

Working Group **Meeting 6**

March 24th, 2025



Agenda

- CRRC Webinar Debrief
- Update on Traffic Diversion Analysis
- Design Feedback Received + Next Steps
- Pilot Demonstration Update



Outreach Event No. 3

CRRC Webinar

Zoom

Thurs 03.13.25 | 9 am – 10 am



more vibrant store set
more people g
its open later
reduce commercial taxes m
communication
more diverse dining
vibrant business act
strians
ore retail
more restaurants
more outdoor dining
fine now
maintain parking
a desire to be downtown
increased
pedestrian
contiguous green space
garden center redevelopment
integration with mbta
stuff to do
more on

Event objectives

- Business community members were able to learn about the project, meet the Design Team, provide input on priorities and communication preferences, and begin to form and share their ideas to help Envision Needham Center.



Inform

Provide project info,
including
milestones, pilot,
and process



Educate

Highlight best
practices and
economic case
studies



Connect

Solicit feedback and
input and provide
resources for future
updates

Event details

- **Interactive Webinar** – Learn + Interact
 - Hosted by Charles River Regional Chamber
 - Project Intro + Goals, Project Milestones, Best Practices + Case Studies, Pilot Demonstration
 - 5 real-time polling questions – open ended + multiple choice
- **Registration Stats**
 - 40 total registrations
 - Affiliations:
 - 14+ Needham business owners
 - Needham Public Schools
 - Needham Free Public Library
 - YMCA



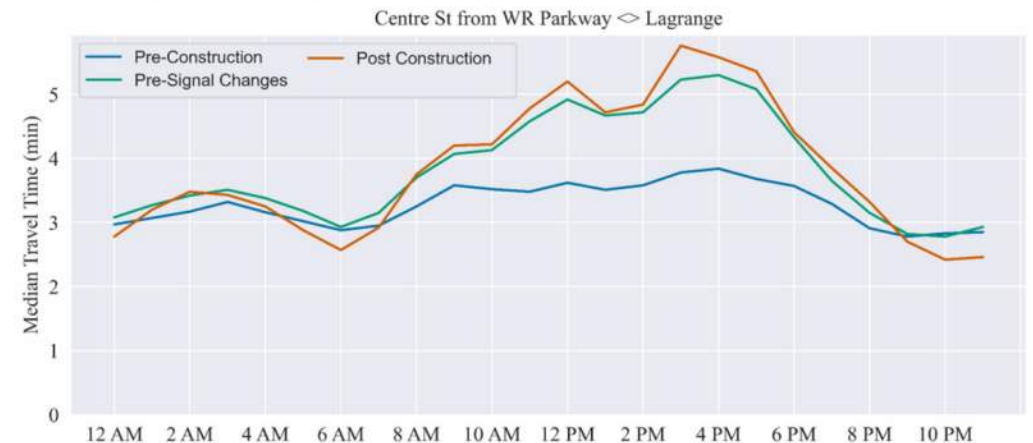
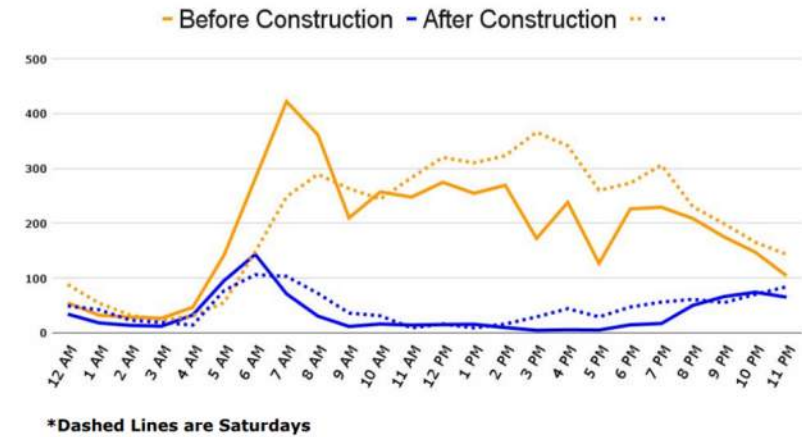
Case Study: Centre Street, West Roxbury

- Treatments:
 - Lane reduction
 - Parking-protected bike lanes
 - Traffic signal coordination
 - Shortened pedestrian crossing distance
- Benefits:
 - Median and 85th percentile speeds reduced by 6 mph
 - Speeding > 30 mph reduced by more than 75%
 - Minimal impact on travel times (1-2 minutes)
 - Minimal traffic rerouting (3.3%)



Intersection of Centre St and Hastings St, West Roxbury, MA

Number of Drivers Traveling 30+ mph



Source: [Centre Street Post-Construction Report- May 28, 2024](#)



Case Study: Lancaster, CA

Population density: ~1,700 people per square mile
Needham's population density: ~2,500

- Treatments:
 - Lane reduction
 - Sidewalk widening
 - New trees
 - Improved lighting
- Benefits:
 - Doubled pedestrian volume
 - Downtown revenue increased by 119%
 - Attracted 57 new businesses, 2000 new jobs, and a 9.5% increase in average property value
 - 50% reduction in vehicle crashes
 - 85% reduction in injury crashes
 - 75% reduction in pedestrian crashes

Before



After



Results & observations

- Estimated Participant Total: 40 (not including project team or working group)
- Priorities:
 - Vibrant downtown – more opportunities for community gathering
 - More on-street dining
 - Pedestrian safety
 - Green space
- Attendee concerns:
 - Impacts to business during construction
 - Communication protocols
 - Parking

Key Takeaways



Constant
communication



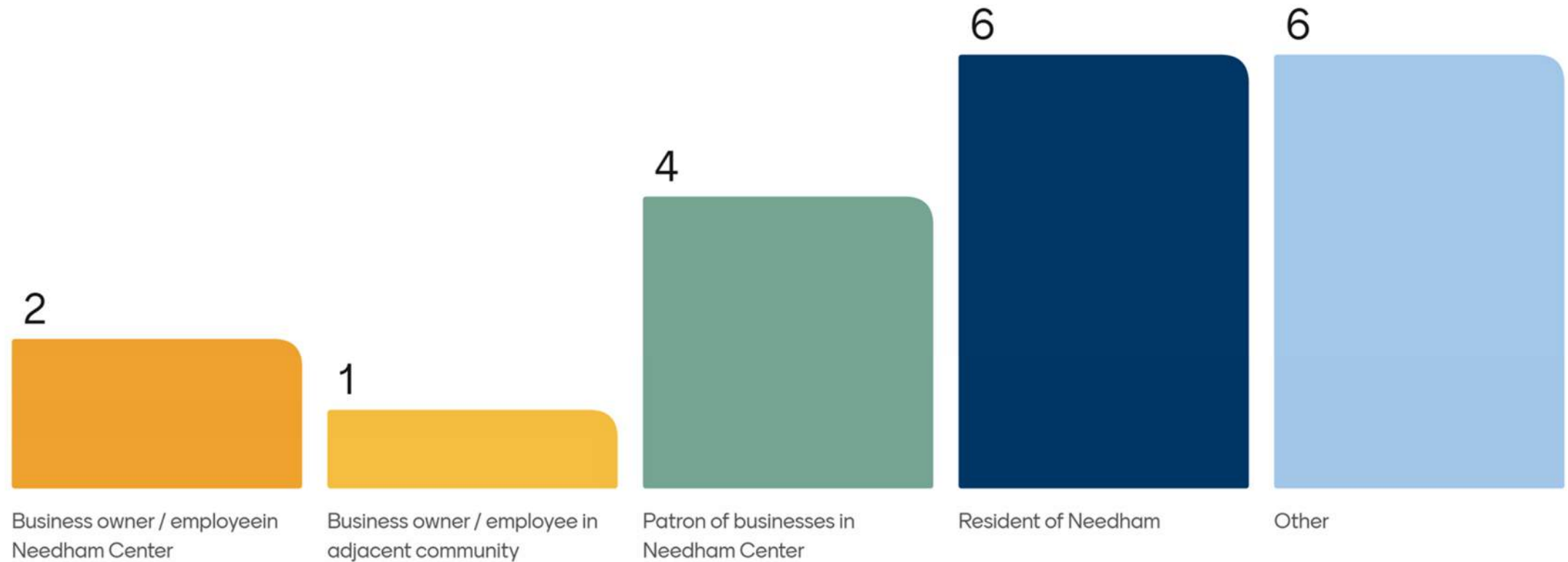
Prioritize Placemaking + Safety



Wayfinding

Results & observations

What is your connection to Needham Center? (19 responses)



Results & observations

What do you love most about Needham Center? (33 responses)



Results & observations

What is one result that you would love to see come out of this project? (23 responses)



Results & observations

How can we best support you during the pilot? (15 responses)

constant communication

Strong messaging to bricks and mortar businesses

Ways to comment

Keep people coming as traffic congestion increases.

Communication, understanding each biz busy times

Advanced notice prior to change

seek feedback from businesses

Encourage people to use commuter rail to get downtown

If less parking - inform people where to park in real time

Please don't eliminate parking

Make sure to communicate with MBTA about disruptions to service (moving bus stops/signs, temporary rerouting, etc). Please connect pedestrian resources/common spaces to bus stops!

How long will businesses be affected?
We will have any type of support?

Pilot of local bus service?

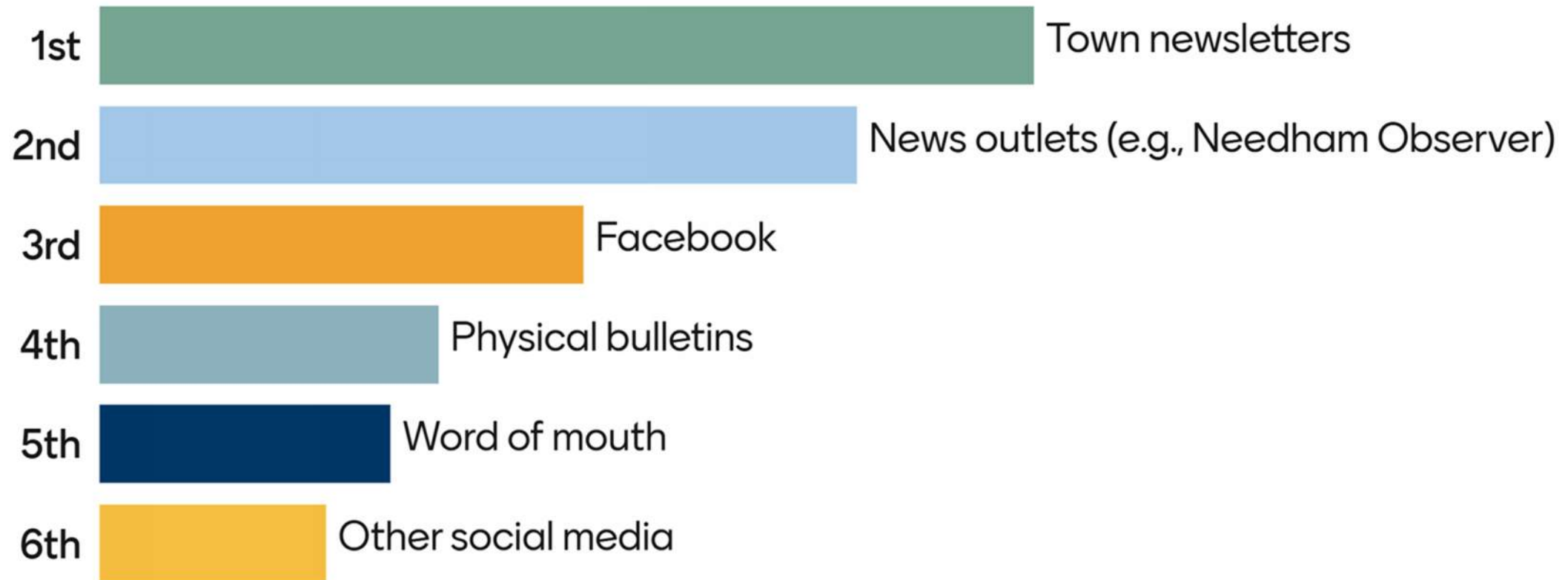
Maybe turn off parking meters during pilot

a listserve specifically for this project



Results & observations

How do you get information on what's going on in town? (11 responses)



