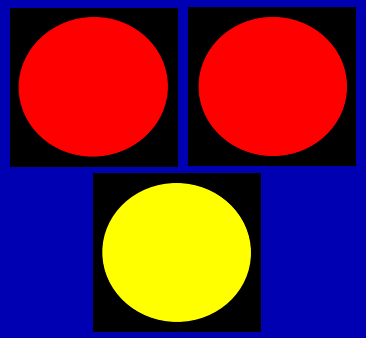


Pedestrian Hybrid Beacons

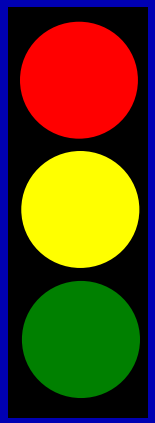
Ronnie Bell

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 ?

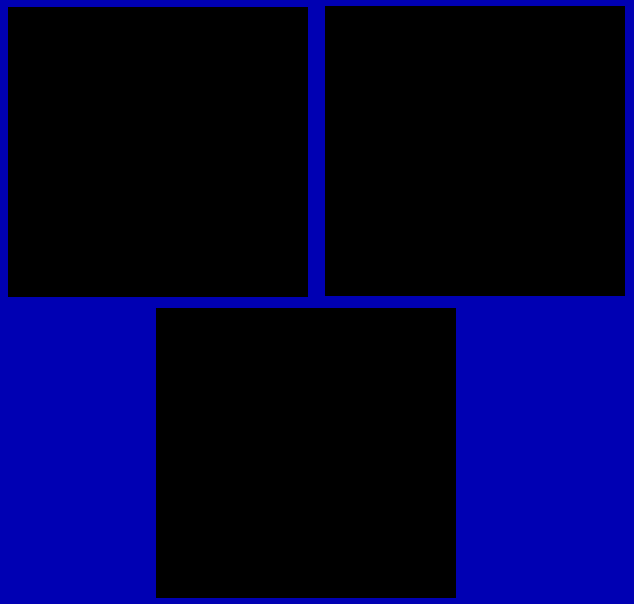
- **where typical traffic control signal not justified based on MUTCD warrants and engineering study, but**
- **pedestrian crossings occur that may be difficult due to vehicular volumes**

A pedestrian hybrid beacon -

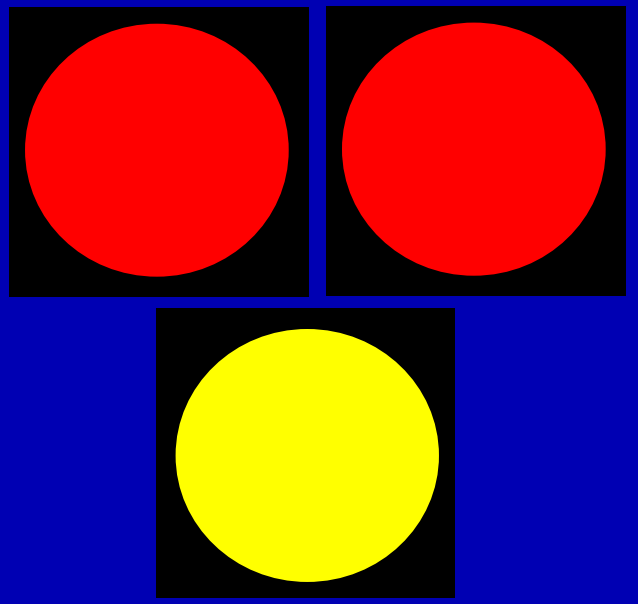
- ***shall*** be used in conjunction with signs and pavement markings
- ***shall*** only be installed at a marked crosswalk
- ***shall*** have 3 signal sections - a CIRCULAR YELLOW indication centered below two horizontally aligned CIRCULAR RED indications
- ***shall*** be pedestrian actuated

