

Experiences from Waco's First Pedestrian Hybrid Beacon & Rectangular Rapid Flash Beacon

TexITE Meeting Fall 2012

Fort Worth, TX

Overview

- Two Projects
 - University High School PHB
 - N. 15th & Colcord RRFB (Traffic Calming Project)
- Citizen Feedback
- Lessons
- Future deployments
- Questions

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Traffic Improvements Review

- New Road Changes
 - Speed Limit Reduced from 45 to 40 mph
 - No Stopping/Standing/Parking Restrictions
- PHB Installed (\$55,512.28)
 - Adult Crossing Guard
- Community Outreach

UHS Campus



Old Robinson Road & New/Garden Road



Control : HAWK Pedestrian Signal

- Accommodates both vehicular traffic and pedestrians.
- Signal is Dark until activate by pedestrians.
- Average Peak Use :
 - 18 – 25 students (Fall 2011)
 - 45 students (Spring 2012)
 - 85 students (Fall 2012)*
- A report from the Texas Transportation Institute (TTI), “*Safety At Schools Recommended Guidelines*”, states:

“Justify a traffic signal (where vehicle volumes warrant) during the peak periods at secondary school access to or from an arterial.”



ABOUT WACO

LEADERSHIP

DO BUSINESS

VISITING

NEWS & INFO



Waco, TX - 10:50 PM



79°

Fair

Humidity: 82%

Wind: N 6 mph



Quick Links

Traffic Services

Control

Counts

Divisions

Flashing Yellow Arrow
Traffic Signal

Hybrid Beacons

Report Problems

Roundabouts

Streetlights

Pedestrian Hybrid Beacons

What are Pedestrian Hybrid Beacons?

A Pedestrian Hybrid Beacon (PHB) acts like a traffic signal and is designed to catch drivers' attention at pedestrian crosswalks and improve safety. Because a PHB operates similarly to a regular traffic signal, both drivers and pedestrians already have the skill set to respond easily and quickly, but they do not require traffic to stop unless a pedestrian needs to cross.

How do they work?

1. A pedestrian presses the button and waits for the lights to activate.
2. The PHB acts similarly to regular traffic signals, first turning yellow, and then red to alert drivers to come to a full stop.
3. Toward the end of the walk cycle, the solid red lights begin flashing and act like a stop sign. This allows drivers to proceed if the crosswalk is clear.

How effective is a PHB?

Researchers for the Federal Highway Administration (FHWA) found a PHB can reduce auto-pedestrian crashes by nearly 70%.

Drivers correctly yield to pedestrians at a PHB at much higher rates (over 90%) than at traditional crosswalks (about 30%). Again, drivers only need to stop when the PHB is activated.

A PHB can be used in locations where a traditional traffic signal cannot be justified or would present too great a disruption to automobile traffic; but there is a need for a higher level of pedestrian protection than regular crosswalks.

How much do they cost?

The cost to implement these devices can vary from location to location depending on existing conditions, the design details chosen, the availability of on-hand materials, and other similar factors. For most local roadways of typical width, the anticipated cost ranges between \$25,000 and \$35,000; for comparison a regular traffic signal costs from \$100,000 to \$150,000.

The City of Austin has implemented 26 of these devices. Of these, five were existing flashing yellow lights converted to PHBs; the others were at new locations. The conversions cost about \$7,000 each, while the new PHBs were about \$25,000 each including labor and materials.

[Informational Video](#)

[Official Press Release](#)



WHY?

Pedestrian Safety

The City of Waco places a high priority on pedestrian safety and is concerned about unprotected crossings of major streets.

In many cases, these crossings do not meet the required conditions for the installation of a conventional traffic signal, so the City utilizes other safety methods.

Vehicles yielding to pedestrians

Texas law requires motorists to yield to and STOP for pedestrians in a marked crosswalk. A new treatment, known as a HAWK Pedestrian Signal, which includes a red signal display, has shown to have up to a 97% driver compliance rate (comparable to a traffic signal).

The signal has been approved and adopted into standard traffic engineering manuals.