Traffic Diversion Analysis

Update

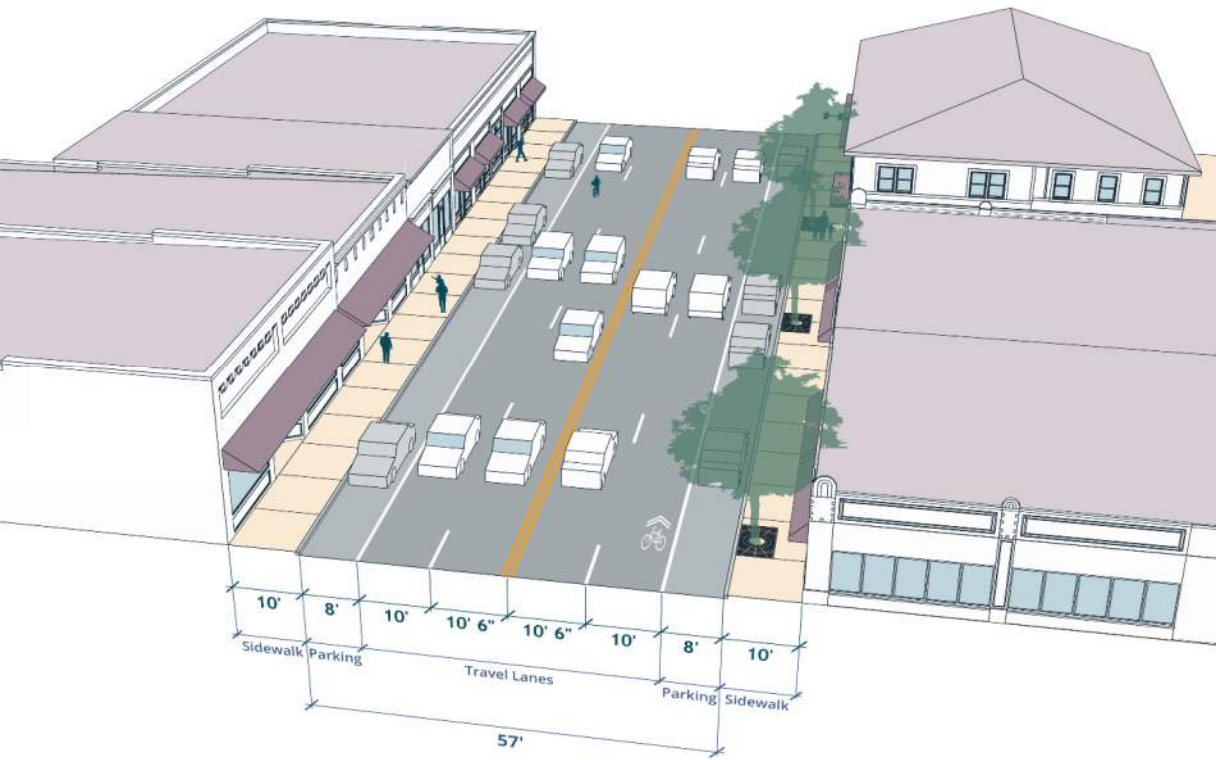


Purpose

- To estimate diverted travel routes and volumes during pilot program
- To anticipate mitigation needed for the pilot
- To identify count locations where traffic will be monitored before and during the pilot (ultimately used to refine the long-term traffic model and long-term mitigation)



Existing & Proposed Conditions



Existing



Proposed

Key Takeaway:

The traffic diversion analysis estimates how regional traffic will adjust to a road diet that eliminates two travel lanes along Great Plain Avenue and select turning lanes within the Center.



Assumptions

- All roadways within the Center will be reduced to one lane in each direction except the northbound Chestnut Street approach, which will remain as it exists
- Exclusive pedestrian phasing will remain in effect
- Traffic signal timing will be adjusted to respond to the demand given the proposed lane configuration
- On each approach, any portion of the traffic that is over capacity will be diverted to surrounding roadways
 - Trips of 32 miles in length or longer will divert to regional highways
 - Remaining trips may be diverted onto local streets
 - No mode shift during the pilot is included in the model



Process

- 1 Estimate how many trips will be diverted from Needham Center to the surrounding roadway network
- 2 Identify potential routes for these diverted trips
- 3 Determine potentially affected locations for traffic counts before and during the pilot demonstration

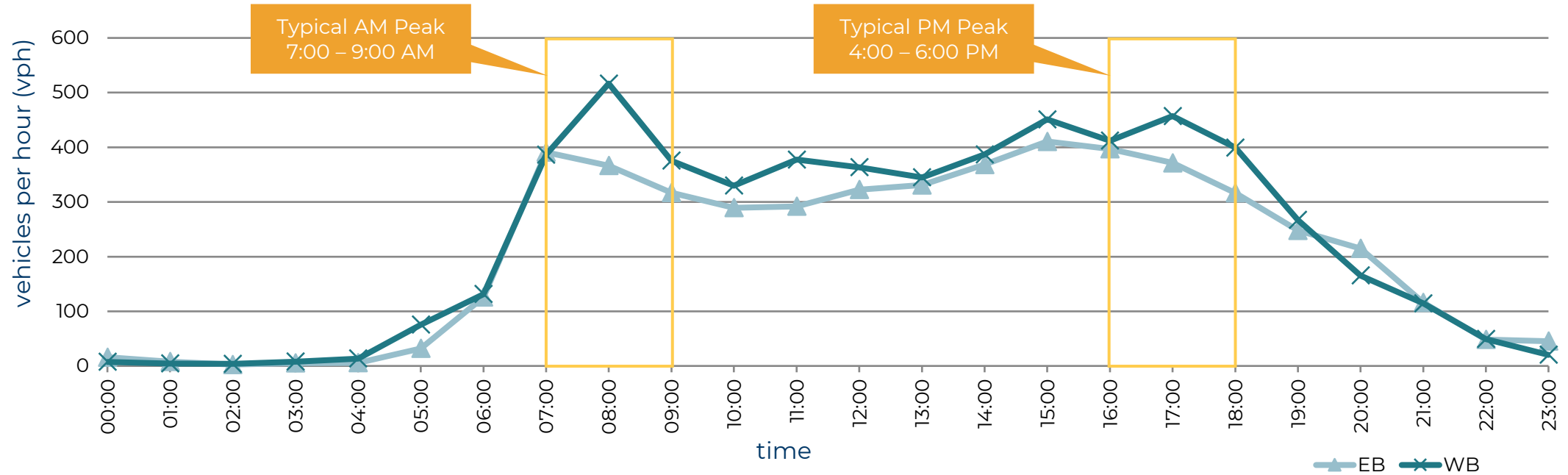


Process

- 1 **Estimate how many trips will be diverted from Needham Center to the surrounding roadway network**
- 2 Identify potential routes for these diverted trips
- 3 Determine potentially affected locations for traffic counts before and during the pilot demonstration



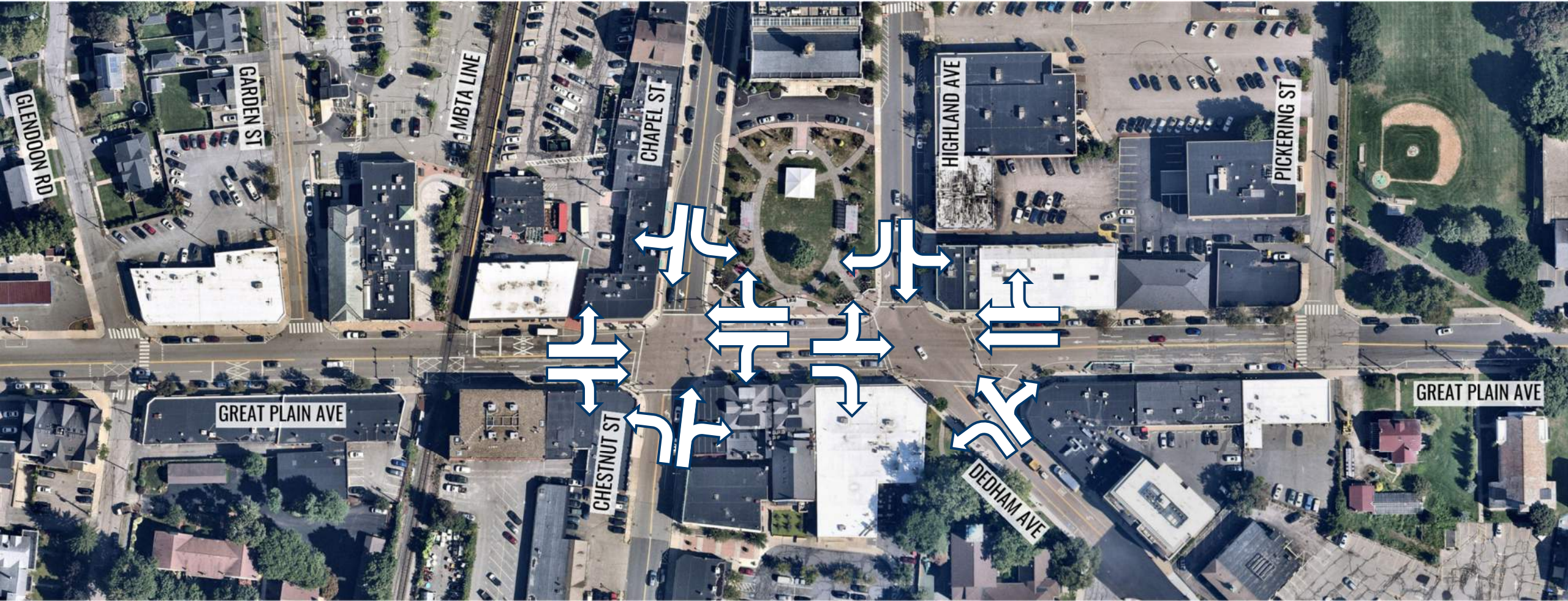
Traffic Variation



Great Plain Avenue, between Dedham Avenue/Highland Avenue and Chestnut Street/Chapel Street

