Meeting Agenda

1. Zoom meeting protocols, minutes
2. Signals and Crosswalks
3. City Project Updates
4. Development Projects
5. Public Comment
6. Participatory Budgeting
7. Subcommittee Work
8. Public comment
9. Other Announcements
Committee Member Instructions

• Committee members may speak and show webcam video
  • Use "Raise Hand" button to help manage discussion
  • *9 to Raise Hand by phone

• Please stay muted unless speaking
  • *6 to mute/unmute by phone
Public Comment Instructions

• Members of the public are muted and cannot show webcam video
• Public can write questions or ask for assistance in Q&A window at any time
  • Questions may be submitted at any time and will be addressed as time allows, during
    discussion/comment periods
• During the Public Comment period, use the "Raise Hand" button to signal you
  have a question/comment. A staff member will then enable you to unmute
  yourself.
  • *9 to Raise Hand by phone
  • *6 to Mute/Unmute by phone
• Please be respectful! Participants will be removed for inappropriate behavior
Signals and Crosswalks

Dana Benjamin, Traffic, Parking & Transportation Dept
Cambridge Traffic Signals

Presentation to Cambridge Pedestrian Advisory Committee

Joseph E. Barr, Director
Dana Benjamin, E.I.T., Traffic Engineer
Overview of Cambridge Signals

- 178 owned by City
  - 130 stop-and-go traffic signals
  - 18 flashing beacons
  - 30 school zone flashers
- 31 owned by DCR
- 3 owned by MassDOT
Terminology Related to Signals

- **Interval** - The red, yellow, or green duration of a signal indication (pedestrian intervals: WALK, FDW, DW)
- **Clearance/Change Interval** - The combined length of the yellow and all-red intervals (pedestrian clearance: FDW + all-red)
- **Phase** - The total duration of the green, yellow, red intervals for a specific traffic movement
- **Cycle** - The time it takes to complete an entire traffic sequence (the sum of the phases).
- **Actuation/Actuated** - When a phase is triggered via some type of detection (for vehicles: traffic loops, cameras. For pedestrians: push-buttons)
- **Recall** - When a phase is set to always occur during every cycle. Used at intersections without detection.
Figure 4E-2. Pedestrian Intervals

- **Pedestrian Signal Display**
  - Steady
  - Flashing with countdown

- **Pedestrian Intervals**
  - Walk Interval
  - Pedestrian Change Interval
  - Buffer Interval

  - 7 seconds MIN.

  - Calculated pedestrian clearance time

  (see Section 4E.06)

**Relationship to associated vehicular phase intervals:**

- Red Clearance Interval = Buffer Interval

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* The countdown display is optional for Pedestrian Change Intervals of 7 seconds or less.

** The Walk Interval may be reduced under some conditions (see Section 4E.06).

*** The Buffer Interval, which shall always be provided and displayed, may be used to help satisfy the calculated pedestrian clearance time, or may begin after the calculated pedestrian clearance time has ended.

**Legend**

- **G** = Green Interval
- **Y** = Yellow Change Interval (of at least 3 seconds)
- **R** = Red Clearance Interval
- **Red** = Red because conflicting traffic has been released.
# Phase Diagram

## Street Diagram

<table>
<thead>
<tr>
<th>Street</th>
<th>Dir.</th>
<th>Head</th>
<th>Veh</th>
<th>Walk</th>
</tr>
</thead>
<tbody>
<tr>
<td>GARDEN ST</td>
<td>NB</td>
<td>5B, 4A</td>
<td>RVA</td>
<td>RVA</td>
</tr>
<tr>
<td>GARDEN ST</td>
<td>SB</td>
<td>1B, 1C</td>
<td>RVA</td>
<td>RVA</td>
</tr>
<tr>
<td>GARDEN ST</td>
<td>NBL</td>
<td>5A</td>
<td>GVA</td>
<td>RVA</td>
</tr>
<tr>
<td>GARDEN ST</td>
<td>SBR</td>
<td>1A</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>MASON ST</td>
<td>EBL</td>
<td>2A, 2B, 3A</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>MASON ST</td>
<td>EBR</td>
<td>2A, 2B, 3A</td>
<td>R</td>
<td>R</td>
</tr>
</tbody>
</table>

**Legend:**
- **L:** Left lane
- **CR:** Center lane
- **CH:** Right lane
- **CL:** Center lane

**Lights:**
- **GVA:** Green for all
- **YVA:** Yellow for all
- **RVA:** Red for all
- **R:** Red
- **G:** Green
- **Y:** Yellow
- **F:** Flashing
- **W:** Warning
- **D:** Don't walk
- **Dw:** Don't walk
- **LD:** Left directional
- **RD:** Right directional
- **FDW:** Flashing walk
- **W/FDW:** Warning and flashing walk

