

Totten Pond Road at Lexington Street & Bacon Street Intersection Improvements

Traffic Commission Meeting

March 13th, 2019



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Project Team

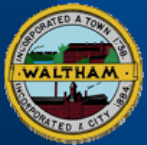
- City of Waltham – Project Proponent
- BSC Group – Responsible for project design



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Project Location



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Project Background

- Intersection identified as one of the top high crash locations in City of Waltham
- 2015 Master Plan Process
 - Alternatives were analyzed to select preferred alternative
- City acquired property at 380 Lexington Street to accommodate realignment of Totten Pond Road
- BSC Group was awarded the contract to develop the preferred alternative to bid documents



Roadway Characteristics

- Totten Pond Road
 - Urban Principal Arterial
 - ~16,000 vehicles per day
 - Design Speed = 30 MPH
- Lexington Street
 - Urban Principal Arterial
 - ~23,000 vehicles per day
 - Design Speed = 30 MPH
- Bacon Street
 - Urban Minor Arterial
 - ~10,500 vehicles per day
 - Design Speed = 30 MPH
- Neighborhood Uses:
 - Residential Single Family Housing
 - Churches and Schools
 - Multi-modal Transportation



Project Goals

- Improve Safety & Mobility
- Improve Vehicular, Bicycle, and Pedestrian Accommodations and Accessibility
- Improve the existing infrastructure



Methodology

- Turning Movement Counts
- Crash Data Analysis
- Field Survey
- Wetland Flagging
- Field Inventory



Totten Pond Rd at Lexington St – Existing Conditions

- Wide intersection with misaligned lanes
- Visual confusion through intersection leading to conflicts
- Several private driveways within the intersection



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Totten Pond Rd looking East



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Lexington St looking South



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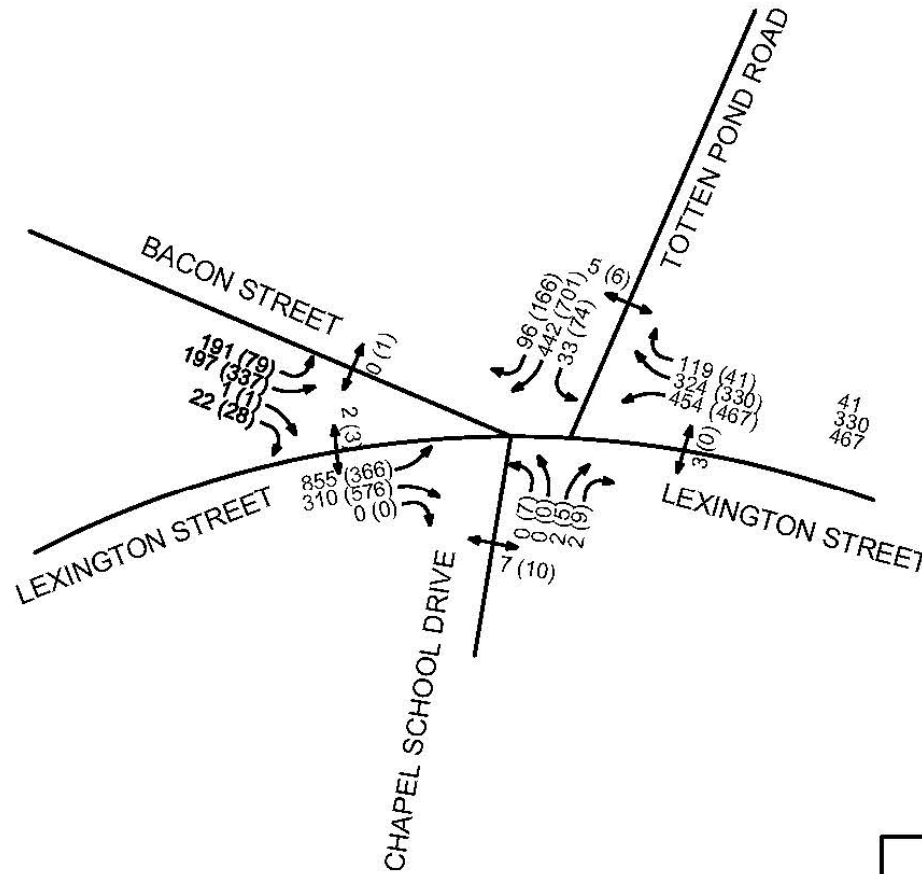
Lexington St looking South



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2018 Existing Traffic Volumes



2018 Existing Peak Hour Traffic Volumes

(Not to Scale)

Legend

AM (PM)

- Vehicle Movement
- ↔ Pedestrian Movement



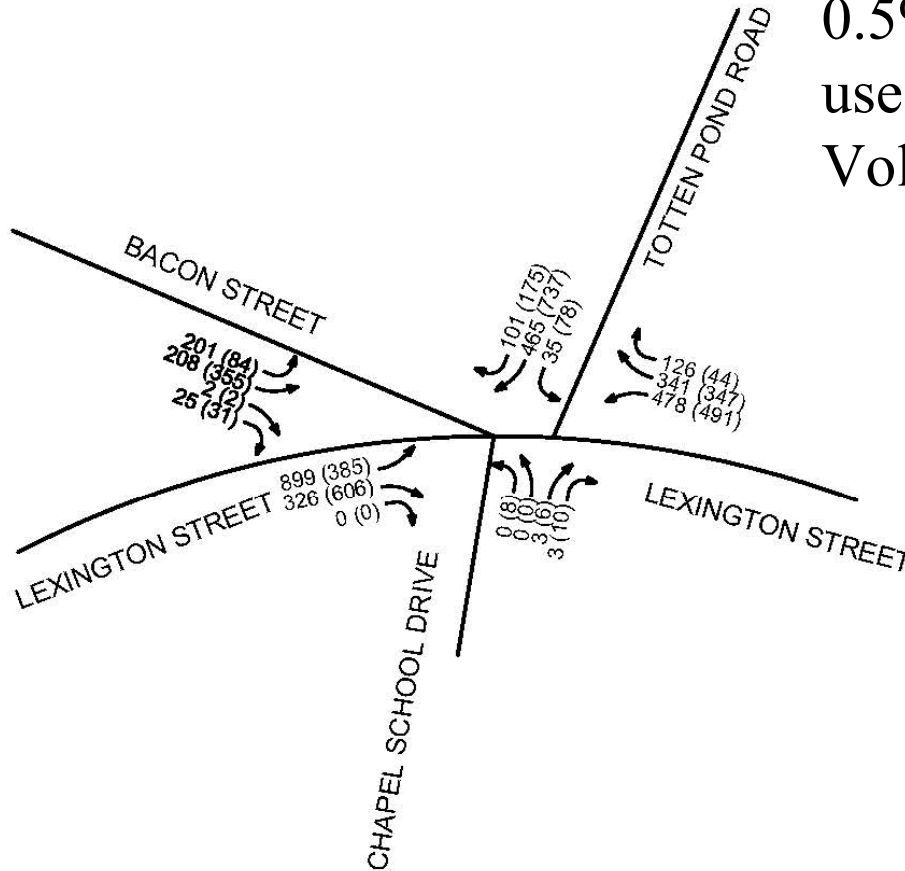
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2028 Future Traffic Volumes



