



North River Canal Corridor

Transportation Study

Preliminary Recommendations

Salem, Massachusetts

City of Salem, Massachusetts
Kimberley Driscoll, Mayor



City of Salem
Department of Planning & Community Development

3/29/12

Purpose

- Identify *cumulative* impacts of developments over next five years (2016)

- Determine *transportation system* improvements

- Provide *order of magnitude* costs

- Identify *implementation* priorities



Comments on Options: (1/19/12 Meeting)

- ❖ Are enough intersections included in the NRCC Study Area?
- ❖ How do the newly regionalized Ruane Court/MBTA parking expansion affect the background traffic for this study?
- ❖ Why don't *all* 2003 NRCC Master Plan recommendations still apply?



Study Area Overview

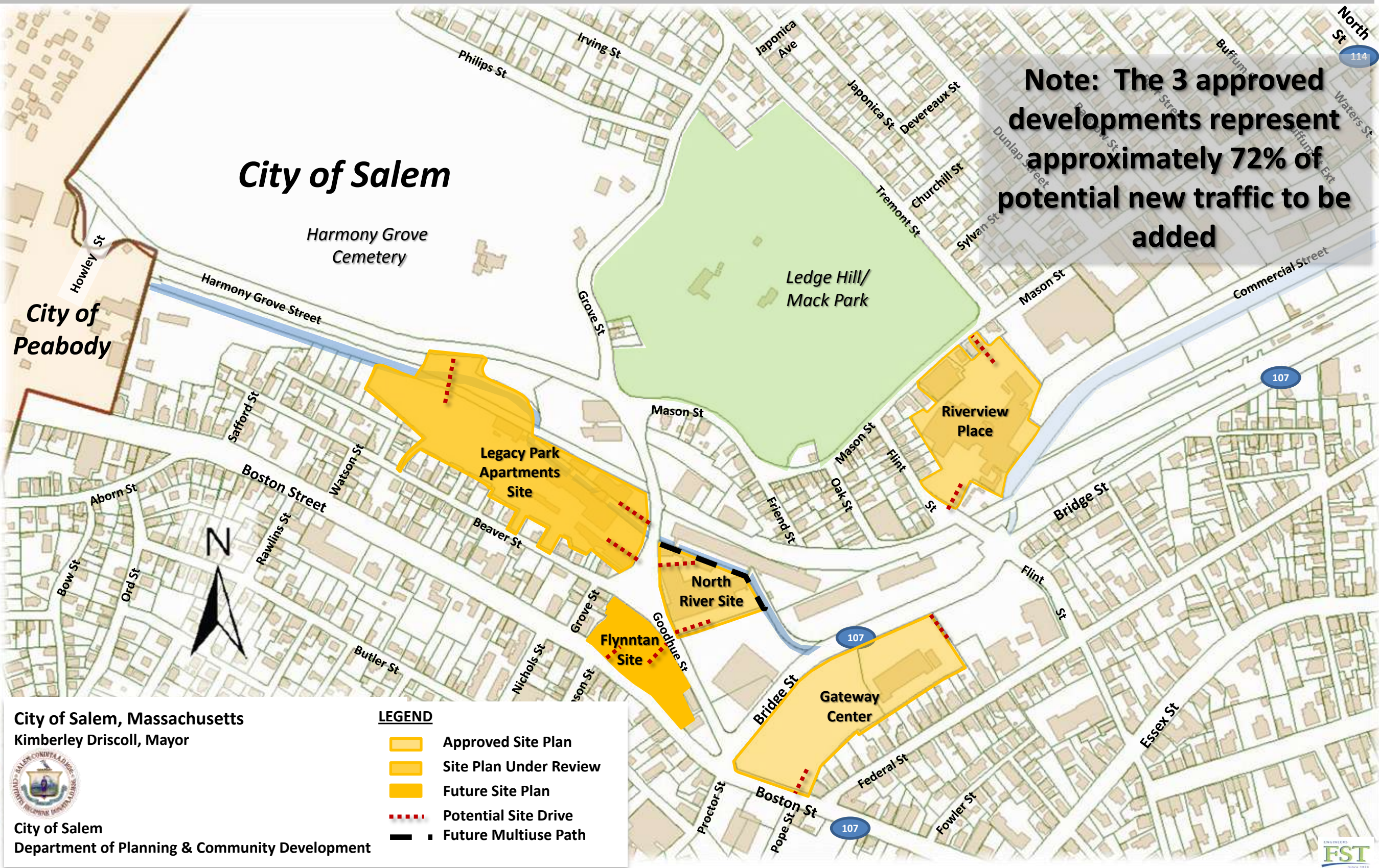


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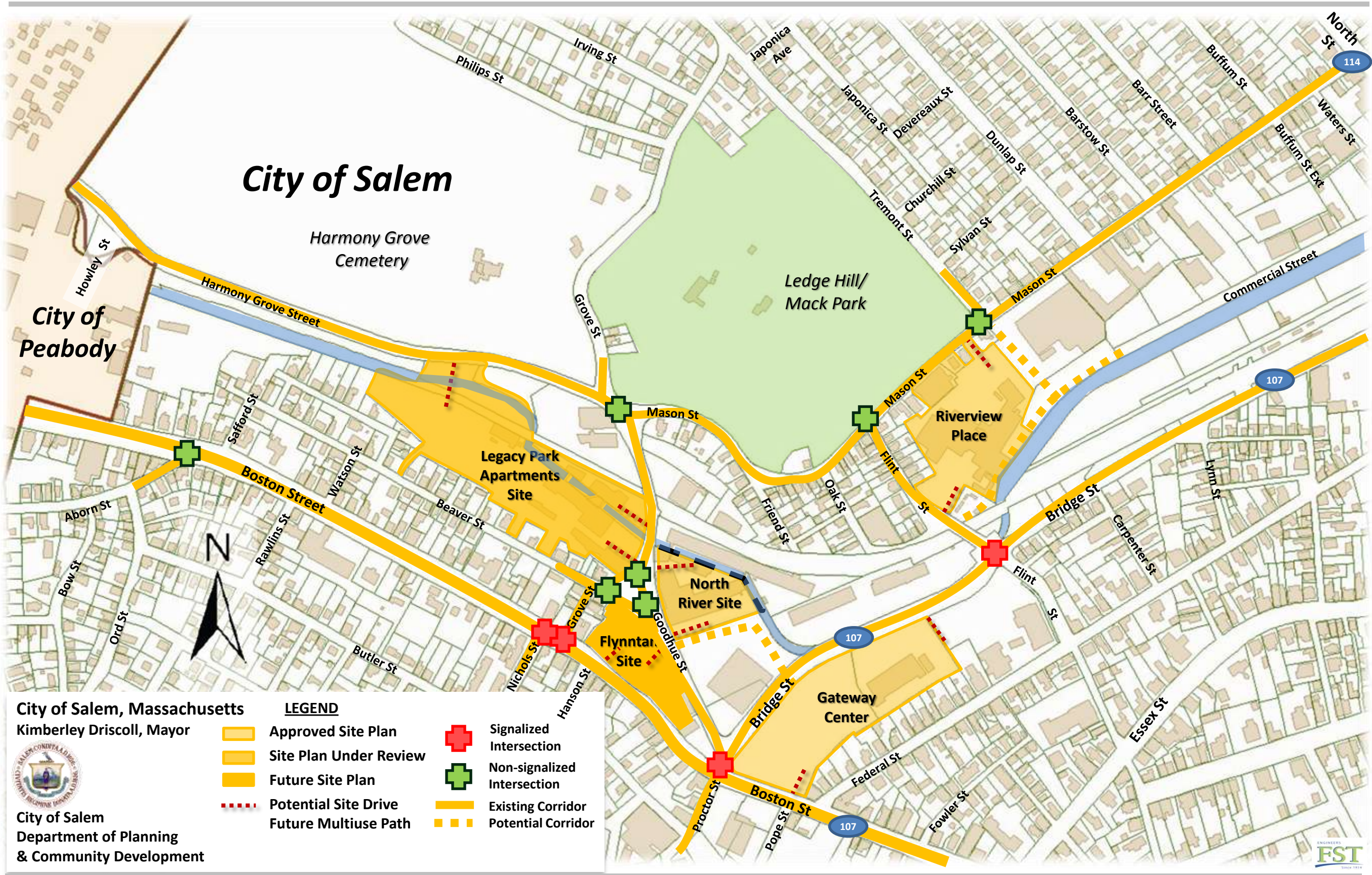


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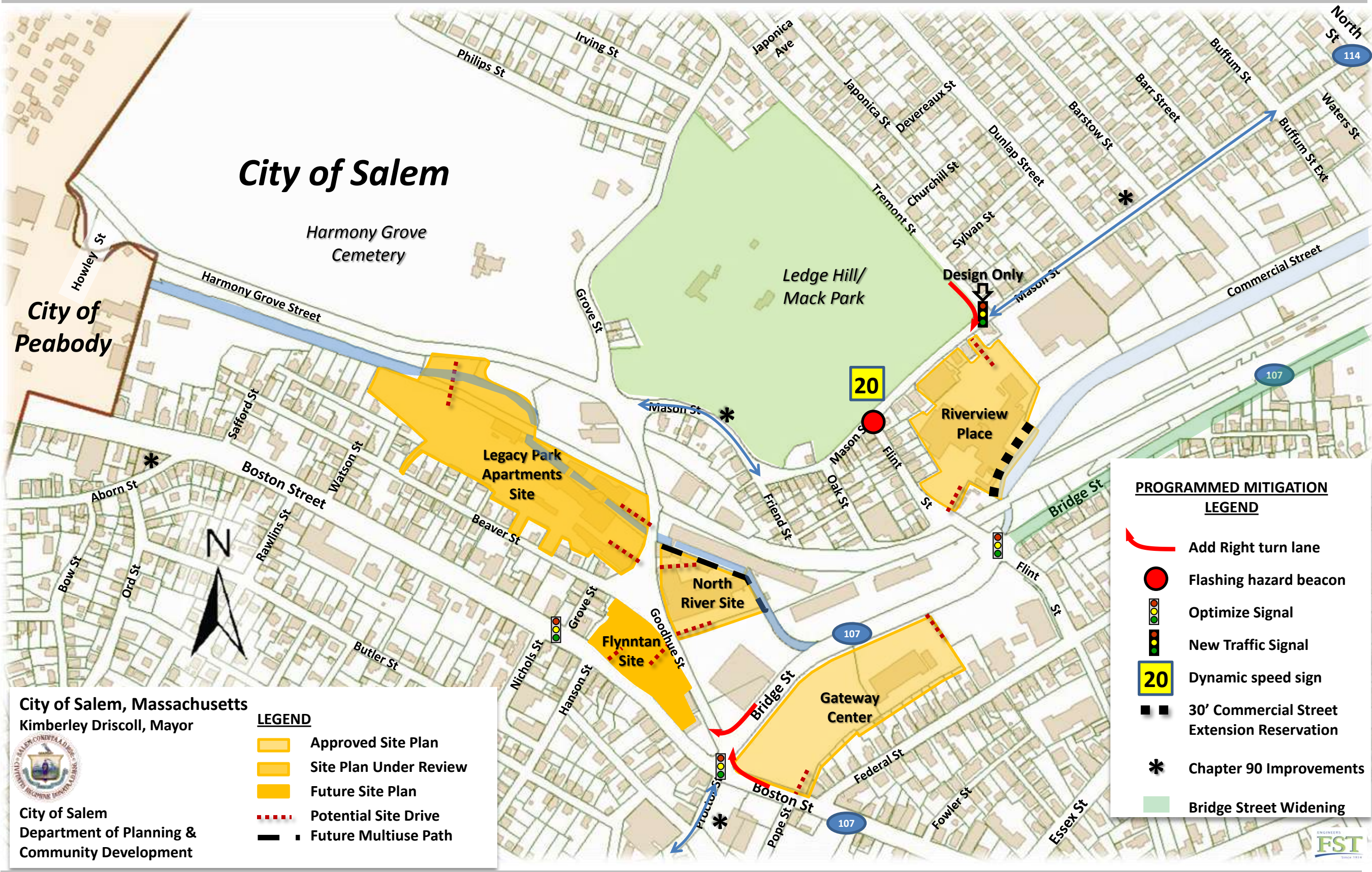
Key Redevelopment Parcels