Pedestrian Hybrid Signal Face

Dark

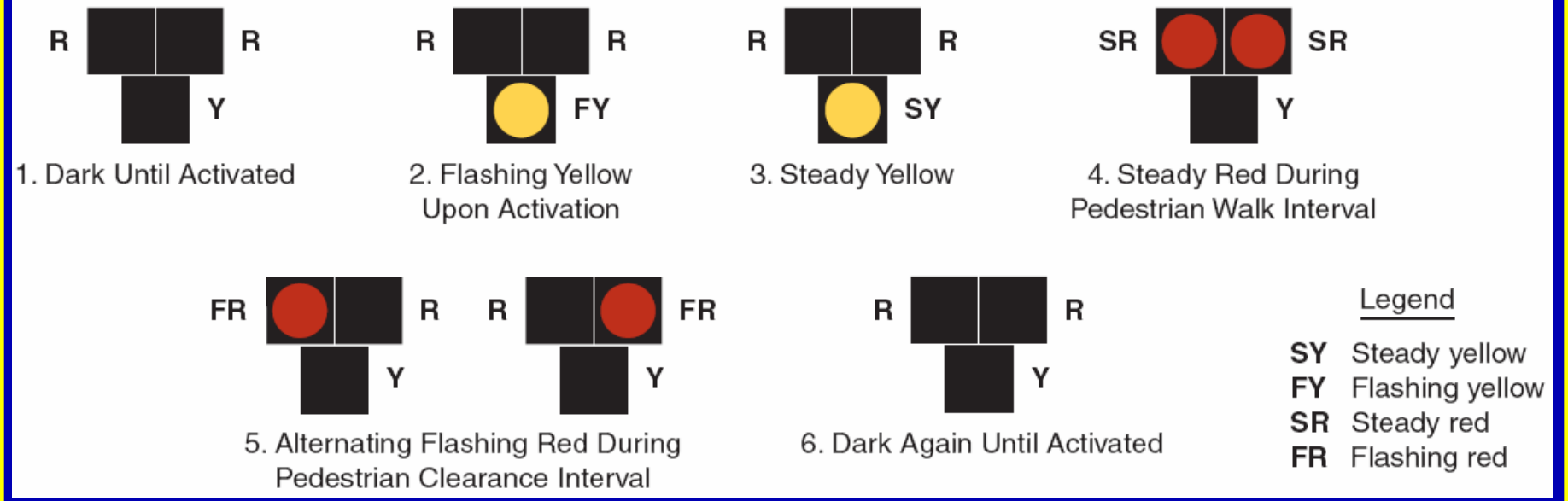


Fully Illuminated

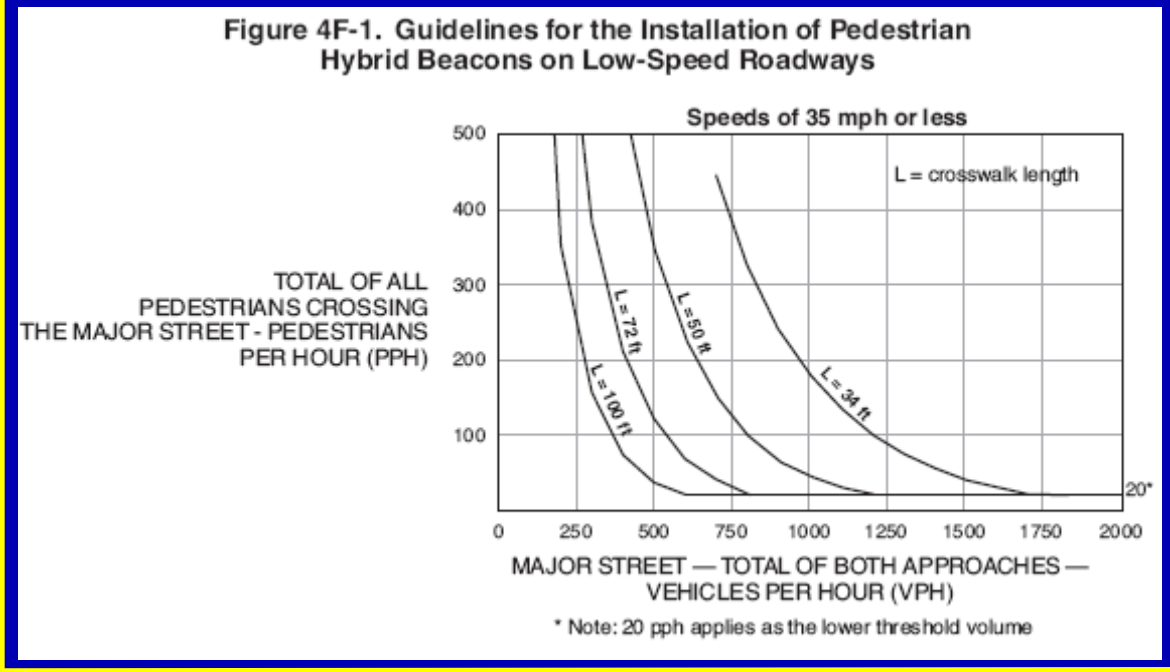


MUTCD includes figure showing the sequence for a PHB

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

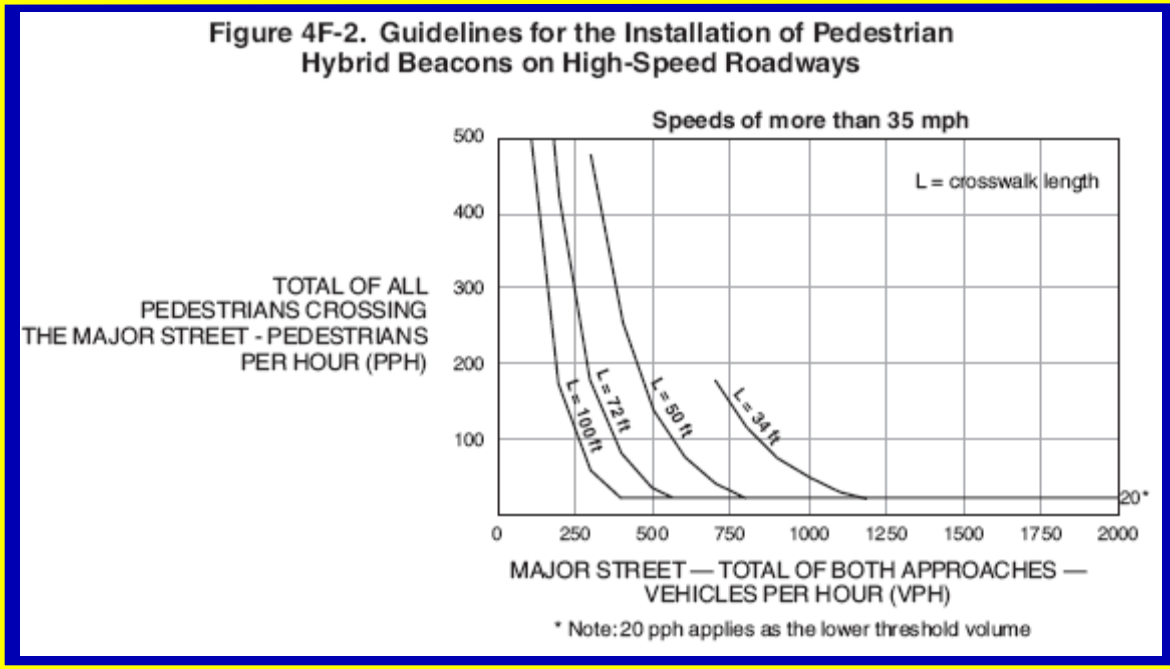


The MUTCD includes GUIDANCE figures regarding conditions under which