WELLINGTON CIRCLE STUDY

massDOT
Massachusetts Department of Transportation

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Working Group Meeting #3

August 31, 2021

Ground Rules

- This meeting is being recorded
- Technical Support: Erica Blonde– eblonde@hntb.com
- Working Group Members
  - Use "Raise Hand" button during clarification/discussion periods

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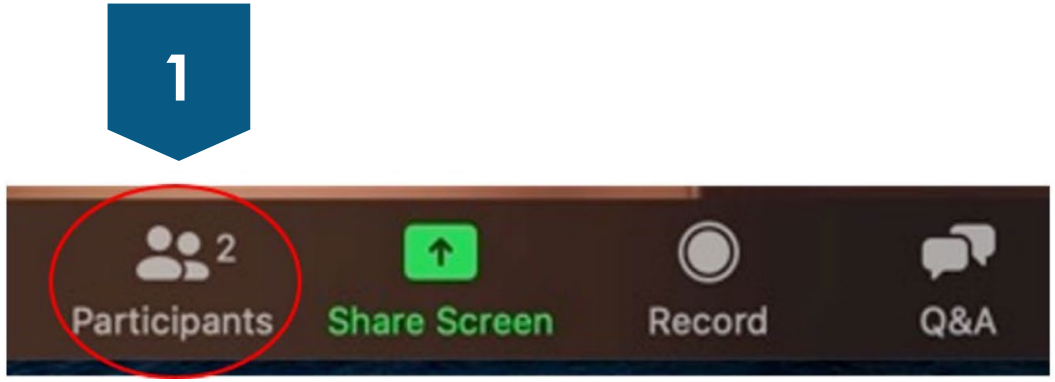
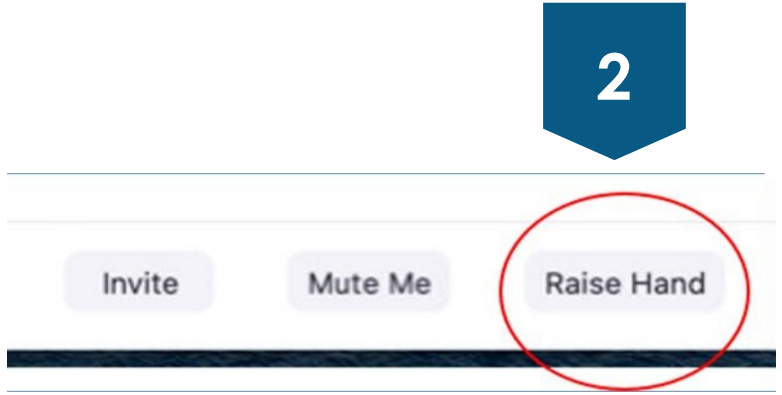




Agenda

- Study Process
- Public Meeting Recap
- Future No-Build Conditions
- Concept Development Process
- Working Group Discussion
- Next Steps

STUDY PROCESS

Study Overview

- Conceptual planning study to evaluate existing and future multimodal transportation conditions at Wellington Circle
- Examine ways to redesign Wellington Circle to provide better connectivity and improve multimodal mobility throughout the area of the City of Medford and surrounding region
- Develop short-, medium-, and long-term recommendations that will be included in a Final Report

Project Goals & Objectives Inform Alternatives Development

Mobility/Access

- Provide facilities for pedestrians, bicyclists, and transit
- Improve connectivity to Wellington Station
- Mitigate traffic congestion

Safety

- Reduce speeds
- Reduce conflict points between modes
- Dedicated space for pedestrians & bicyclists

Quality of Life

- Enhance attractiveness
- Minimize public health & environmental impacts
- Provide fair and equitable treatment for environmental justice populations

Connectivity

- Promote active transportation
- Reduce travel delays
- Improve access and circulation

Study Process

1	• Public Participation, Study Area, Goals & Objectives, Evaluation Criteria	
2	• Existing Conditions, Future No-Build Conditions, Evaluation of Issues and Opportunities	Data Collection, Existing Conditions Analysis, Future Year Scenarios, Constraints Identification
3	• Alternatives Development	Short-, Medium-, and Long-Term Alternatives
4	• Alternatives Analysis	Mobility & Accessibility, Safety, Environmental Effects, Land Use & Economic Development, Community Effects/Title VI/Environmental Justice
5	• Recommendations	Short-, Medium-, and Long-Term Recommendations, Implementation Plan
6	• Final Report	Draft and Final Report

PUBLIC MEETING RECAP

Meeting on Demand

- Virtual Public Information Meeting on June 24th (Zoom)
- Meeting on Demand available from June 24th – July 8th
- ~100 attendees between both platforms

Public Feedback

confusing set of lane changes

continuous safe bike routes for people biking through the project area

Remove slip lanes – dangerous for pedestrians

Deprioritize car traffic and prioritize transit, bicycle, and foot traffic

Hostile for people on bikes (and people walking across multiple lanes)

Walk desire lines all across intersection

unpleasant place to walk or bike

high-speed roadways make it dangerous for walking and biking

Public Feedback Themes

1. Address confusion, inefficiency, and conflicts at intersection for all modes
2. Improve safety, especially for walkers and bikers
3. Prioritize comfortable, convenient, and continuous travel for walkers, bikers, and transit users
4. Reduce space dedicated to pavement (i.e. parking lots, travel lanes, slip lanes) to provide opportunity for green space, transit-oriented development, and improved bike/ped infrastructure

FUTURE NO-BUILD CONDITIONS

Future Traffic Volumes

- Traditional growth projection methodology disrupted by COVID
  - Long-term impacts on travel are still evolving
  - Traffic volumes and patterns are still adjusting to the effects of the pandemic

- August 2021 volumes shown to be ~6% lower than equivalent August 2019 volumes during the AM peak period and ~9% higher during the PM peak period
  - Based on count data from I-93 southbound near Mystic Valley Parkway