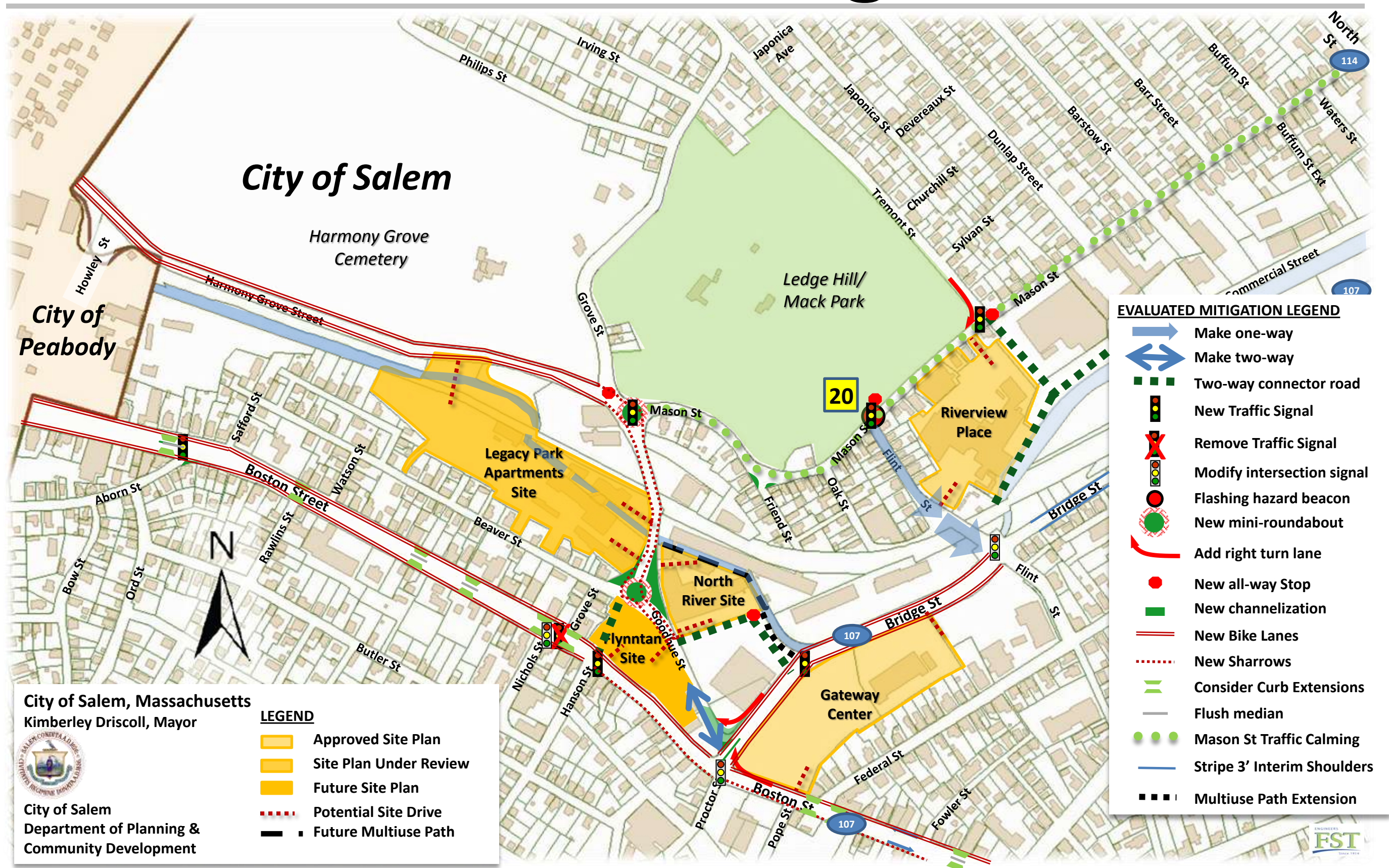
Intersections & Corridors Addressed



Programmed Mitigation



Evaluated Mitigation



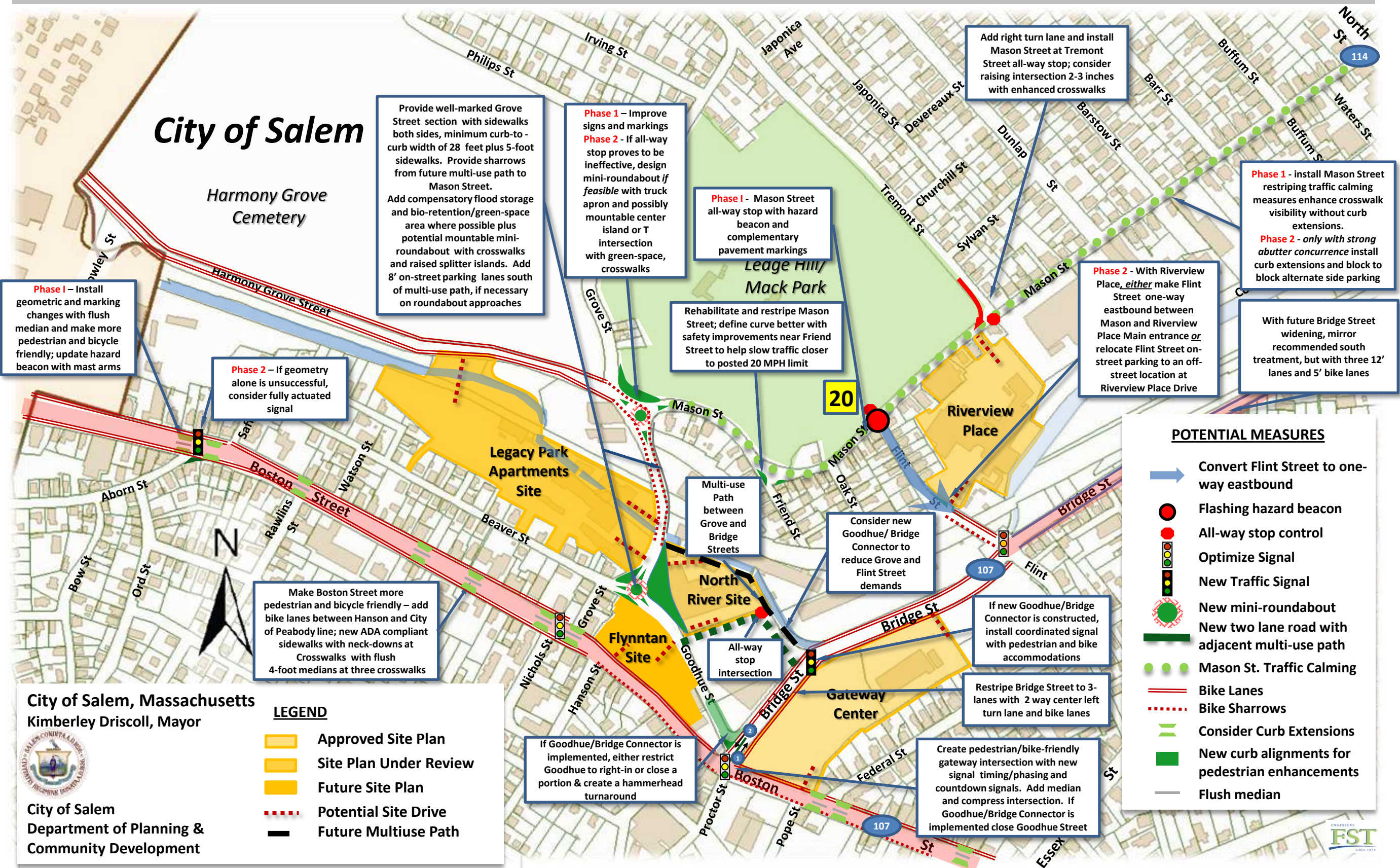
PRELIMINARY RECOMMENDATIONS SUMMARY

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Preliminary Recommendations Overview



5-10 year Horizon Modifications



Mason Street Traffic Calming

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North end of Mason Street Study Area Tremont to North Streets



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Mason Street

Traffic Calming Options Evaluated

- **All-way stops**
- **More visible pavement markings or possibly slightly-raised crosswalks**
- **Alternating block to block on-street parking with sidewalk enhancements**
- **Safety improvements at the Mason Street curve near Friend Street**

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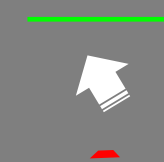
Strategy: Alternate Curbside Parking on Mason Street Jogged Centerline Between North (Route 114) and Tremont Streets Could be tested, as only two short blocks affected



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Parking Allowed
Relocated Parking
Markings for parking 'bulb-out'

Recommendation: Mason Street Modifications – North (114) to Barr Streets



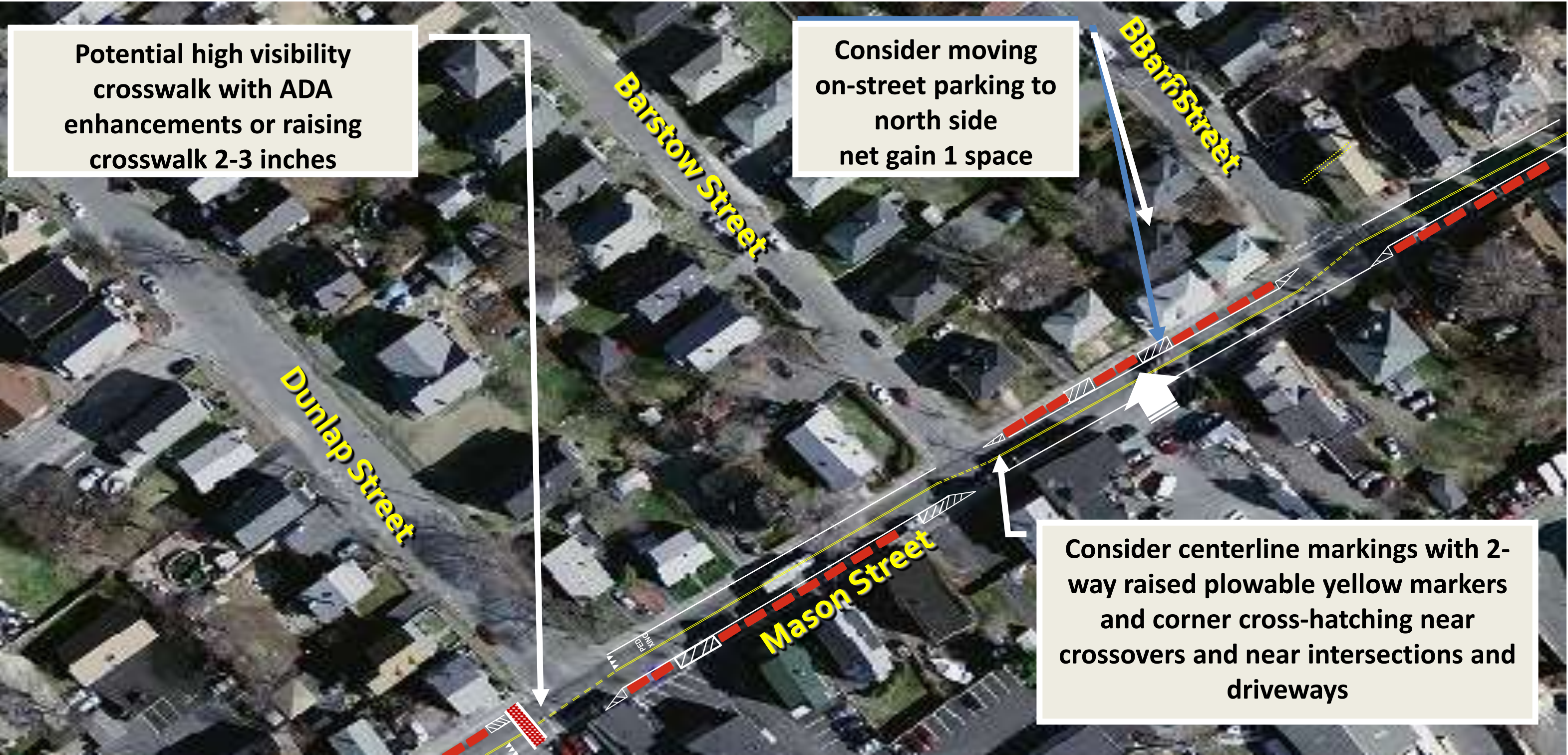
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Potential Mason Street Modifications Between Dunlap and Barr Streets