0.5% Growth per Year
used for Future Traffic
Volumes



2028 Future Peak Hour
Traffic Volumes

(Not to Scale)

Legend

AM (PM)

→ Vehicle Movement



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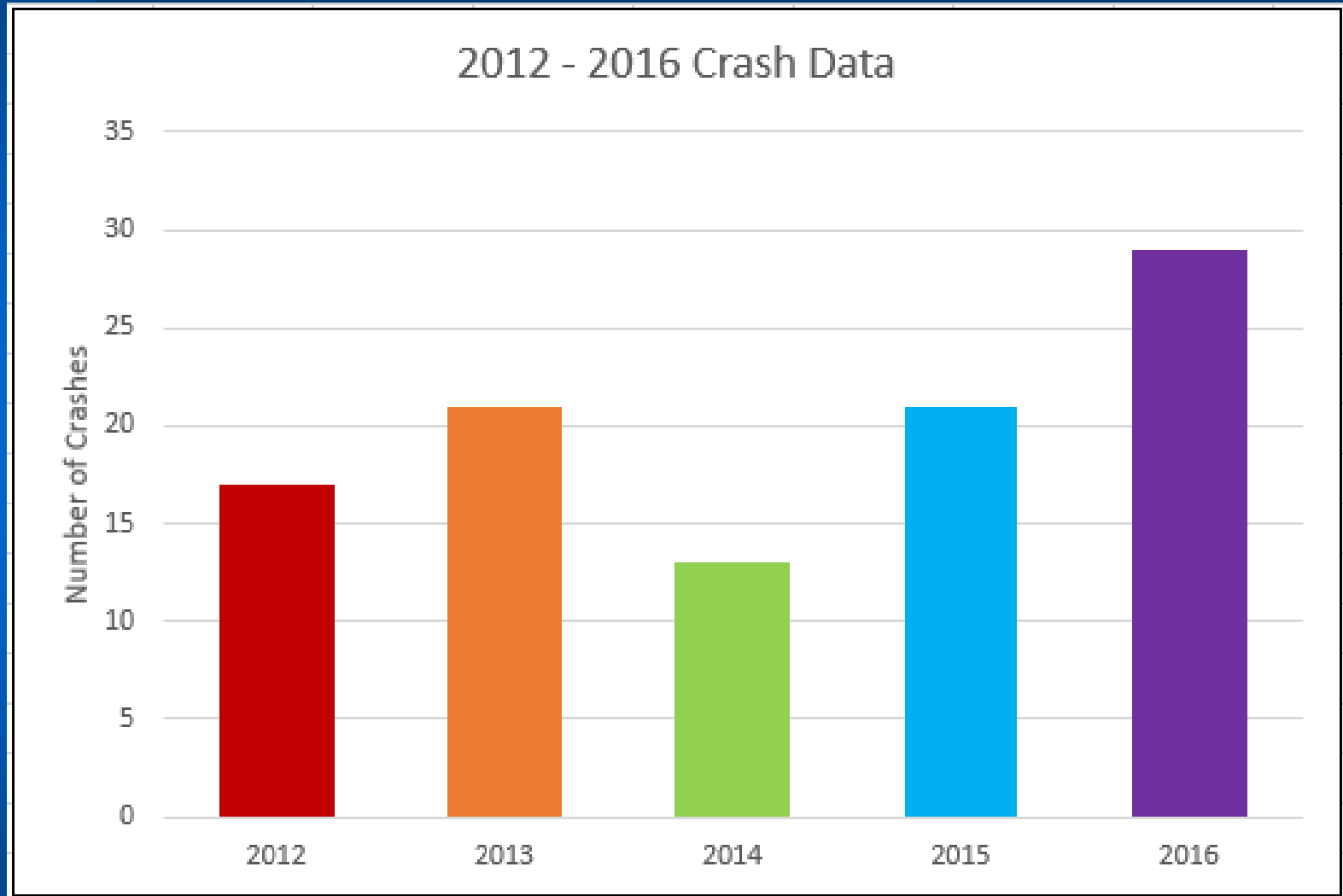