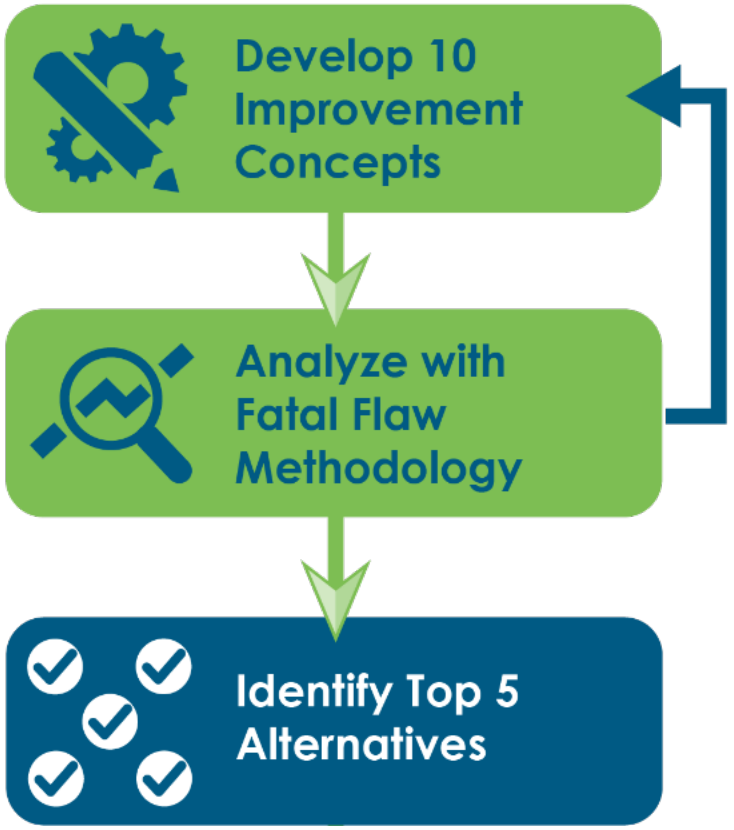
Future Traffic Volumes

- For early concept development, we are using existing volumes without adjustments
- Existing volumes will be used through fatal flaw screening
- For alternatives refinement, future volume projections will include:
  - Vehicle trips through the study area from twenty known developments in Medford, Somerville, and Everett are being projected and added to existing volumes
  - No additional “background” traffic growth is being included
- Multiple future land use/development and travel demand scenarios will be developed for further screening, which may result in changes in volumes and mode choice
  - Future bicycle and pedestrian facilities
  - Opportunities for bus infrastructure

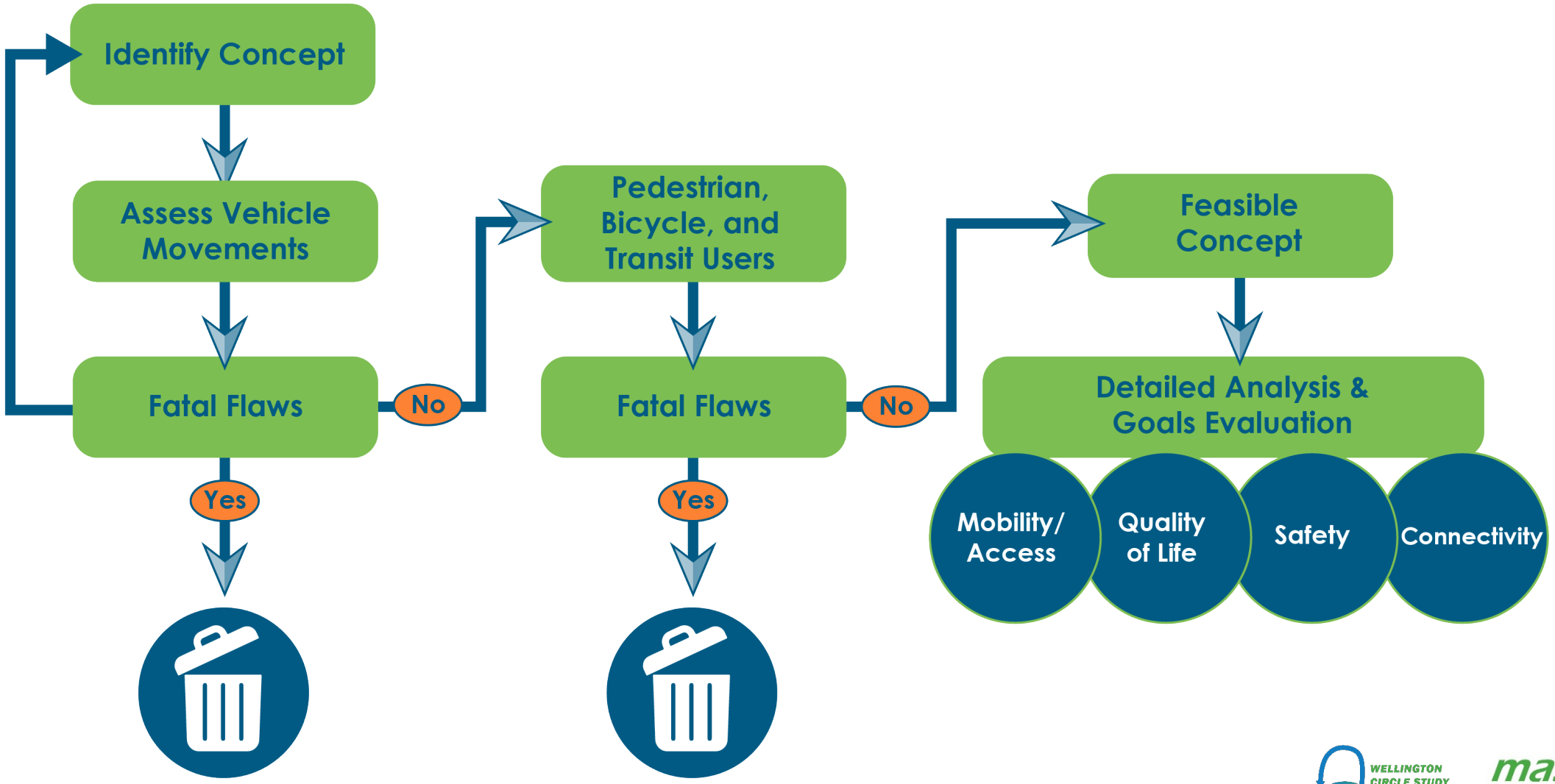
CONCEPT DEVELOPMENT PROCESS

Process/Methodology

- Approach:
  - Simplify intersection
  - Create space for multimodal accommodations
  - Improve efficiency to reduce vehicle lanes
- Start simple and move to more complex configurations in an iterative process
- Rule out those with “Fatal Flaws” or that offer no improvement over existing conditions for non-vehicular modes
- Viable alternatives will be subject to comprehensive alternatives analysis