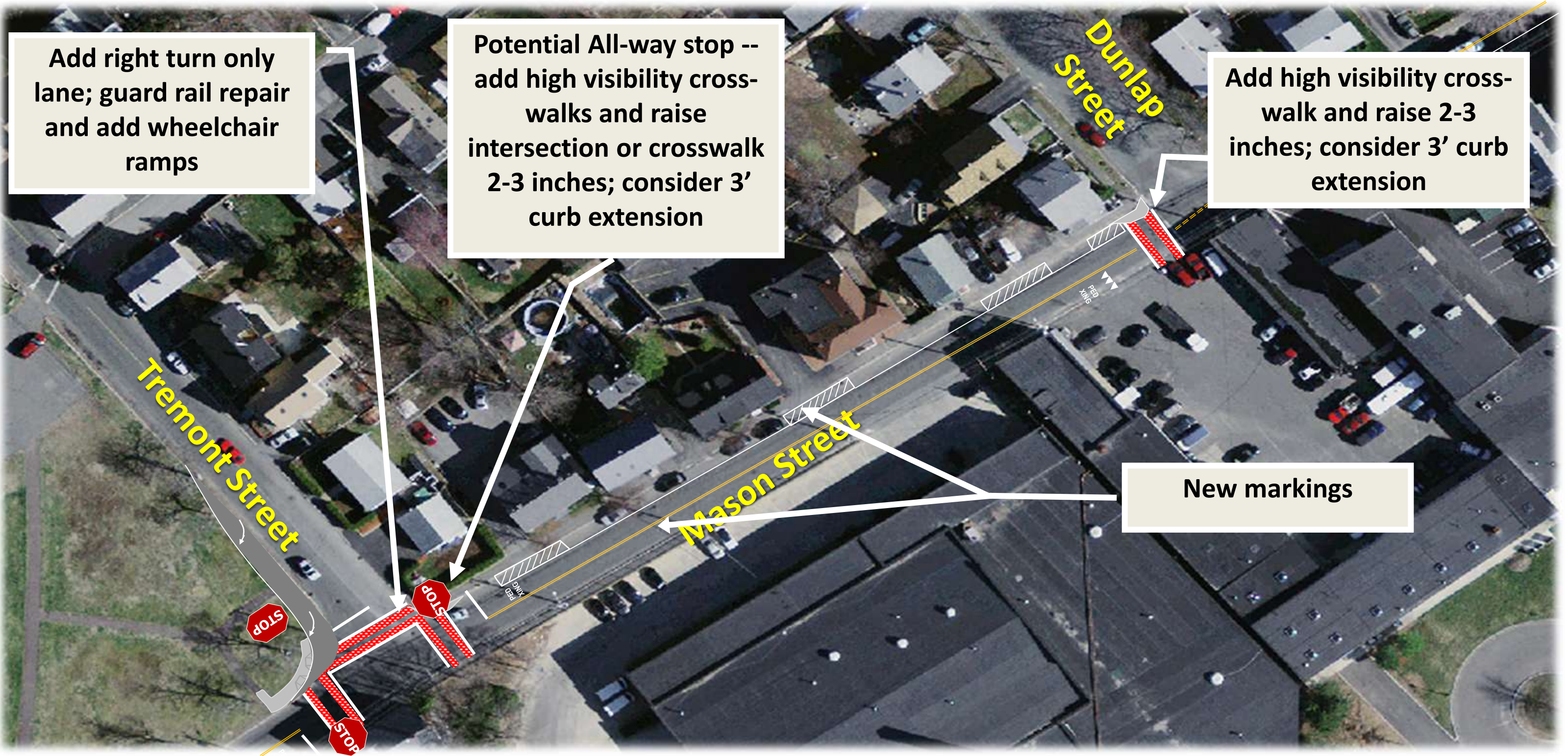
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Recommendations: Mason Street modifications between Tremont and Dunlap Sts



Mason Street looking southwest to Buffum Street



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Looking west on Mason Street east of Tremont Street

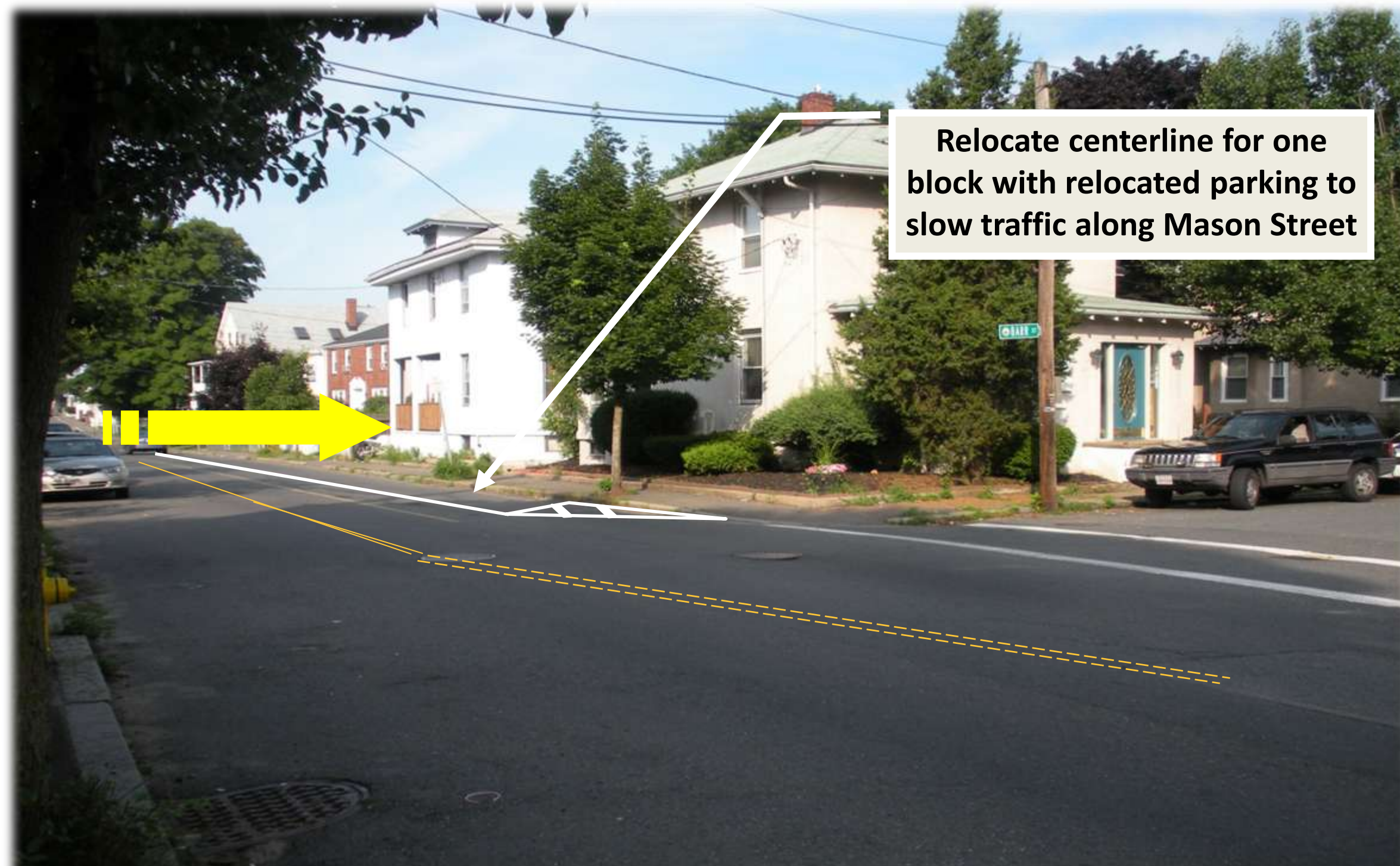


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Mason Street looking southwest to Barr Street



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Mason Street looking northeast to Barstow Street



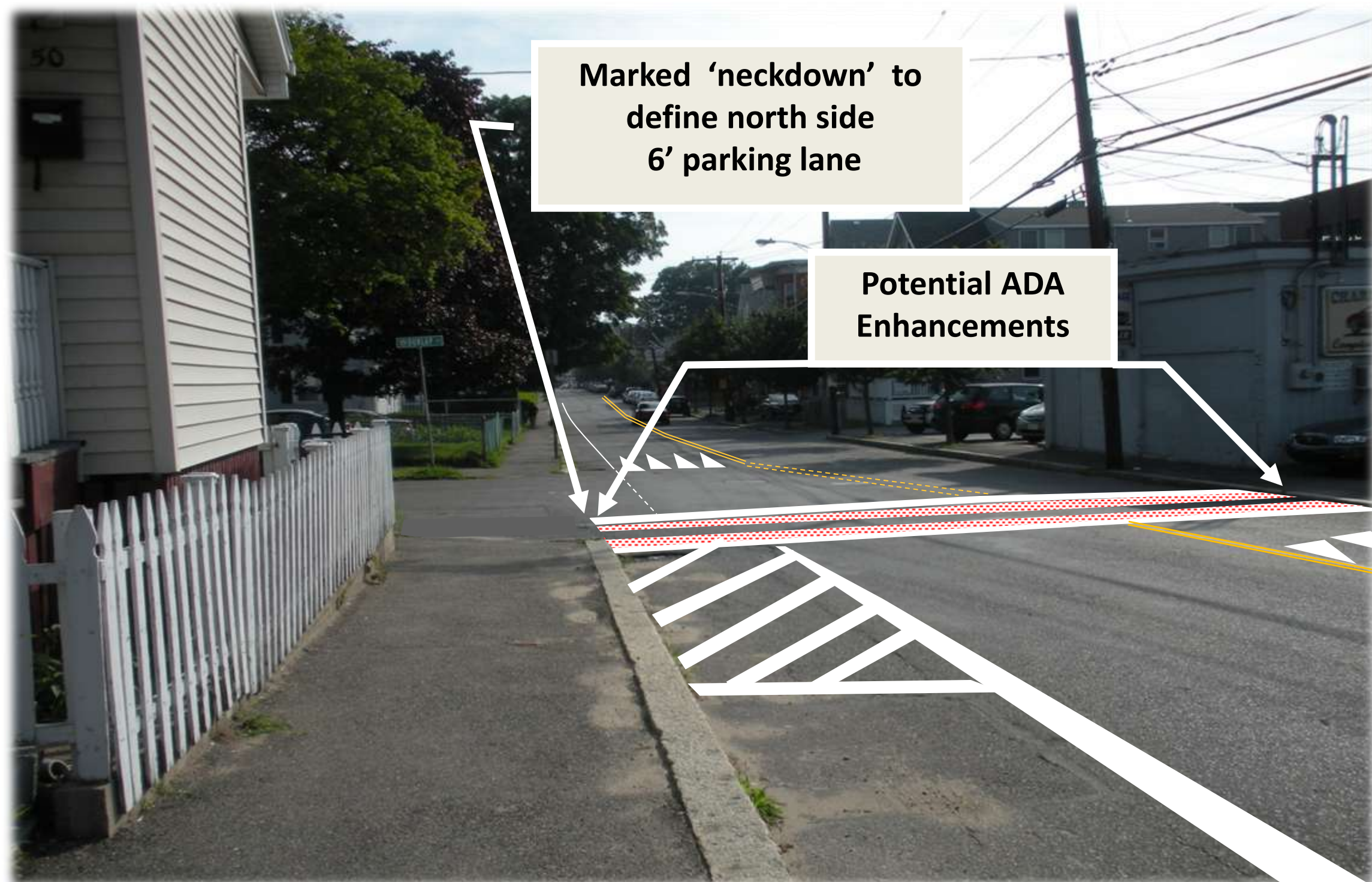
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Looking east on Mason Street to Dunlap Street



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Looking east on Mason Street south side west of Tremont Street



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Long View - Looking south on Tremont Street to Mason Street



Mason Street from Flint Street to Harmony Grove Road

- **Must fix Flint Street High Crash location at Mason Street**
- **Pedestrian Crossings at Mason needs improvement Flint Street**
- **Access to Riverview Place between Bridge and Flint Street should be retained to minimize Mason Street impacts**
- **Mason Street at Friend Street curve needs better definition**



Flint at Mason Streets

What's wrong with this picture??



