Accessible to Whom?

MCDITE Annual Meeting 2025

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1

Learning Objectives

Participants will learn:

- Select key concepts of orientation and mobility for individuals who are blind or visually impaired (B/VI)
- Challenges of the built environment for individuals who are B/VI
- Tradeoffs for accessible users

Note: This presentation is intended as a general introduction to orientation and mobility considerations for individuals who are blind or visually impaired. It is not a comprehensive training and does not include all the skills, techniques or professional expertise necessary to ensure safe and independent street crossings. For a complete understanding of orientation and mobility practices, consultation with a Certified Orientation and Mobility Specialist is recommended.

2

What is Orientation & Mobility?

- Enables the individual, across the lifespan, to travel:
  - safely,
  - efficiently, and
  - as independently as possible
  - in environments such as the home, school and community settings

- Orientation asks the questions:
  - "Where am I?"
  - "Where am I going?"
  - "How do I get there?"

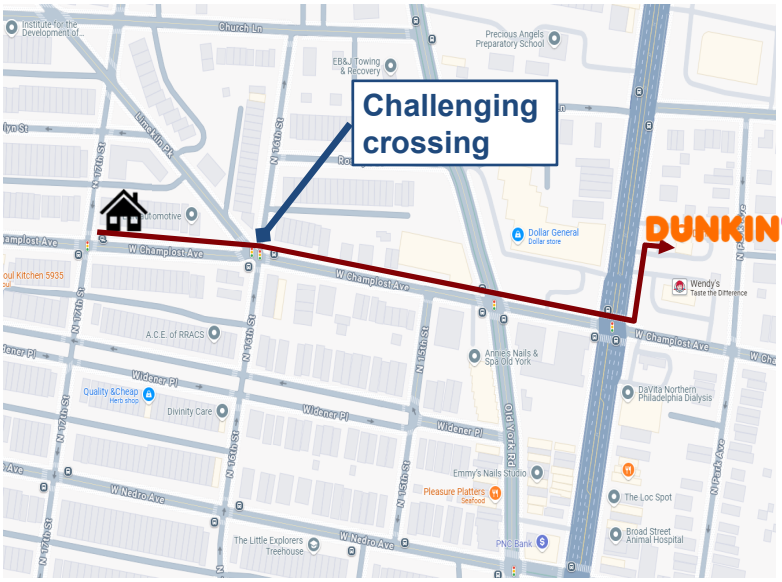
- Mobility:
  - The skills required for safe and efficient travel from one destination to another

3

Meet Joe

4

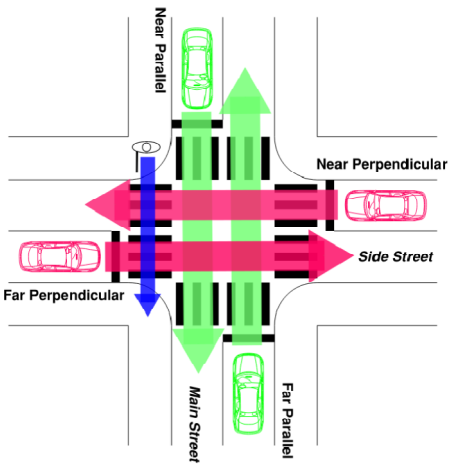
Map of Joe's neighborhood



*Not a sponsored presentation

5

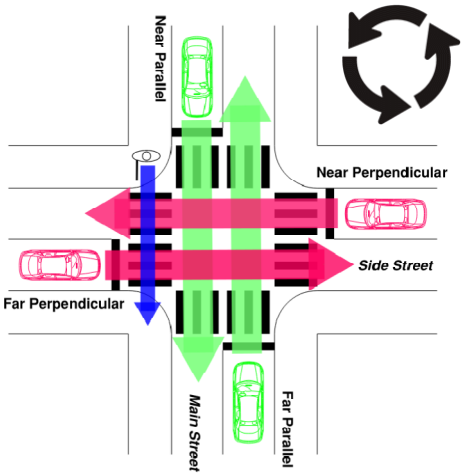
Basic concepts of crossing at signal controlled crossings



- Intersection analysis
  - Intersection geometry
  - Traffic control and movements
  - Judging time-to-cross
- Alignment
  - Traffic as information
- Determining when to cross
  - Near parallel surge

6

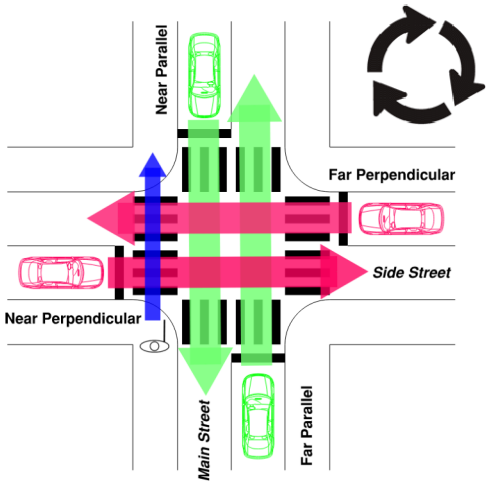
Basic concepts at signal controlled crossings: counter-clockwise crossing