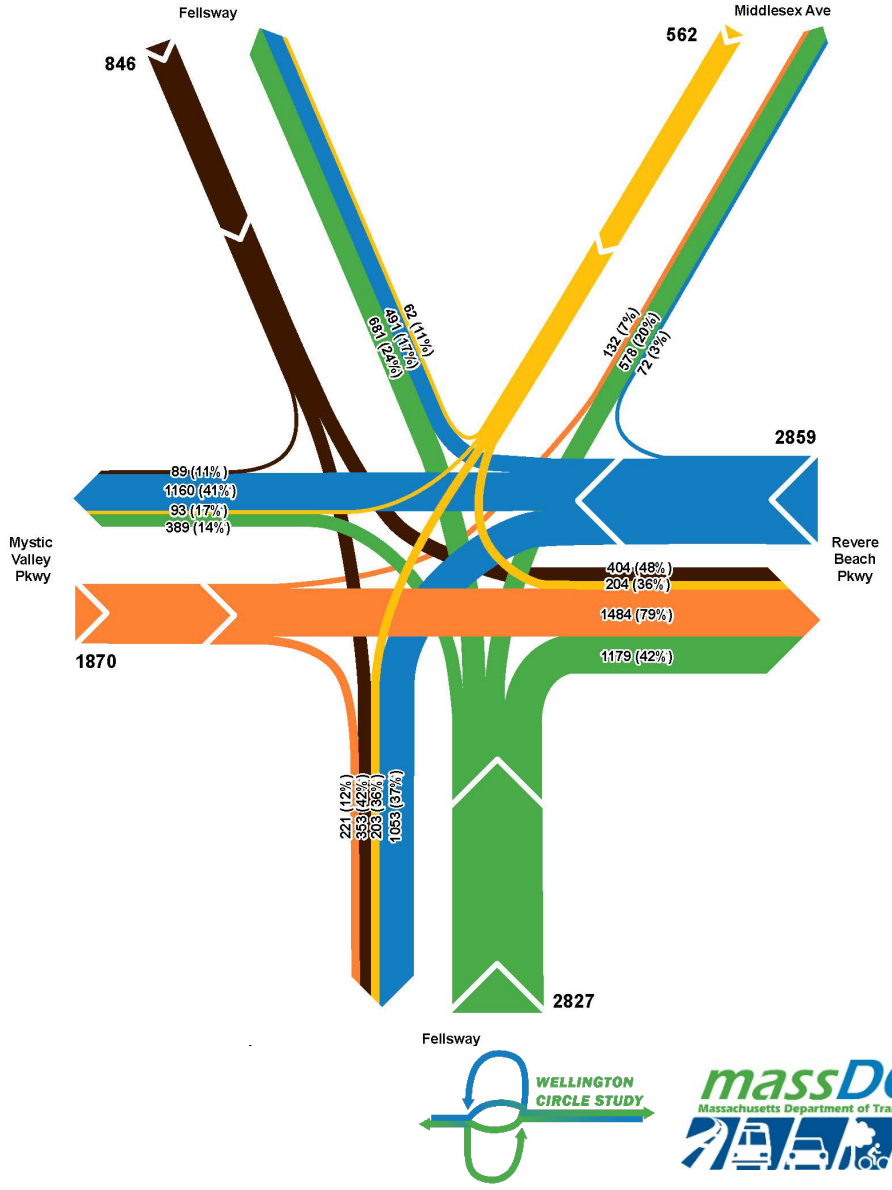


Process/Methodology



Process/Methodology

- Preliminary analyses focused on PM peak hour as volumes are highest and movements are most diverse
- Critical movements:
  1. Westbound left
  2. Northbound right
  3. Eastbound/Westbound thru
  4. Southbound lefts

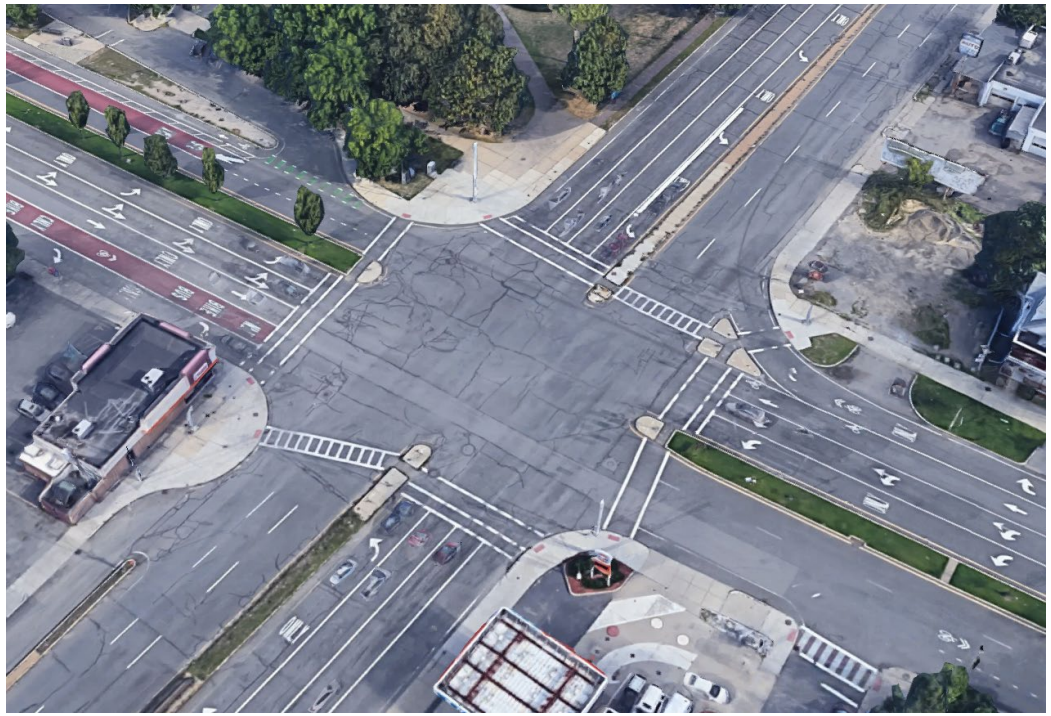


Early Concepts

- Basic concepts:
  - Conventional 5-leg signalized intersection
  - Separate Middlesex at Fellsway intersection
  - Roundabouts
- Advanced concepts:
  - Restricted Crossing U-Turn intersection
  - Jughandles
  - Continuous Flow Intersection
  - Quadrant roadway intersection
- Grade separation

