

Abbyville Commons and The Preserve

Traffic Study

ZBA Hearing August 22, 2017

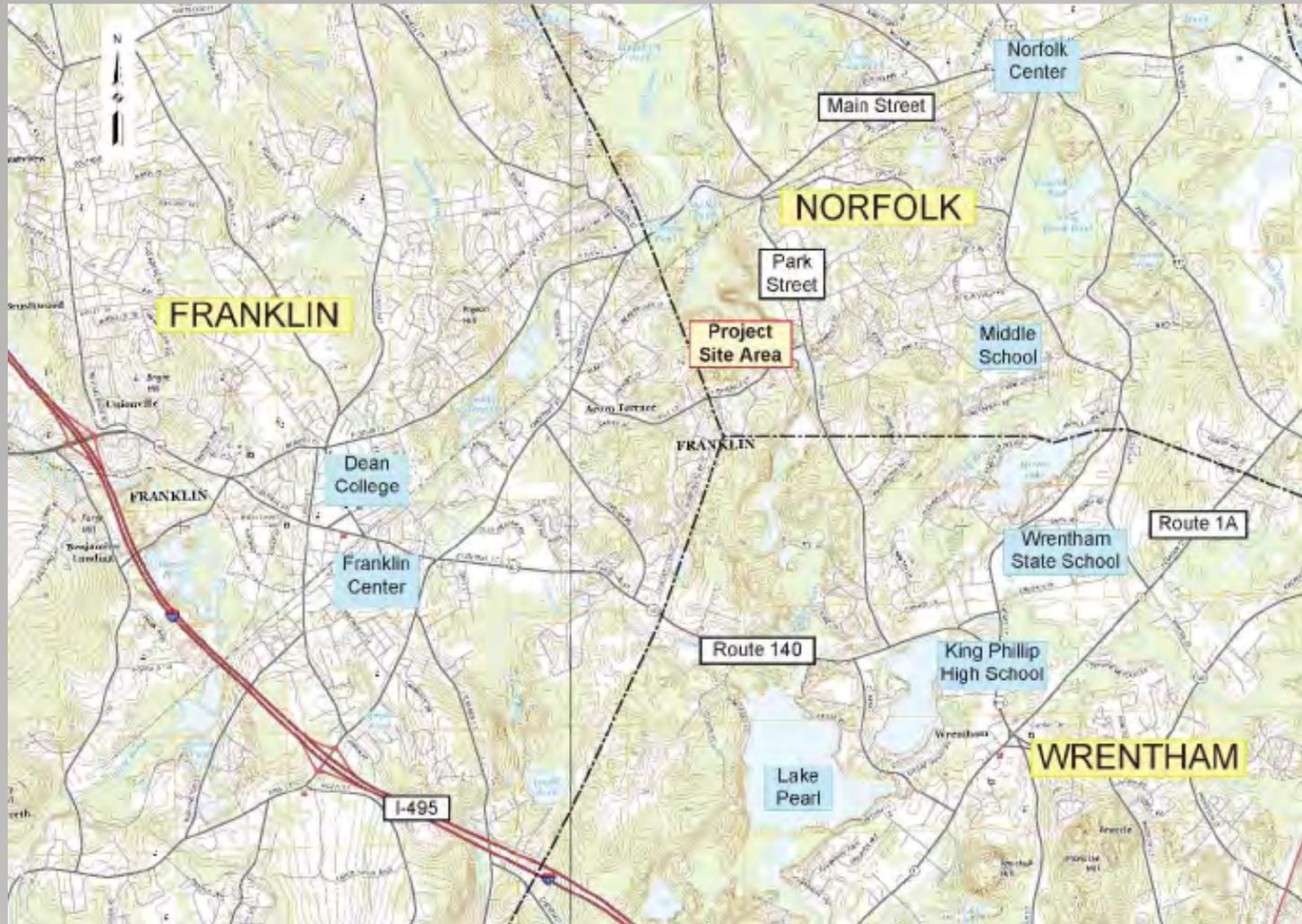
Purpose of Study

- Understand abutting roadway network
- Estimate additional traffic generated by project
- Determine traffic access or mitigation requirements if appropriate