Safety Analysis

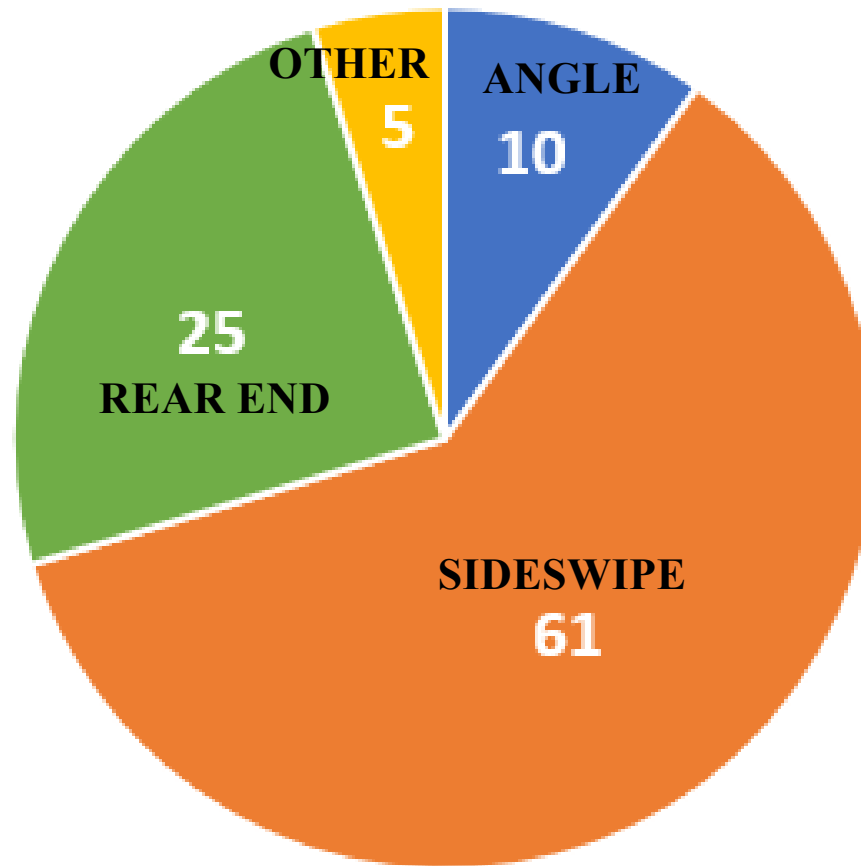
- Intersection averages 20 crashes per year from 2012 through 2016
- Average Crash Rate = 1.56 crashes per Million Entering Vehicles
 - More than double the MassDOT District 4 average crash rate of 0.73



Crash History – Crashes per Year



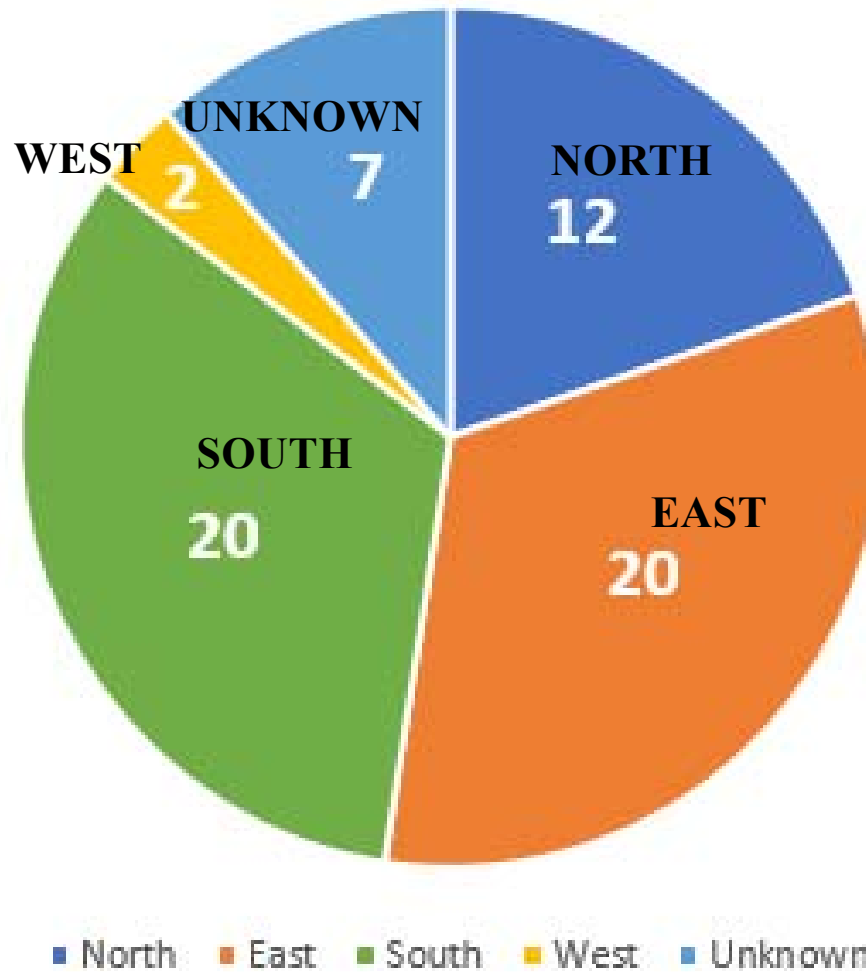
Crash History – Manner of Collision



■ Angle ■ Sideswipe ■ Rear end ■ Other/Unknown



Crash History – Reported Direction of Travel for Sideswipe Collisions

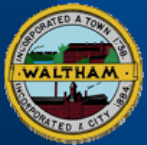


Intersection Improvements

- Realignment of Totten Pond Road
- Tightened intersection limits to decrease travel time through the intersection
- Improved wayfinding through pavement markings and signage
- Separate right turn movements on Totten Pond Road and Lexington Street
- Proposed geometry facilitates concurrent pedestrian phasing and improves overall intersection traffic operations