Basic Concepts

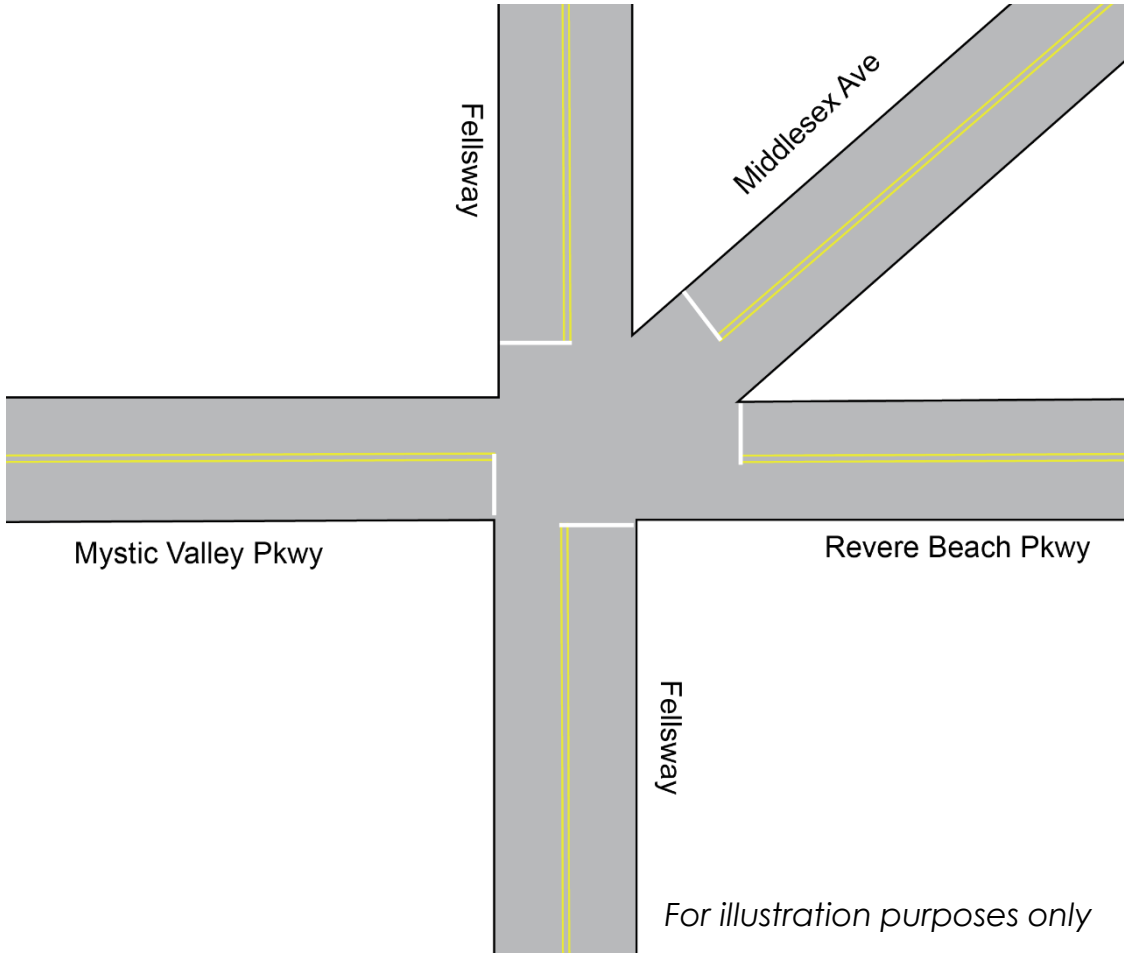
- Traditional intersection designs
- Relatively simple configurations
- No grade separation
- Maintain all existing movements



Route 28 at Broadway, Somerville

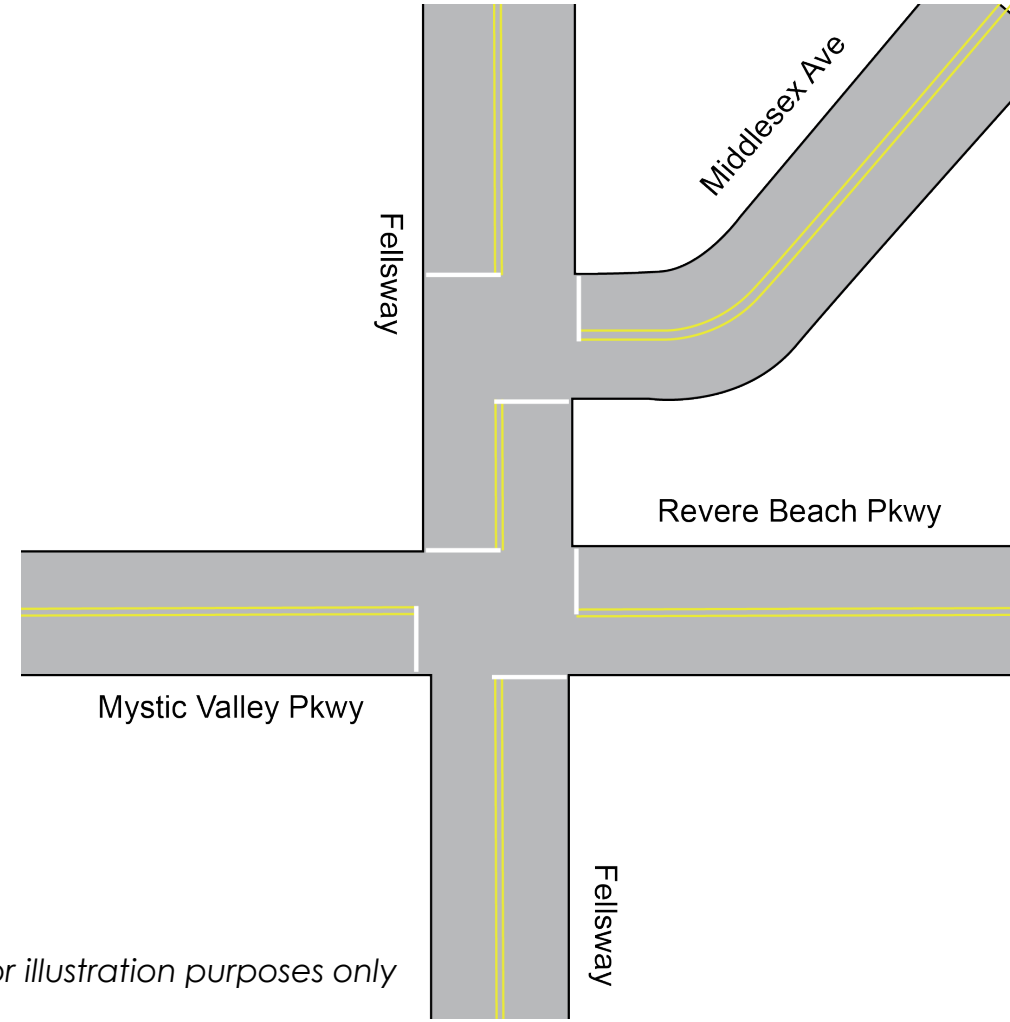
Basic Concepts: 5-leg Intersection

- Fifth leg adds conflicts and increases delays
- Too many lanes required due to high volumes of conflicting movements
- Conditions worse than existing for all modes
- Fatal flaw: Increases number of travel lanes; negative impact on pedestrians and bicyclists



Basic Concepts: Middlesex at Fellsway Intersection

- Separates Middlesex Ave at Fellsway from main intersection
- Advantage: Reduces conflicts for Route 16 at Fellsway
- Incorporated in many other concepts
- Fatal flaw: Increases number of travel lanes on Route 16 at Fellsway; negative impact on pedestrians and bicyclists