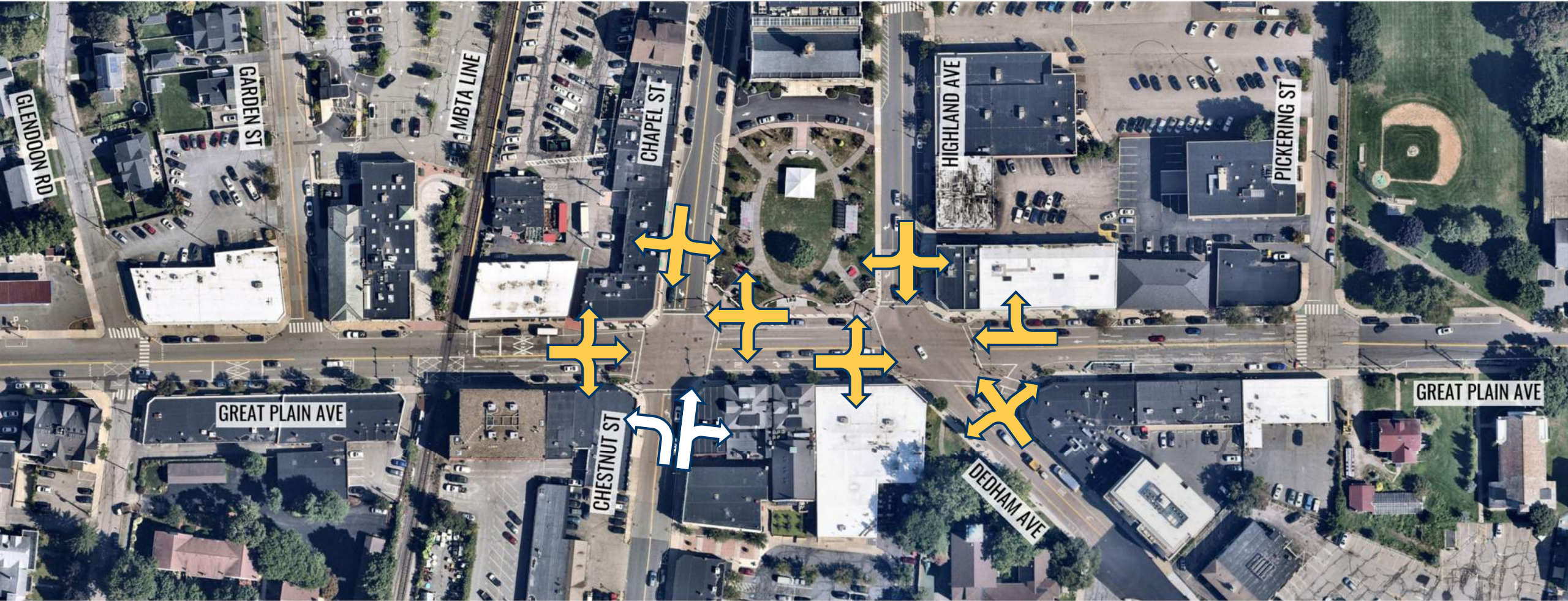
Changes in Lane Configuration

Existing



Changes in Lane Configuration

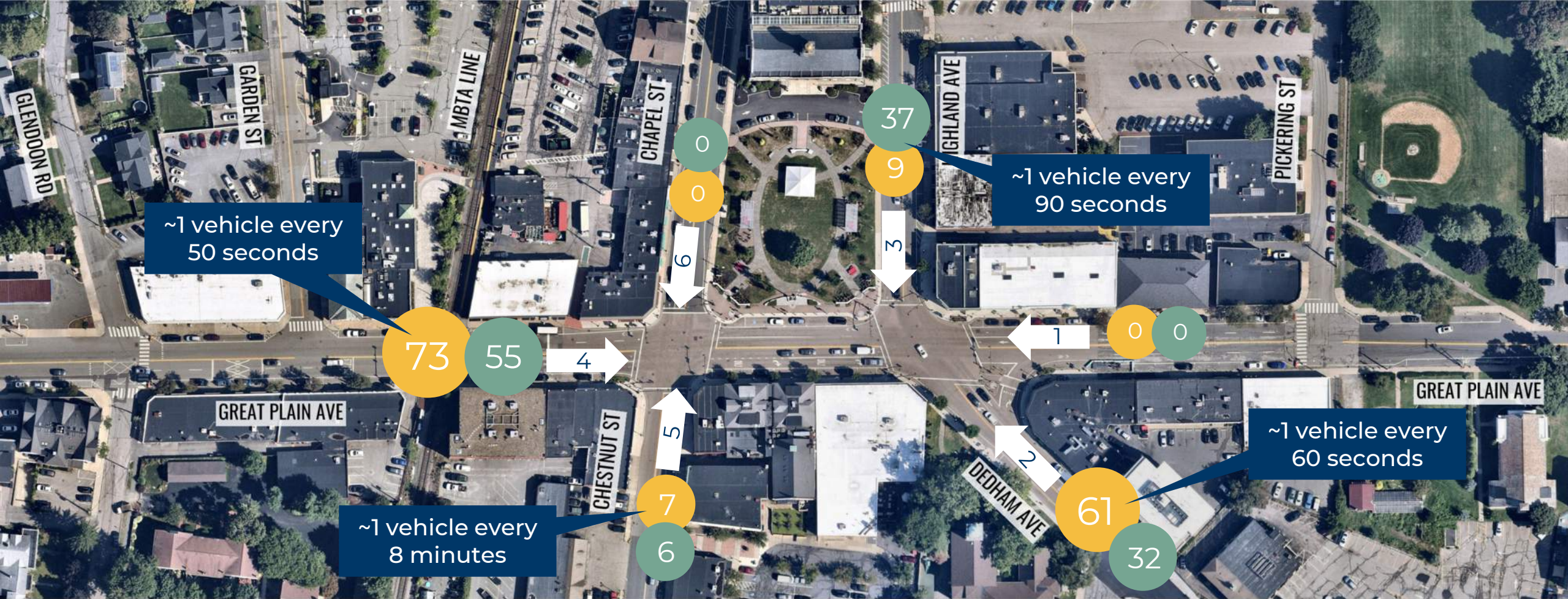
During Trial



Number of trips diverted

Peak hours

→ AM 7:45 - 8:45 PM 5:00 - 6:00



Key Takeaway:

Even the most affected route is only anticipated to have approximately one diverted trip per minute during the most congested hour of the day.



Movements most likely to be diverted

Peak hours



Key Takeaway:

The most affected routes are Dedham Ave, Great Plain Ave EB, and Highland Ave



Process

1

Estimate how many trips will be diverted from Needham Center to the surrounding roadway network

2

Identify potential routes for these diverted trips

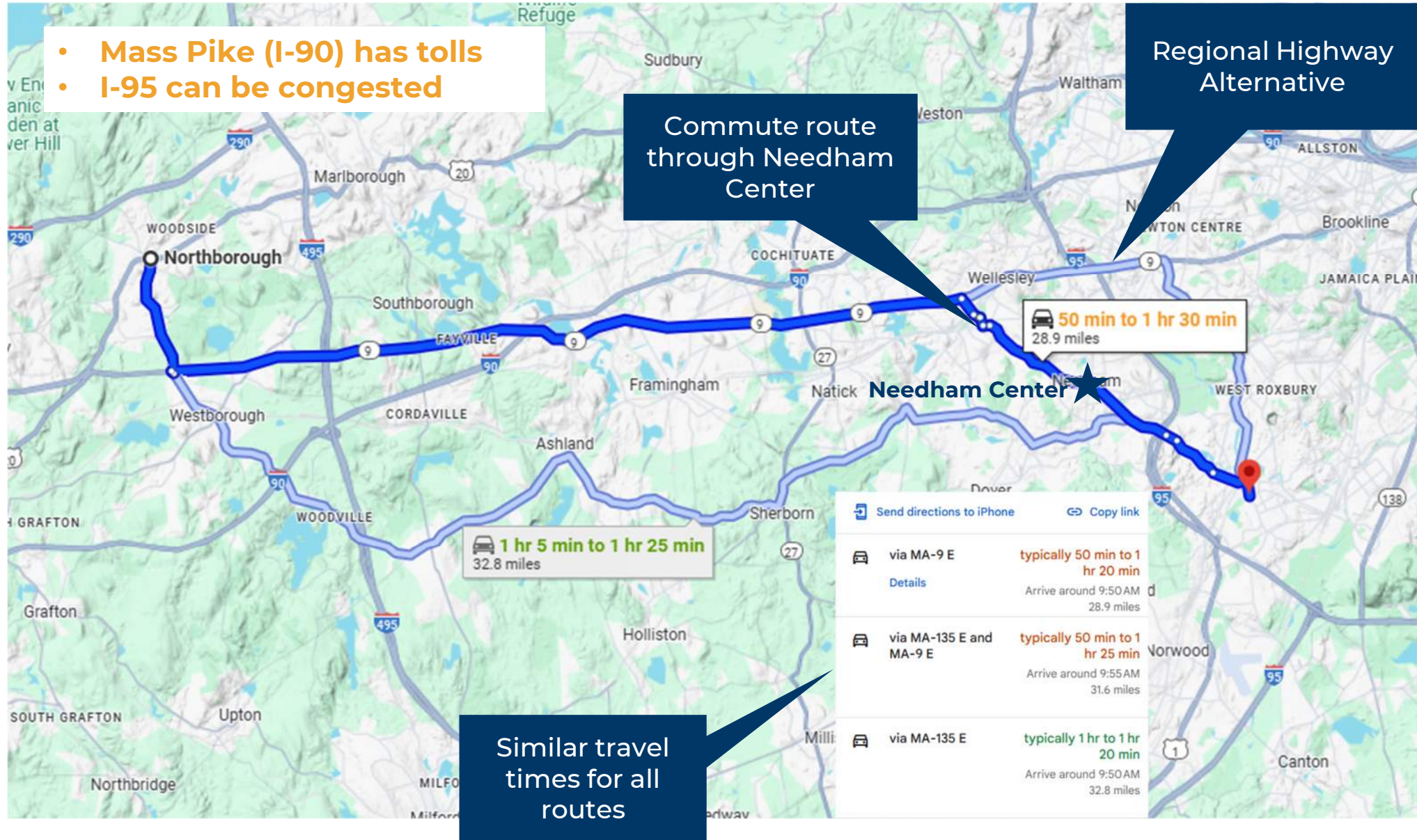
- Trips over 32 miles will be diverted to regional highways
- Shorter trips may be diverted onto local streets

3

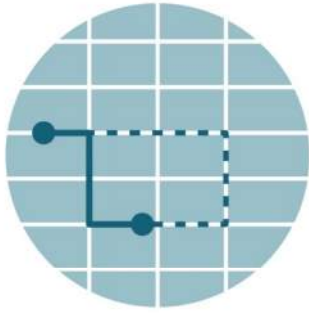
Determine potentially affected locations for traffic counts before and during the pilot demonstration



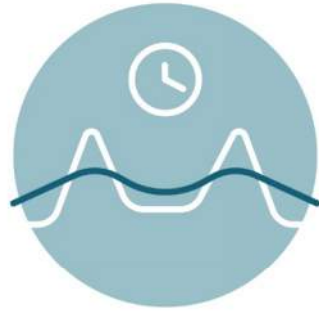
Why do people cut through Needham?