Totten Pond Rd at Lexington St – Existing Conditions



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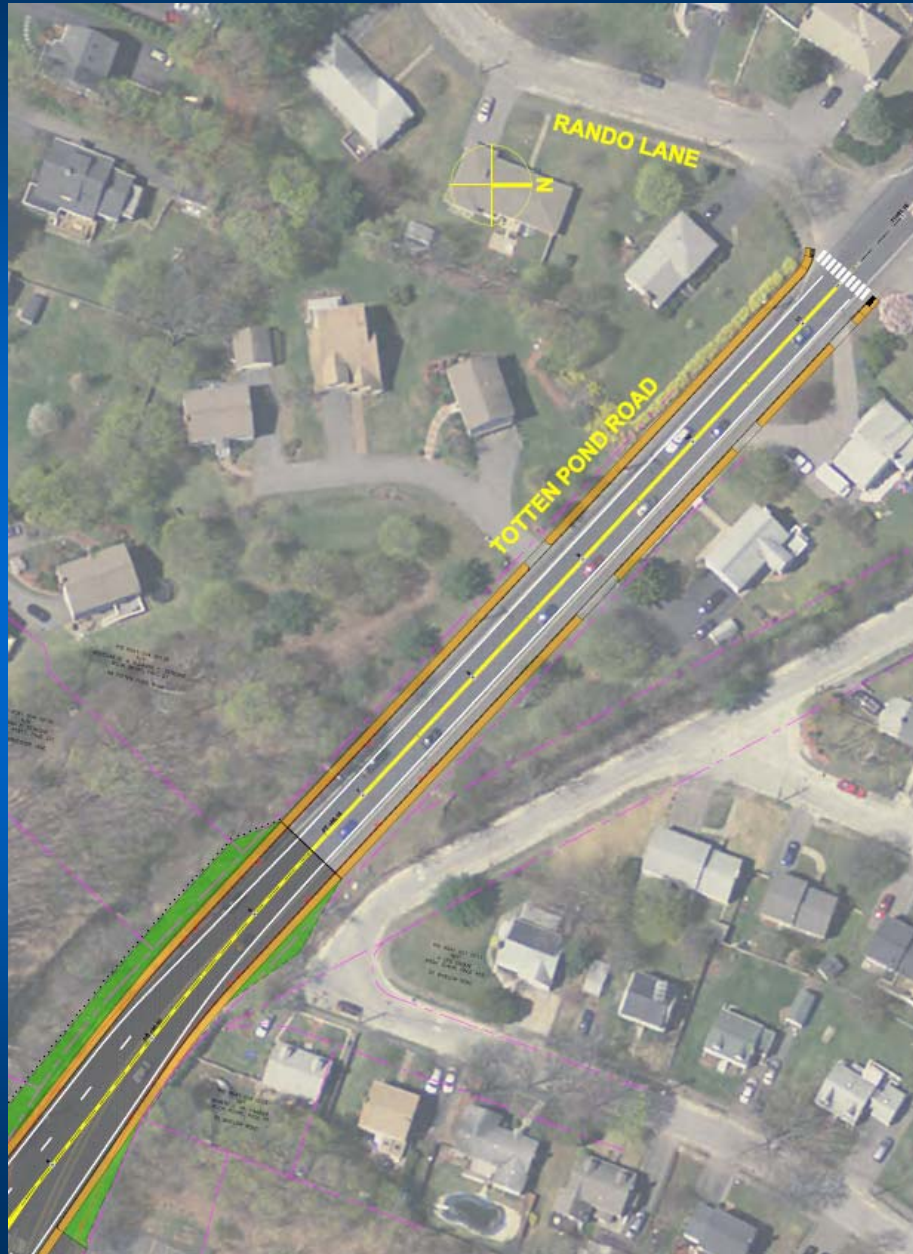
Proposed Intersection



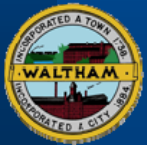
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Proposed Sidewalk Connection



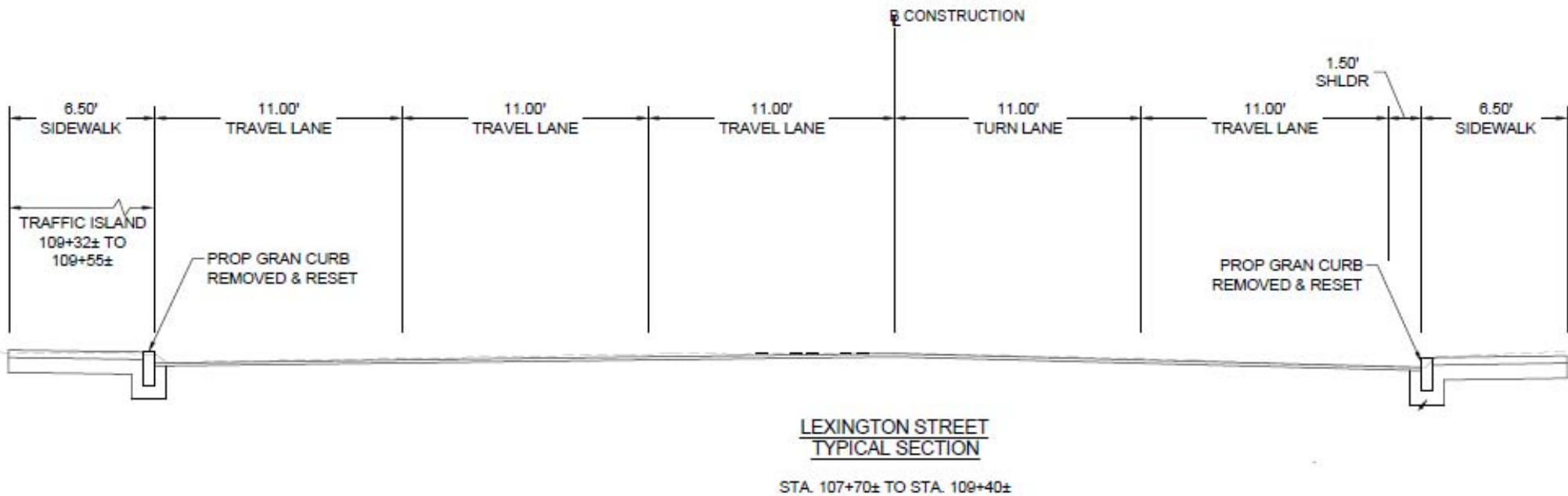
- Construction of sidewalk connection to Rando Lane



