



Rezoning in Needham

Traffic Impact Assessment
and Mitigation Strategies

GPI



AGENDA

01

Overview

02

Analysis

03

Results (Level of Service)

04

Proposed Improvements

05

Conclusions

OVERVIEW

A Traffic analysis was conducted to assess the impacts of proposed rezoning.

The rezoning, detailed in the **MBTA Communities Summary Report (April 2024)** by RKG Associates and Innes Associates, Ltd., aims to support additional housing development in line with the MBTA Communities Act.

Scenarios Analyzed:

- Scenario A: Base Compliance (222 units)
- Scenario B: Neighborhood Housing Plan (1,099 units)

Key Focus Areas:

- Current Traffic Conditions: Understanding the existing traffic landscape.
- Projected Traffic Volumes: Anticipating changes in traffic due to rezoning.
- Impact on Local Infrastructure: Assessing the potential effects on transportation networks.

ANALYSIS



Existing Conditions: Traffic data collected, compiled, and grown to 2024 base year.



Future Conditions: Applied annual traffic growth of 1% per year compounded.



Trip Generation: Utilized ITE Trip Generation Methodology.



Mode Shares: Walk, Bike, and Transit account for 19% of trips.



Trip Distribution: Estimated based on U.S. Census Data.

ANALYSIS

To present a worst-case scenario, the traffic operations analysis conducted was conservative and likely overestimates future traffic levels.



Future Conditions: Higher than expected growth rate.

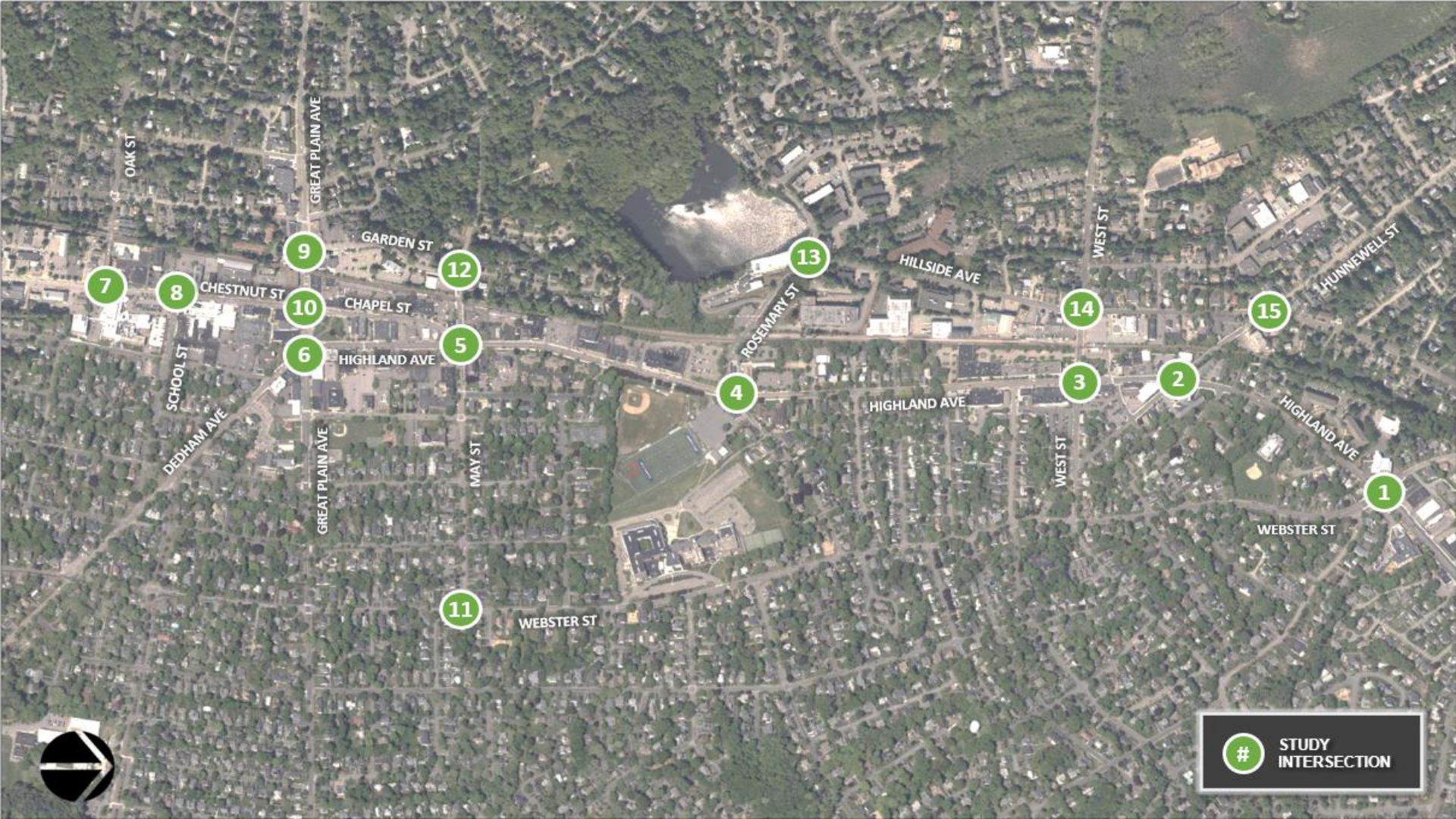


Trip Generation: Larger than expected trip generation rate for an urban setting.