How changes in vehicle capacity can change behavior



Route Change



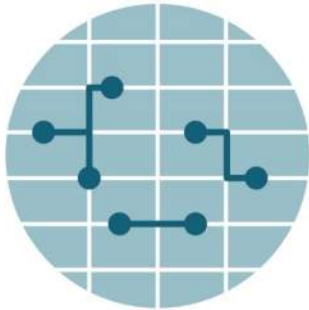
Time Shift



Proximity Shift



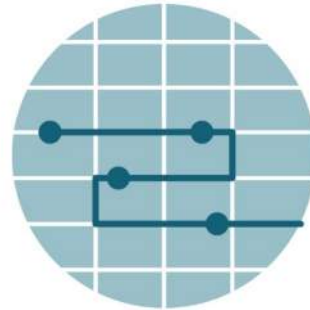
Mode Change



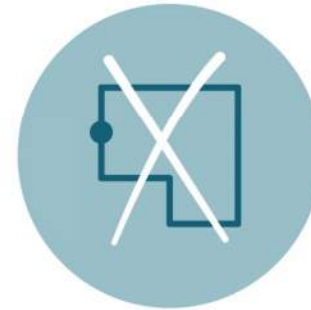
Trip Length Change



Trip Substitution



Trip Chaining



Trip Elimination

How alternative routes were identified

A

Replica data platform

- Derived from phone data, traffic counts, and demographic data
- Uses trip origins, destinations and lengths to estimate traffic diversion routes that could result from a change in vehicle capacity

B

Google Mapping

- Used to confirm diversion routes

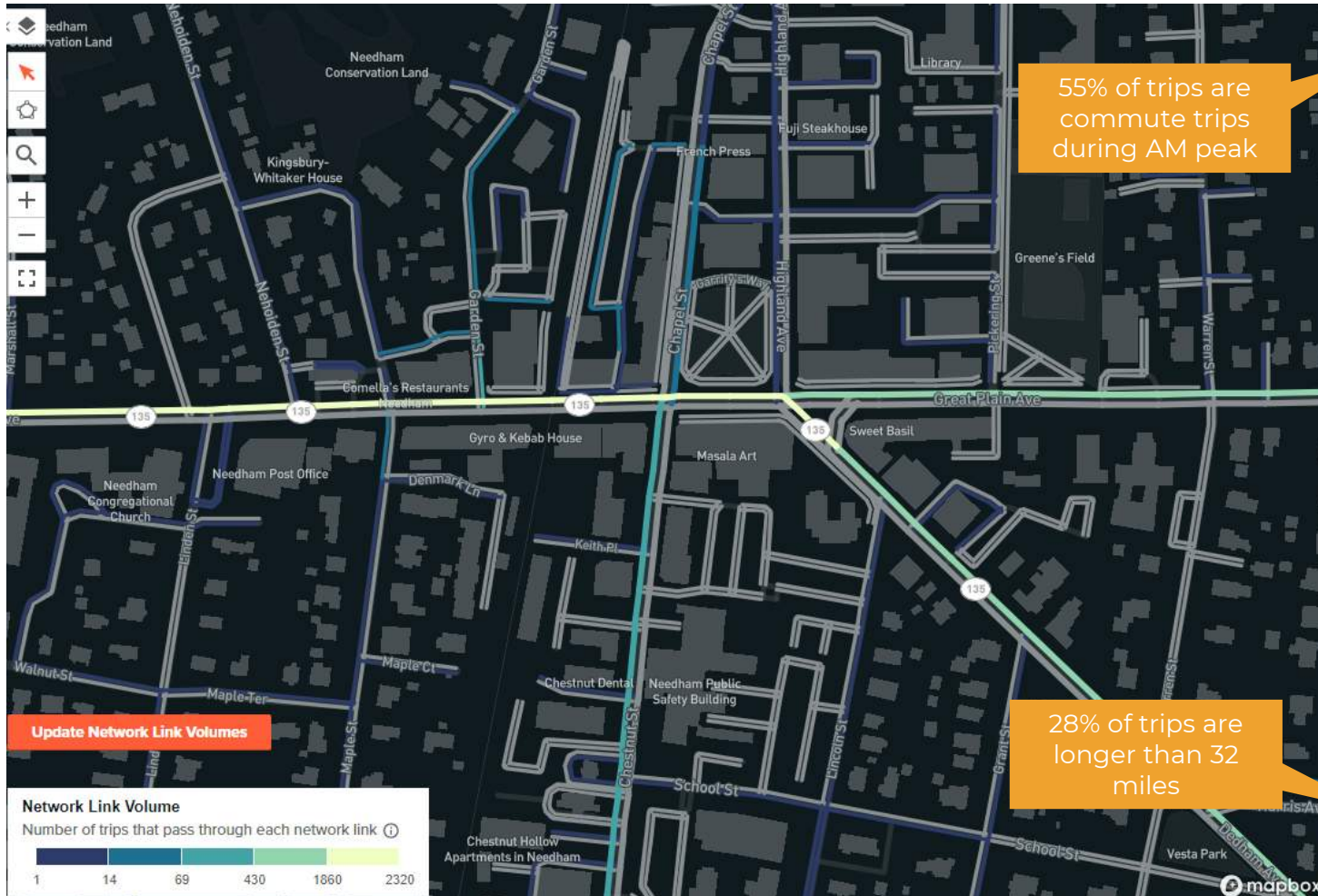
C

Diversion Estimates

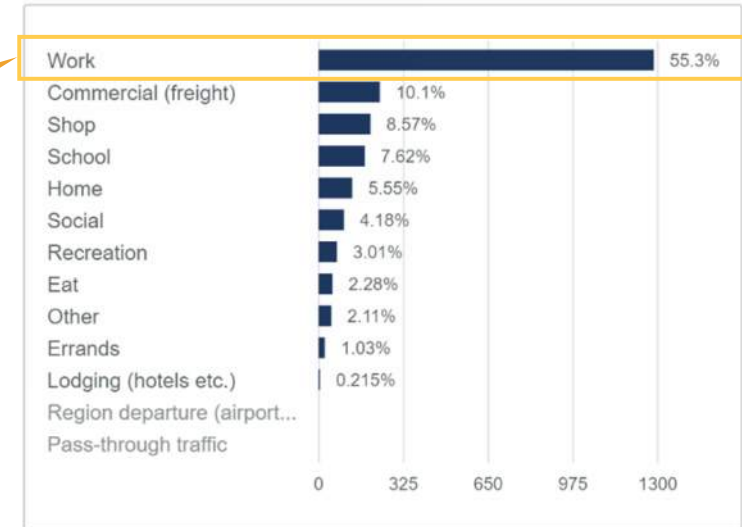
- Determine amount of traffic diversion that will occur during the pilot project
- Conduct counts before and during pilot project
- Calibrate diversion model for 2025 scenario



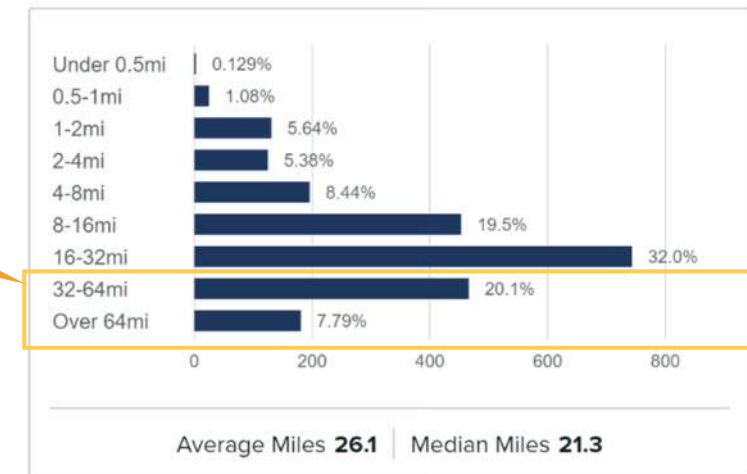
Replica Data – AM Peak Hour



Trip Purpose



Trip Distance (Miles)



Process

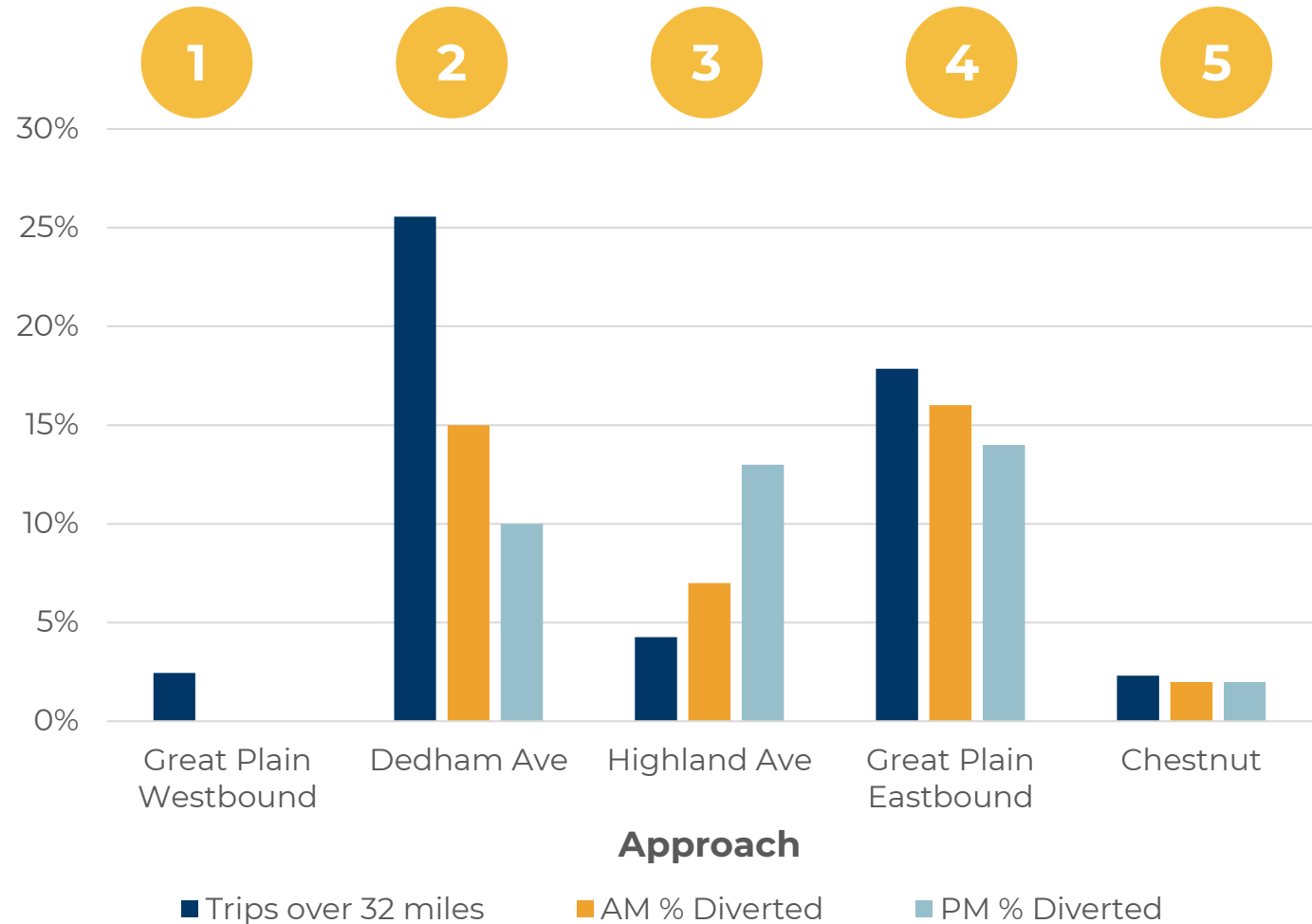
- 1 Estimate how many trips will be diverted from Needham Center to the surrounding roadway network
- 2 Identify potential routes for these diverted trips
- 3 **Determine potentially affected locations for traffic counts before and during the pilot demonstration**



