

Designing for the Visually Impaired

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What is Orientation and Mobility ?

- ▲ Orientation is knowing where you are in space and how to problem solve if you should get disoriented
- ▲ Mobility is physical skill of getting from Point A to Point B (visual skills and/or cane skills)



Orientation and Mobility Instruction

- ▲ Provided by Orientation and Mobility (O&M) Specialist
- ▲ Prepares a person who is blind or who has low vision to travel in a variety of environments
 - ▲ independently assess new intersections
 - ▲ plan new routes
- ▲ Instruction is not provided at every intersection a person may need to cross



Street crossing tasks

- ▲ Locate edge of the street
- ▲ Determine where to begin crossing (locate crosswalk)
- ▲ Establish crossing direction and alignment
- ▲ Determine traffic control
- ▲ Use pushbutton, if necessary
- ▲ Decide when to begin crossing
- ▲ Maintain alignment during crossing
- ▲ Monitor traffic during crossing
- ▲ Recognize end of crossing





Finding the street



Locating the street



Where's the Crosswalk?



**Where's the pedestrian
button?**

**There's the pole for the
pedestrian button!**



**All I have to do is push it and
get up to the crosswalk to
cross!**



Just one problem...

- ▲ Poles with pedestrian buttons are not in the same place at every corner and so...
- ▲ The search for the elusive pedestrian button begins resulting in.....
- ▲ Let the “pole dance” begin...





4

3

2

1



5

6

7







Nope, not this one...

**Or this
one....**









At last!!!



The button is pushed and I'm in the crosswalk ready and...



**Missed the ped phase, so back
to the button...**



Ah...SUCCESS!!!

TURN
LEFT
ON
RED



MAVERICK
Since 1989
**COMPUTER
SERVICES**
"We Build The Best
&
Repair The Rest"

**TACO
CASA**

ROO ROAD

**100 DRIVE
THRU**

**WILL BURGER
1.19
ANY SIZE
2.14 99**

TACO CASA



So what can you do to make it easier?

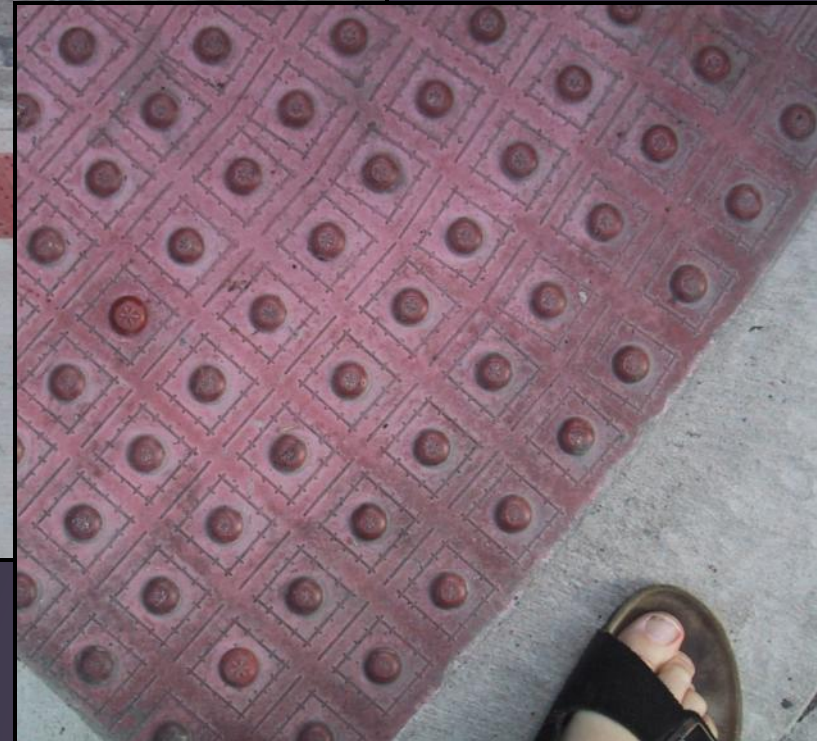


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Detectable warning = truncated domes



Detectable warnings to indicate edge of street



Also needed to indicate edges of
medians or islands



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Blind person may not cross at crosswalk

Adding planter strip could help



Crosswalk offset from corner can be problematic for blind pedestrian



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Pedestrian Pushbuttons

- ▲ Is there a pushbutton?
- ▲ Where is it?
- ▲ Have I found the pushbutton for the street I'm crossing?

