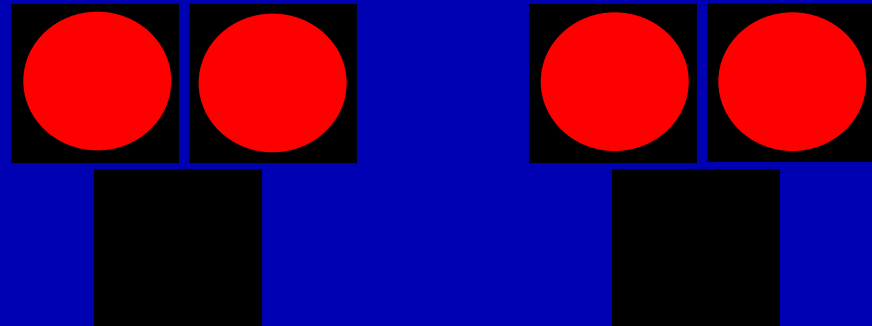
# ***Pedestrian Hybrid Beacon Sequence***

**Following the WALK/steady red indications –  
Vehicular heads - alternating flashing red  
Pedestrian heads - flashing DON'T WALK &  
countdown**

**Pedestrian  
Heads**








**Vehicular  
Heads**



**then returns to “rest state”**

## ***PHB – the Austin Experience***

-  Crosswalks with various types of flashing yellow devices – poor driver yielding behavior
-  Developed and installed 2-section displays at 5 locations that flashed yellow between actuations due to “dark” signals law
-  City staff developed logic commands for NextPhase for existing 2070 controllers
-  Have since modified to MUTCD PHB operation
-  Thanks to Eric Nelson for assistance with current NextPhase logic commands

# *PHB – the Austin Experience*

 18 PHB's are in operation

 Where?

 12 - existing crosswalks with flashing devices

 4 - existing crosswalks with no flashing devices

 2 - new crosswalk locations

 15 at or within 100' of intersections or driveways

 3 at mid-block locations

 Road Type

 16 of 18 on 4 lane or wider roadways

 7 more pending installation

 11 additional under consideration

## Before/after photos

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Changed  
from  
overhead  
flashing  
beacon to a  
pedestrian  
hybrid  
beacon