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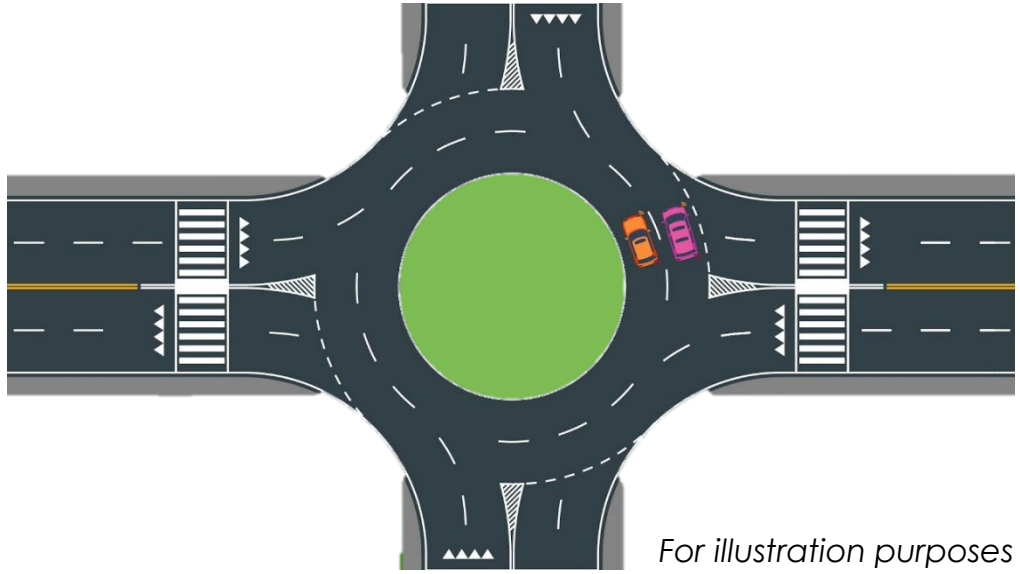
Basic Concepts: Roundabouts

- Various multi-lane roundabout concepts considered
- Circulating volumes exceed capacity of all multi-lane roundabout configurations
- Fatal flaw: Volumes exceed threshold for basic roundabout concepts



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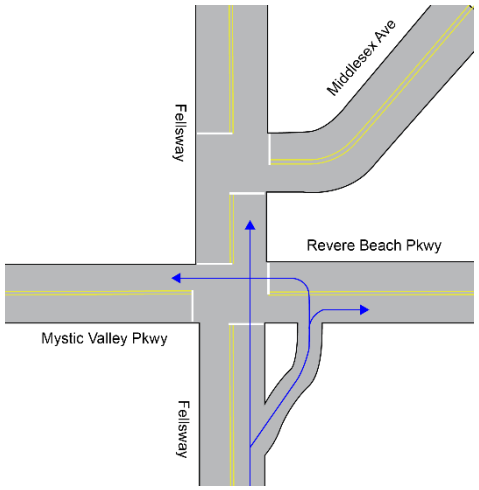
Advanced Concepts

- Non-traditional design elements
- May involve more construction or a larger overall footprint

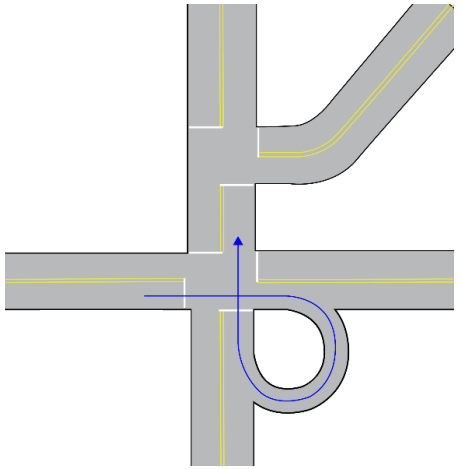
Continuous Flow Intersection, Shirley NY

Advanced Concepts: Jughandles

- Jughandles shift turning traffic to separate locations to reduce conflicts and number of signal phases
- Right of way impacts for Type C jughandles are significant
- Elements may be incorporated in later concepts, but not a solution on its own
- Fatal flaw: Jughandles alone only shift conflicts; do not improve efficiency



Type A Jughandle



Type C Jughandle

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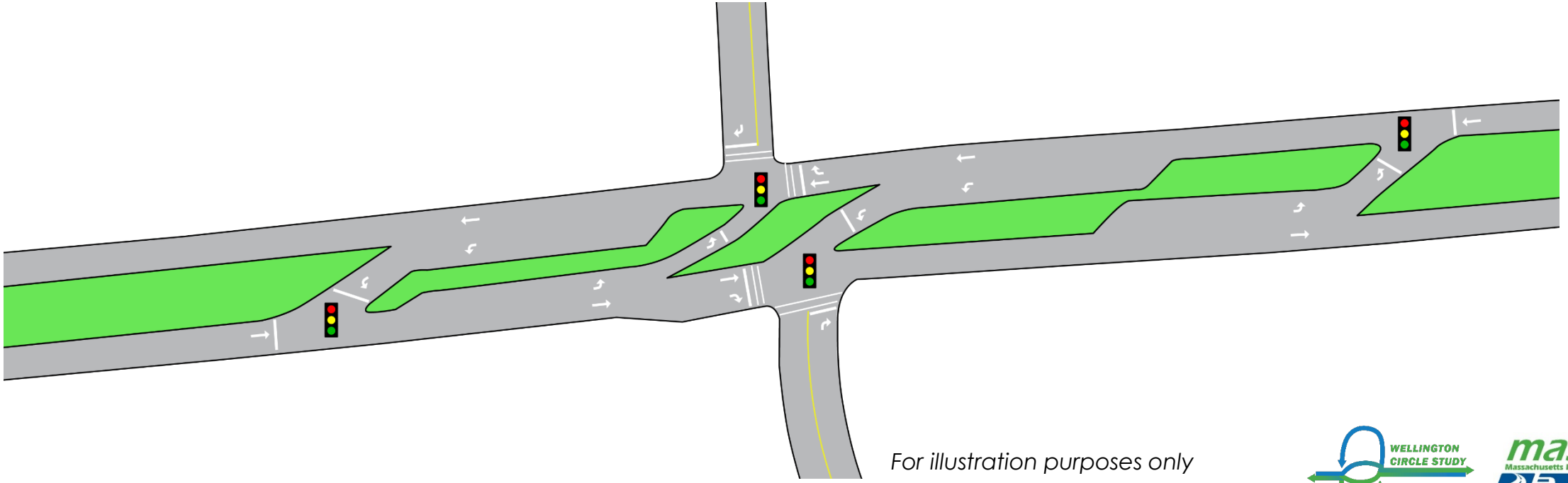
Advanced Concepts:
Restricted Crossing U-Turn (RCUT) Intersection