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Flint Street Looking South From Mason Street

What's wrong with this picture??



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Flint at Mason Streets

- **Options**
 - **Do nothing**
 - **Hazard beacons (flashing yellow Mason; flashing red Flint)**
 - **All-way stop hazard beacons (flashing red all approaches)**
 - **Signal control (residential parking removed & relocated)**
 - **Relocate parking with crossing accommodations**
 - **Convert Flint to one-way eastbound with parking off sidewalk**
 - **Mason to Bridge Streets**
 - **Mason to Riverview Place Main Drive**



Recommendation: Flint at Mason Streets

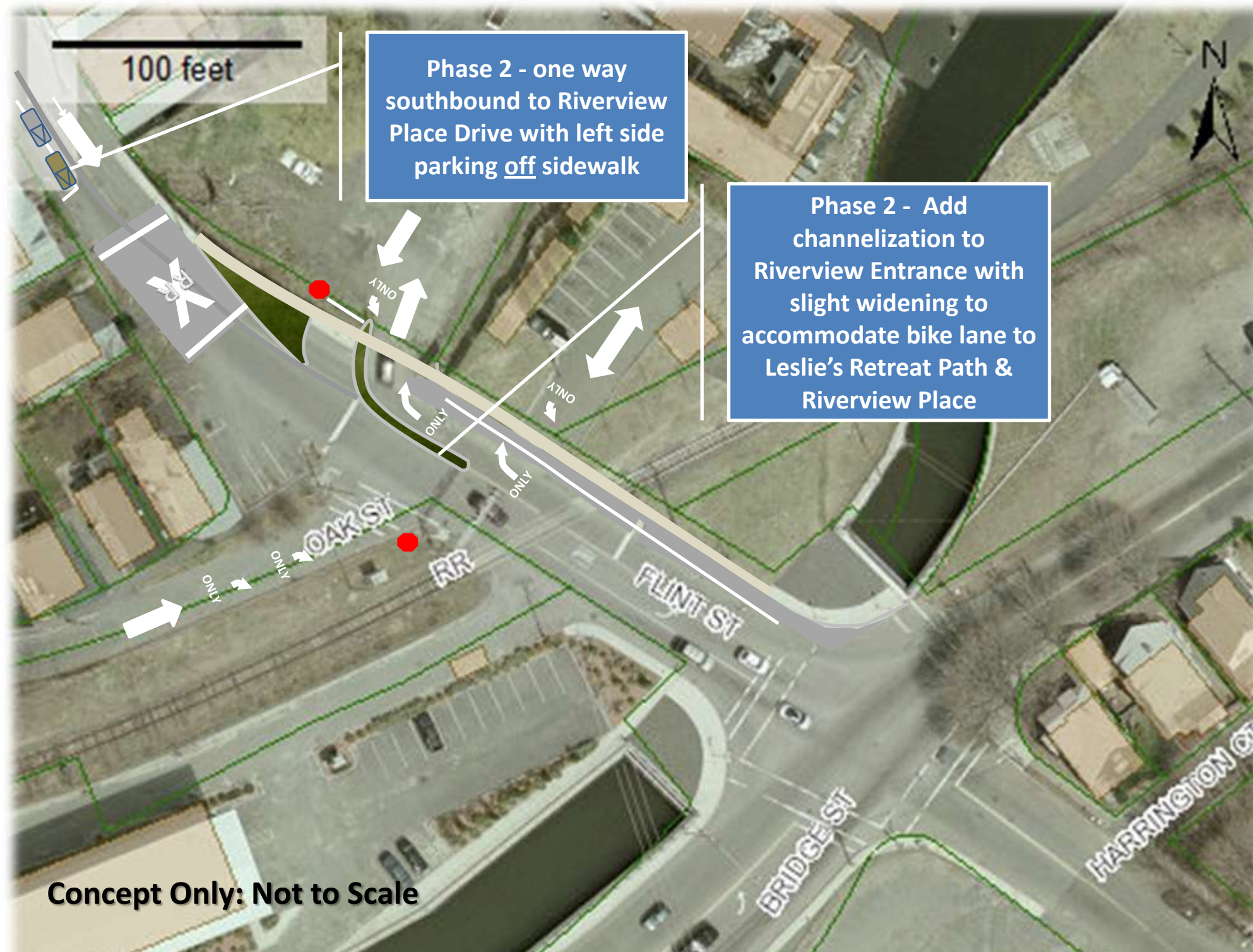


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Recommendation: Flint at Mason Streets



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Mason at Friend Street Curve



Looking south on Mason Street to Friend Street

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Recommendation: Mason at Friend Streets Curve



- Curve Hazard Warnings
- Raised Plowable Markers
- Better Curve Definition
- Retain south side Parking

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Mason at Grove Streets and Harmony Grove Road



Looking south on Grove Street
To Harmony Grove Road and Mason Street



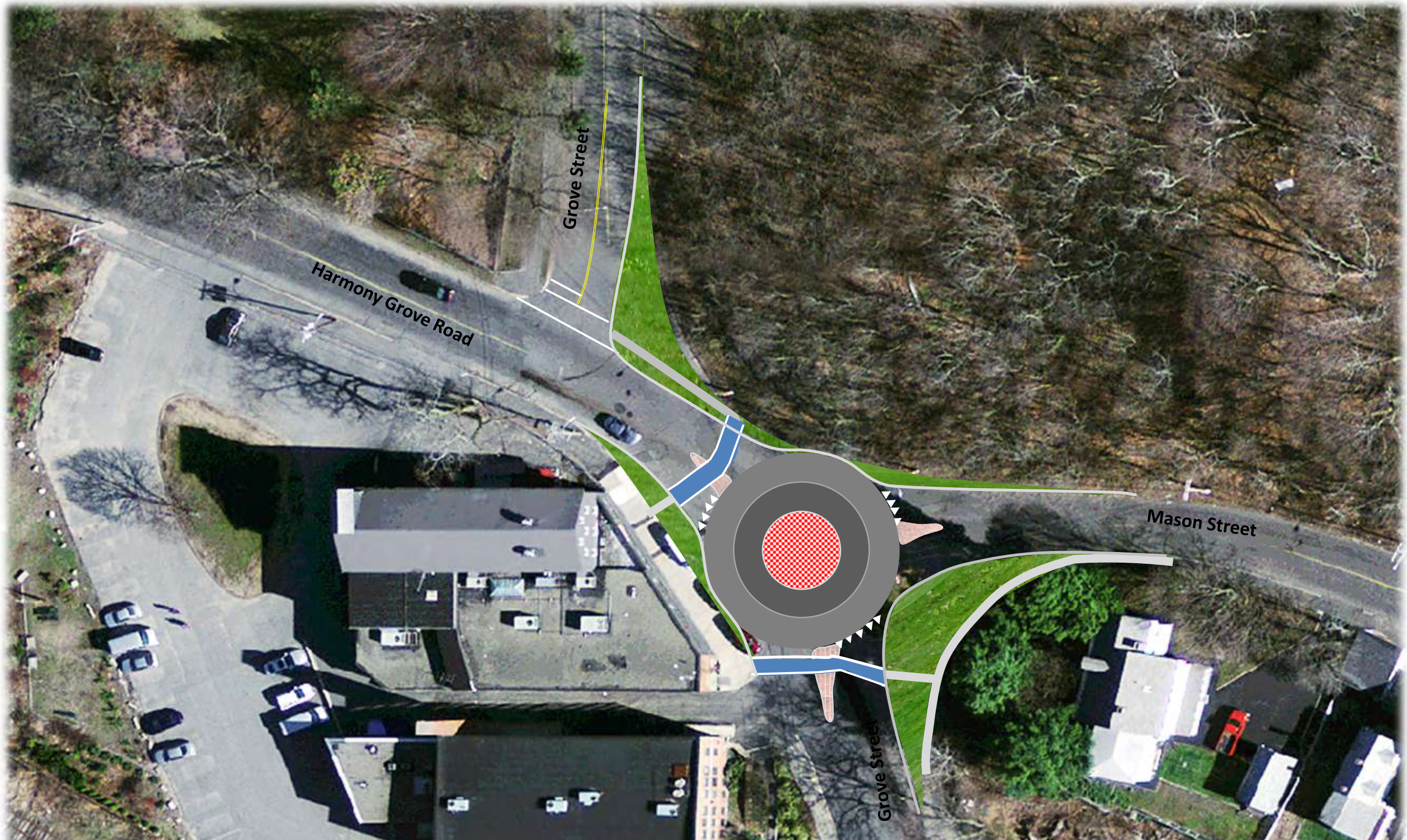
Looking north on Grove Street
To Mason Street

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Recommendation: Mason Street at Harmony Grove Road



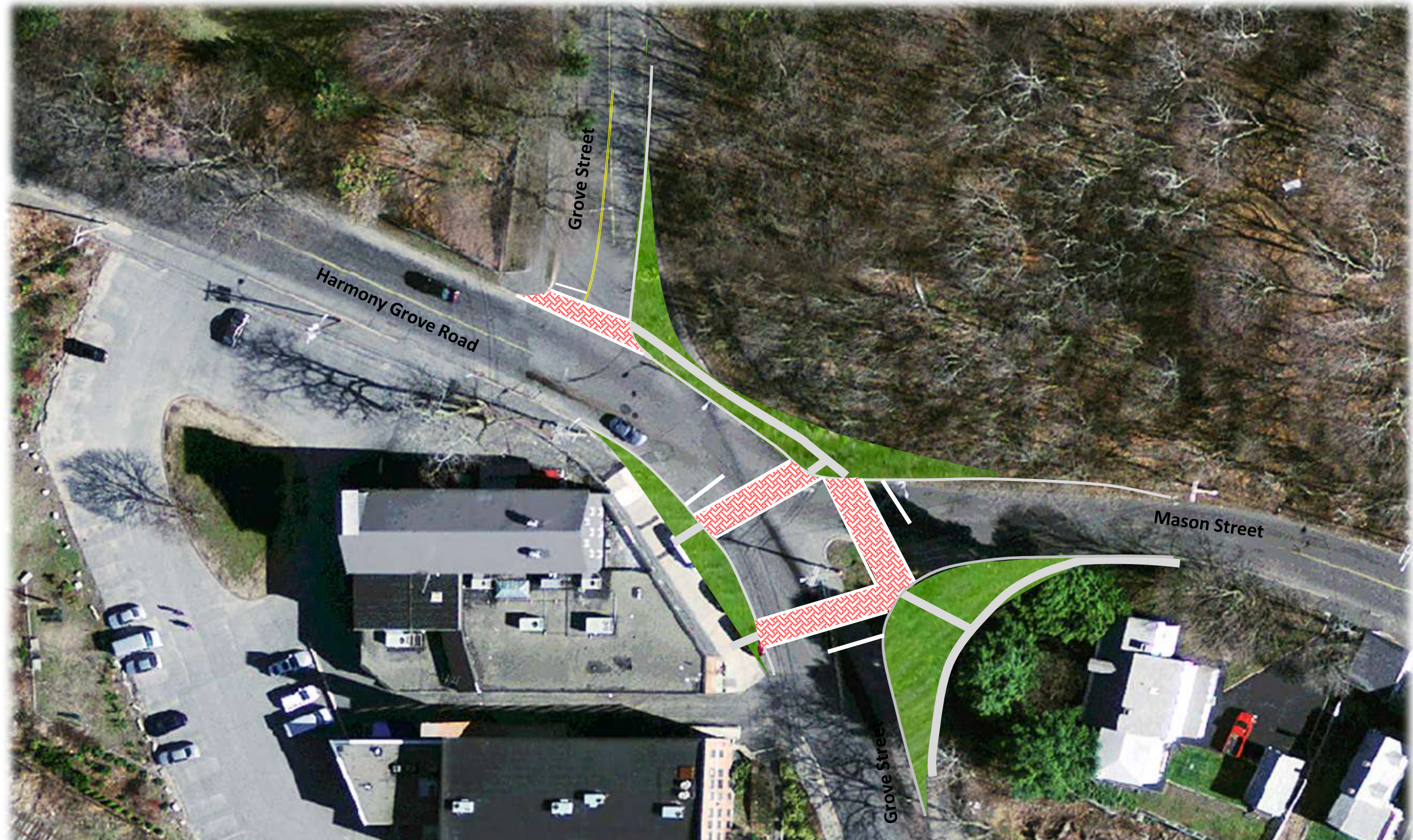
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Alternate: Mason Street at Harmony Grove Road