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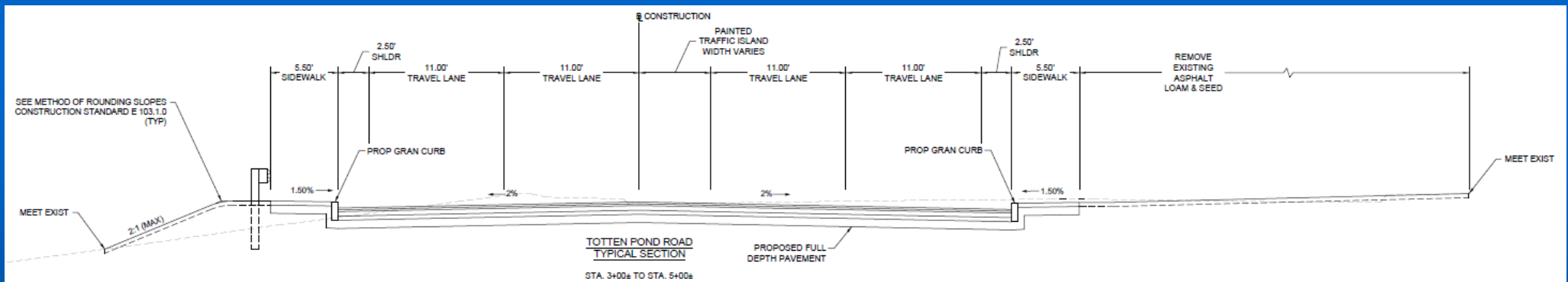
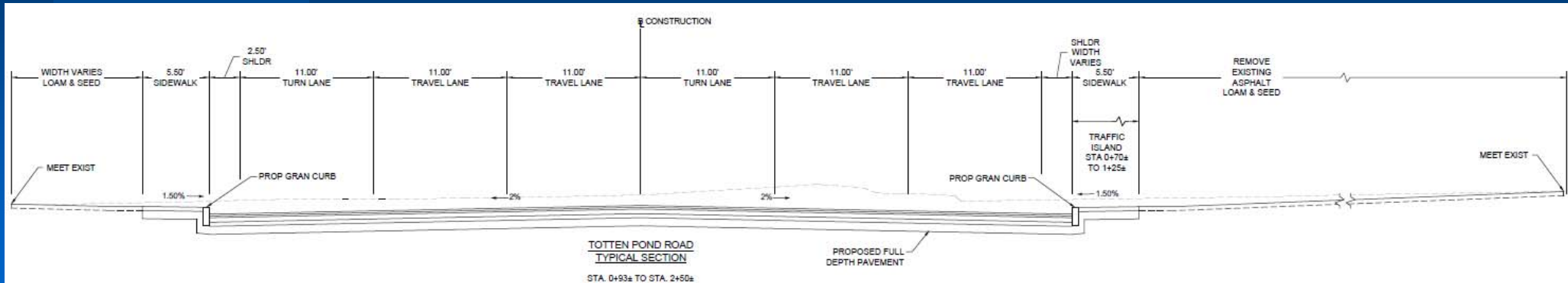
Roadway Typical Sections



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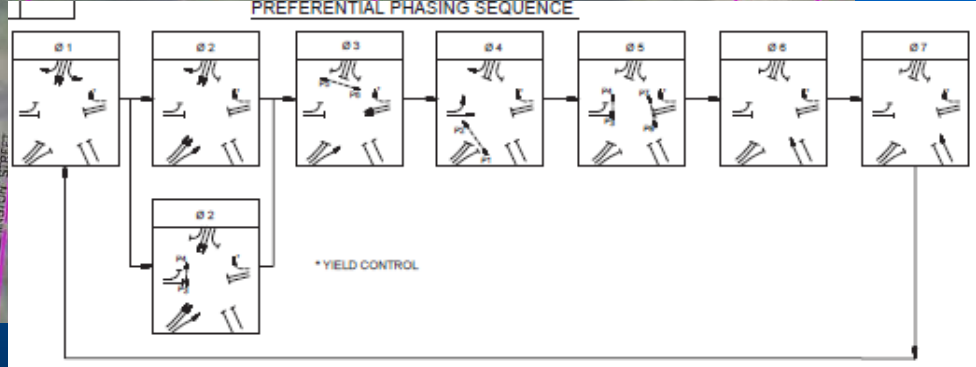
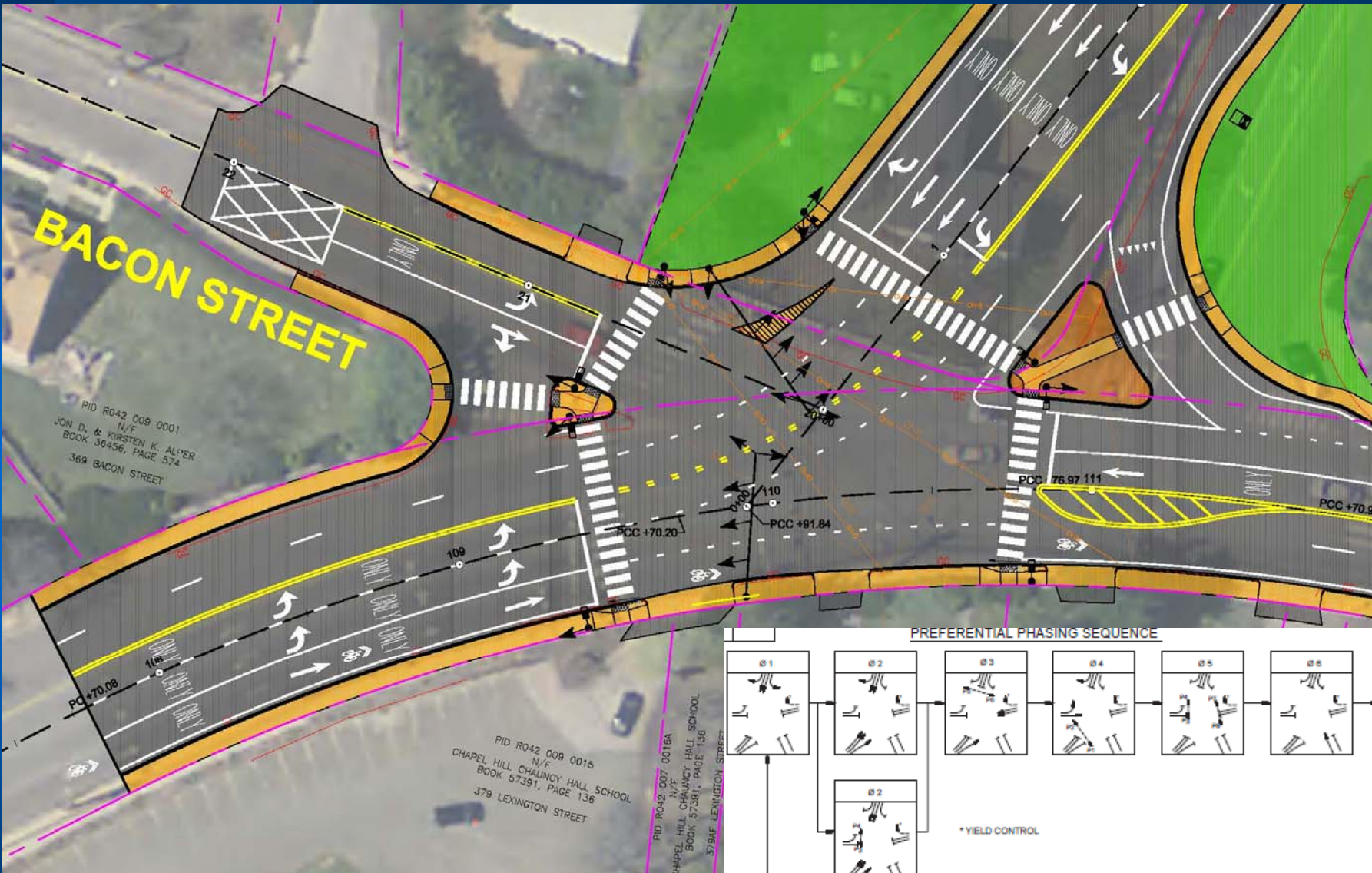
Roadway Typical Sections