- Relocates side-street thru and left movements to U-turns
- Side-street right turns run concurrent with main line lefts
- Fatal flaw: U-turn volumes too high



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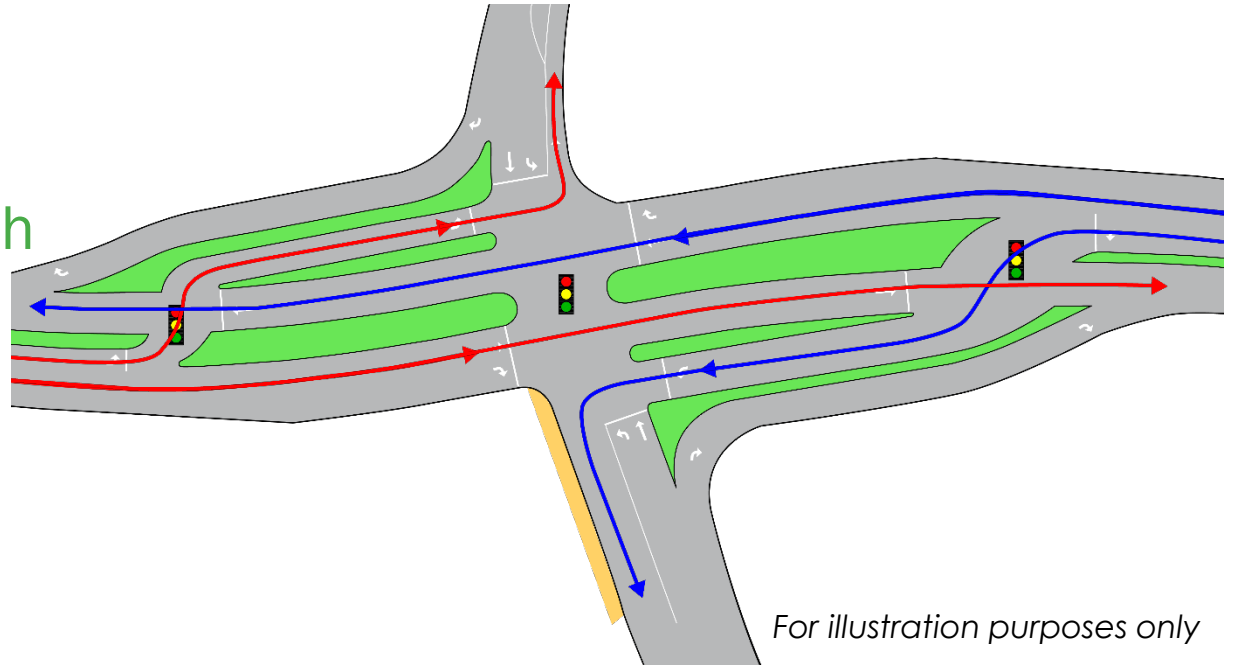
Advanced Concepts: Continuous Flow Intersection

- Left-turn traffic crosses over opposing traffic ahead of intersection
  - Allows westbound left and eastbound thru movements to run simultaneously
- Can be implemented approach-by-approach
  - Westbound approach shows most benefit
- Pedestrian and bicycle accommodations will be challenging
- Results in large intersection but may warrant further consideration



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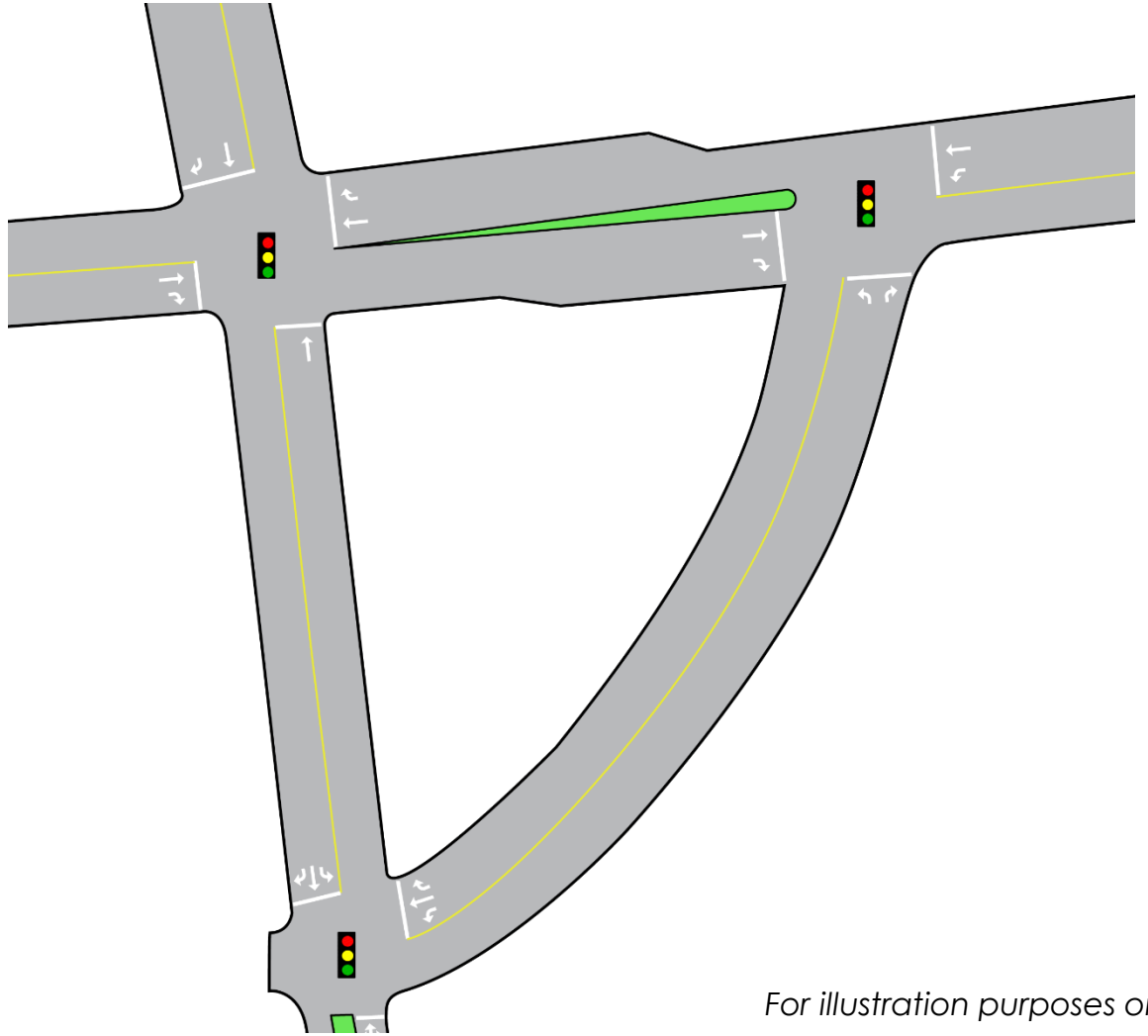
East-West Continuous Flow Intersection w/channelized right turns