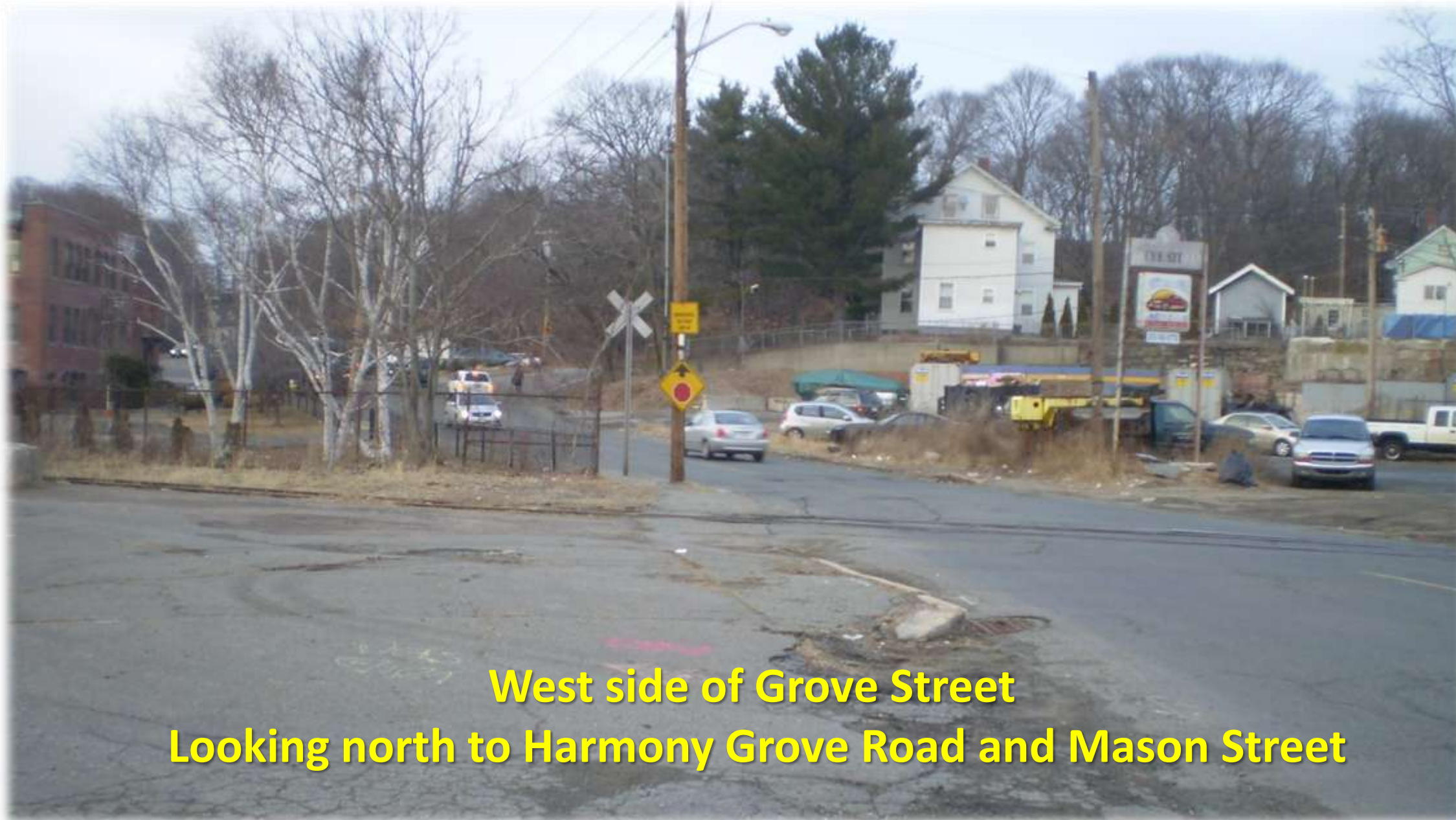


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Grove Street Between Harmony Grove Road and Beaver Streets



West side of Grove Street
Looking north to Harmony Grove Road and Mason Street

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Grove Street Between Harmony Grove Road and Beaver Streets



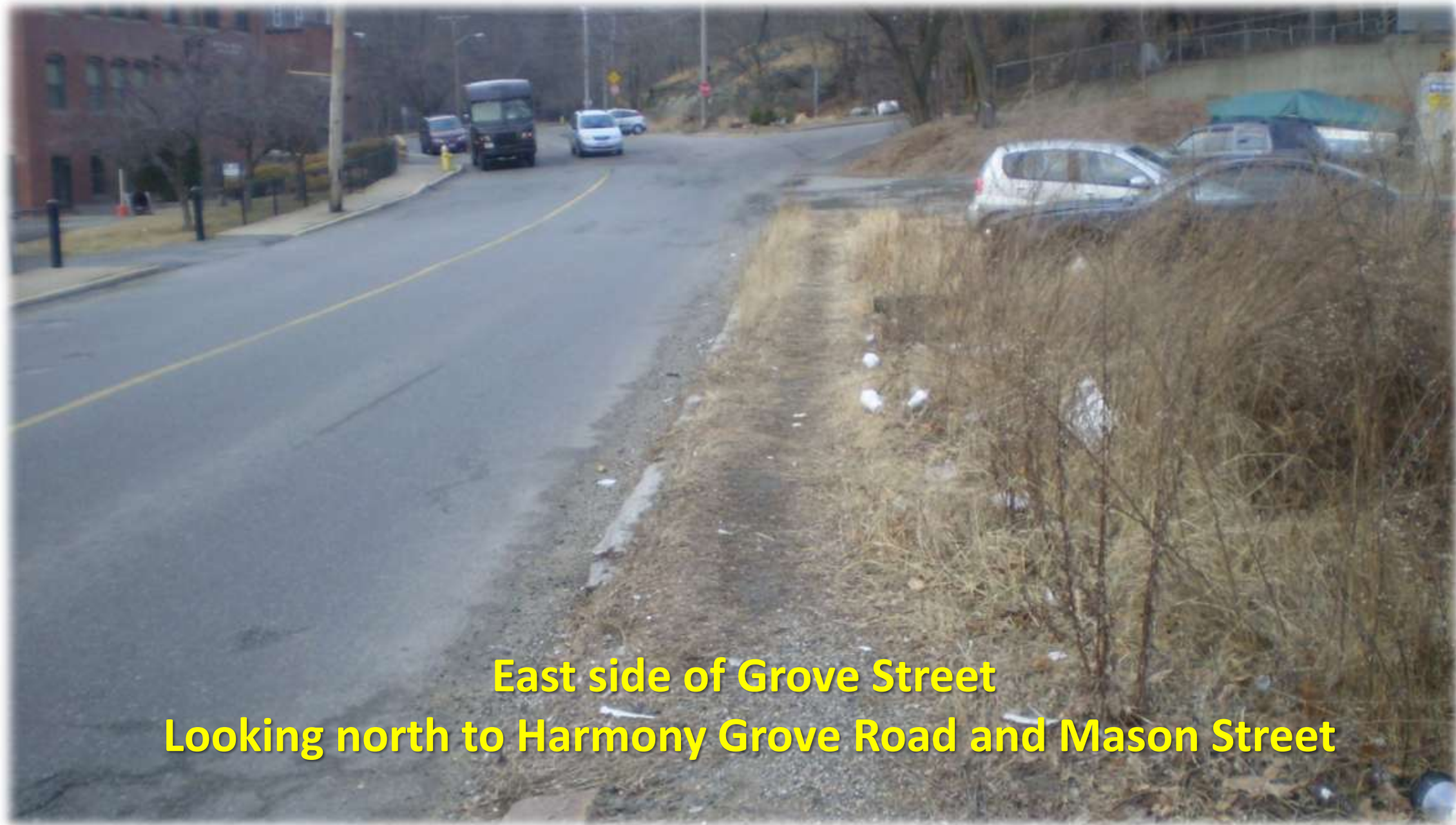
Grove Street railroad crossing
looking east

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Grove Street Between Harmony Grove Road and Beaver Streets



East side of Grove Street
Looking north to Harmony Grove Road and Mason Street

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Grove Street Between Harmony Grove Road and Beaver Streets



**West side of Grove Street
Looking south just north of railroad crossing**

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Grove Street Between Harmony Grove Road and Beaver Streets



East side of Grove Street
Looking south to parking area and Flynntan site

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Recommendation: Improve Grove Street Between Harmony Grove Road and Beaver Streets

- ❖ **Generally needs infrastructure upgrade – sidewalks & railroad crossing not up to current standards**
- ❖ **Repave Grove Street**
- ❖ **Replace missing sidewalk on east –28 Goodhue site north to Harmony Grove Road**
- ❖ **Replace dilapidated concrete sidewalks on the west**
- ❖ **Assume developments will fix sidewalks abutting sites**
- ❖ **Make sure adequate sight lines are provided where future driveways intersect Grove and Goodhue Streets**
- ❖ **Keep sidewalks continuous as much as possible; use ‘in-laid’ concrete sidewalks across driveway curb cuts**