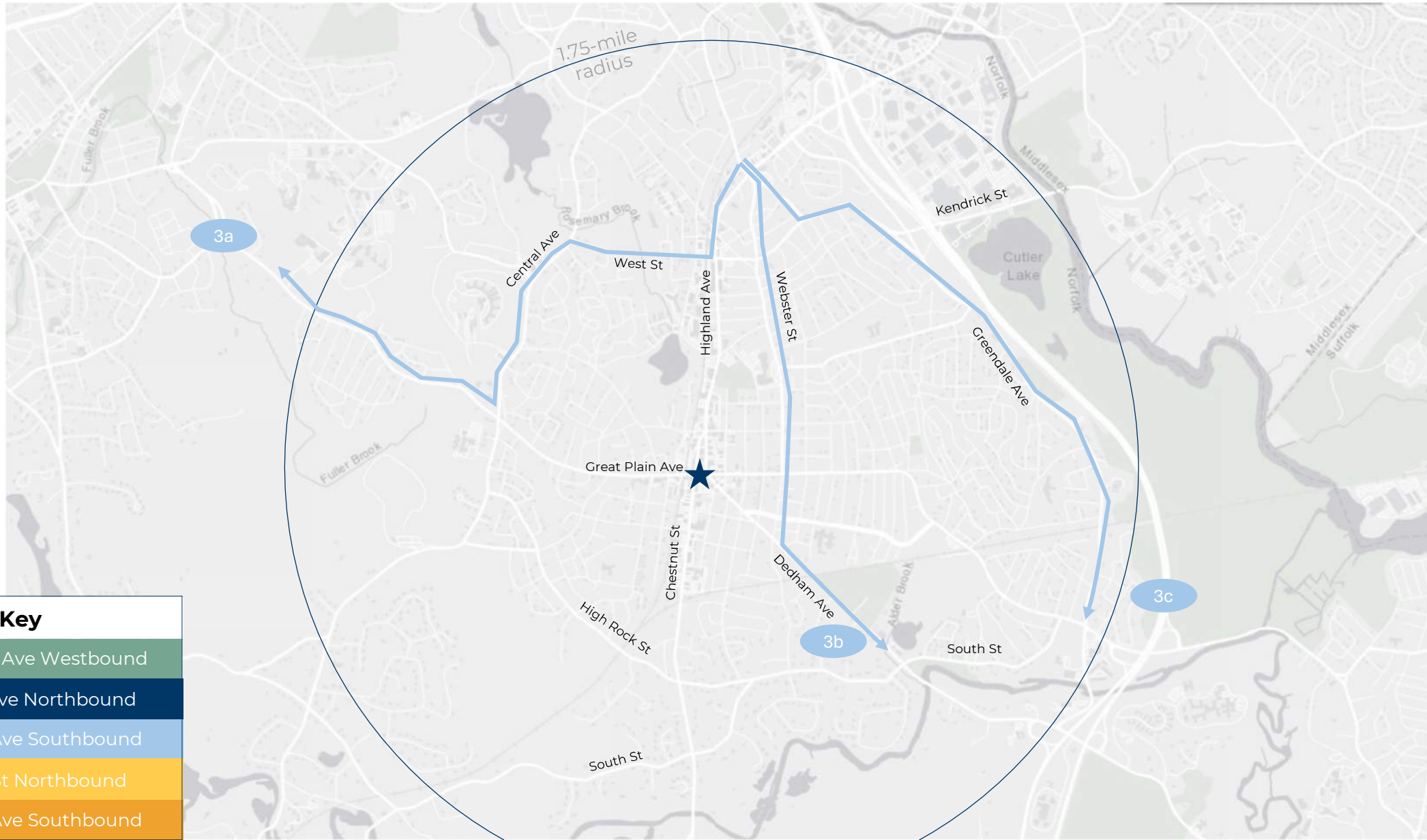
Diversion of Long Trips

Replica data platform

- For all approaches except for Highland Avenue, all diversion will be on regional highways, and none on local streets.
- On Highland Avenue, limited diversion onto parallel streets may occur.

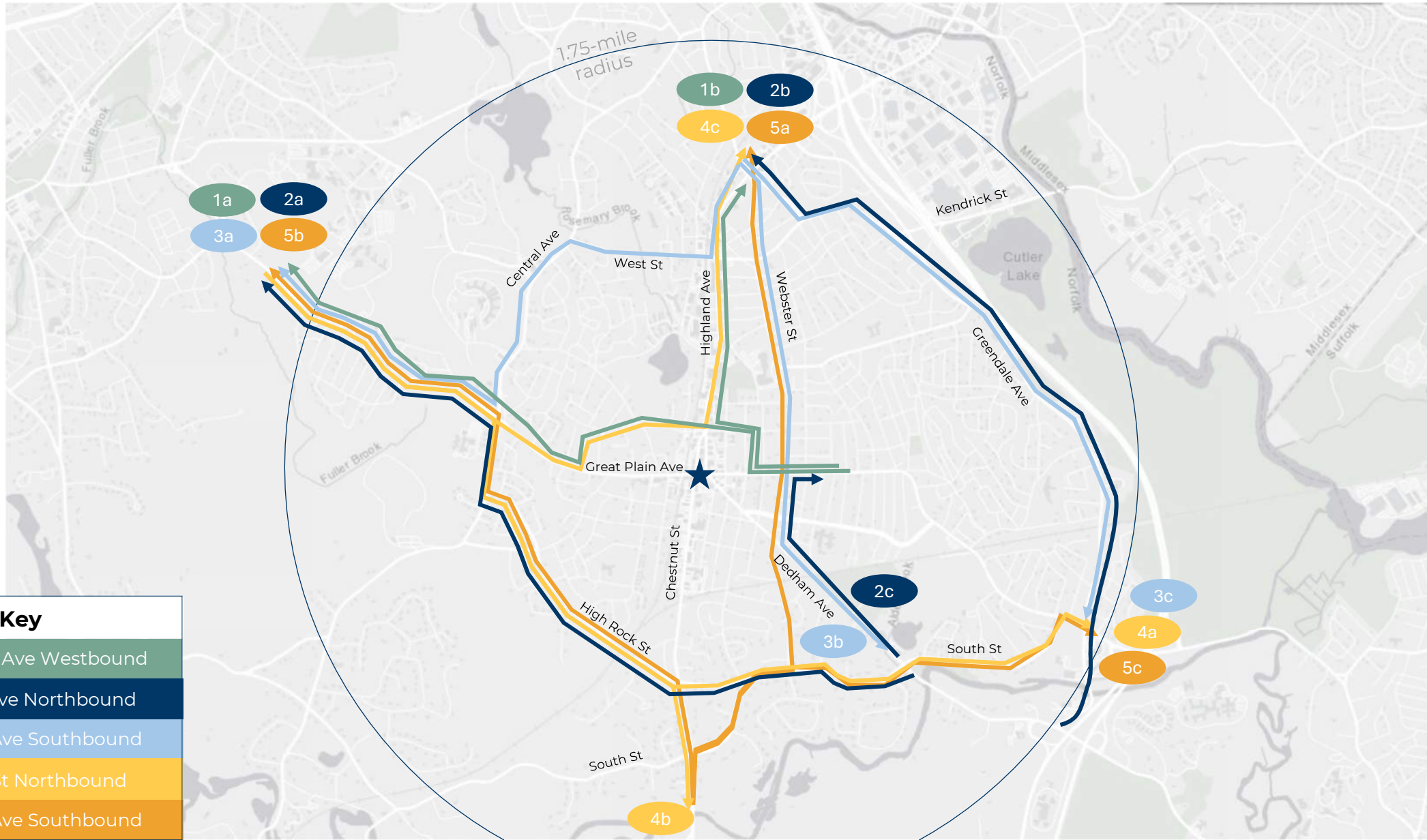


Potential diversion routes



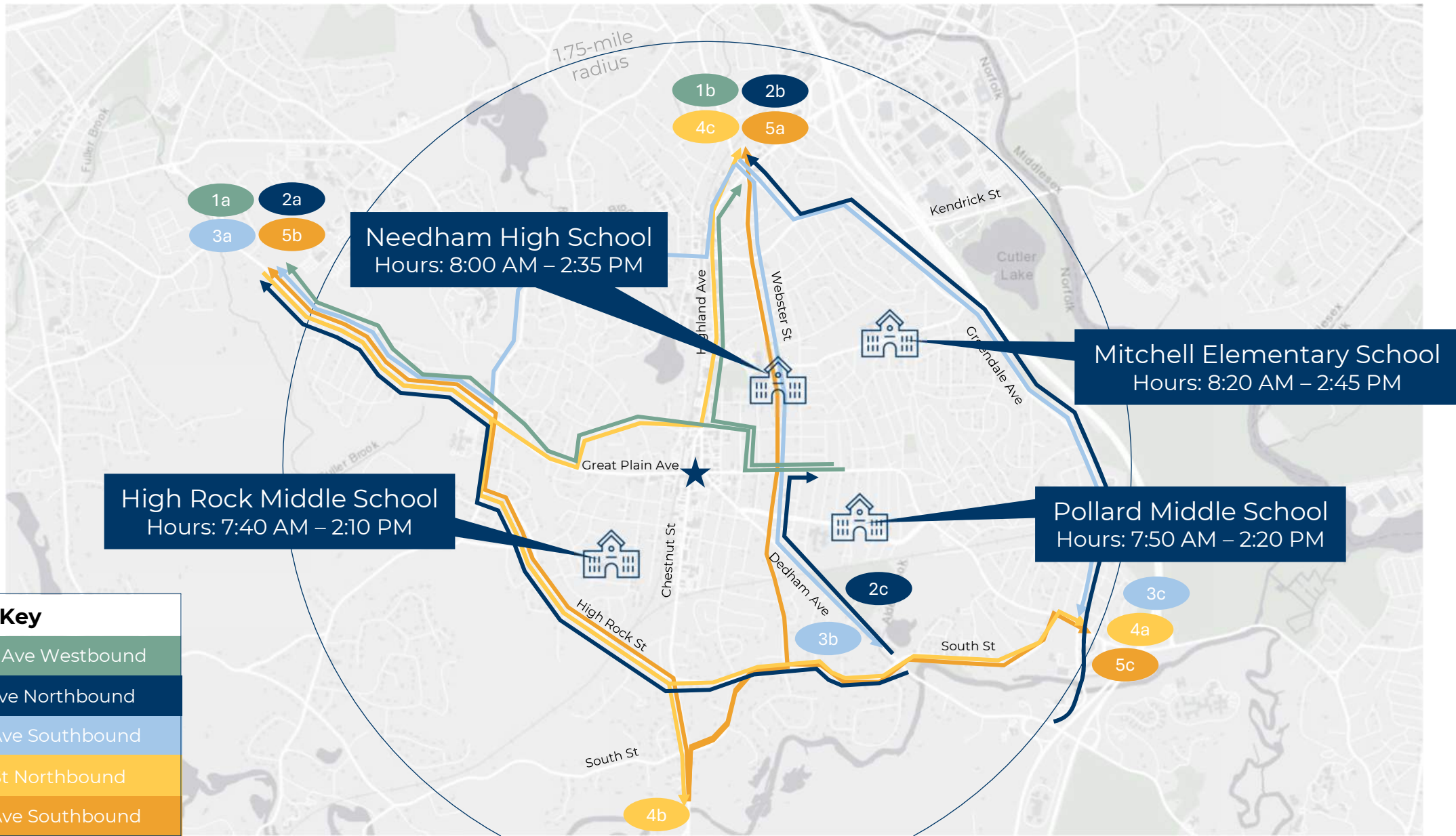
Approach Key	
1: Great Plain Ave Westbound	
2: Dedham Ave Northbound	
3: Highland Ave Southbound	
4: Chestnut St Northbound	
5: Highland Ave Southbound	