Advanced Concepts: Quadrant Roadway Intersection

- Adds a “quadrant roadway” and redirects some turning movements to it
- Southeast quadrant is the most likely option for this connection
  - Westbound left and northbound right movements would be separated
  - Eastbound and southbound lefts could potentially also use the quadrant roadway
- Results in large intersection but warrants further consideration



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Grade Separation

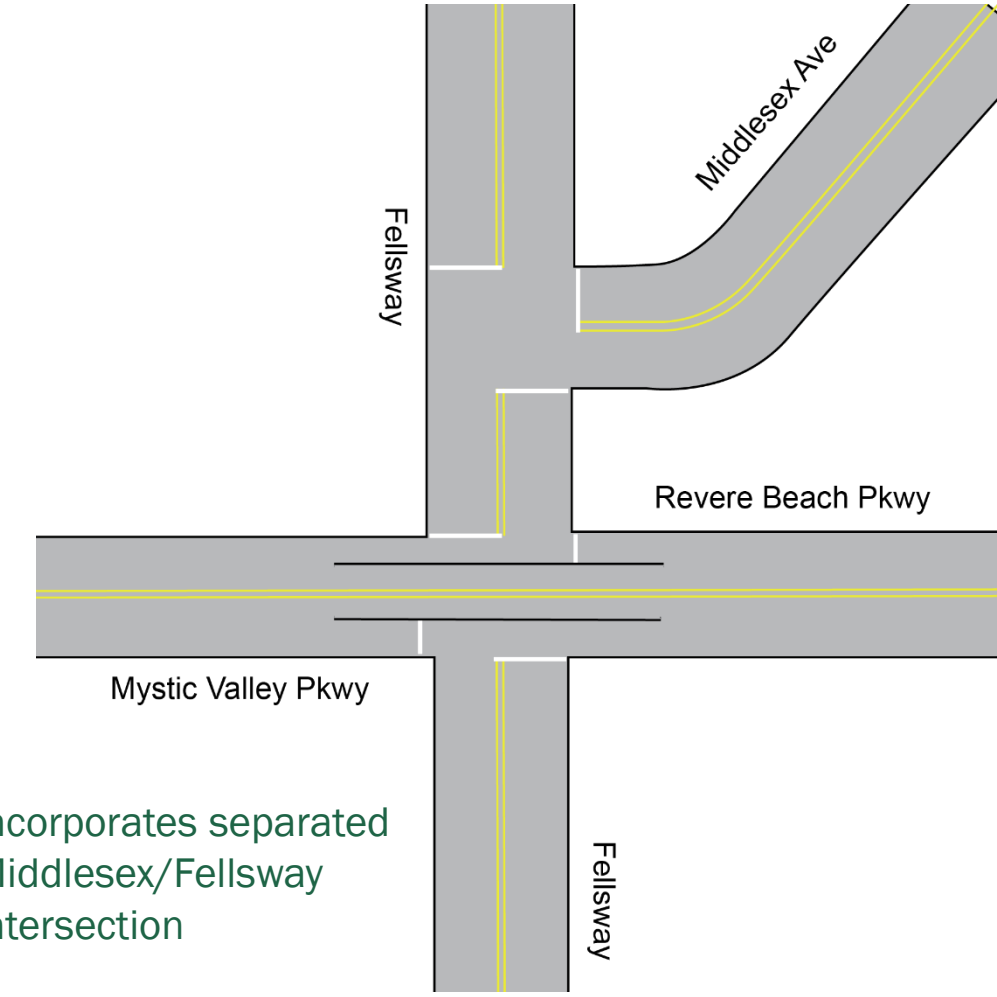
- Two primary grade separations considered:
  - East ↔ West through connection
  - South ↔ East connection
- North-south grade separation removed from further consideration:
  - Complicates local access immediately north and south of Route 16
  - Route 16 thru volumes (east ↔ west) higher than Fellsway (north ↔ south)

Commonwealth Ave at Massachusetts Ave, Boston

Route 9 at Hammond Pond Parkway, Brookline

Grade Separation: East ↔ West

- Could include a bridge or tunnel allowing eastbound and westbound through movements to travel over/under the intersection
- Single grade-separated lane in each direction sufficient to carry existing volumes
- Remaining at-grade intersection still large but warrants further consideration



Incorporates separated Middlesex/Fellsway intersection

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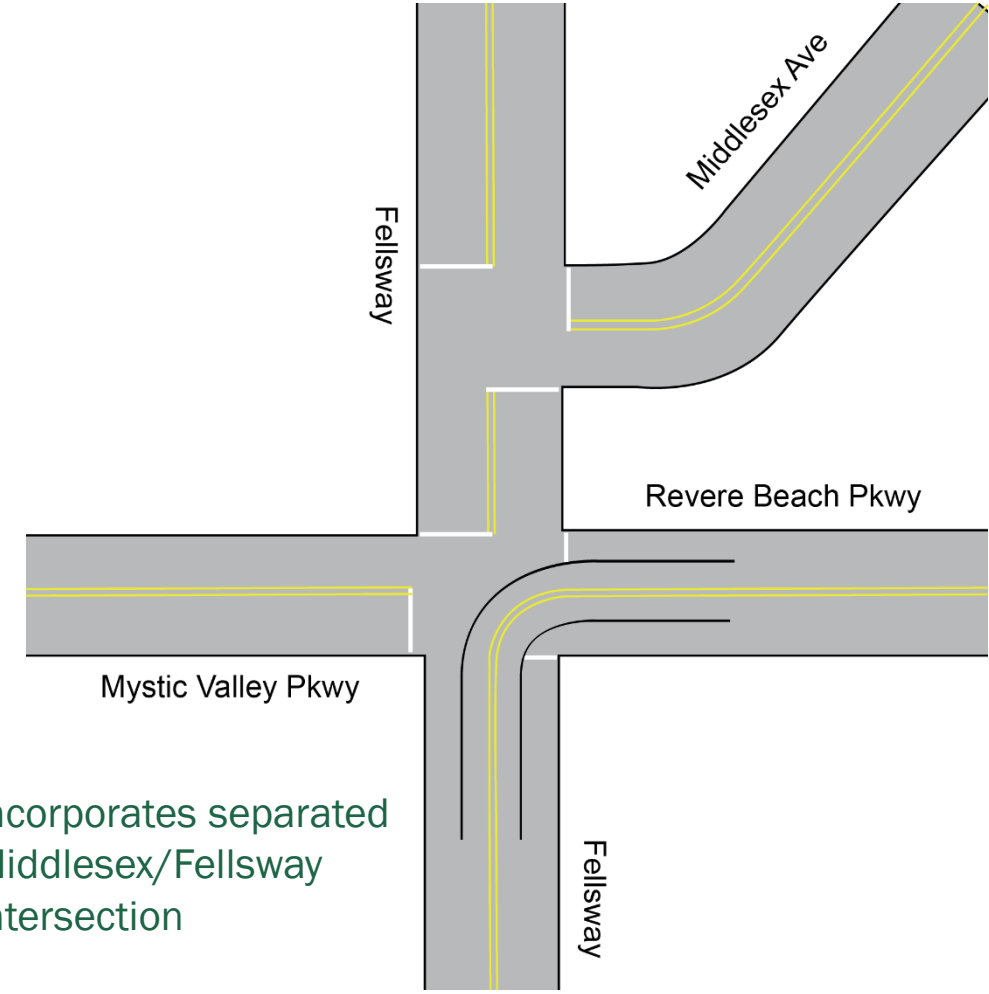
Grade Separation: South ↔ East