*Photo from Google Maps*



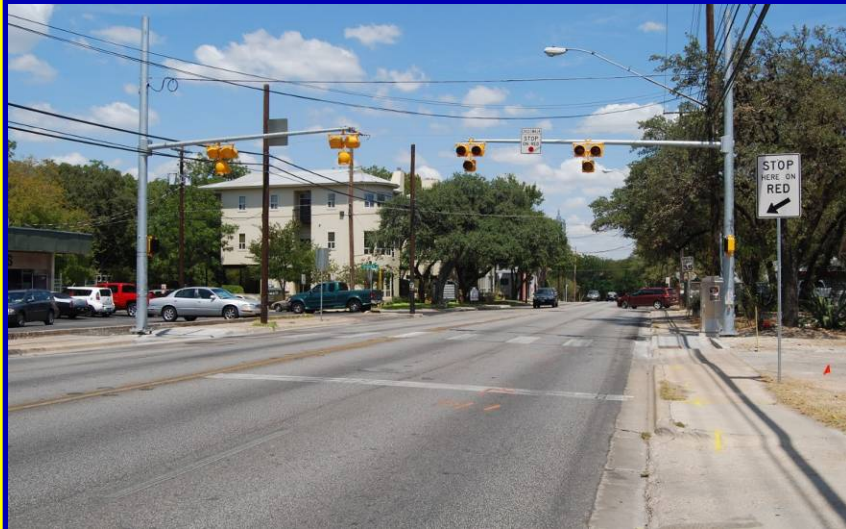
*Photo by Hank Usher, ATD*



*Photos by Hank Usher, ATD*



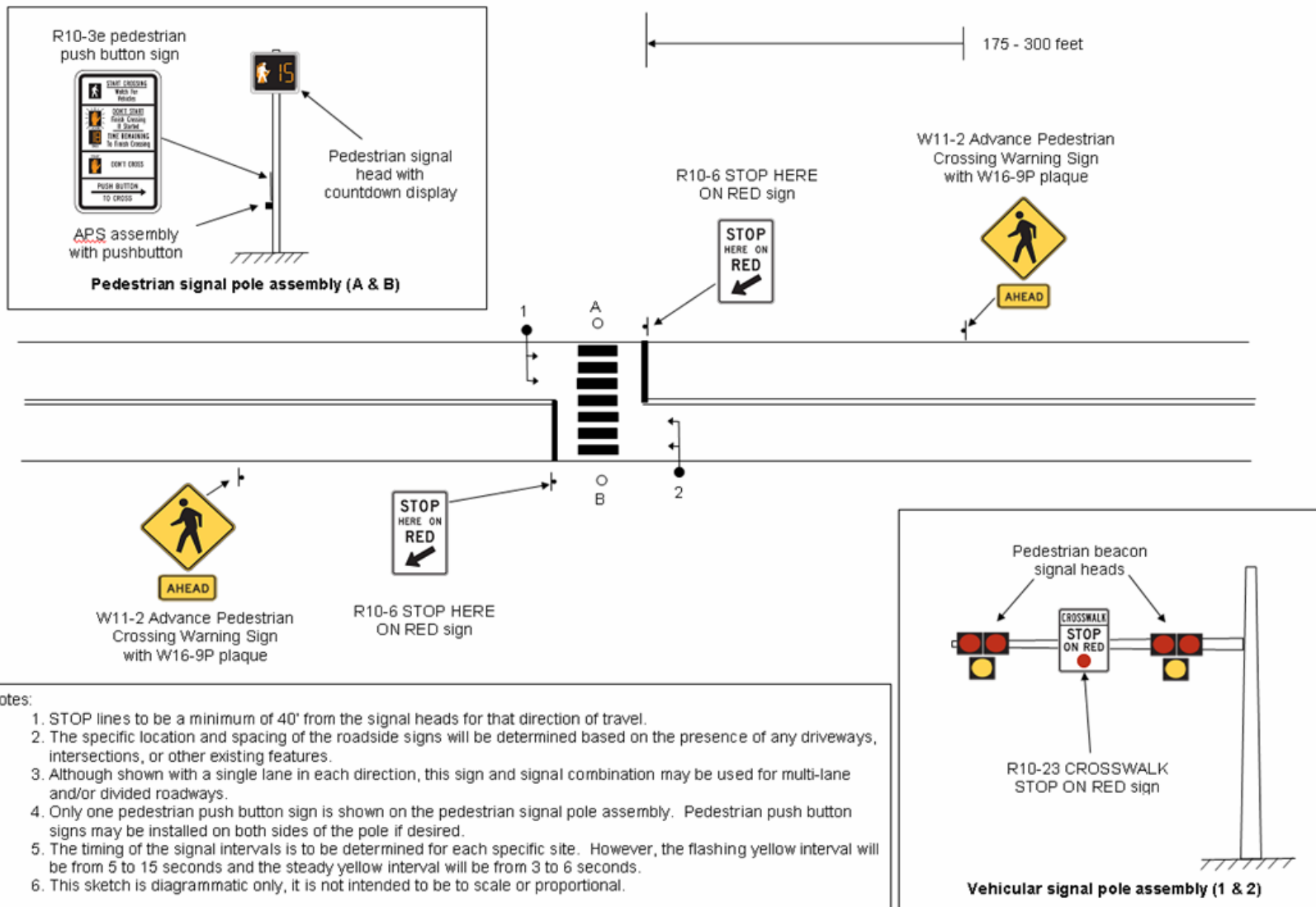
*Photos by Hank Usher, ATD*



*Photos by Hank Usher, ATD*

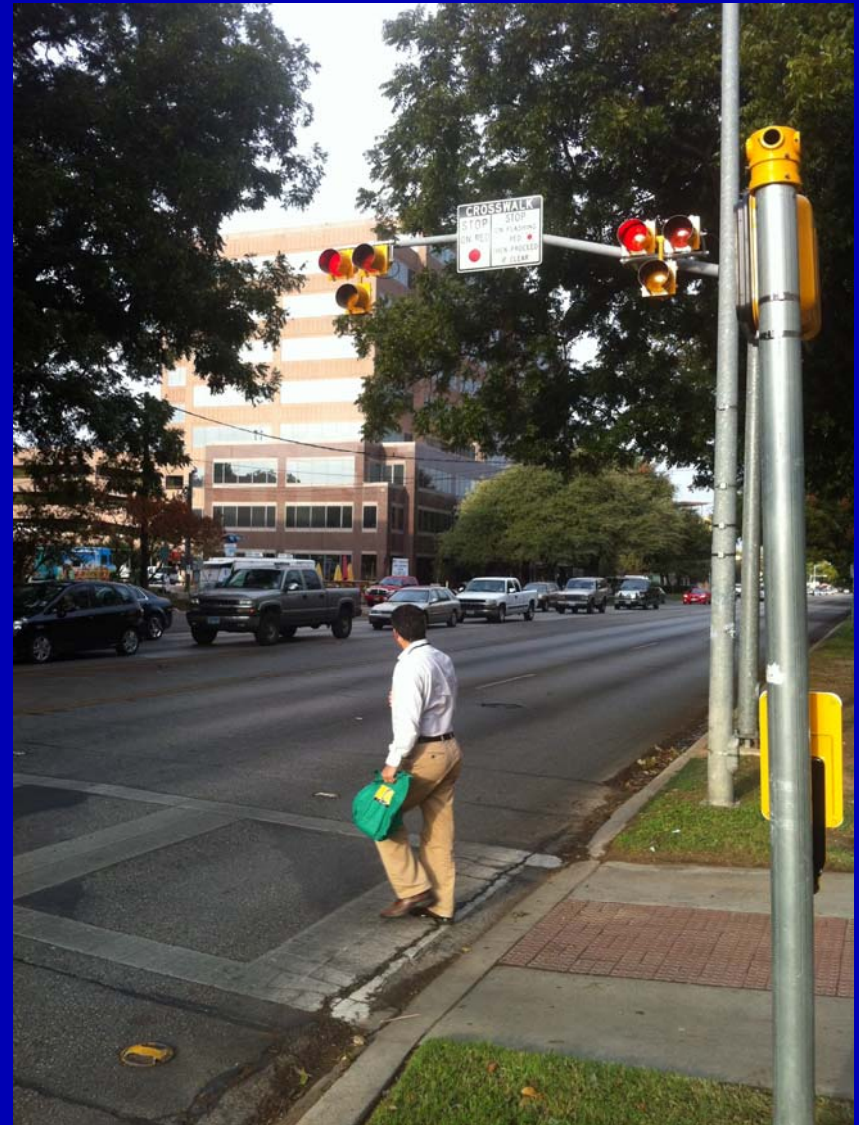
# Developed typical traffic control sketch

## Typical Traffic Controls for Pedestrian Hybrid Beacon Installation




# *Driver & Pedestrian Response*

-  some drivers remain stopped on the flashing red rather than treating it as a STOP sign





# *Driver & Pedestrian Response*

-  some pedestrians push the button and begin to cross without waiting for the WALK indication







## ***Outreach Efforts***

-  developed a PHB Fact Sheet describing the operation**
-  discussed with Police Department and Municipal Court so they are aware of the device and its operation**