Potential diversion routes



Approach Key
1: Great Plain Ave Westbound
2: Dedham Ave Northbound
3: Highland Ave Southbound
4: Chestnut St Northbound
5: Highland Ave Southbound

Potential diversion routes



Summary

- Reducing the vehicular capacity of Needham Center will likely cause trips currently passing through project limits to divert to alternative routes
 - **10%** or less of total peak hour trips passing through the Center are expected to be diverted
- Many trips passing through Needham Center at peak hours are regional commuting trips
 - **60%** of AM trips passing through the Center are **> 16 miles**
 - **28%** of AM trips passing through the Center are **> 32 miles**
 - **55%** of AM trips are **work related**
- Length of trips suggests that many viable alternative routes with similar travel times are available on regional highways
- Degree to which drivers change their behavior will influence which roadways are impacted by the project and by how much – not an exact science
- Team will monitor nearby key intersections most likely to be impacted by pilot to understand impacts & recommend ways to mitigate increased traffic

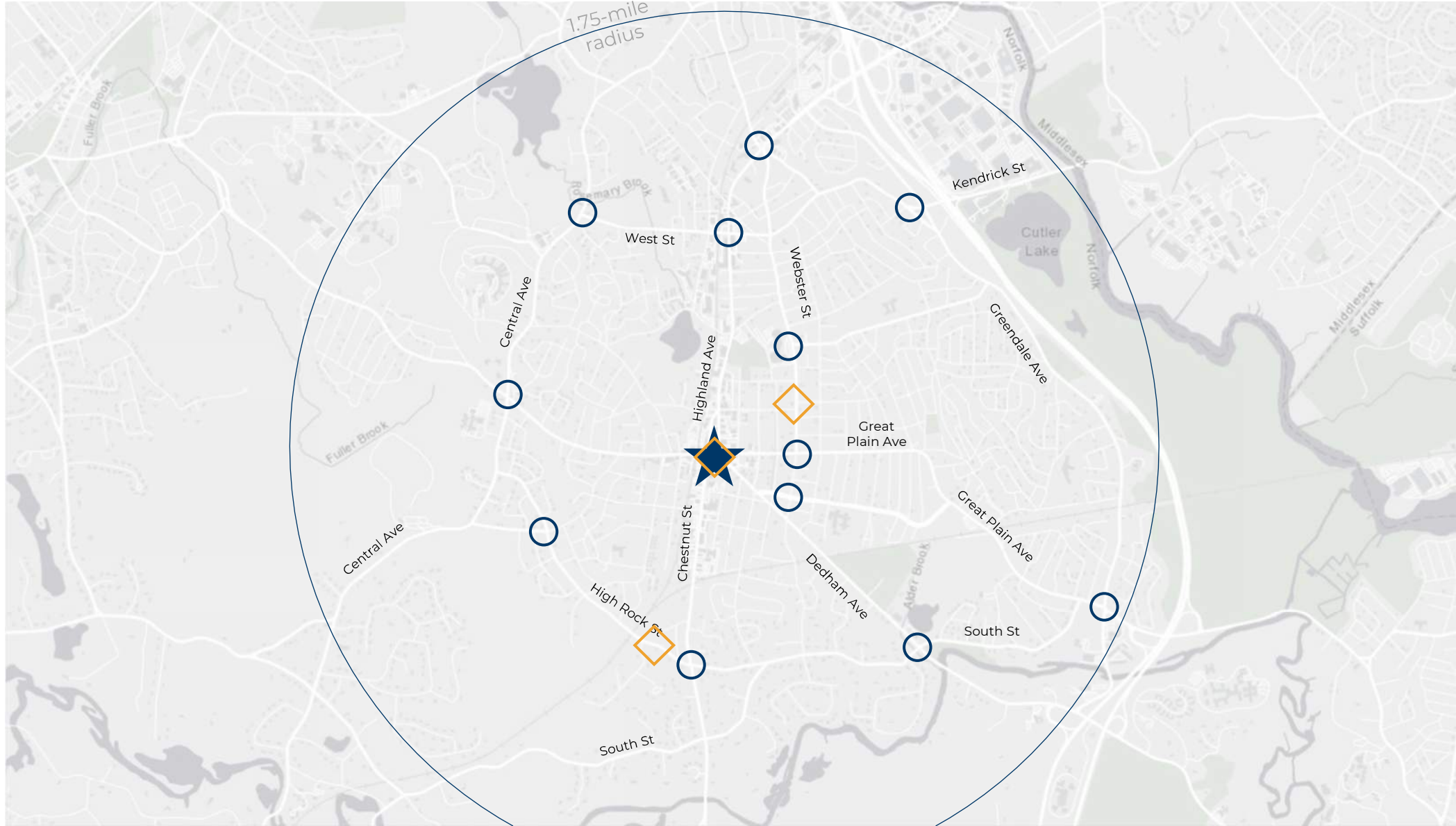


Potential Traffic Count Locations

Before and During Demonstration

Proposed Count Locations:

- ◇ Automatic Traffic Recorder
- Turning Movement Count



Next Steps

- Coordinate with Town officials on traffic diversion model
- Confirm count locations to monitor during pilot demonstration
- Prior to pilot demonstration:
 - Collect traffic data along routes that could be potentially impacted by diverted traffic
 - Public informational sessions
 - Public outreach (project website, changeable message boards, etc.)
 - Consider the need for additional mitigation for safety purposes
- During pilot demonstration:
 - Collect traffic data along routes that could be potentially impacted by diverted traffic
 - Assess if unexpected levels of diversion occurs
 - Calibrate diversion model to determine potential long-term improvements