- Could include a bridge or tunnel allowing westbound left turn and potentially northbound right turn movements to travel over/under the intersection
- More complex construction with curved structure
- Northbound right could remain at-grade
- Remaining at-grade intersection larger than with east ↔ west thru grade separation
- Fatal flaw: No advantages over simpler east ↔ west grade separation



Incorporates separated Middlesex/Fellsway intersection

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Key Take-Aways

- Basic concepts – separating Middlesex/Fellsway intersection offers improvements that warrant further consideration
- Advanced concepts – potential for reducing confusion and improving flow; warrant further development
  - Continuous Flow - improves efficiency with reduced signal phases
  - Quadrant Roadway – relocates heaviest moves from main intersection
- Grade separation
  - East ↔ west warrants further consideration
  - Further surface road concept development needed

WORKING GROUP DISCUSSION

Preliminary Concept Discussion

Working Group Discussion

- Thoughts on preliminary concepts for further consideration
  - Separated Middlesex Ave/Fellsway intersection
  - Continuous Flow Intersection
  - Quadrant Roadway Intersection
  - Grade separation
- Other ideas?

Further Considerations for Discussion

Working Group Discussion

- One-way northbound for Middlesex Avenue
- Prohibit eastbound left turns
- 9th Street one-way eastbound
- Reduced volume scenarios
- Multiple-roundabout concepts

Public Comment

- Use Q&A to submit questions/comments in writing
- Press the “Raise Hand” button to share a question/comment verbally

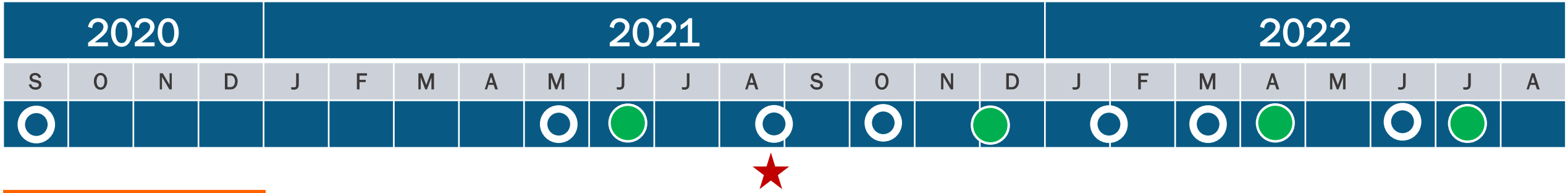
Bottom Panel of Zoom Screen

- If you are participating by phone only, you can press the star button then nine (*9) to raise your hand

- Comments may also be shared throughout the process via the study comment form

NEXT STEPS

Draft Study Schedule



Goals & Evaluation Criteria

Existing Conditions

Alternatives Development

Alternatives Analysis

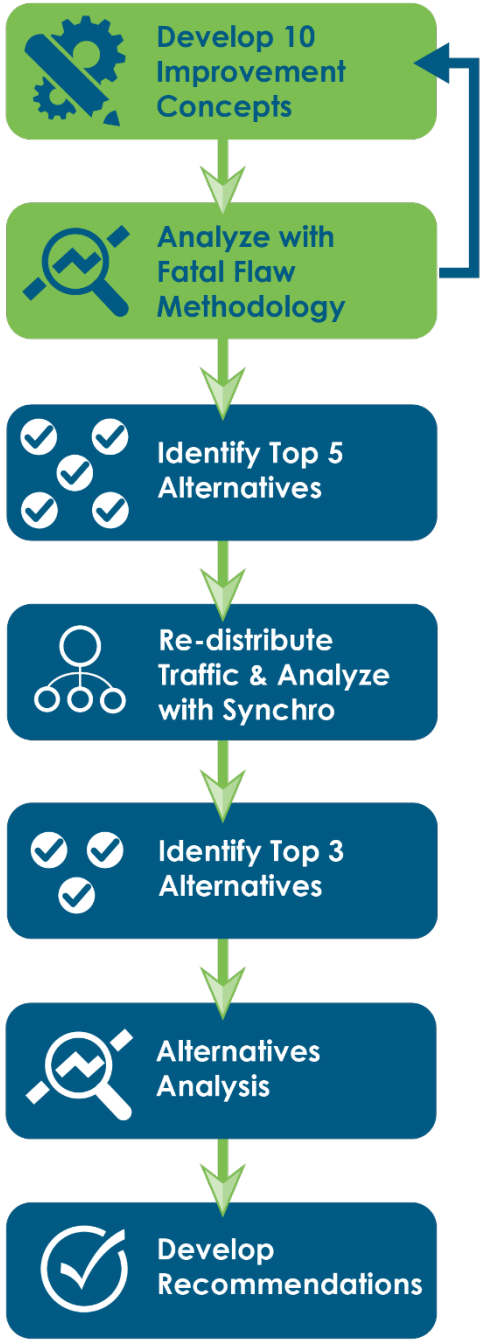
Recommendations

Final Report

- Anticipated Working Group Meetings
- Anticipated Virtual Public Engagement
- Today

Next Steps

- Continue Improvement Concepts and Screening
- Future Conditions
- Working Group Input
- Alternatives Analysis



Next Steps

- Next Working Group Meeting: Fall 2021
  - Update on improvement concepts and screening
- Public Meeting #2: Late Fall 2021
  - Present improvement concepts and solicit feedback

More Information:

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