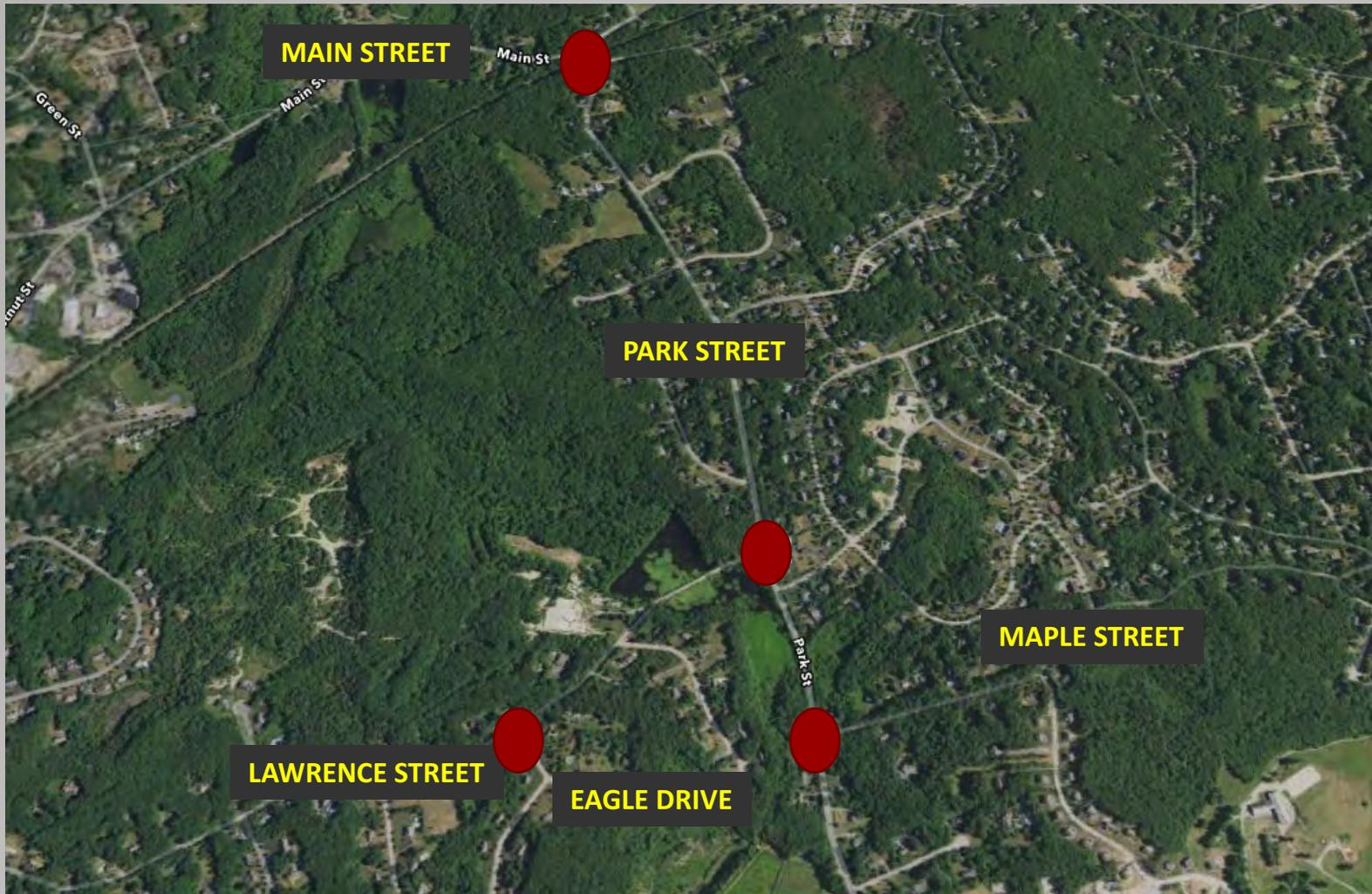
Study Process

- Data collection
 - Traffic forecasting
 - 7 year forecast
 - No-Build and Build conditions
 - Analysis
 - Focus on Weekday AM/PM periods
 - Intersection operations
 - Safety
 - Access/Mitigation Plan
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- Each component analyzed separately and combined
 - Peer Review in process