## Phases

<table>
<thead>
<tr>
<th>Phase</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>ø1</td>
<td><img src="phase1.png" alt="Diagram" /></td>
</tr>
<tr>
<td>ø2</td>
<td><img src="phase2.png" alt="Diagram" /></td>
</tr>
<tr>
<td>ø3</td>
<td><img src="phase3.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>
Types of Traffic Signal Operation - Ped Phase

- Concurrent
- Exclusive
- Pedestrian only
Exclusive Pedestrian Phasing
Exclusive Pedestrian Phasing

- **Disadvantages**
  - Creates large delays for pedestrians
  - Short WALK interval (7 seconds)
  - Creates conditions that leads to people crossing before they get the signal (many cross concurrently)
  - Severe effect on vehicle operations

- **Advantage**
  - No conflict between lawful pedestrians walking under WALK/flashing DON’T WALK and vehicles
Concurrent Pedestrian Phasing
Concurrent Pedestrian Phasing

- **Advantages**
  - Reduces delay to pedestrians
  - Reduces jaywalking rate
  - Increases vehicle throughput of intersection
  - Longer WALK interval

- **Disadvantage**
  - Left- and right-turning vehicles conflict with pedestrians
Leading Pedestrian Interval (LPI) / Pedestrian Head start

- Between 3 and 5 seconds long
- Provides the pedestrian a head start
- Turning vehicles much more likely to yield to a pedestrian already in the middle of the crosswalk
- “Cost” to vehicle operations is very low
TP+T Traffic Signal Policy

- 90-second cycle length peak/75 off-peak
- Concurrent pedestrian phasing with LPI (except at busy T intersections and those with very high vehicle volumes)
- Pedestrian phase will be set to occur every cycle and buttons removed (where possible)
- Never use “flashing mode”
Recent Improvements

- 8” Bicycle Signals at Mass Ave / MIT Crosswalk
- Mass Ave @ Prospect St - “Super LPI”
- Broadway @ Ellery - New Traffic Signal
- Porter Square Safety Improvements
Active/Short Term Work

- Accessible Pedestrian Signal (APS) installations
  - Mt Auburn @ Aberdeen Ave
  - Aberdeen Ave @ Huron Ave
- Rectangular Rapid Flash Beacon (RRFB) installations
  - Mass Ave @ Norfolk St
  - Mass Ave @ Day St
  - Mass Ave @ Pearl St
  - Brattle St @ Brattle St
  - Western Ave @ Hews St
Reporting Problems

- Commonwealth Connect smartphone app (a.k.a. SeeClickFix)
- Traffic Dept website: cambridgema.gov/traffic/contactforms/trafficengineering
- Email: dbenjamin@cambridgema.gov
- Telephone: 617-349-4729
Q + A

Contact Information

- Email: dbenjamin@cambridgema.gov
- Telephone: 617-349-4729
City Project Updates
Tobin/Vassal Lanes Schools
Presentation now online
Development Projects
Aerial View Looking West
Section at West — Grand Junction Railway

- Existing Grand Junction Rail Line
- Grand Junction Multi-Use Path
- 19 Bluebike Stations
- 12' Wide Access To Bicycle Storage
- 2 Lane Garage Access Drive
- Cast in Place Concrete Public Sidewalk (Min. 8'-0" Width)
- 7 Short-Term Bike Racks
- 5' Wide One Way Cycletrack
- Future Binney Park

SCALE: 1" = 20'-0"
Public comment
Public Comment Instructions

• Use the "Raise Hand" button to signal you have a question/comment. A staff member will then enable you to unmute yourself.
  • *9 to Raise Hand by phone
• Questions can also be submitted using the Q&A button.
Participatory Budgeting
Participatory Budgeting 2020

• **$500,000** of the FY22 Budget for one-time capital projects to improve the community

• Submit ideas by **September 30**
  • pb.cambridgema.gov
  • Email pb@cambridgema.gov
  • Call 617-349-4270
  • Mail to City of Cambridge Budget Office, 795 Massachusetts Ave, Cambridge, MA 02139
  • Drop off in the Payment Drop Box in the rear of City Hall

• **Story Map of previous winning projects**
Subcommittee Work
Public comment
Public Comment Instructions

• Use the "Raise Hand" button to signal you have a question/comment. A staff member will then enable you to unmute yourself.
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• Questions can also be submitted using the Q&A button.
Other Announcements
Thank You