the need for a pedestrian hybrid beacon should be considered



"Low" speed roads

- ≤ 35 MPH
- ≥ 20 peds in an hour with vehicular volumes from 600 to 1700 depending on crossing length



"High" speed roads

- > 35 MPH
- ≥ 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

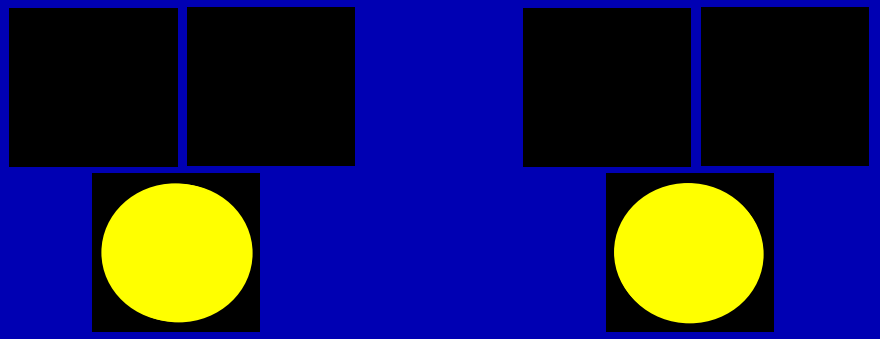
Following the flashing circular yellow –