Study Area



Study Locations



Existing Conditions – Lawrence Street

- Two lane road – 20/22 feet in width
- Connects Park Street with neighborhoods and town of Franklin
- Low volume roadway – ADT \approx 860 vehicles near site
- No apparent safety issues based on crash experience
- Travel speeds slightly higher than posted

Existing Conditions – Lawrence Street

- For most part, study area intersections are operating at high levels of services with short delays experienced by motorists
- No pedestrian accommodation
- Bicycle accommodation less than desirable
- Bridge - two lanes – pavement is approx. 20 feet in width
- Bridge is currently in need of repair or replacement

Existing Conditions - Lawrence Street



Looking east from site edge



Looking west from bridge

Existing Conditions – The Bridge



Existing Traffic Characteristics

- Weekday traffic observed to be about 860 over 24 hour period near site
- Peak hour traffic volumes are 55 during AM peak and 80 during PM peak
- Travel speeds average approx. 31 mph while 85th percentile was observed at 36 mph
- Crash history (4 year period) at Park/Lawrence indicated 0.5 reported crashes per year - < MassDOT average

The Project

- Commons - 48 apartment units
- The Preserve – 148 single family homes



Traffic Study Forecasts

- Based on models published by Institute of Transportation Engineers – accepted by MassDOT
- Completed separate forecasts for single family (148 units) and apartment (48 units) components
- Evaluated impact of each component and also combined effect
- Estimated trip patterns based on current traffic, census work trip data and overall transportation network

Estimated Site Generated Traffic

Based on 48 apt units/148 SF units

Time Period	24 Hour Weekday	AM Peak Hour	PM Peak Hour
Abbyville Commons	414	27	44
The Preserve	1506	113	150
Total	1,920	140	194

Estimate based on Institute of Transportation Engineers (ITE) Trip Generation models developed from observing similar developments