Traffic Services
Phone: (254) 750-6634
Email: Traffic@ci.waco.tx.us
www.waco-texas.com/traffic.asp

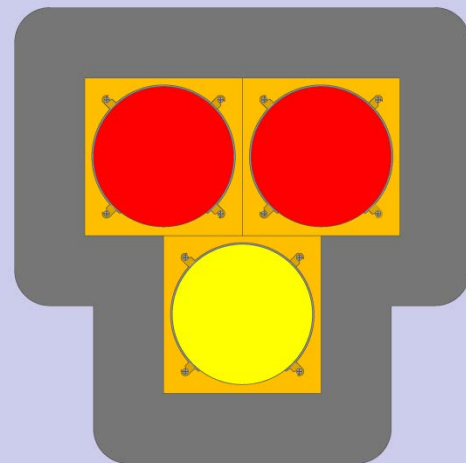
Mailing Address
P.O. Box 2570
Waco, TX 76702-2570

Physical Address:
Dr. Mae Jackson Development Center
401 Franklin Avenue
Waco, TX 76701

Phone: (254) 750-6634
Fax: (254) 750-6641
E-mail: Traffic@ci.waco.tx.us



Hybrid Pedestrian Signal (HAWK)



A User's Guide for Pedestrians & Motorists



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Hybrid Pedestrian Signal

What is the purpose?

To make it easier and safer for students and other pedestrians to cross major roads. The first installation is on New Road at the intersection of New Road/Garden Drive and Old Robinson Road by the new University High School.

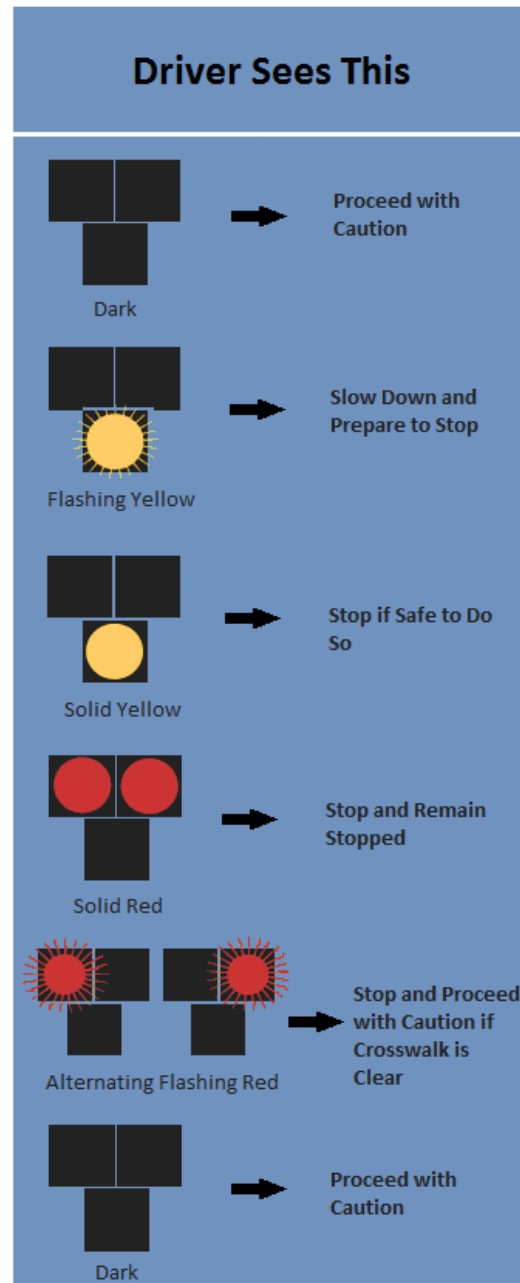
What is a HAWK signal?

This is a pedestrian signal developed by the city of Tucson in 2004. It is a **High-intensity Activated crossWALK**. It allows for continuous traffic flow until activated by a pedestrian. Many other cities in the US (including Austin, and Garland) already have them in place and they have proven to be very effective and safe.