Vehicular heads - steady circular yellow

Pedestrian heads - remain steady DON'T WALK

Pedestrian Heads

Vehicular Heads



Pedestrian Hybrid Beacon Sequence

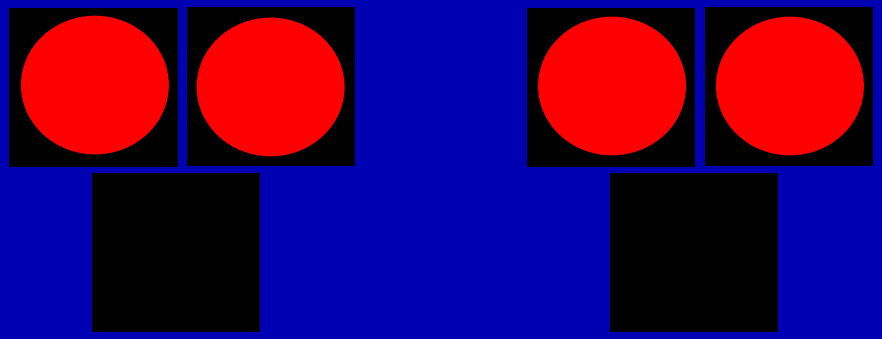
Following the steady circular yellow –

Vehicular heads - steady circular red

Pedestrian heads - WALK

Pedestrian Heads

Vehicular Heads



Pedestrian Hybrid Beacon Sequence

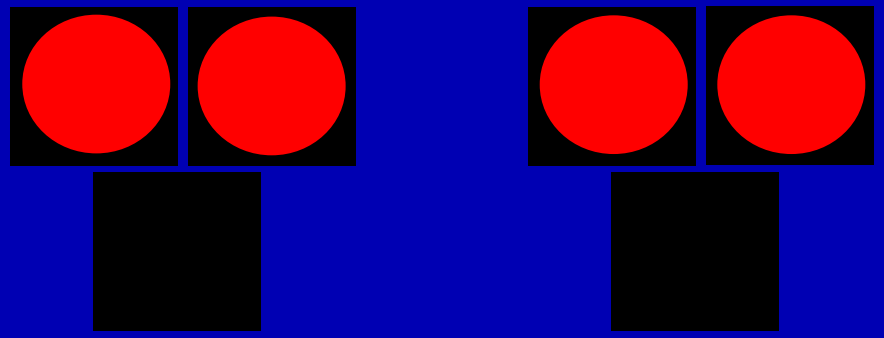
Following the WALK/steady red indications –

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

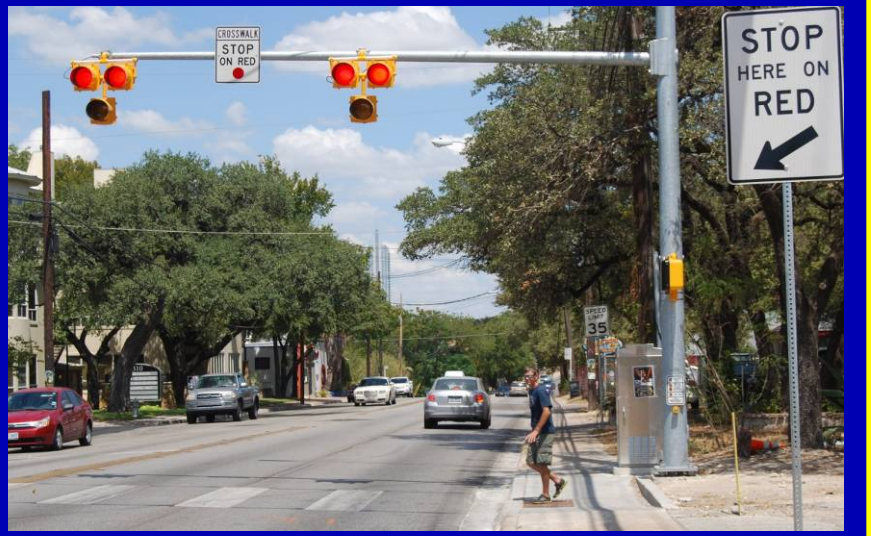
- 18 PHB's are in operation
  - Where?
    - 12 - existing crosswalks with flashing devices
    - 4 - existing crosswalks with no flashing devices
    - 2 - new crosswalk locations
    - 15 at or within 100' of intersections or driveways
    - 3 at mid-block locations
  - Road Type
    - 16 of 18 on 4 lane or wider roadways
- 7 more pending installation
- 11 additional under consideration