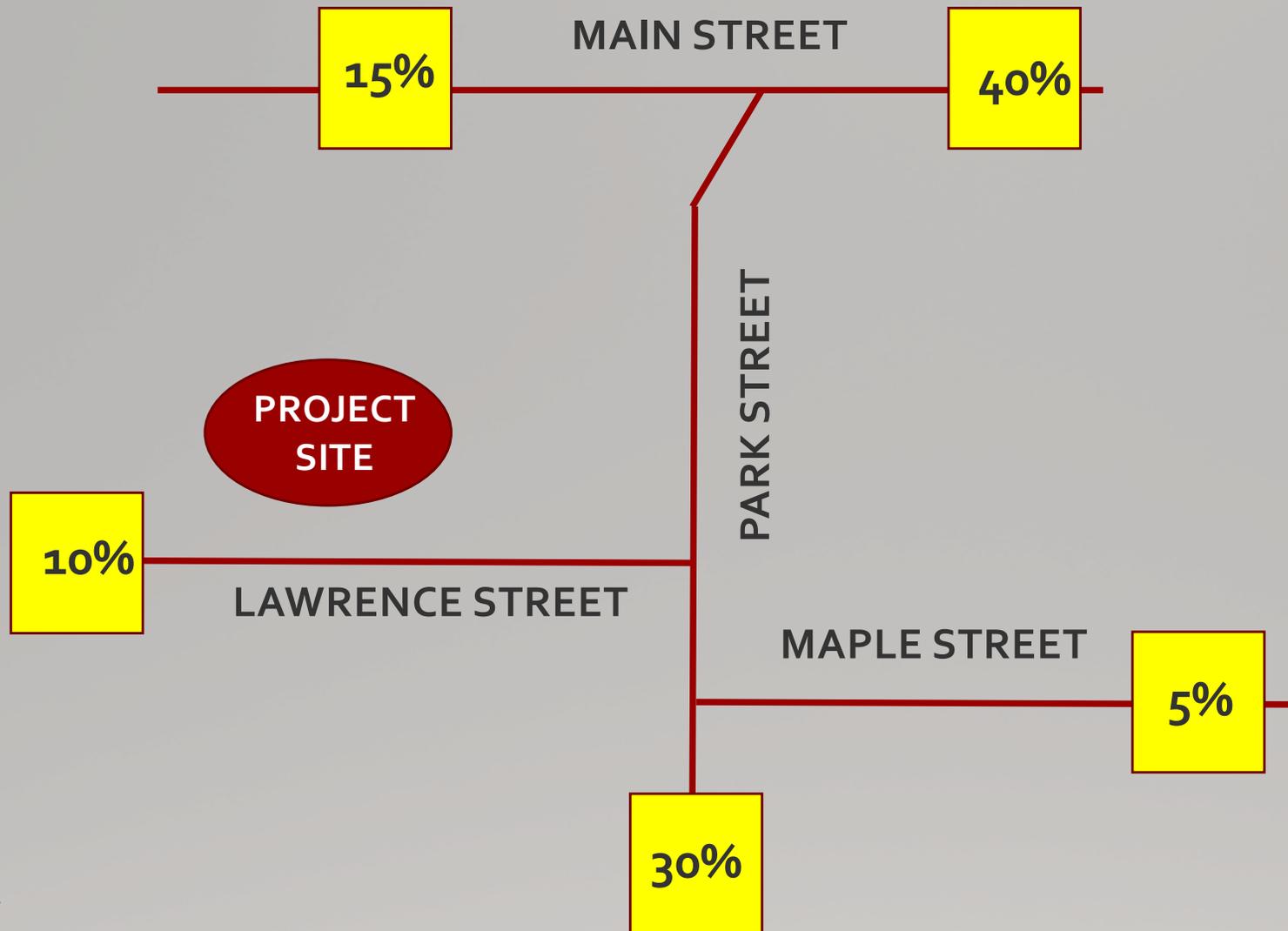
Estimated Site Generated Traffic

Based on 48 apt units/168 SF units

Time Period	24 Hour Weekday	AM Peak Hour	PM Peak Hour
Abbyville Commons	414	27	44
The Preserve	1694	127	168
Total	2,108	154	212

Estimate based on Institute of Transportation Engineers (ITE) Trip Generation models developed from observing similar developments

Estimated Peak Hour Trip Patterns



Analysis

- Analysis is based on 7 year, full build-out; all construction is done.
- No-Build condition incorporates site-specific & general background growth.

ANALYSIS EXAMINES:

- Traffic increases
- Traffic operations
- Sight distances
- Site internal road design

Traffic Increases

- Most of site traffic oriented towards Park Street
- Afternoon peak hours somewhat higher than morning peak hours
- Largest increases away from Lawrence Street is expected to be on Park Street north of Lawrence Street
- Abutting roadways including Lawrence Street have capacity to accommodate the added traffic

Traffic Operations

- Motorists can enter and exit the proposed site access drives with minimal delays (LOS A/B)
- Minimal changes in average delays and no changes in levels of service at study intersections
- Except for Main Street/Park Street intersection, all study intersections will continue to operate at LOS A or B depending on the movement and time period
- The Main Street/Park Street motorists are expected to experience long peak hour delays for motorists exiting Park Street in future regardless of the development