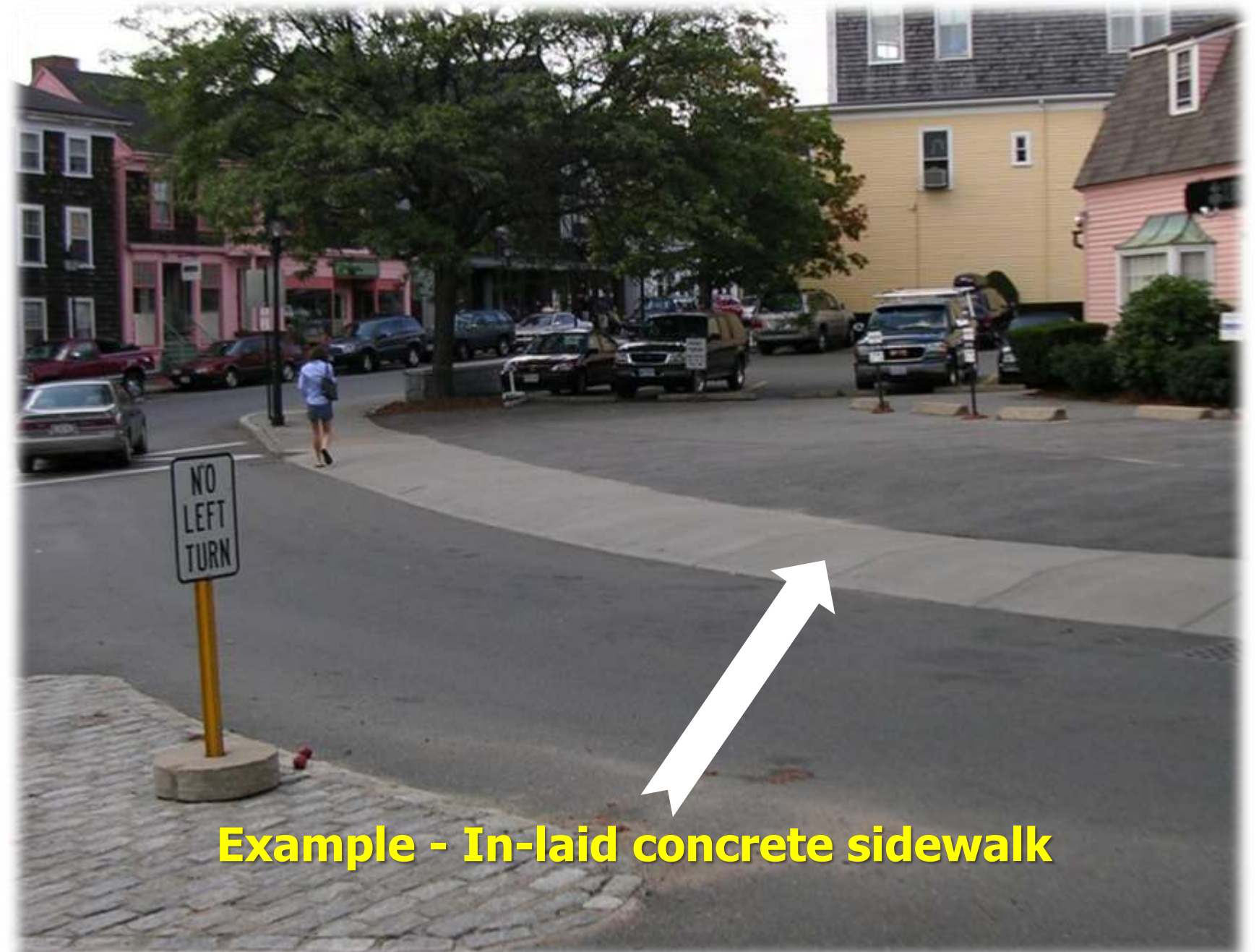
Grove Street corridor - Complying with ADA

'In-laid' Sidewalk with Head-in Parking or Across Drives

**Existing
bituminous concrete section**

**Two ways for proposed
bituminous concrete section
with inlaid concrete sidewalks
at driveways**

NOT TO SCALE



Example - In-laid concrete sidewalk

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Beaver at Grove and Goodhue Streets

- Large cross-sloping parking area used by random trucks and autos – not conducive to pedestrian flow
- Confusing traffic operations
- Start of one way pattern may need to change to handle access to future redevelopment sites



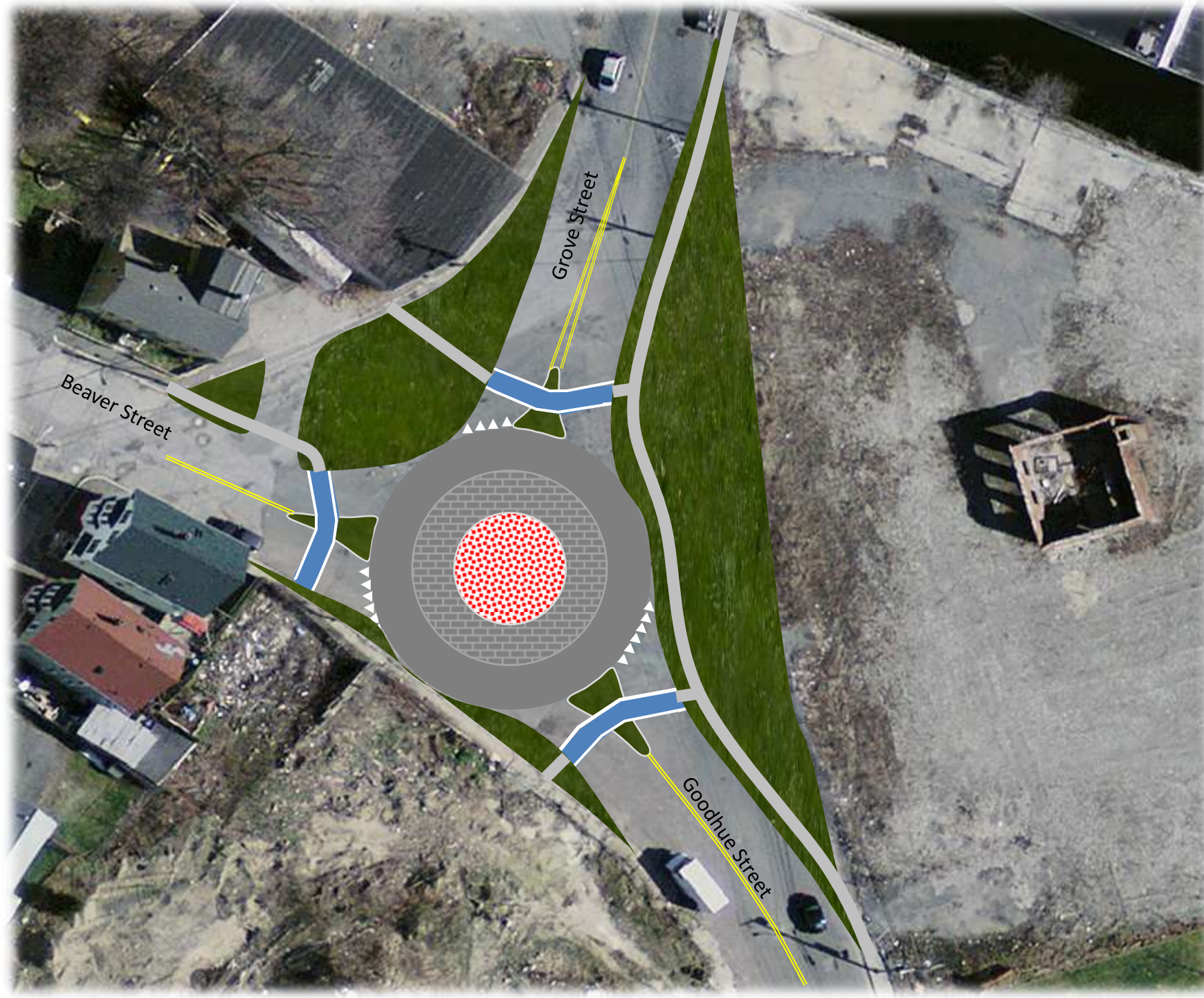
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Recommendation: Reconfigure Goodhue/Grove at Beaver Streets

- If necessary, design to accommodate on-street parking sufficient to accommodate non-trucking demands



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Alternate: Maximize Flood Storage Retention of Goodhue/Grove at Beaver Streets

- If necessary, design to accommodate on-street parking sufficient to accommodate non-trucking demands



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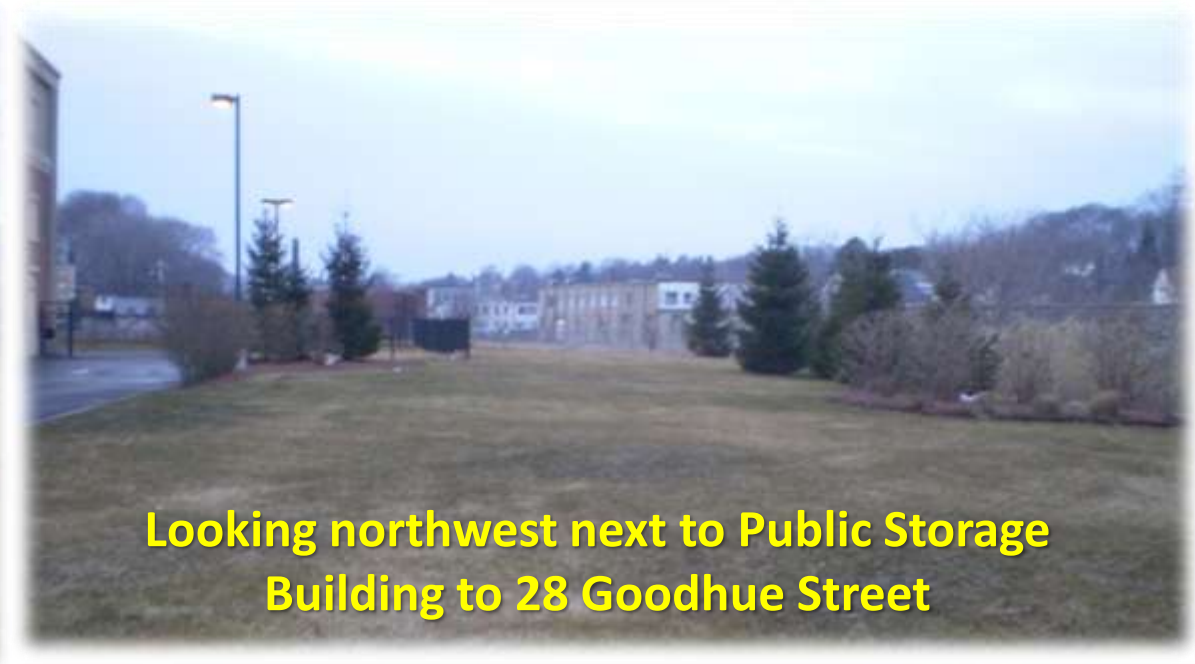
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Recommendation: Explore Potential Grove / Goodhue Streets to Bridge Street Connector

- Results in better operations than Hanson Street Connector
- Better grades than Hanson Connector
- Allows shrinking of Boston/Bridge Intersection
- Does not involve building takings
- Requires a public easement or taking