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Proposed Intersection - Phasing



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Traffic Signal Characteristics

- New Traffic Signal Equipment
- Fully Actuated – Will detect vehicles and bicyclists
- Accessible Pedestrian Signals (APS) – Push button
- Emergency Vehicle Preemption



Traffic Operations Summary

	2018 Existing Conditions	2028 No Build Conditions	2028 Build Conditions
<u>Weekday Morning Peak Hour</u>			
Delay	85.1	94.9	54.1
LOS	F	F	D
<u>Weekday Evening Peak Hour</u>			
Delay	57.8	65.8	56.0
LOS	E	E	E
LOS shown is for overall intersection operations			



Summary

Goals:

- Improve Safety & Mobility
- Improve Vehicular, Bicycle, and Pedestrian Accommodations and Accessibility
- Improve the existing infrastructure



Next Steps

- Response to Comments from the City
- Utility Coordination and Drainage Design
- Project Permitting, Conservation Commission
- Preparation of Final Design Documents:
Plans, Specifications, Cost Estimate



Questions and Comments

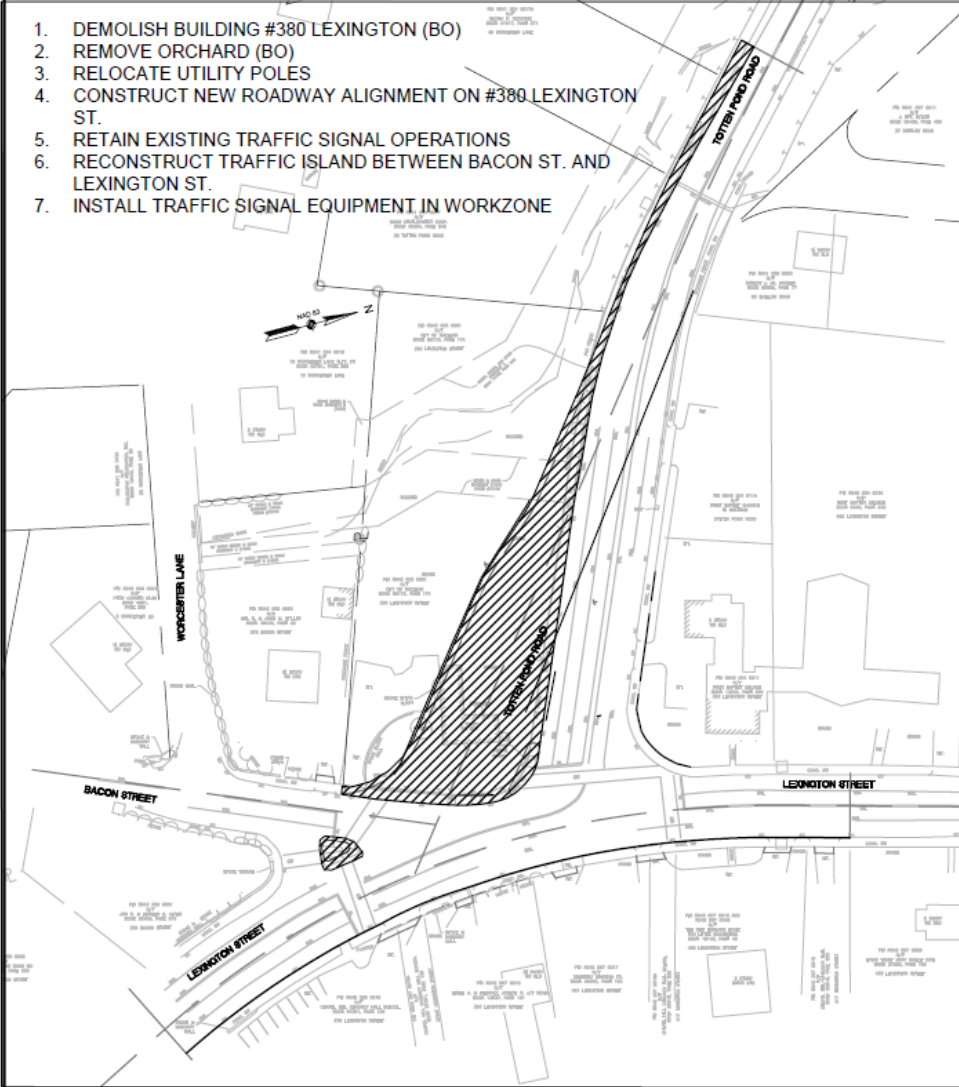


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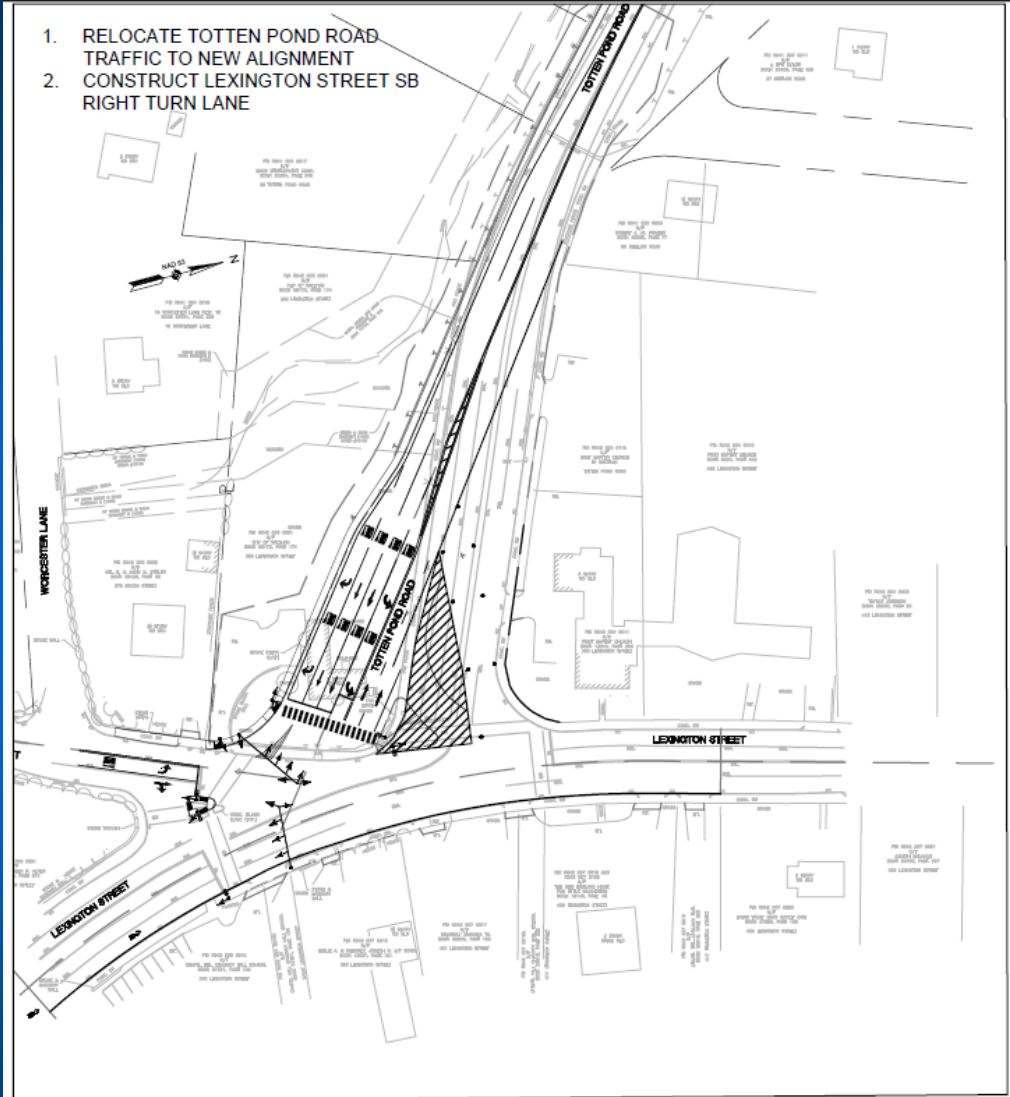
Construction Staging

1. DEMOLISH BUILDING #380 LEXINGTON (BO)
2. REMOVE ORCHARD (BO)
3. RELOCATE UTILITY POLES
4. CONSTRUCT NEW ROADWAY ALIGNMENT ON #380 LEXINGTON ST.
5. RETAIN EXISTING TRAFFIC SIGNAL OPERATIONS
6. RECONSTRUCT TRAFFIC ISLAND BETWEEN BACON ST. AND LEXINGTON ST.
7. INSTALL TRAFFIC SIGNAL EQUIPMENT IN WORKZONE

