Improving the Accessible Pedestrian System in the City of Toronto

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streetsto

Today's Presentation

- AODA Background
- Requirements for Accessible Pedestrian Signals
- User Issues with APS
- Research
  - Academic review
  - Stakeholder engagement, including a symposium
  - Consultation with experts
  - Recommendations for pilot study
- Q and A

The Accessibility for Ontarians with Disabilities Act (AODA)

- The AODA was enacted in 2005 and works with the Ontario Human Rights Code to promote equality for all persons with disabilities.

- **As of January 1, 2016, all newly-constructed or redeveloped infrastructure must comply with the AODA.**

Provincial Standards for the Built Environment

- Ontario developed design standards to implement the AODA called the **Integrated Accessibility Standards Regulation (IASR). O. Reg 191/11**.

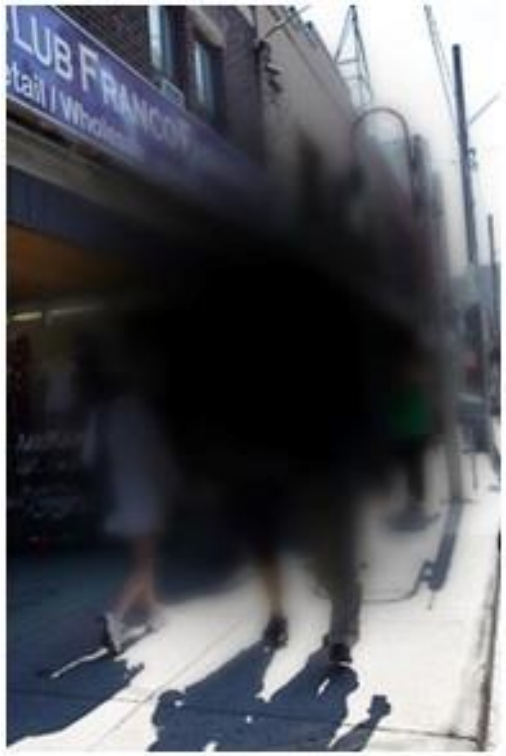
- The DOPS Standard in the IASR addresses public spaces such as recreation trails, beach access, outdoor eating, play spaces, **exterior paths of travel**, on and off street parking, service counters and waiting areas.

Low / No Vision Community

- Very vulnerable population
- Rely greatly on walking and transit

Cataract

Glaucoma



Macular Degeneration

Accessible Pedestrian Signals (APS)

- Toronto using some version of audible / accessible pedestrian signals for decades
- In Toronto, we go beyond AODA requirements (new or replacing traffic control signals) and implement on a request basis as well
- APS activated by depressing pushbutton for at least 3 seconds
- Walk tones
  - North-south direction – cuckoo
  - East-west direction – chirp-chirp

APS - Issues with Existing System

Sound

- Complaints from general public: too loud / too piercing
- Complaints from low / no vision community: too quiet
- APS walk tones block out sound of traffic
- APS is not directional
- No knowledge of how much time remains for the crossing (clearance phase)

Button

- Hard to push the button / no feedback that it has been pushed
- Can't physically push button, especially in the wintertime
- Can't physically find pushbutton
- Button not always placed in consistent location at all intersections
- Hard to re-orient back to the crossing in time to cross

APS Study

- Research (Phase I) – Fall 2016 to Spring 2017
  - Retained Intelligent Design for Adaptation, Participation and Technology (iDAPT)
    - Academic review of APS research, best practices, available technologies
    - Symposium with external stakeholders
    - Conference call with traffic engineering professionals and researchers
    - Presentation to Accessibility Advisory Panel for Transportation Services (AAPTS)
    - Meeting with internal staff

- Pilot Study (Phase II) - Future
  - Determination of potential improvements to pilot
  - Monitoring and evaluation framework

Rapid Literature Review

- Exclusion criteria (published prior to 1997; not in English; not associated or did not include individuals with low or no vision; exclude conference proceedings)
- Inclusion criteria (low or no vision individuals; one or more APS features; published between 1997 and 2017)
- Results
  - Initial number of articles = 3829
  - Duplicates removed; further removals after review of abstracts; shortlisted after review of full articles
  - Final number of articles = 55

External Stakeholder Symposium

- Workshop conducted on November 28, 2016
- Attended by 45 individuals, including representatives from:
  - Alliance for Equality for Blind Canadians
  - BALANCE for Blind Adults
  - Canadian Helen Keller Centre
  - Canadian National Institute for the Blind (CNIB)
  - Walk Toronto
- Three main questions:
  - What are the major barriers to the current design of the APS system when (a) accessing the signal and (b) operating the signal?
  - What are the benefits of the current APS systems or features that are useful?
  - How can we address identified barriers? What are potential solutions you can identify?

Conference Call with Experts

- Online researcher symposium conducted on February 10, 2017
- 48 researchers identified during rapid literature review
- 13 researchers participated in the online symposium, including:
  - Barlow Design
  - Smith-Kettlewell Eye Research Institute
  - University of Minnesota
  - IDeA Centre
  - University of Buffalo
- Purpose of symposium:
  - Discuss current research on APS
  - Learn about new research being conducted
  - Identify new solutions and technologies for implementation in Toronto

Shortlisted Recommendations

- Test different sounds and repetition rates for locator tone
- Test different walk tones
- Test verbal messages for walk tones
- Test Relume device
  - Relume receiver is held by the pedestrians.
  - Provides different tones for “Walk” and “Don’t Walk” indications; a beeping tone sounds during the clearance interval.
- Test farside audible beaconing
- Test guide strip at crosswalks

Feedback from AAPTS

- Shortlisted recommendations presented to our Accessibility Advisory Panel for Transportation Services (AAPTS) on March 9, 2017
  - Members felt recommendations were worthwhile to test
  - Concerns included:
    - Relume or similar device was inconvenient as people would need to carry / hold on to it in addition to cane, bags, umbrella, etc. However, a stakeholder who suffers from cerebral palsy and who uses a wheelchair noted that he is unable to reach pushbuttons, which a device like the Relume would address
    - Guide strips not surviving winter plowing
    - Also investigate better "confirmation" options; current tone and kickback are too subtle and people can't tell when APS has been activated
    - Beaconing could increase confusion and cause pedestrians who did not have the "Walk" signal to start crossing

Consultation with Internal Staff

- Shortlisted recommendations and feedback from AAPTS presented to Signals and Systems staff on April 25, 2017
- Recommendations that can be tested in the short term:
  - Reducing time that pushbutton needs to be depressed from 3 seconds to 1 second
  - Different locator and walk tones
- Recommendations that require additional research and / or time:
  - Farside audible beaconing
  - Guide strips in crosswalks
  - Relume device or similar

Next Steps – Pilot Project

- What?
  - Which recommendations to implement short-term and long-term
- Where?
  - How many test locations for each option?
  - Which intersections should we choose?
- How?
  - How do we evaluate each option?
  - How do we get users to test each option?

Questions?