Looking northeast next to 28 Goodhue Street
Behind Public Storage Building



Looking northwest next to Public Storage
Building to 28 Goodhue Street



West side of Bridge Street
looking south to Public Storage Building



Looking southeast next to Public Storage
Building near 28 Goodhue Street

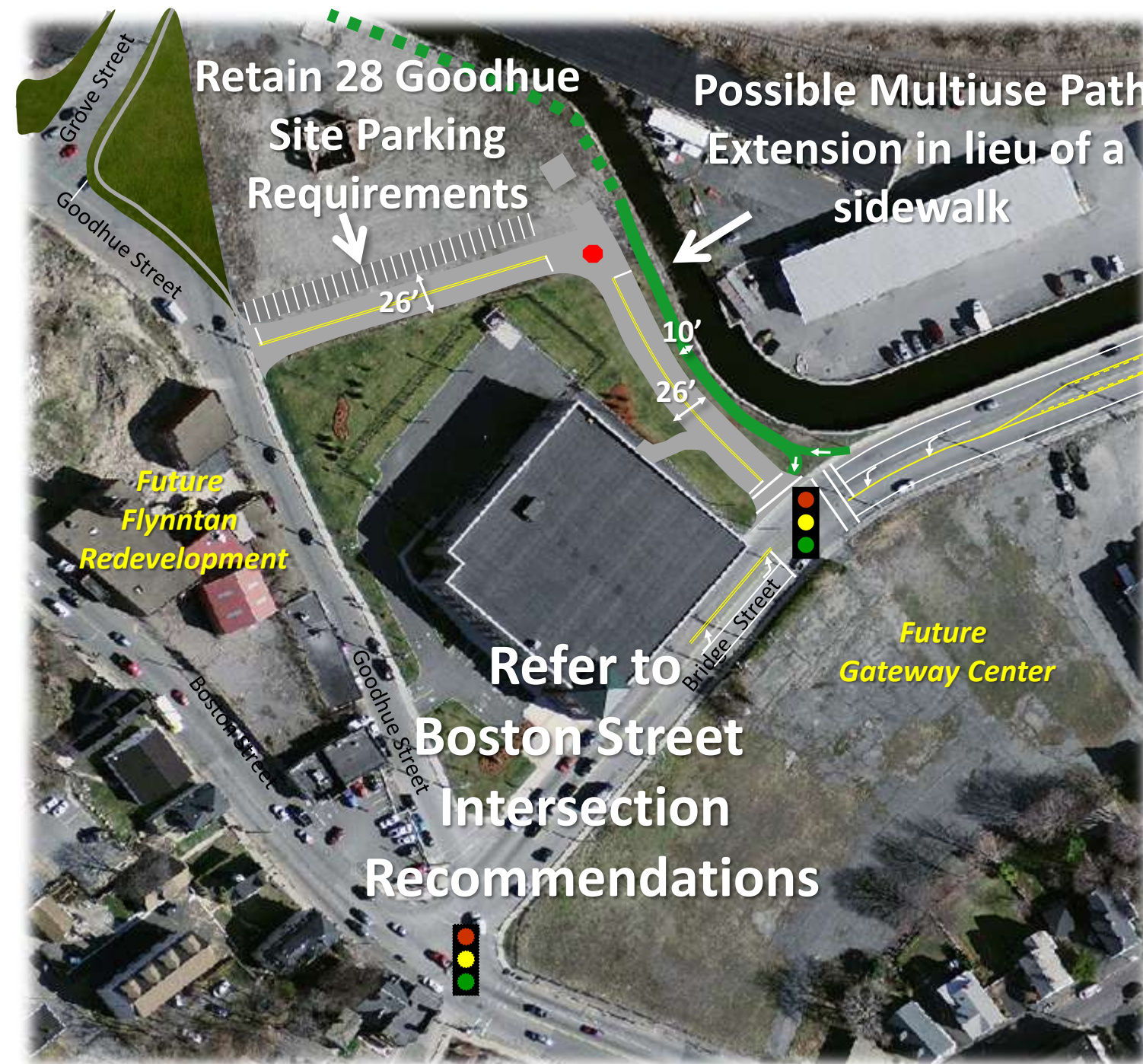
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Recommendation: Explore Goodhue to Bridge Streets Connector with Multiuse Path & Signal at Bridge Street

- Flood retention & green space maximization with 'T' intersection, but more costly mini-roundabout (previous slide) is workable with financing possible



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2-way Goodhue Street @ Boston Bridge and Proctor Streets?

- Not recommended
- Too many conflicts
- Hazardous sight lines from Goodhue
- Pedestrian, bike, and traffic unfriendly



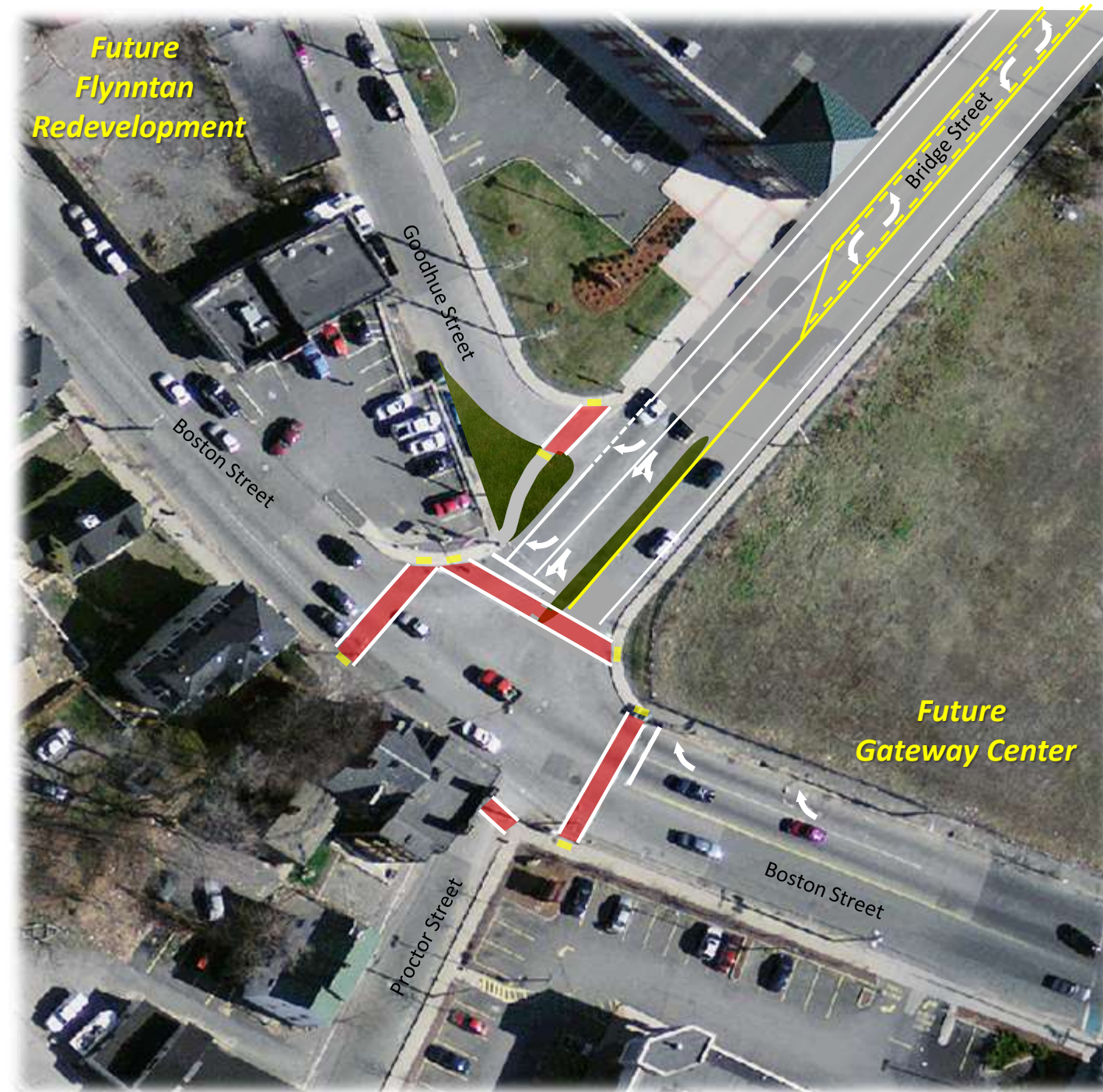
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Phase I Recommendation: Boston Street & Bridge/Goodhue/Proctor Streets *with New Connector*

- Right lane/left lane phase overlaps increase efficiency; reduce queuing
- Shorter pedestrian crossings
- More green space



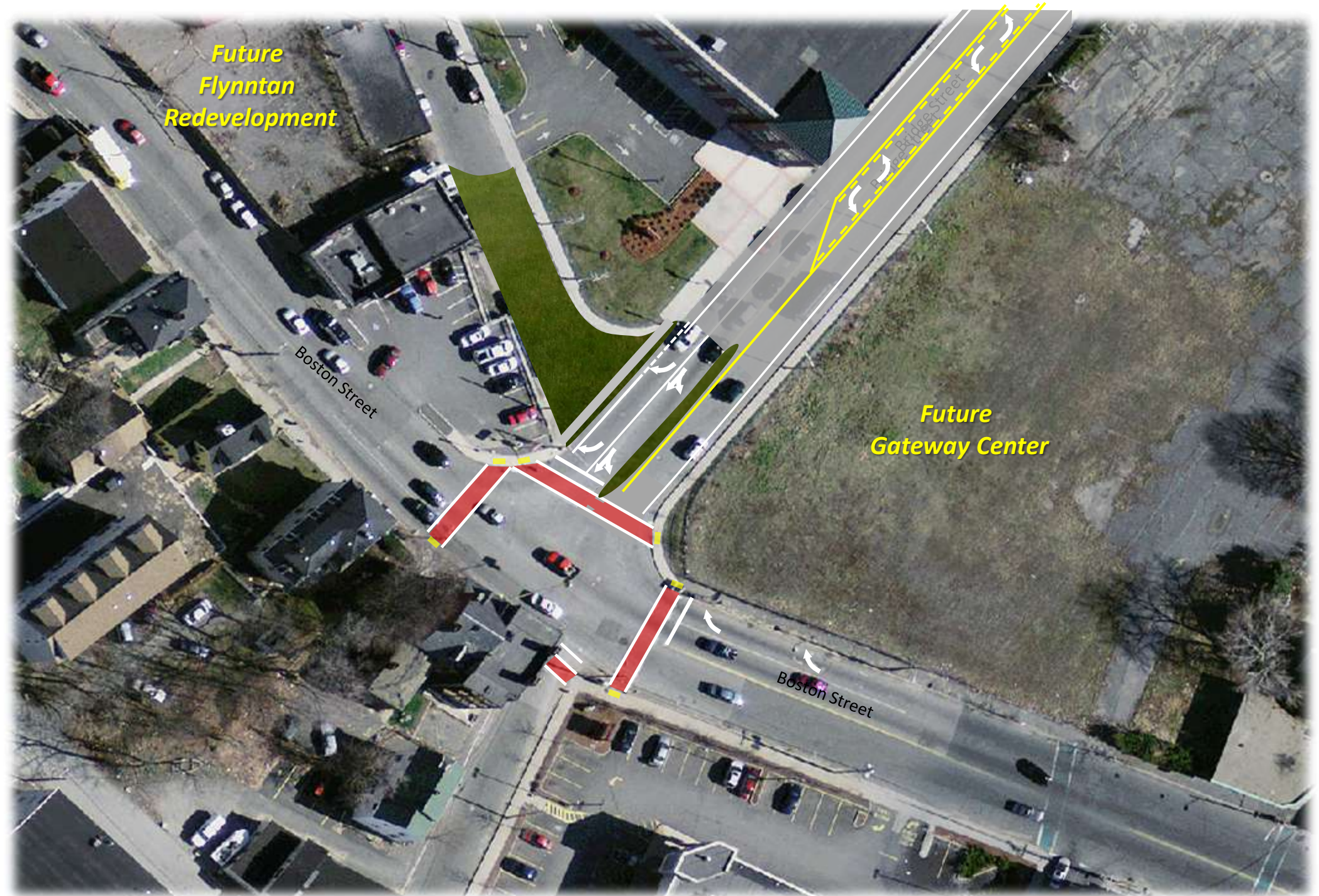
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Phase 2 Recommendation: Boston Street & Bridge/Goodhue/Proctor Streets with New Connector

- Right lane/left lane phase overlaps increase efficiency; reduce queuing
- Shorter pedestrian crossings with fewer conflicts
- Even more green space than Phase 1