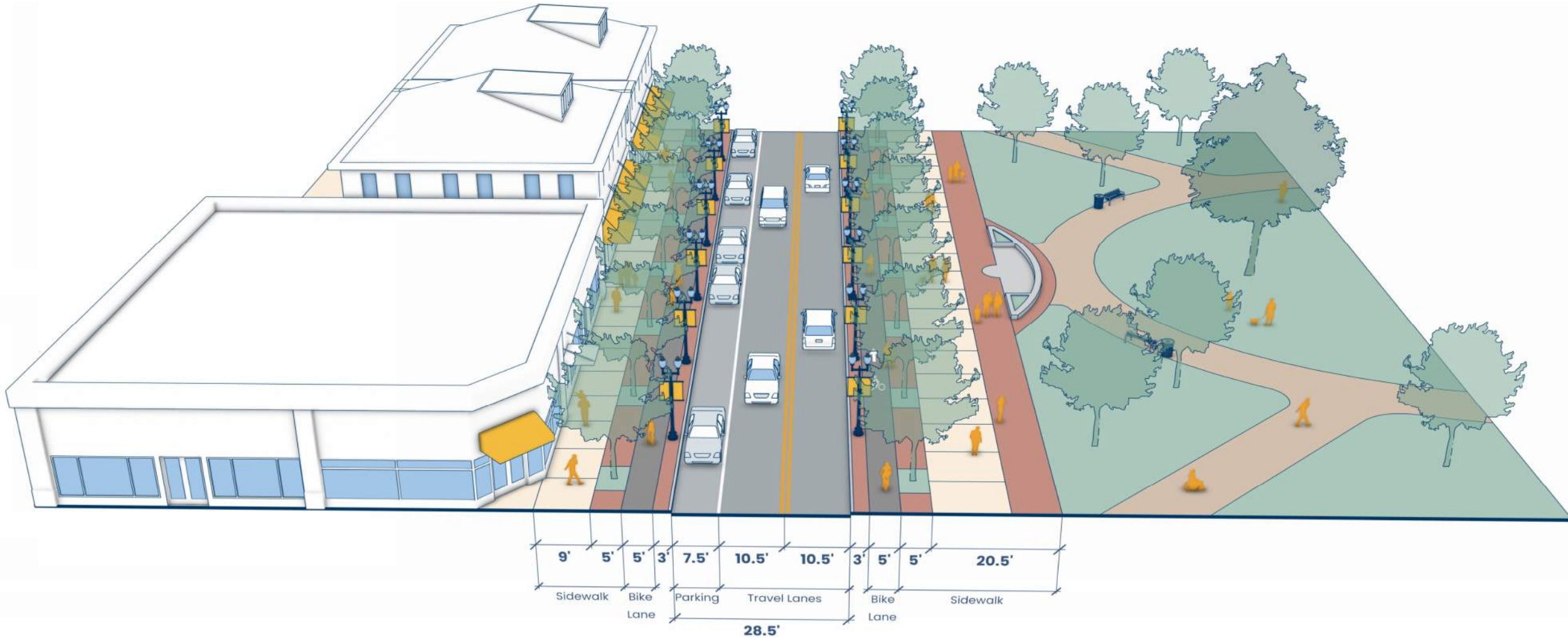
Design Update

Feedback Received

Next Steps



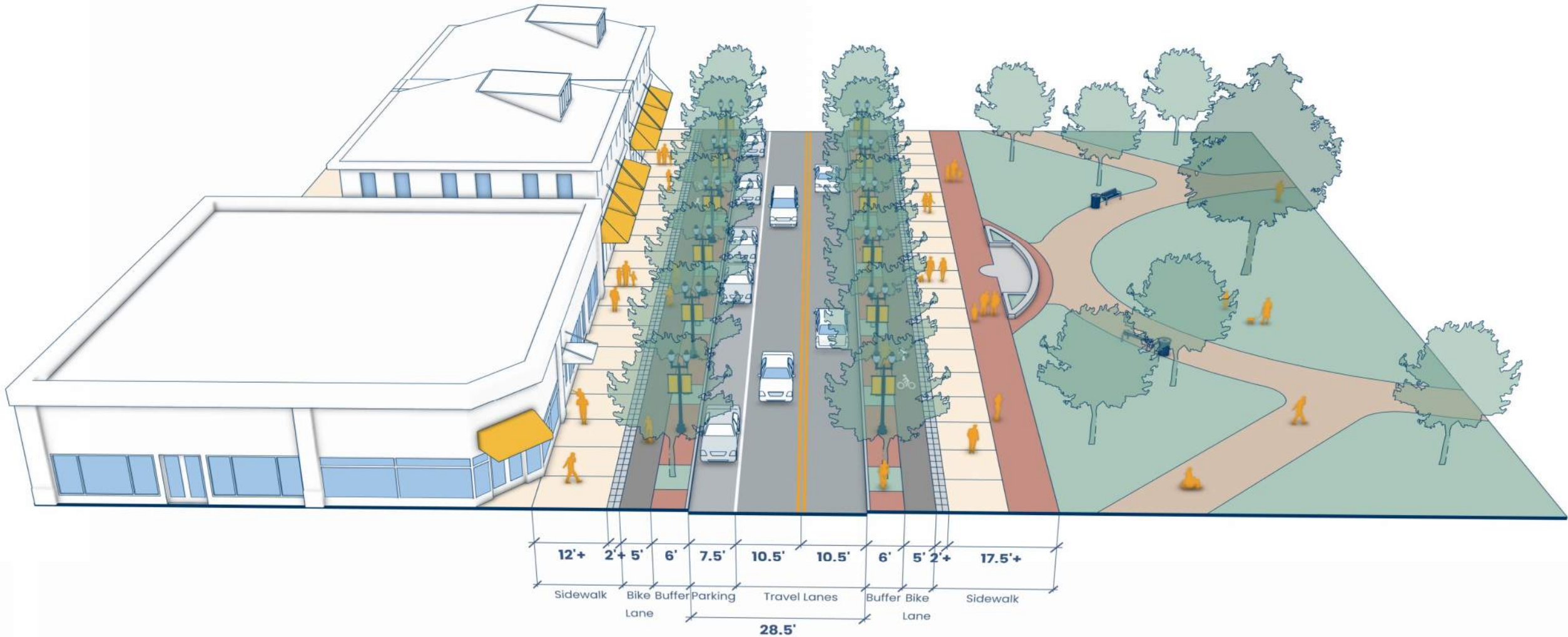
GPA - Chapel to Highland



Alternative 1



GPA - Chapel to Highland



Alternative 2

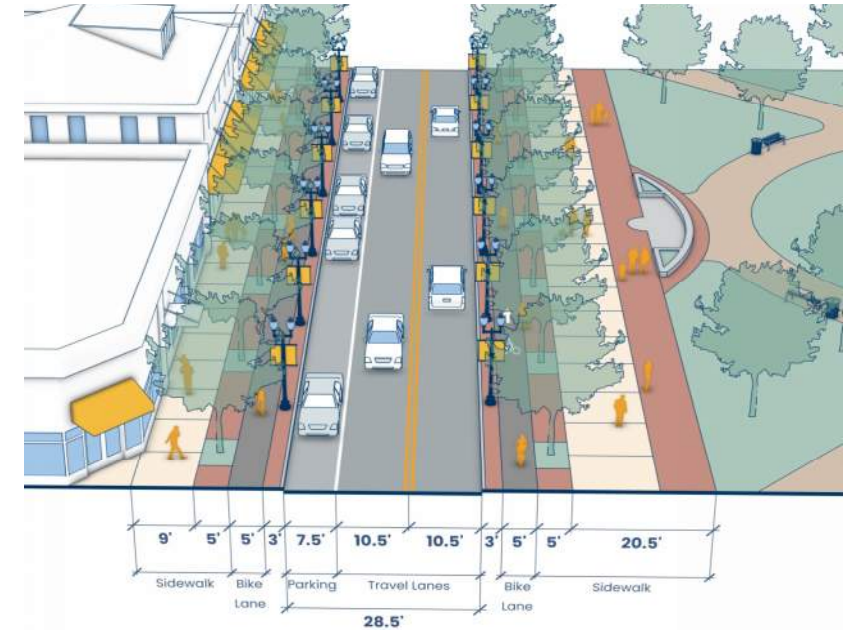


Feedback

GPA – Chapel to Highland

- Consensus regarding preference for Alternative 1
 - Quells fears among community regarding bike-ped conflicts
 - Street trees being closer to storefronts will provide better experience for patrons
 - Buffer next to sidewalk provides useful flex space
- Shift roadway centerline to the north to expand sidewalk on south side
 - Common already provides expansive open area
- Widen bike lane from 5' to 6' within core portion of project limits

Alternative 1



Alternative 2



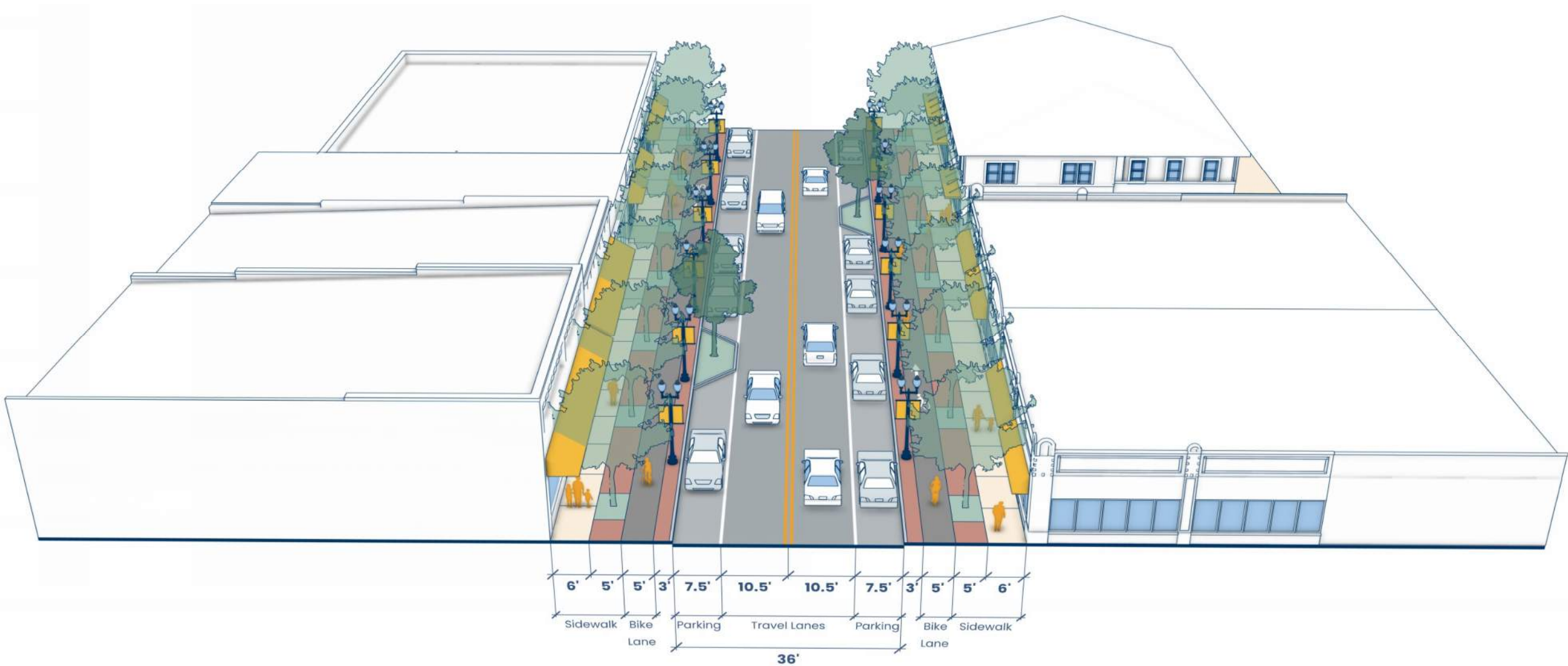
GPA - Chapel to Highland



Updated Preferred Alternative



GPA - Highland to Pickering



Alternative 1



GPA - Highland to Pickering



Alternative 2

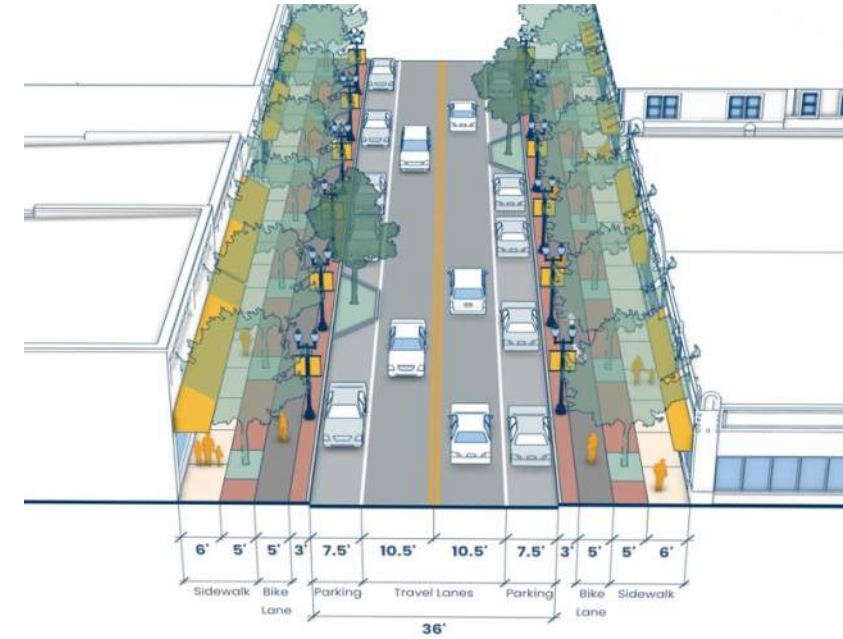


Feedback

GPA – Highland to Pickering

- No clear consensus between alternatives
- Alternative 1:
 - More parking retained
 - Level of traffic calming provided by chicane may not be necessary
- Alternative 2:
 - Enhanced traffic calming effect
 - Wider sidewalks
 - More flex space for businesses
 - Additional opportunities for rain gardens
 - Would be more attractive if additional space could be functional