# *Cost*

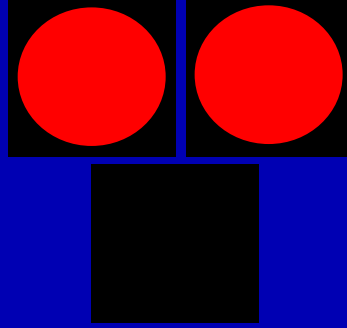
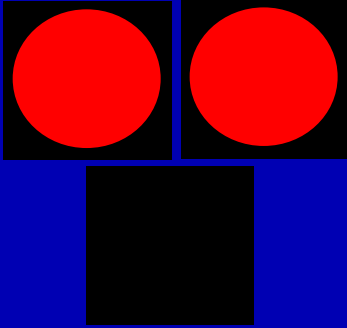
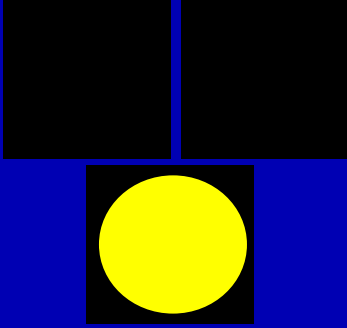
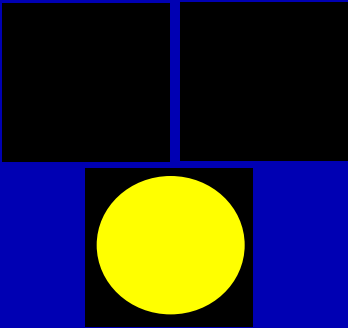
Varies from a few hundred dollars to about \$25,000 depending on your conditions –

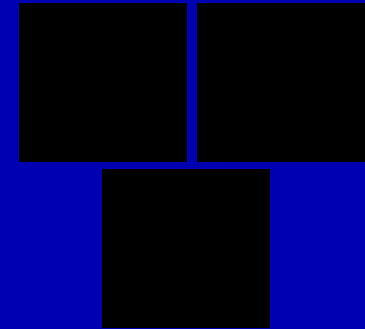
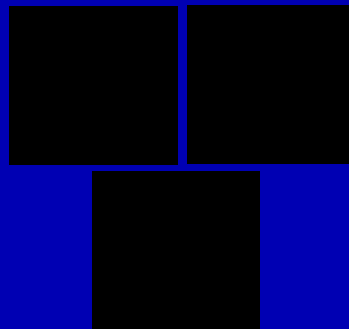
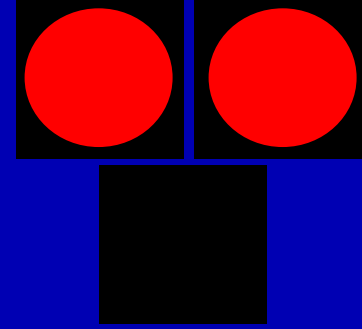
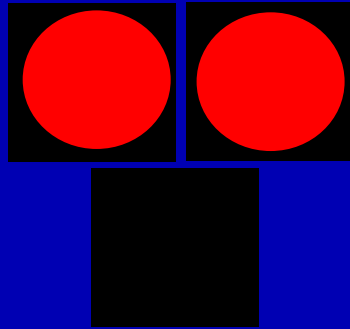
-  Do you have to install foundations and poles?
-  Do you have to pay for new cabinet/controller or do you have an existing (paid for) one you can redeploy?
-  Is there an existing crosswalk?
-  Is sidewalk or curb ramp work needed?

## *Other items of interest*

FHWA recently issued interpretation

-  A steady red clearance interval may be displayed immediately prior to the display of the WALK indication
-  The alternating flashing red display may be extended past the end of the flashing DONT WALK before returning to dark





**MUTCD includes GUIDANCE that  
“the pedestrian hybrid beacon should  
be installed at least 100 feet from  
side streets or driveways that are  
controlled by STOP or YIELD signs”**

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***The NCUTCD is  
recommending to FHWA  
that this GUIDANCE be  
deleted***

HB 885 passed in the recent legislative session addresses PHB's and ramp control signals when dark:

**An operator of a vehicle facing a traffic-control signal, other than a freeway entrance ramp control signal or a pedestrian hybrid beacon, that does not display an indication in any of the signal heads shall stop as provided by Section 544.010 as if the intersection had a stop sign.**

Thanks to the following for supporting this bill:

- Ted Marquez, City of El Paso
- Norman Hogue, City of Waco
- Mark Titus, City of Dallas
- Jeff Weatherford, City of Houston
- Gilmer Gaston, TexITE
- Gary Schatz, City of Austin
- Robert Wunderlich, City of Garland and ITE

**QUESTIONS**