- Advantages:
  - Near parallel traffic is closer, easier to hear
  - Far perpendicular idling traffic can help with alignment
  - Permissive left-turning traffic from far parallel is usually blocked by near parallel, allowing for person to clear near perpendicular lanes
- Disadvantages:
  - Near parallel turning right on green creates and immediate conflict when person steps off the curb
  - Parallel surge may be difficulty to identify if there is a constant flow of right turning traffic from near parallel lane
  - Near perpendicular vehicles running a red light may arrive at crosswalk when person begins crossing
  - Far perpendicular vehicles may pull into crosswalk when beginning to turn right on red

7

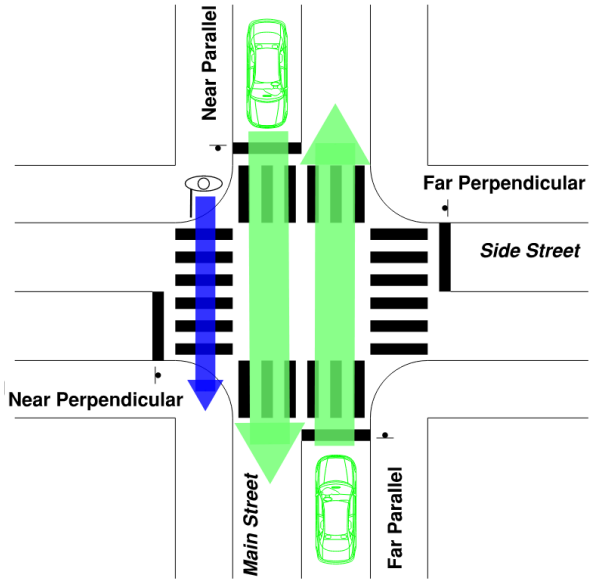
Basic concepts at signal controlled crossings: clockwise crossing



- Advantages:
  - Parallel traffic cannot turn into the lanes as person is beginning the crossing
  - Far perpendicular traffic has clear view of pedestrians in sidewalk; helpful if person is slow in completing crossing
  - Near parallel vehicles turning right have clear view of pedestrians
- Disadvantages:
  - Near parallel traffic is farther away. May be more difficult to hear or be a delay in hearing the surge leaving less time for the individual to cross
  - Threat of near perpendicular traffic attempting to turn right on red
  - Far parallel traffic may be turning left from behind individual; driver's attention may be focused on gaps in oncoming traffic, not on individual

8

Basic concepts of crossing at stop-sign controlled intersections



- Cross on an "all clear"
- Cross with a shield car – near parallel vehicle

9

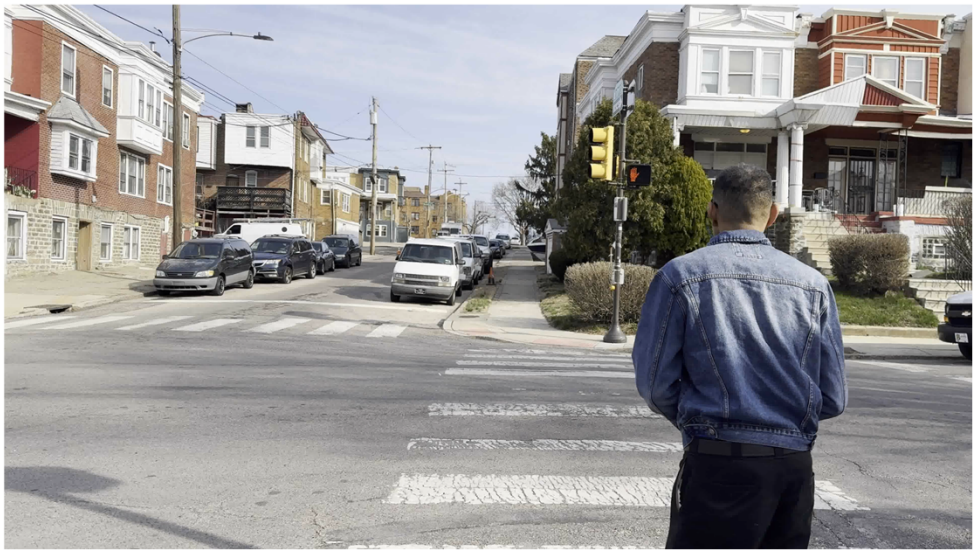
Map of Joe's neighborhood – avoiding challenging crossings