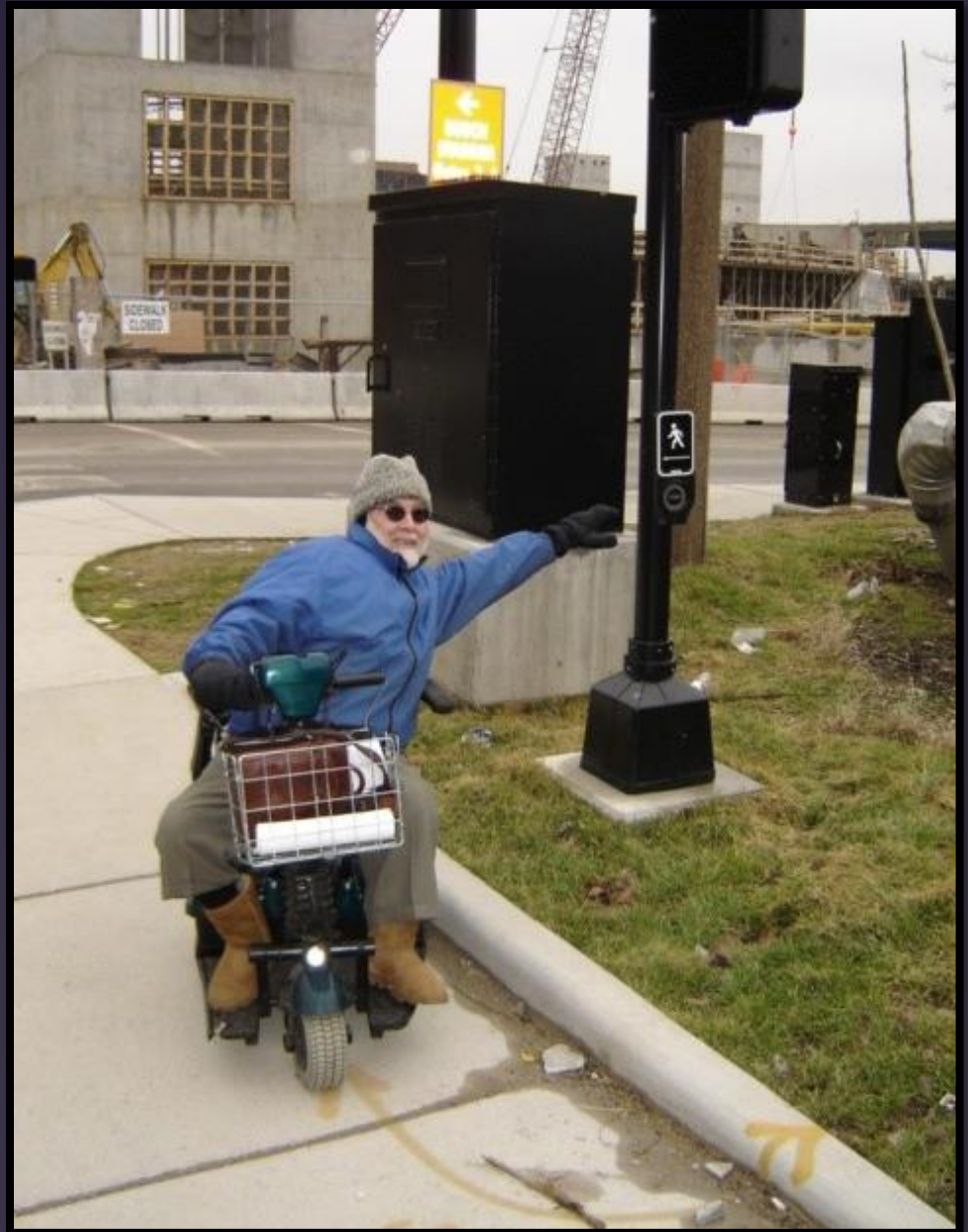


Well-located pushbutton

- ▲ Near crosswalk line furthest from center of the intersection
- ▲ Level clear space to reach pushbutton



Pushbutton
not in
accessible
location



Features of new types of APS

- ▲ Speakers at the pushbutton
- ▲ Pushbutton locator tone
- ▲ Audible and vibrotactile Walk indications
- ▲ Tactile arrow
- ▲ Automatic volume adjustment
- ▲ + specific locations



