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...
Just one problem...
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!!!
So what can you do to make it easier?
Street crossing tasks

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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
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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/
For more information, contact:

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