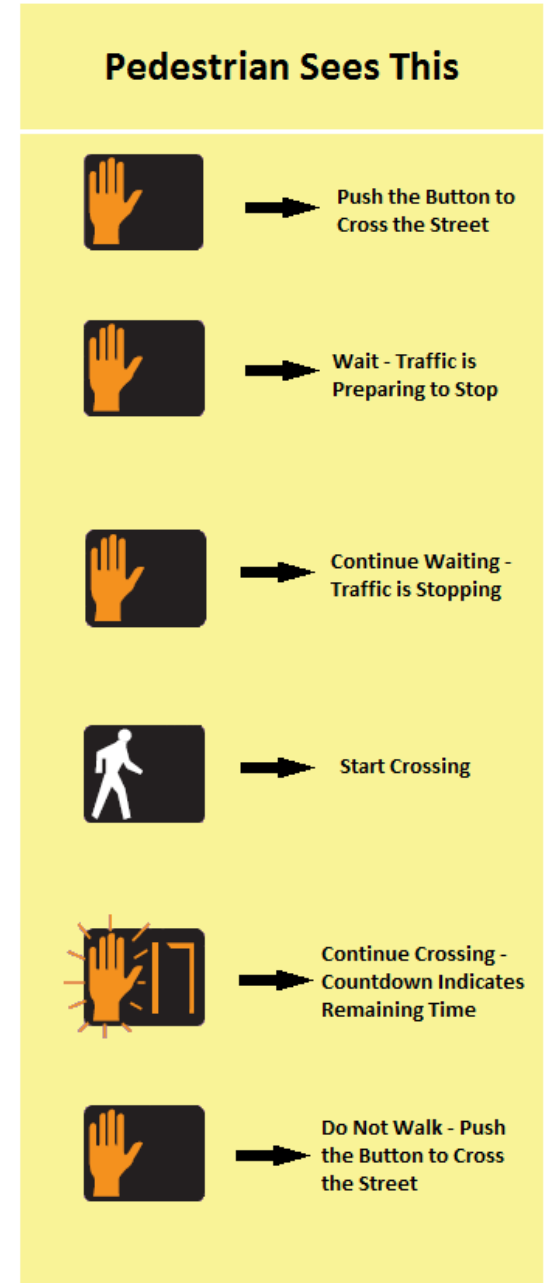
How does it work?

1. The signal remains dark until activated via push-button by a pedestrian.
2. Once activated, the signal flashes yellow to alert drivers that someone will be crossing.
3. Next the signal will turn solid yellow so that vehicles slow to a stop if it is safe to do so.
4. The signal then turns solid red, and the pedestrian is allowed to cross.
5. Finally, the signal flashes red designating that vehicles may proceed with caution after coming to a complete stop and determining that the path is clear.
6. The signal then returns to its dark state.