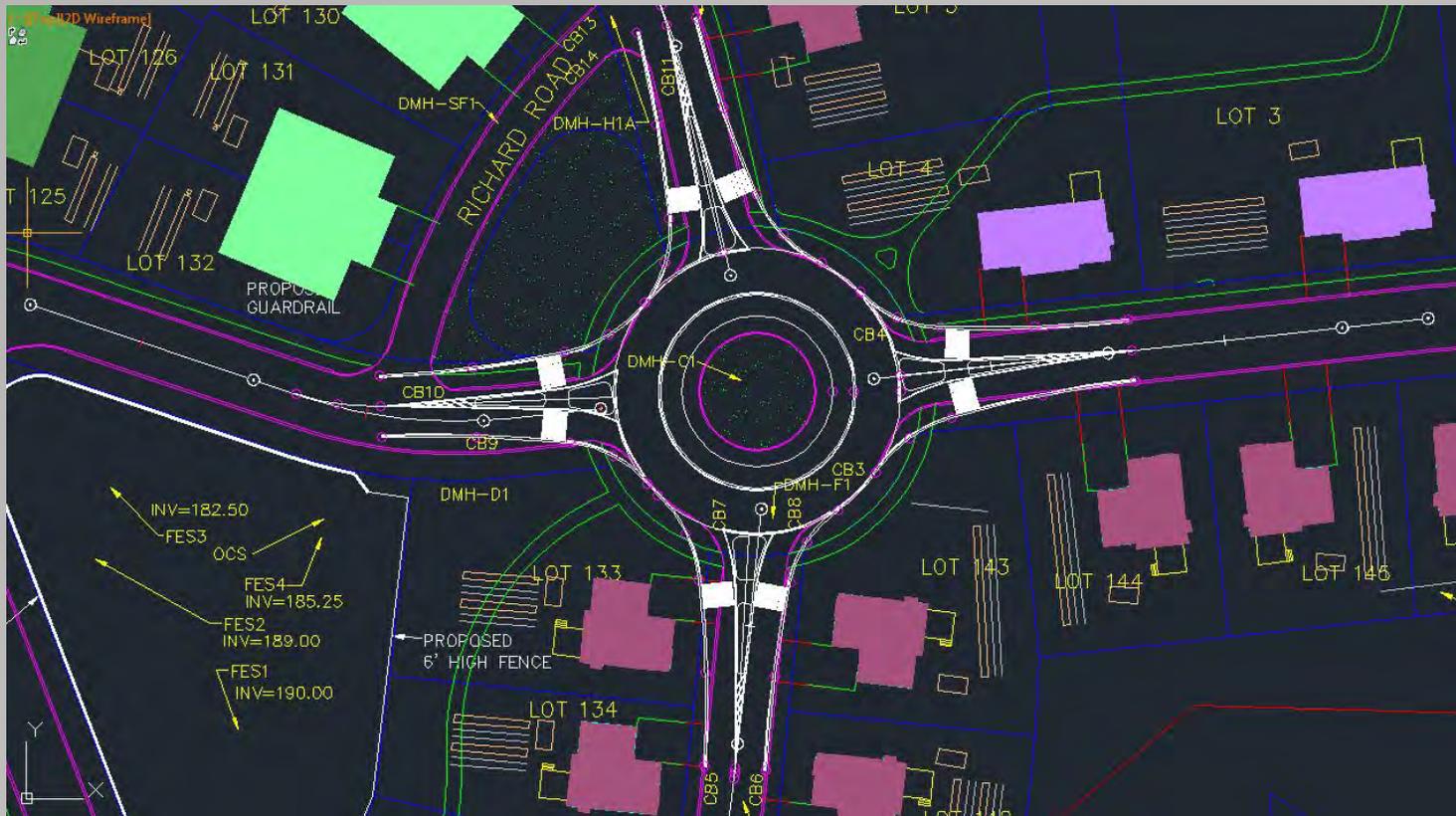
Safety

- No indication of significant crash experience
- Safe sight distance criteria at the site drives will be satisfied
- Sight line triangles have been identified
- Preliminary drive design was refined as a result of sight distance evaluation