Before/after photos

Changed from overhead flashing beacon to a pedestrian hybrid beacon

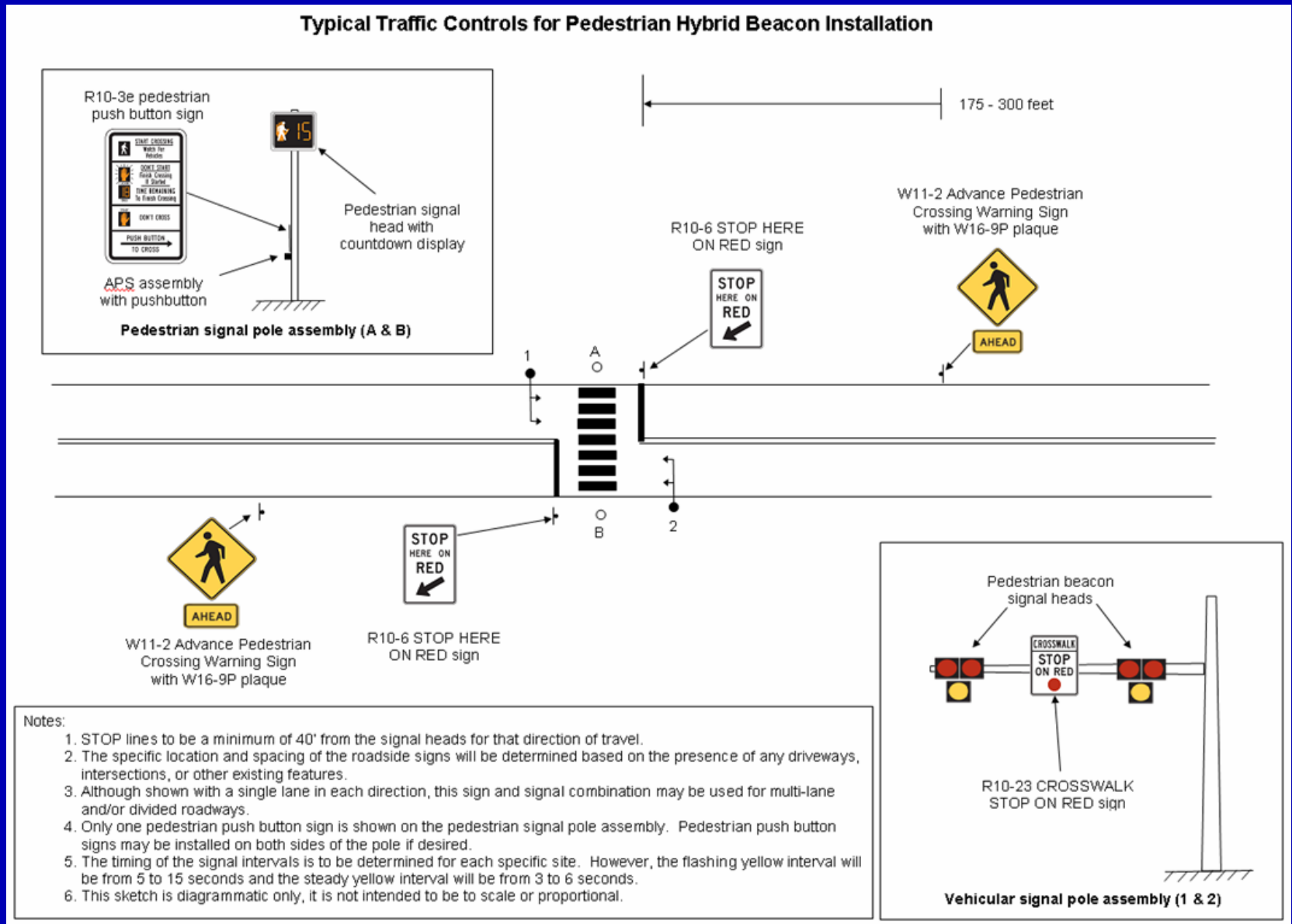
Photos by Hank Usher, ATD

Photos by Hank Usher, ATD



Photos by Hank Usher, ATD

Developed typical traffic control sketch



Driver & Pedestrian Response

- some drivers do not stop at the steady red
- some drivers remain stopped on the flashing red rather than treating it as a STOP sign
- some pedestrians begin crossing after the WALK has ended
- 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