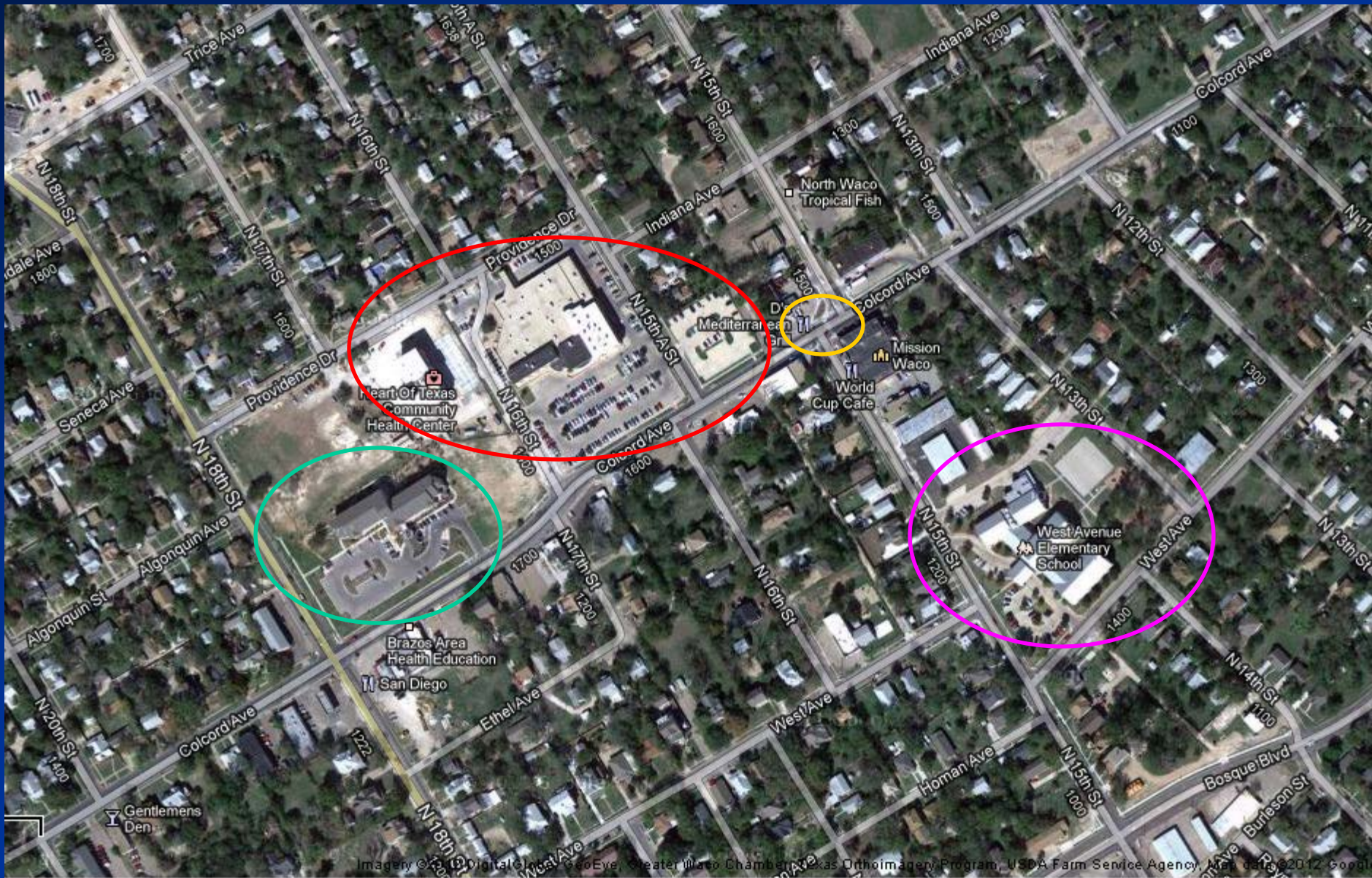
Signal Sequence



Signal Sequence



N. 15th & Colcord RRFB



Before

15th

15th



Looking East down Colcord

Before

Colcord



Looking South down 15th

After



After



N. 15th & Colcord RRFB





Feedback

- PHB
 - Change...again
 - Minor approach “Confusion”
 - Drivers behavior
- RRFB
 - Minimal comments

Lessons Learned

- Site Evaluation:
 - Location, location, location...Pick a “slam dunk” 1st
 - Users of system
 - Nearby TG’s
 - Area future needs
- Ask Questions...early and often

Future Locations

Location	Existing Control	Nearby Major Trip Generators
Meridian Avenue & N. 19 th Street	Two-way Stop, Reduced Speed School Zone & Crossing guard	HEB, Cedar Ridge Elementary, Several Apartments within 1 mile (High Elderly Population), Sonic, Church's Chicken, Subway, Pizza Hut, etc.
N. 21 st A Street & Park Lake Drive	Two-way Stop, Reduced Speed School Zone & Crossing guard	Cedar Ridge Elementary
Cleveland Avenue & S. 11 th Street	School Signal, Reduced Speed School Zone	Sul Ross Elementary (Closing June 2012), Kate Ross Apartments (low income)
120 S. New Road	Marked Crosswalk w/Signs	Bus Routes #3 & 4, Wal-Mart, Pet's Mart, McDonald's, Wing Stop, Luby's
315 N. New Road	"T" intersection (driveway), No crosswalk	Waco Fire Station #9 Access, Lowe's, Academy, Freebirds, Gold's Gym, etc.
S. 1 st Street & Bagby Avenue	Marked Crosswalk w/Signs	Baylor University
S. 3 rd Street & Bagby Avenue	To be determined by TIA	Baylor University

Future Locations

Location

Existing Control

Nearby Major Trip Generators

Baylor Avenue & S.
University Parks Drive

Two-way Stop, No crosswalk

Baylor University, Mayborn Museum,
crossing for future BU football stadium

S. University Parks Drive

“T” intersection (driveway), No
Crosswalk

Athletic Complex, Baylor Marina

Trice Avenue & N. New
Road

Two-way Stop, Marked Crosswalk
w/Signs

Waco High, Lake Air Little League,
National Guard Armory

S. 2nd Street & Franklin
Avenue

Two-way Stop

Hilton, Convention Center, City Hall,
Chamber, Restaurants & Shopping

Clay Avenue & S. 5th
Street

Two-way Stop, Marked Crosswalk
w/Signs

Post Office, Live Oak Classical
School/FBC Waco, Salvation Army, Waco
VA Regional Office

N. 34th Street & W. Waco
Drive

Two-way Stop

Heart of Texas Region Mental Health
Center, Bus Route #8



QUESTIONS?



<http://www.waco-texas.com/traffic-hybrid-beacons.asp>