Mode Shares: Higher-than-expected auto mode share for a transit-oriented development.

Due to this conservative approach, many study area intersections are anticipated to experience high delays in future conditions, independent of traffic generated by the proposed projects.



STUDY INTERSECTION

Results (Level of Service)

A

Indicates excellent conditions with minimal delay. Traffic flows smoothly with very short stops.

B

Represents very good conditions with slightly more delay. Traffic remains stable, and stops are brief.

C

Conditions are still manageable, with minor delays. While the flow of traffic remains stable, the frequency of stops increases slightly.

D

In an urban setting, LOS D is often typical and indicates reasonable traffic conditions given the higher density. Traffic flow is still manageable, though there are some delays.

E

Reflects conditions where delays are more noticeable and traffic flow is less stable, but is common in busy urban areas.

F

Congested conditions, where delays are substantial and traffic flow is heavily disrupted. Often requires further analysis or improvements..

Existing and No-Build Results: Morning Peak Hour



Existing and No-Build Results: Evening Peak Hour



No-Build and Build Results: Morning Peak Hour



No-Build and Build Results: Evening Peak Hour

The map displays the Level of Service (LOS) for various street segments during the evening peak hour for three different scenarios in 2034. The legend indicates that Green represents LOS A-D, Yellow represents LOS E, and Red represents LOS F.

2034 No-Build Scenario:

- Oak St: LOS E (Yellow)
- Great Plain Ave (top): LOS E (Yellow)
- Garden St: LOS E (Yellow)
- Chapel St: LOS D (Green)
- Highland Ave (center): LOS D (Green)
- May St: LOS F (Red)
- Webster St (center): LOS F (Red)
- West St: LOS F (Red)
- Hillside Ave: LOS C (Green)
- Rosemary St: LOS C (Green)
- School St: LOS C (Green)
- Dedham Ave: LOS E (Yellow)
- Great Plain Ave (bottom): LOS E (Yellow)
- Webster St (bottom): LOS F (Red)
- West St (right): LOS F (Red)
- Hunnewell St: LOS D (Green)
- Highland Ave (right): LOS D (Green)
- Webster St (right): LOS F (Red)

2034 Scenario A (222 multifamily units):

- Oak St: LOS E (Yellow)
- Great Plain Ave (top): LOS E (Yellow)
- Garden St: LOS E (Yellow)
- Chapel St: LOS D (Green)
- Highland Ave (center): LOS D (Green)
- May St: LOS F (Red)
- Webster St (center): LOS F (Red)
- West St: LOS F (Red)
- Hillside Ave: LOS C (Green)
- Rosemary St: LOS C (Green)
- School St: LOS C (Green)
- Dedham Ave: LOS E (Yellow)
- Great Plain Ave (bottom): LOS E (Yellow)
- Webster St (bottom): LOS F (Red)
- West St (right): LOS F (Red)
- Hunnewell St: LOS D (Green)
- Highland Ave (right): LOS D (Green)
- Webster St (right): LOS F (Red)