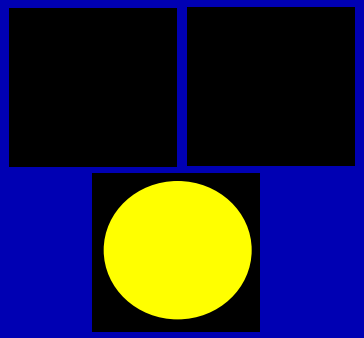
Varies from a few hundred dollars to about $25,000 depending on your conditions –

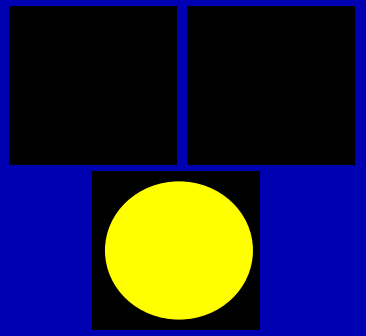
- Do you have to install foundations and poles?
- Do you have to pay for new cabinet/controller or do you have an existing (paid for) one you can redeploy?
- Is there an existing crosswalk?
- Is sidewalk or curb ramp work needed?

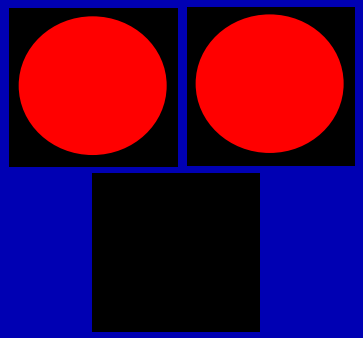
Other items of interest

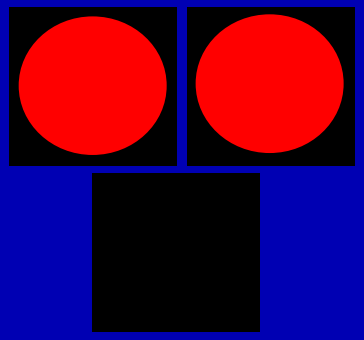
FHWA recently issued interpretation

- 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







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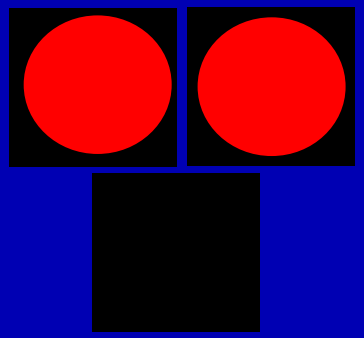

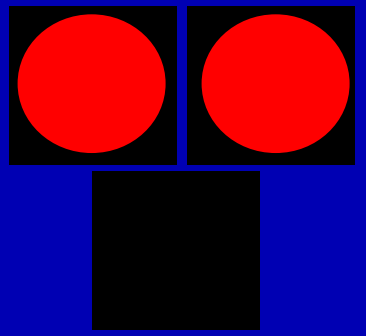

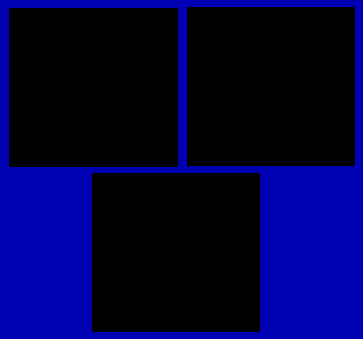

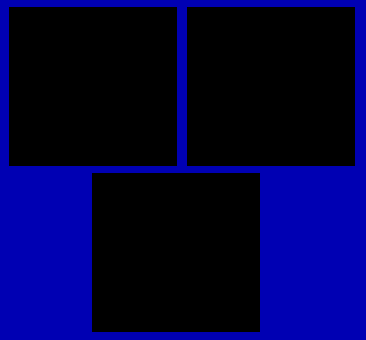

MUTCD includes GUIDANCE that

"the pedestrian hybrid beacon should be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs"

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