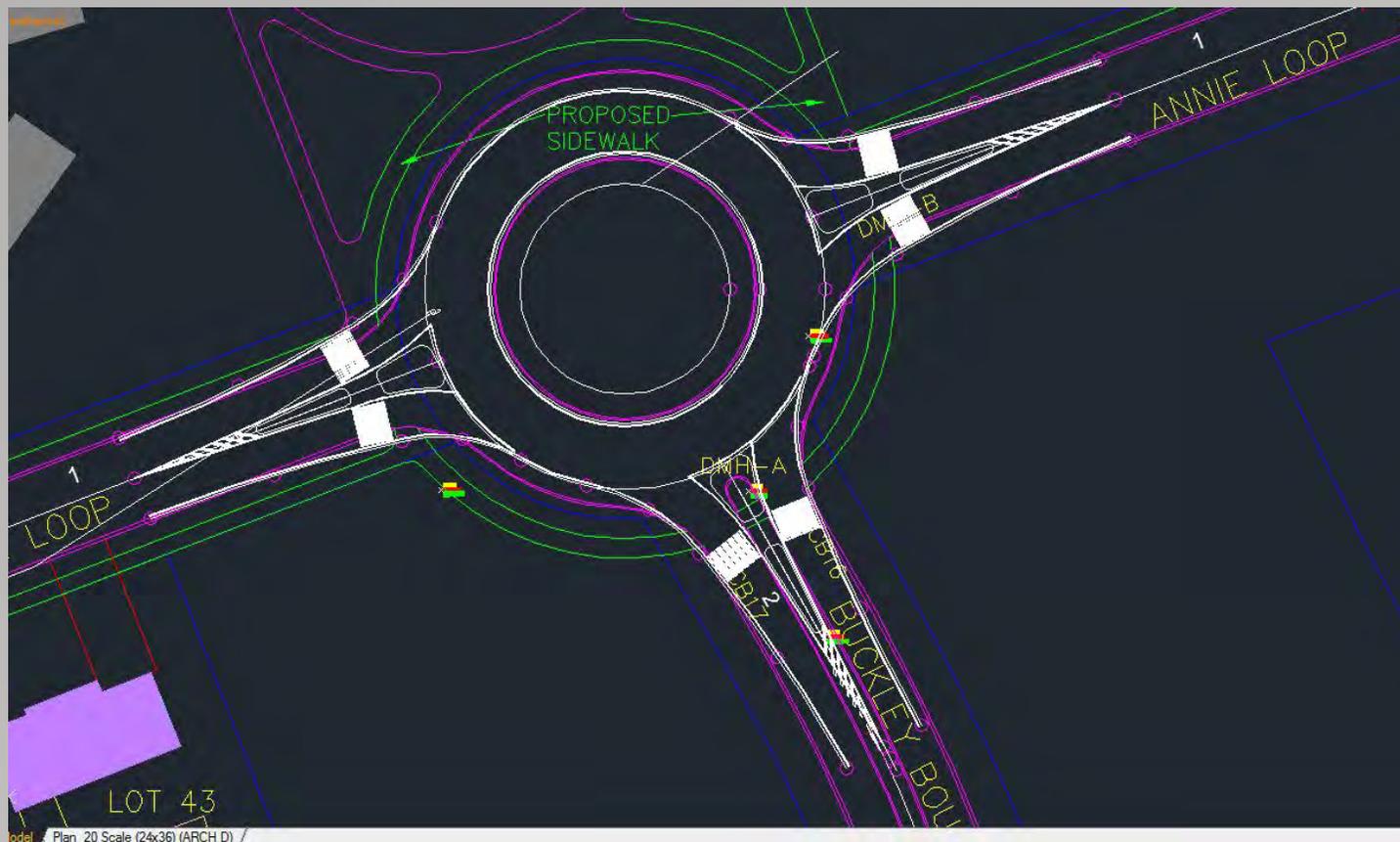
Internal Site Roadway

- Evaluated turning for large fire apparatus
- Reviewed aspects relative to peer review comments i.e. roundabout designs
- Worked with design team to cite one way streets
- Overall, the proposed roadway widths can adequately accommodate volume and fire apparatus
- Suggested refinements to geometry where appropriate to ease turning movements
- While simple circular intersection would work for a small residential neighborhood, standard roundabout design has been prepared and provided to site engineer