10

17th St and Champlost Ave

11

17th St & Champlost Ave – take #1

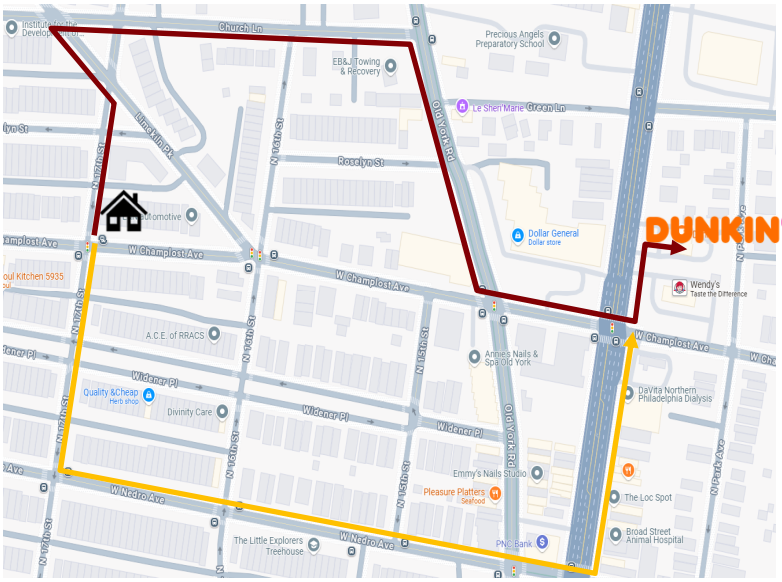


12

17th & Champlost Ave – take #2

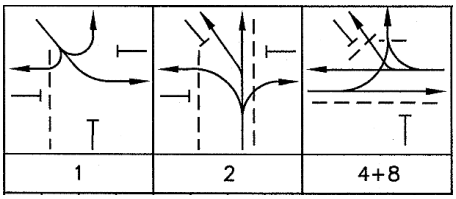
13

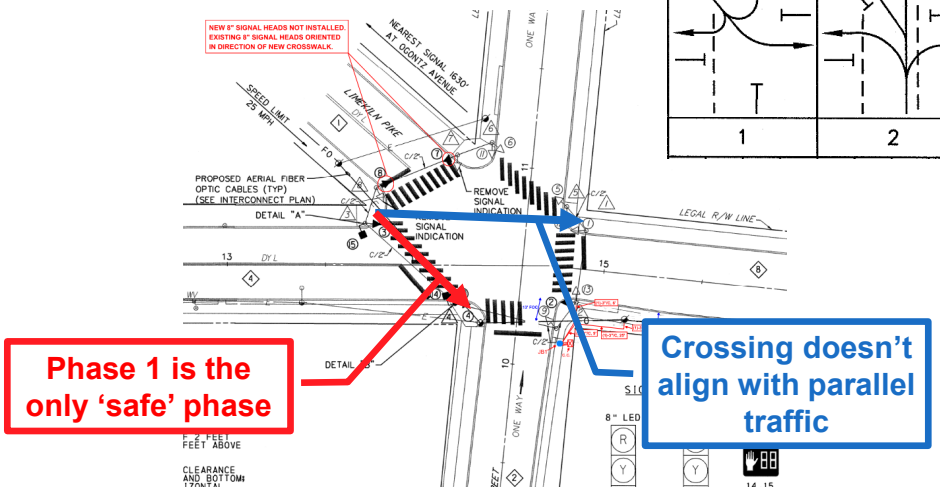
Map of Joe's neighborhood – alternate network routes



14

16th St & Limekiln Pike & Champlost Ave





Phase 1 is the only 'safe' phase

Crossing doesn't align with parallel traffic

15

Champlost Ave and Broad St

- Two-phase signal
- Pre-timed
- Perpendicular crossing
- Easiest to cross
- Transit access

16

OKO app

- Recognizes pedestrian heads only
- AI model runs locally on iPhone; no issue with wifi/cellular connection
- Provides auditory, tactile and visual information to user
- Game changer - in the right environment, for select individuals

17

Other select areas of concern

- Leading APIs – **Provide locator tones!**
- Exclusive pedestrian phases
- Special phasing (more on this...)
- Reduced or non-existent striping

18

Design Resources

- NCHRP Research Report 834: Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities
- TCRP Research Report 248: Tactile Wayfinding in Transportation Settings for Travelers Who Are Blind or Visually Impaired
- NCHRP Web-Only Document 117B: Guidelines for Accessible Pedestrian Signals (Final Report)

19

Thank you

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Thank you Joe
Thank you Janet Barlow Initiative

20