Pushbutton-integrated APS

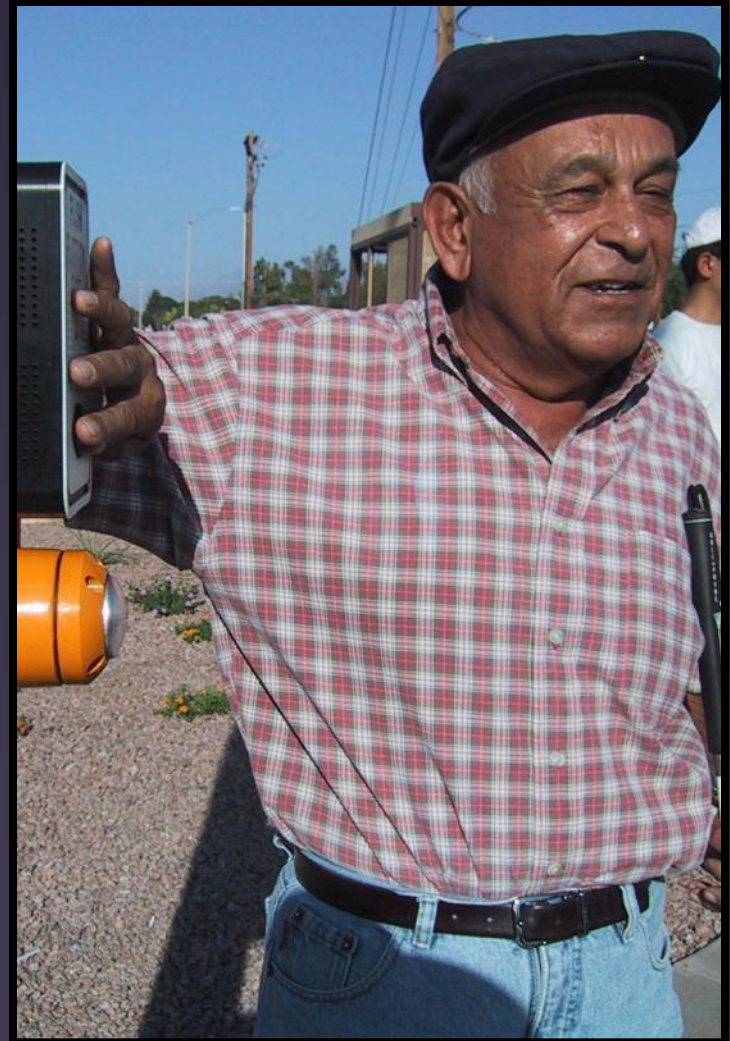


- ▲ Pushbutton locator tone during Don't WALK and Flashing DON'T WALK
- ▲ Rapid tick WALK indication



APS Location is critical

- ▲ Provide information to the user through proximity to the departure point
- ▲ Signal can be quieter due to proximity



Installation example



Installation example - APS aligned with crosswalk lines



Street crossing tasks

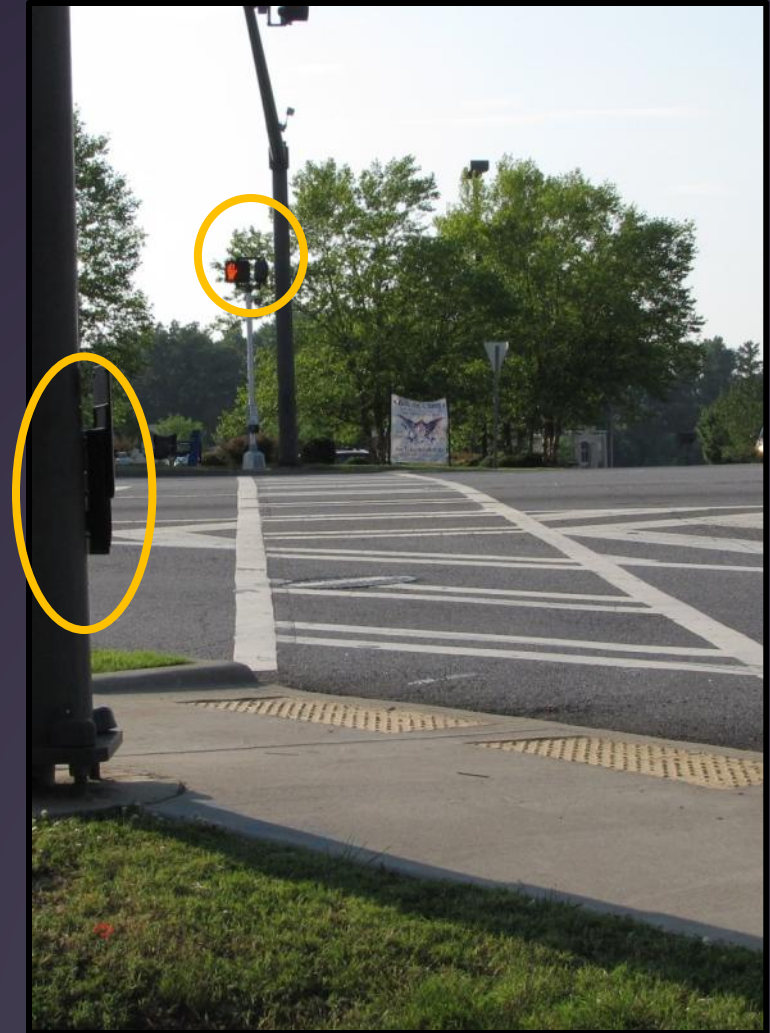
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Beaconing APS

▲ Prototype system

- ▲ Quieter sounds from pushbutton on the departure curb
- ▲ + Louder beacon sounds at specific times from additional speaker at opposite end of crosswalk



Guidestrip



Key resources

▲ Accessible Pedestrian Signals

- ▲ www.apsguide.org

- ▲ APS bulletin on installation at www.access-board.gov/research/pedestrian-signals/bulletin.htm

▲ ITE Accessible Intersections pages

- ▲ www.ite.org/accessible/



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