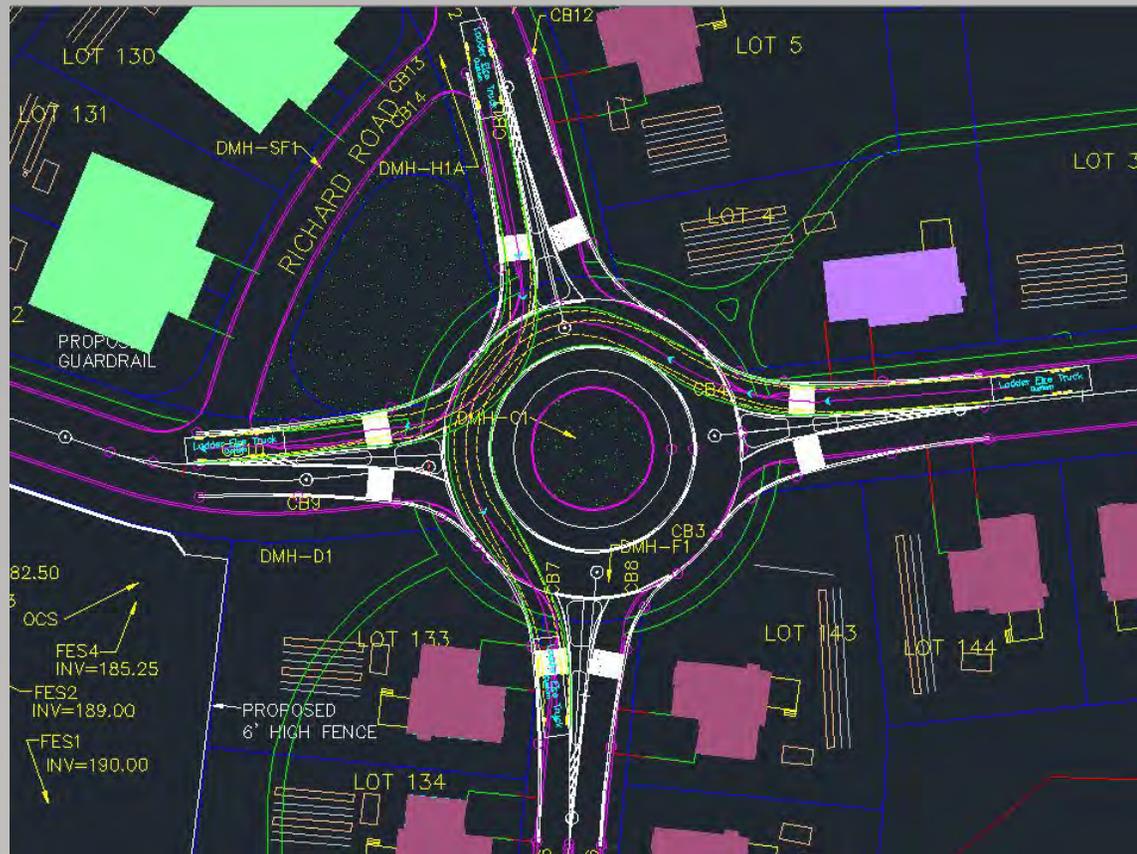
Internal Site Roadway – Examples of Refinements North Roundabout



