

Traffic Control Signal Operations – Common Questions

Bruce Zvaniga

Manager, Urban Traffic Control Systems

Transportation Services Division

Outline

1. Pedestrian Pushbuttons
 - Why, How, Future Possibilities
2. Duration of Walk and Countdown Displays
 - Walk speed, duration of walk and flashing don't walk/countdown
3. Accessible Pedestrian Signals
 - Sounds, use of button

Pedestrian Pushbuttons

- Why do they exist?
- How do they work?
- Can they be improved?

Pedestrian Pushbuttons – Why?

- Two basic modes of operation for traffic signals – “fixed-time” and “actuated”
- Fixed-time signals continuously cycle through each movement/display without any recognition of actual “demand” (673)
- Actuated signals “rest” in green for the normally heaviest movement and wait for demand on other movements (1486)
- Pushbutton alerts traffic signal to demand

Pedestrian Pushbuttons – Why?

Benefits:

- Less delay to buses and streetcars (and to a smaller extent emergency response vehicles), and to cars, bicycles, and pedestrians on the main street
- Less greenhouse gas produced by stopping and idling vehicles
- Possibly fewer collisions

Pedestrian Pushbuttons – How?

- Two basic methods depending on expected pedestrian crossing demand
- If 2 or more pedestrians/cycle average – assume there will always be one, and therefore display the walk and countdown even if button is not pressed (429)
- If less than 2 pedestrians/cycle only display walk if button is pressed (941 +79)

Pedestrian Pushbutton - Future

- Automated Pedestrian Detection –
(Institute of Transportation Engineers and
University of Manitoba) www.ite.org

Duration of Walk and Countdown Displays

- Walk Signal will always be a minimum of 7 seconds – can vary by time-of-day, even cycle-by-cycle
- Countdown display is supplementary to the “flashing don’t walk” – providing more precise information – doesn’t vary
- Countdown duration is calculated by dividing the crosswalk distance by a walk speed of 1.2 metres per second.

Countdown at Semi-Actuated Signals

- Countdown for crosswalks across the side street will count to zero – then revert to walk if no pedestrian button is pressed and no side street traffic is detected.
- Countdown may reach zero and parallel vehicle green may stay on – to facilitate transit signal priority and other special phasing.

Accessible Pedestrian Signals

- 373 intersections equipped
- Audible and tactile signal that visual walk signal has begun
- Pushbutton must be pressed and held for 3 seconds to activate request
- Three tones – button locator tone, a north-south cuckoo, and an east-west chirp/cheep sound.
- www.toronto.ca/transportation/walking/aps/index.htm