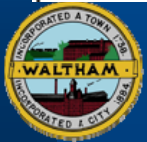


STAGING PLAN 1

1. RELOCATE TOTTEN POND ROAD TRAFFIC TO NEW ALIGNMENT
2. CONSTRUCT LEXINGTON STREET SB RIGHT TURN LANE



STAGING PLAN 2

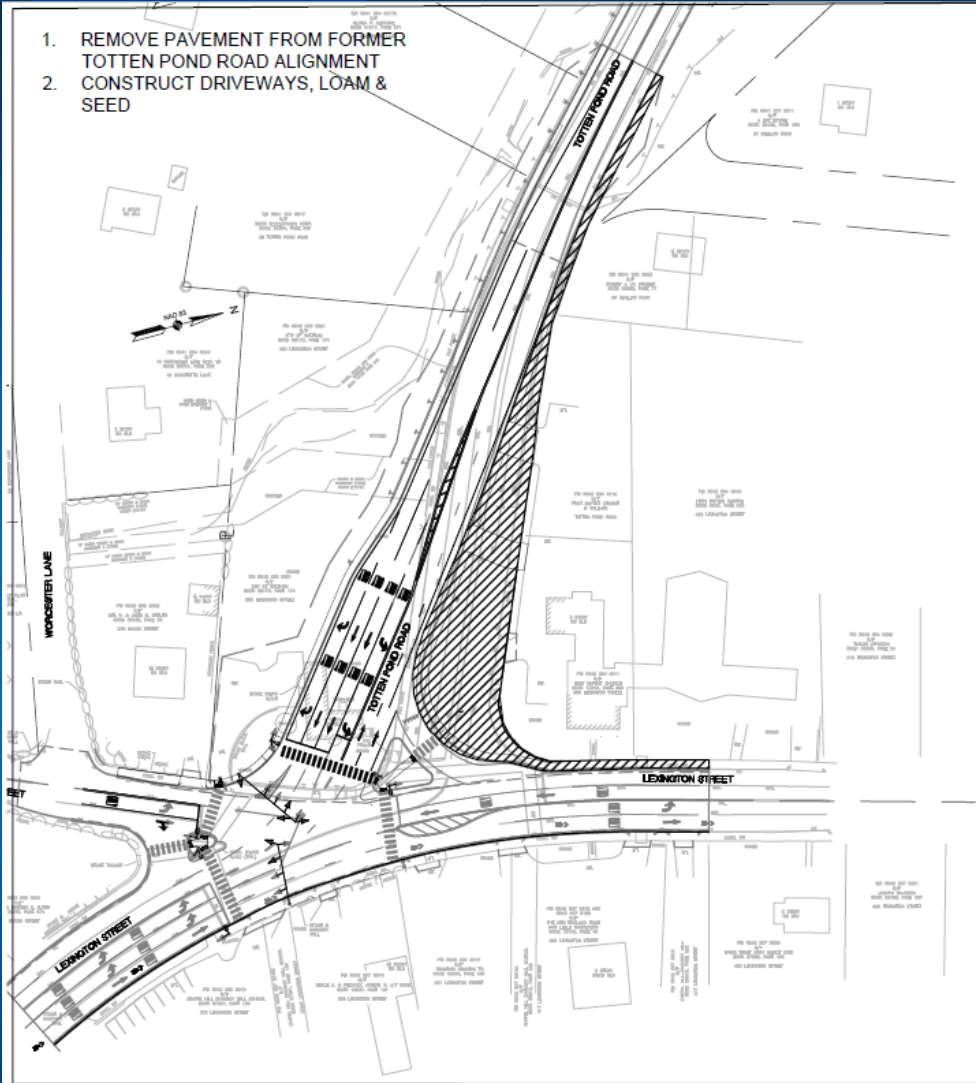


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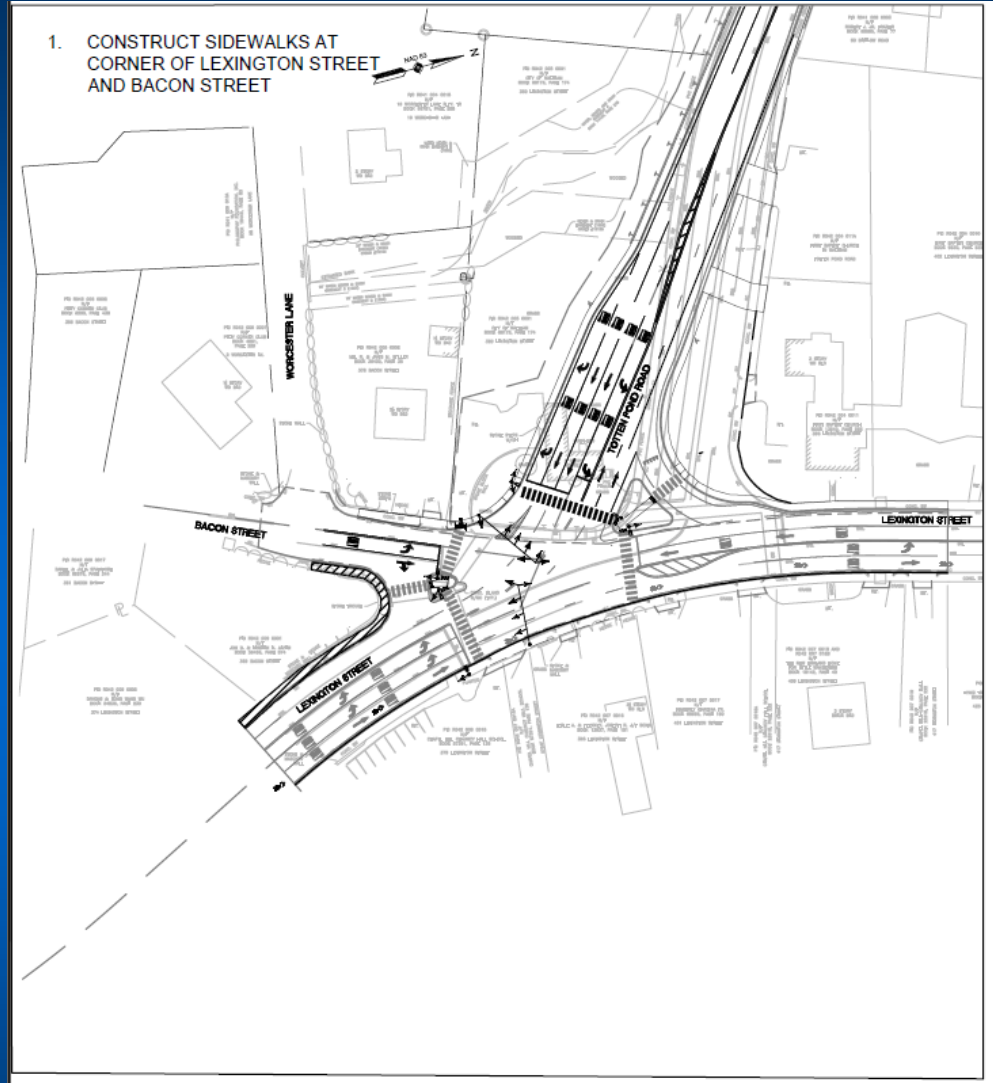
Construction Staging

1. REMOVE PAVEMENT FROM FORMER TOTTEN POND ROAD ALIGNMENT
2. CONSTRUCT DRIVEWAYS, LOAM & SEED



STAGING PLAN 3

1. CONSTRUCT SIDEWALKS AT CORNER OF LEXINGTON STREET AND BACON STREET



STAGING PLAN 4



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