2034 Scenario B (1,000 multifamily units):

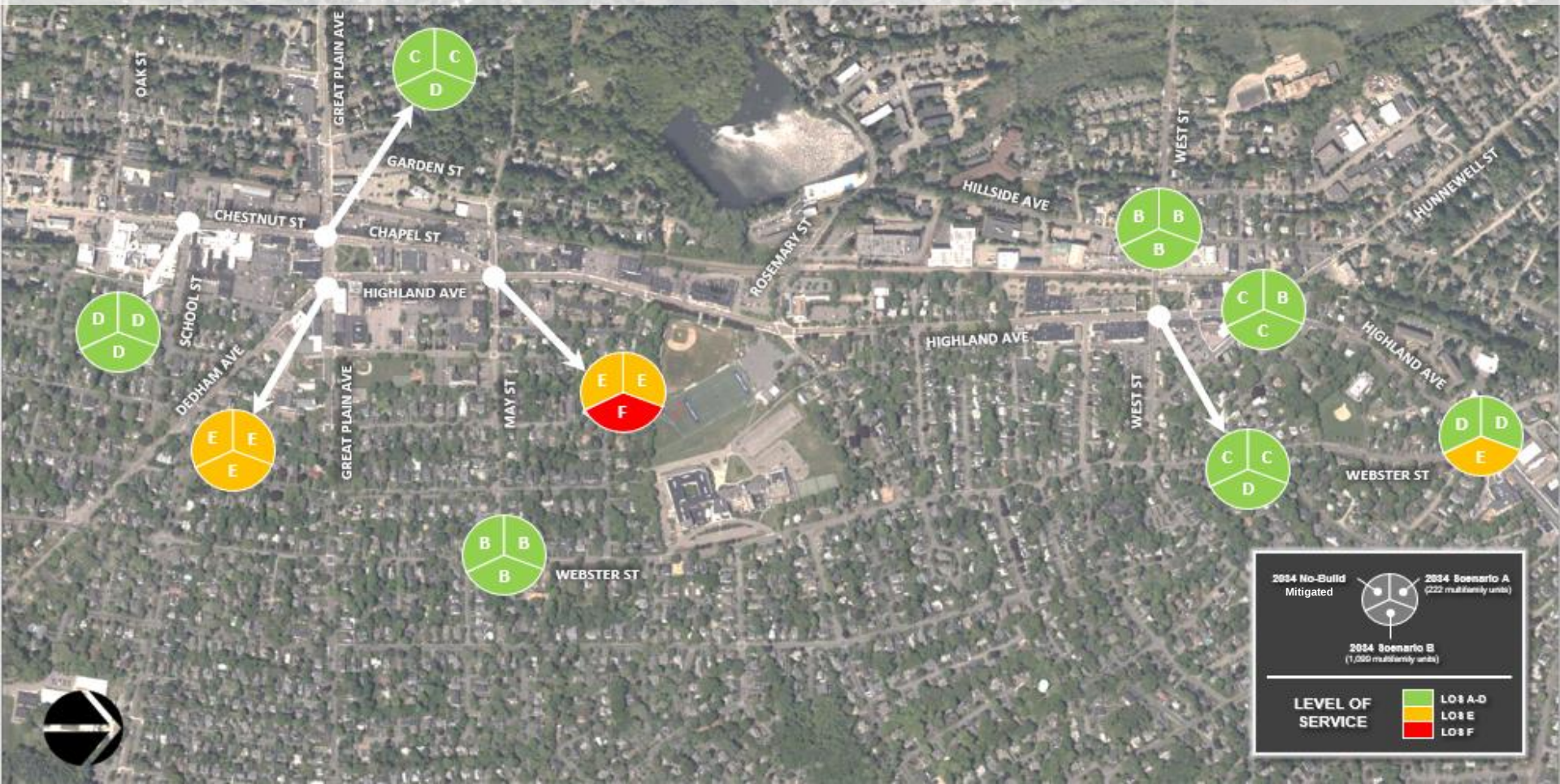
- Oak St: LOS E (Yellow)
- Great Plain Ave (top): LOS E (Yellow)
- Garden St: LOS E (Yellow)
- Chapel St: LOS D (Green)
- Highland Ave (center): LOS D (Green)
- May St: LOS F (Red)
- Webster St (center): LOS F (Red)
- West St: LOS F (Red)
- Hillside Ave: LOS C (Green)
- Rosemary St: LOS C (Green)
- School St: LOS C (Green)
- Dedham Ave: LOS E (Yellow)
- Great Plain Ave (bottom): LOS E (Yellow)
- Webster St (bottom): LOS F (Red)
- West St (right): LOS F (Red)
- Hunnewell St: LOS D (Green)
- Highland Ave (right): LOS D (Green)
- Webster St (right): LOS F (Red)



Proposed Mitigation

- Scenario A (Base Compliance) is expected to have little to no impact, while Scenario B (Neighborhood Housing Plan) is expected to cause localized impacts at key intersections. **Most impacts are a result of the background growth.**
- Potential mitigation measures identified include signal timing optimizations, roadway restriping, adjustments to pedestrian timings, and new signalization.
- The mitigation analysis shows improvements in the Level of Service (LOS) and decreased delays across the network of intersections when comparing the No-Build scenario to Build Scenarios A and B.
- Overall, the Build Scenarios A and B with mitigation demonstrate a positive impact on the overall traffic performance, reducing delays and improving the LOS across the network of intersections during peak hours despite the increase in vehicle trips due to the respective development programs.

Results, Mitigated: Morning Peak Hour



Results, Mitigated: Evening Peak Hour



Conclusion

- With recommended mitigation measures, the traffic system will maintain an acceptable Level of Service (LOS) under both Scenario A and Scenario B.
- Despite increased traffic volumes, intersections will operate within acceptable urban LOS thresholds.
- Mitigation ensures efficient traffic flow, supporting the planned development.

Note: The full traffic report is available at
<https://www.needhamma.gov/5572/MBTA-Communities-Zoning-Proposal>