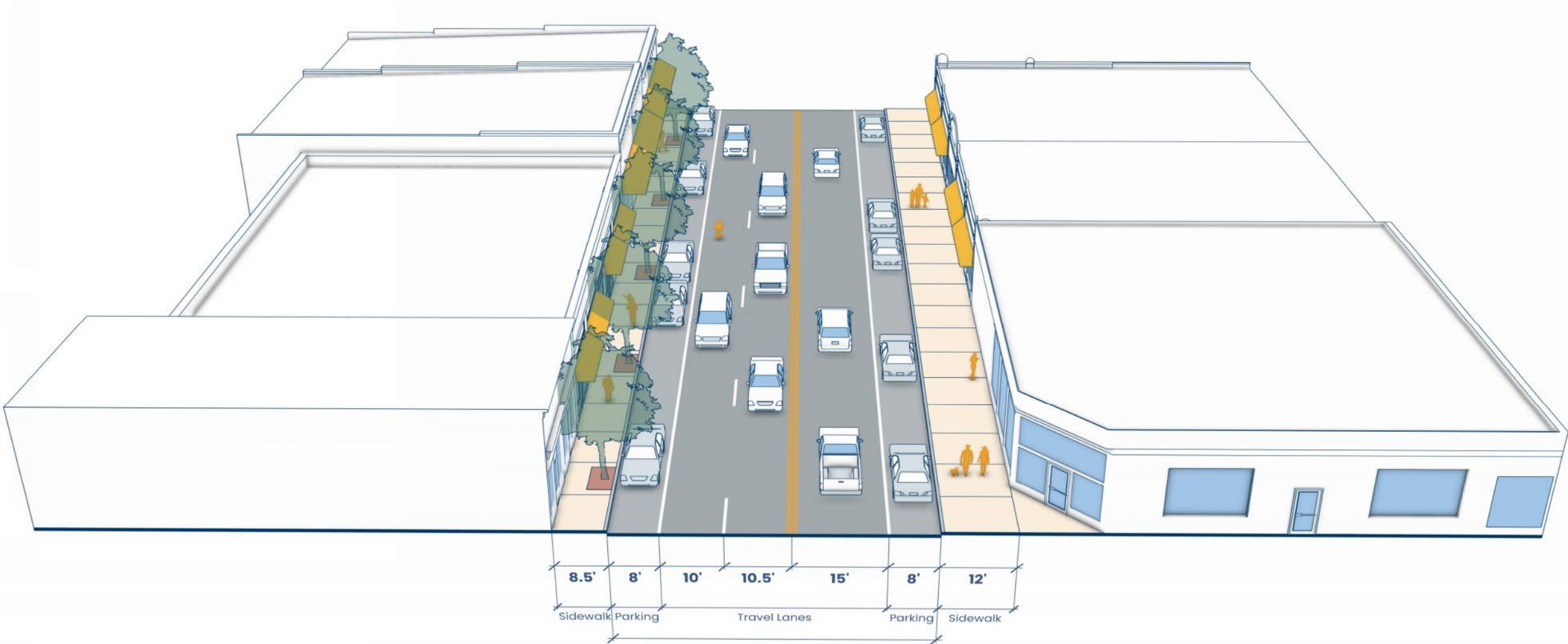
Alternative 1



Alternative 2



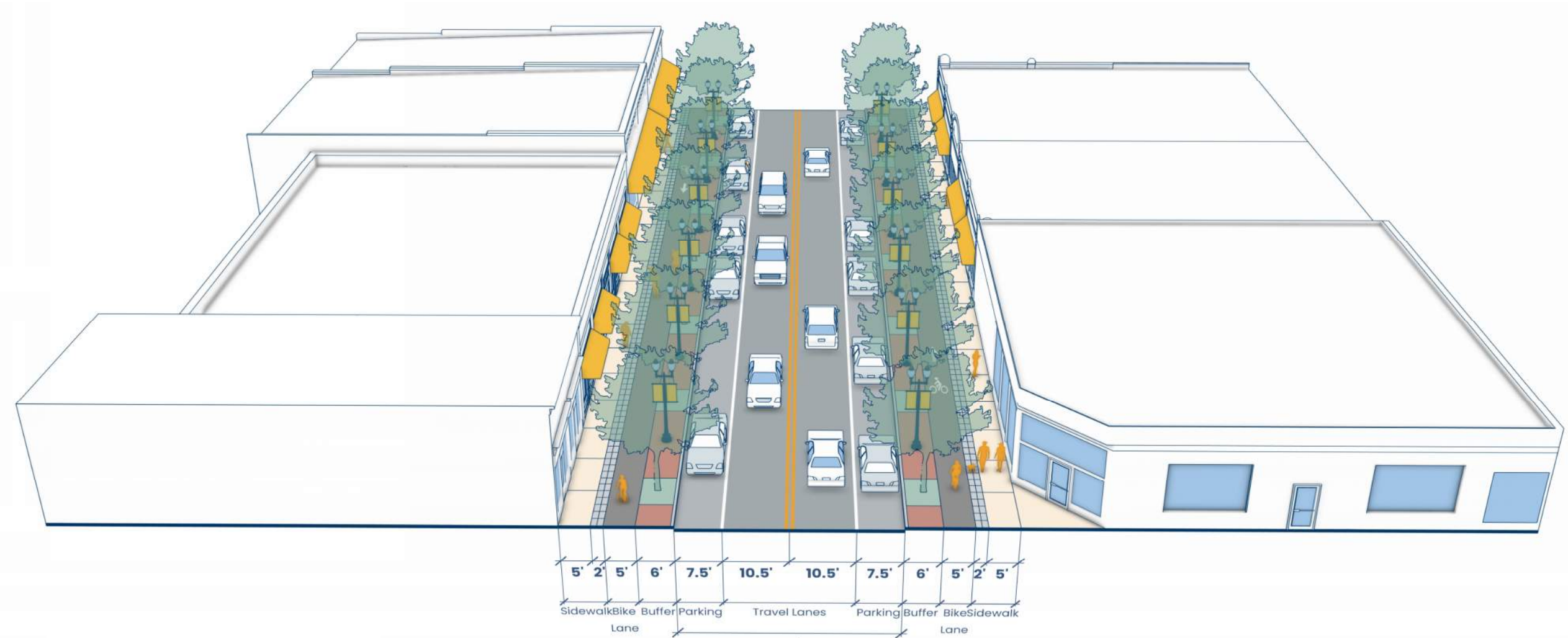
GPA – Nehoiden to Chapel



Existing



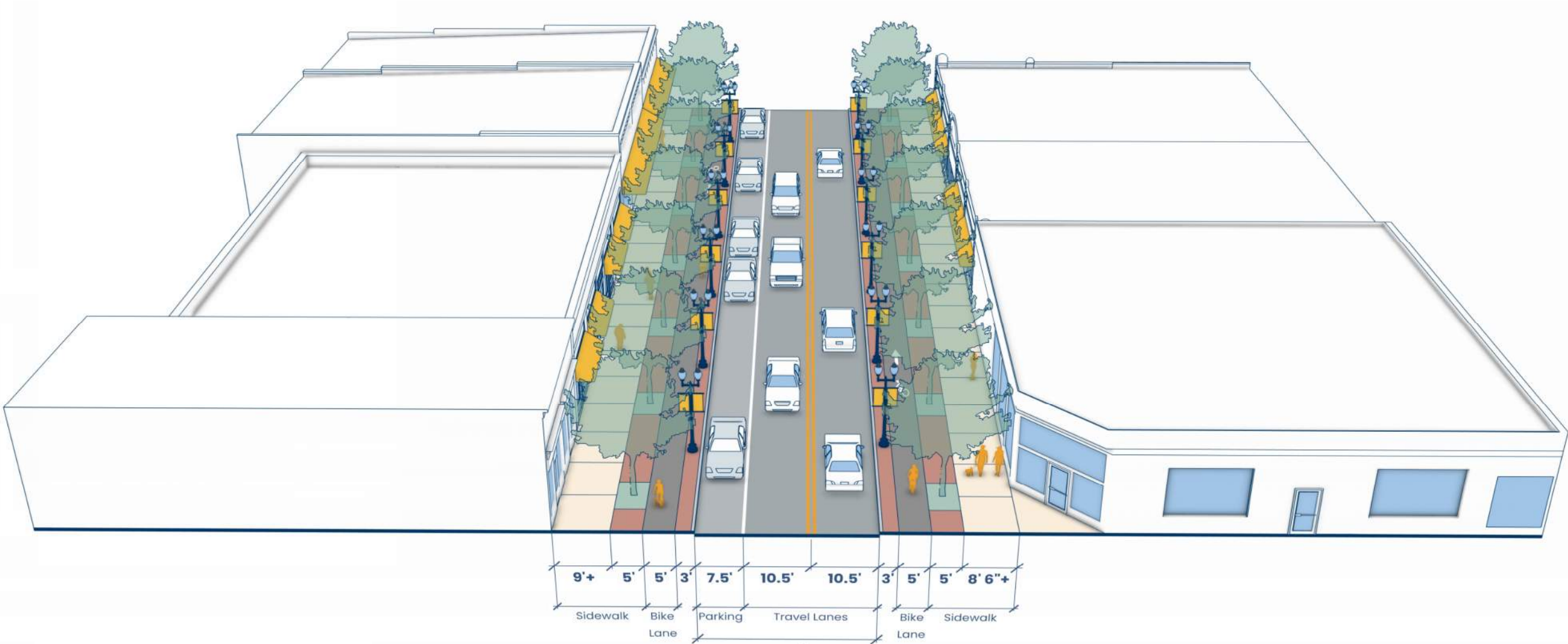
GPA – Nehoiden to Chapel



Alternative 1



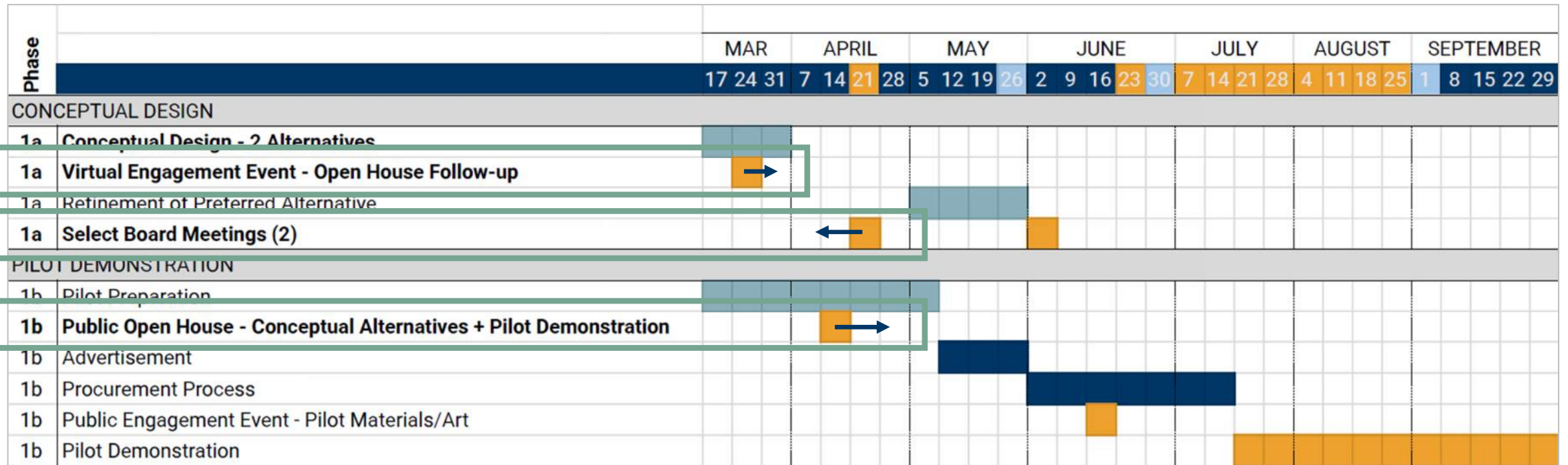
GPA – Nehoiden to Chapel



Alternative 2



Next Steps



Pilot Demonstration

Update



Materials

- Flex posts
 - Use:
 - Light physical separation between active travelers (e.g., between travel lane + bike lane)
 - Considerations:
 - Maintenance during pilot
- Barriers
 - Use:
 - Crash-rated physical separation for stationary users (e.g., between travel lanes + seating)
 - Considerations:
 - Public art opportunity (schools, etc.)
 - Coordination logistics:
 - Designed by project team and/or stakeholders



Materials

- Planters
 - Use:
 - As non-crash rated physical separation (e.g., between bike lane + pedestrian areas)
 - Considerations:
 - Typically self watering
 - Maintenance by season – coordination with businesses recommended
 - Integration with barriers
 - Use after pilot
- Modular seating
 - Use:
 - For use in expanded public spaces
 - Considerations:
 - Can coordinate with businesses who own their own + supplement as needed
 - How seating is secured (benches vs. picnic tables vs. café seating)



Materials

- Bike racks
 - Use:
 - For use in expanded public spaces
 - Considerations:
 - How racks are secured
- Sidewalk stickers
 - Use:
 - To provide opportunity to stay informed about pilot
- Other engaging + unexpected objects
 - Use:
 - Make the Center fun, vibrant, and interactive



Materials

- Art installations on pavement



Working Group

Tasks & Asks



Working Group Tasks & Asks

1. Review & Share

- Review updated design info shared in WG Meeting #6
- Document your feedback (thoughts, concerns, etc.)
- Share – send via email to Carys and Tyler who will forward to Design Team

2. Outreach & Contacts

- Raise awareness of virtual engagement events!
 - April 3rd – 6pm
 - April 5th – 12pm
- Identify programs and organizations that can assist with pilot art installations
 - Identify a potential contact and/or
 - Contact them directly