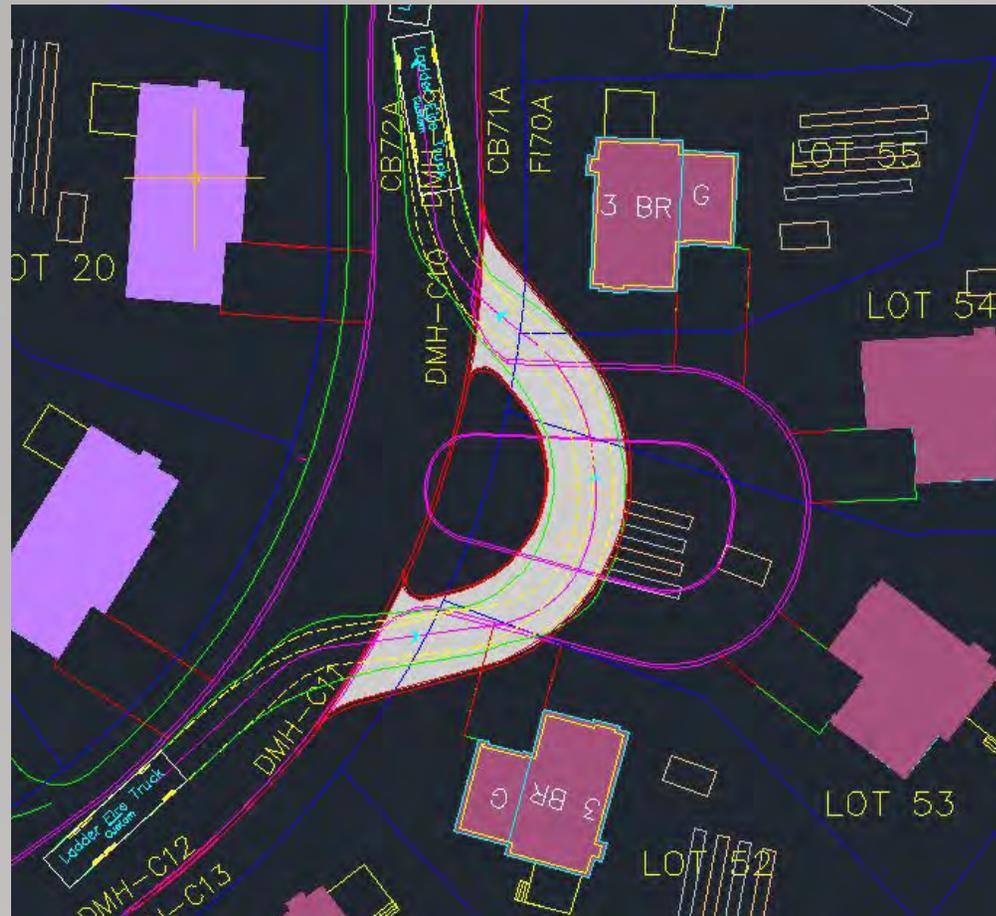
Internal Site Roadway – Examples of Refinements Buckley Boulevard Roundabout



Internal Site Roadway – Examples of Fire Truck Movement North Roundabout



Internal Site Roadway – Examples of Refinements “Horseshoe” – Lots 52-55



Peer Review Process

- Received 3 comment letters and have been reviewing and evaluating them
- Preparing formal responses to the Board
- Most critical traffic related comments received are:
 - Evaluate the internal geometric design in terms of accommodating large vehicle movements
 - Provide additional backup related to traffic counts and growth rates used in the analyses
 - Confirm that sight lines are adequate at the site drives
 - Work with police chief, dpw and other town staff to identify potential actions that could be considered for reducing travel speeds and enhancing safety (motorist awareness) for Main Street, Park Street and Lawrence Street
 - Construction traffic
 - Lawrence Street bridge condition

Traffic Study Conclusions

- Project will increase traffic on abutting street particularly between site and Park Street
- Current roadway volumes are low and can accommodate the added traffic
- Safety concerns in area relate to current observed travel speeds and a few existing visibility issues
- Existing bridge condition needs to be addressed regardless of the proposed development
- Project mitigation plans being prepared that will alleviate safety concerns and enhance transportation system

Summary of Proposed Off-Site Traffic Mitigation

- STOP control site drives
- Ensure vegetation is trimmed or removed within sight line triangles – some regrading roadside within public layout may be desirable as well
- Install enhanced ADVANCE INTERSECTION AHEAD warning sign along Main Street EB approach to Park Street
- Install ADVANCE INTERSECTION AHEAD warning sign along Park Street approaches to Lawrence Street
- Reconstruct Lawrence Street between bridge and Park Street to include a paved width of 22-24 feet and sidewalk on north side
- Mill & overlay Lawrence Street between bridge and site



Construction Traffic

- Various levels of heavy trucks but preliminary estimate is approximately average 30-40 loads per day based on current phasing plan
- We will work with Police Chief to develop a traffic plan for construction period including signage and routings
- Expect haul trucks will be routed between site to Park Street
- Preliminary estimate of 50/50 split north & south once on Park Street
- Bridge issue will be addressed for construction period – with temporary action in short term if required

MassWorks Grant

- Proposed to state to fund bridge, sidewalk, larger waterline, some roadwork and potential boardwalk
- Applicant providing assistance including providing design and permitting of proposed improvements
- Intent is to improve pedestrian accommodation along Lawrence Street increasing utilization of recreational trails and addressing the long term bridge issue
- Request was for \$1.9M
- Application was submitted August 4th
- Award notices are due out during October