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Aborn at Boston Streets

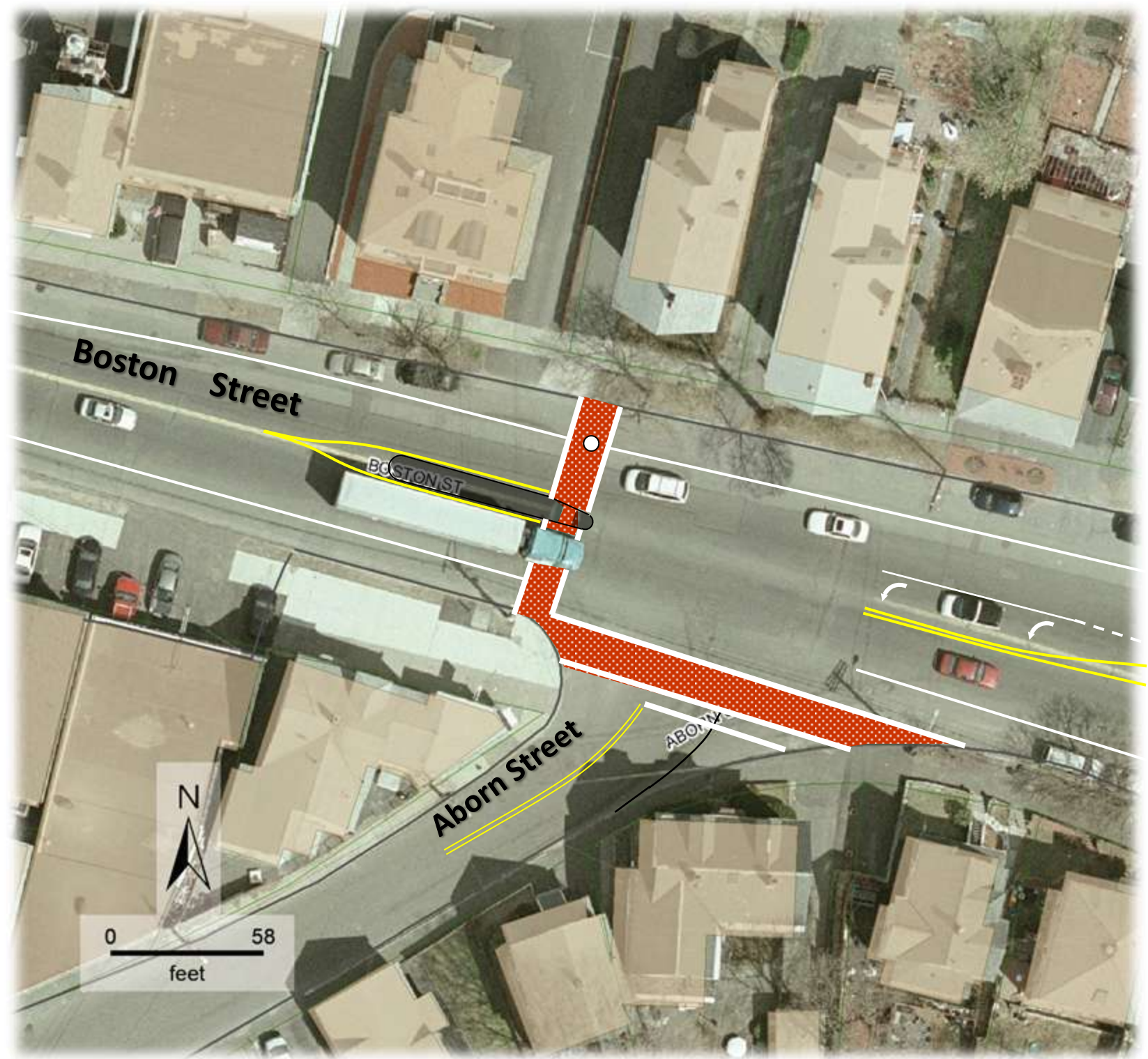


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Minimum Action: Aborn at Boston Streets



Pavement Markings Only

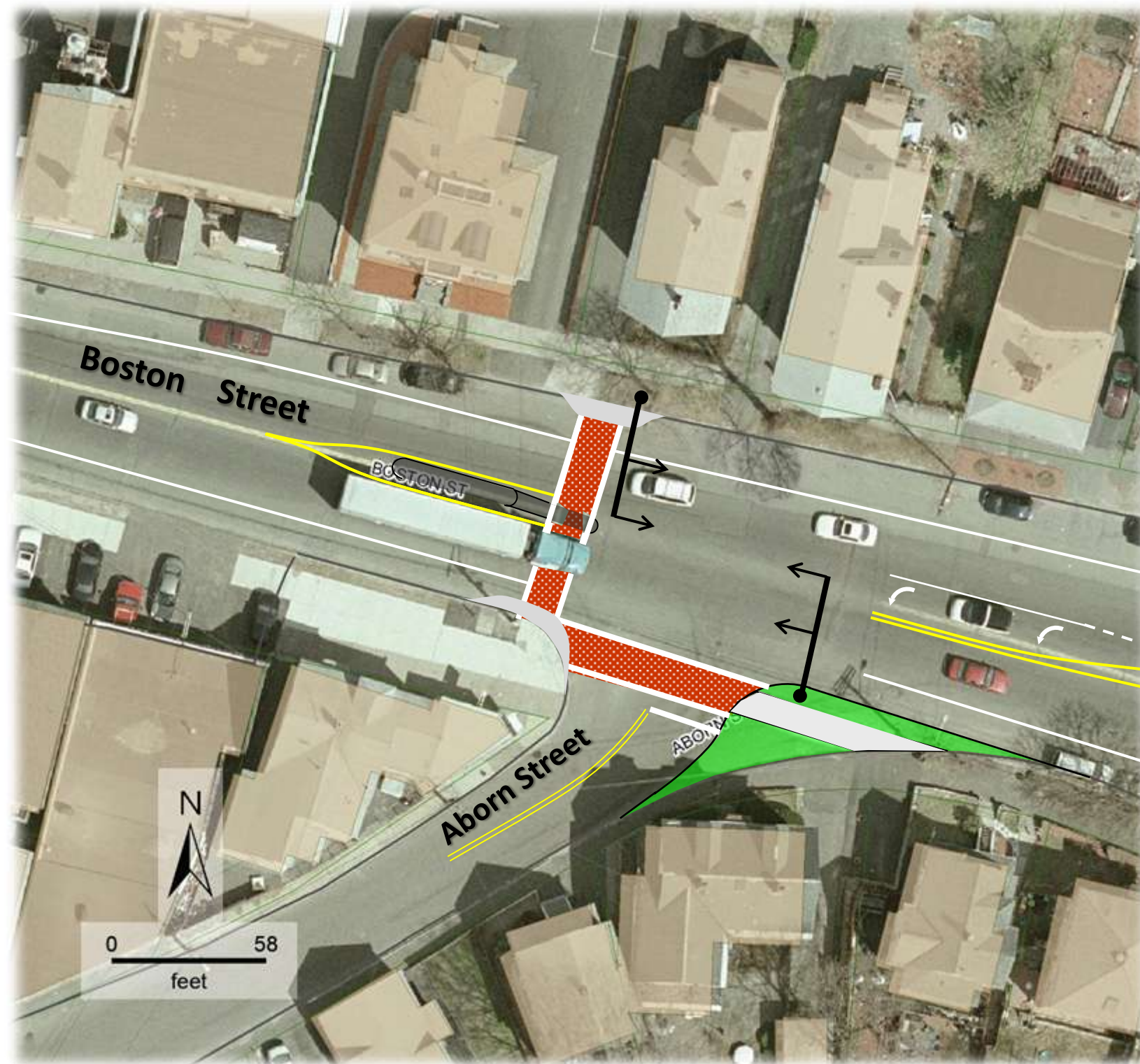
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Phase 1 Recommendation: Aborn at Boston Streets



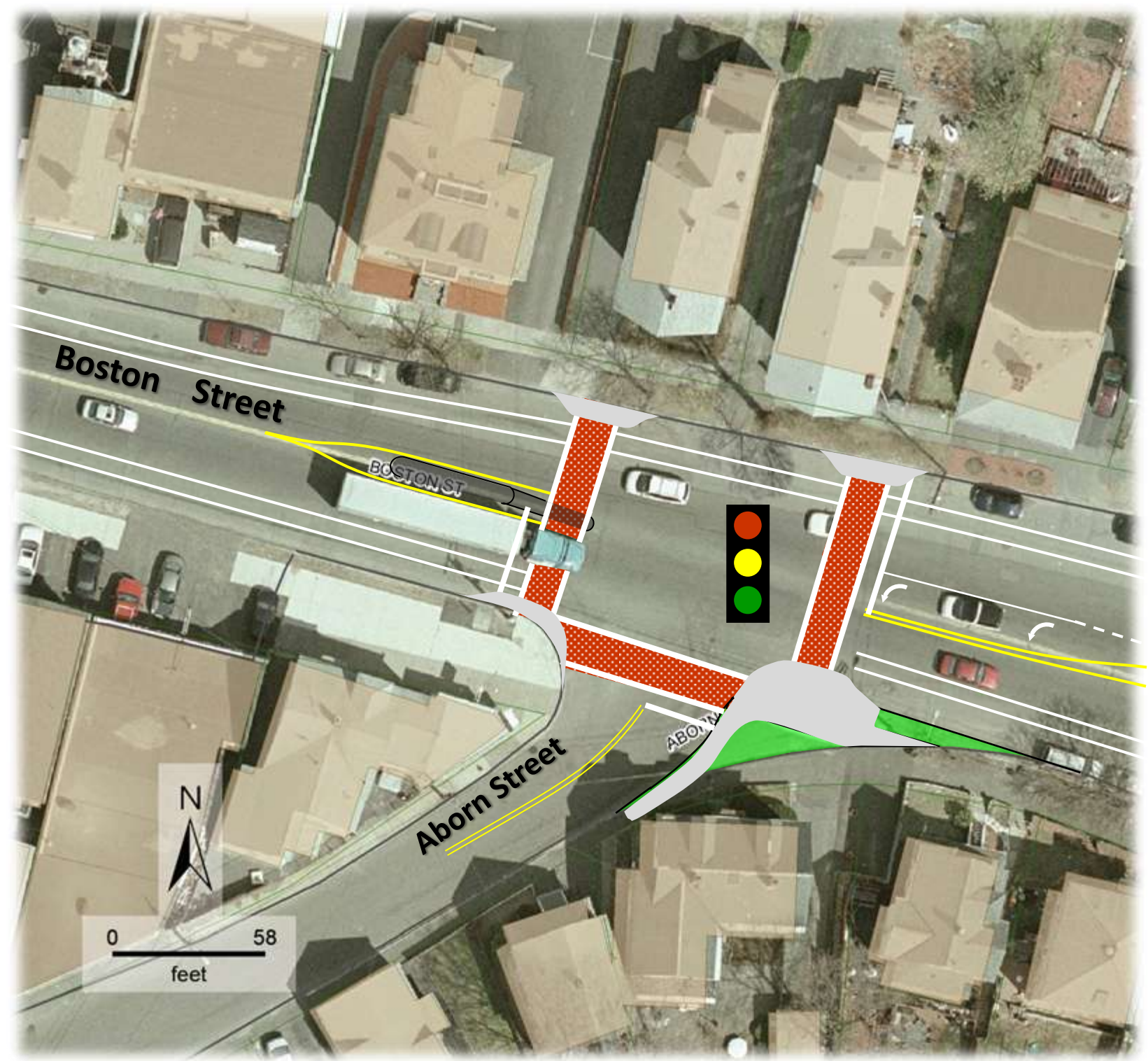
Geometric Changes & Overhead Hazard Beacon

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Phase 2 Recommendation: Aborn at Boston Streets



Geometric Changes Full Signal and Bike Lanes

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Boston Street



**North side of Boston Street looking east from
Grove Street to narrower segment near
Hanson Street**

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Boston Street



**North side of Boston Street looking west
from Dunkin Donuts Driveway at narrowest
Boston Street segment**

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Boston Street



**North side of Boston Street looking west from
Grove Street to wider Boston Street segment**

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Boston Street



**South side of Boston Street looking north at
crosswalk east of Grove Street**

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Boston /Bridge Street Corridors

- Recommended, but will take longer than 5 years -

- **Boston Street – Peabody Line to Essex Street**
 - Not yet on State's Transportation Improvement Program
 - Recent MAPC Joint Peabody/Salem Main/Boston Streets Corridor Study made excellent recommendations
 - Follow up recommendations:
 - General sidewalk ADA compliance/signal upgrades/pedestrian crossings need attention
 - Bike lanes vs. 'sharrows' on Boston Street



Boston Street looking east at Salem /Peabody City Lines

Boston Street – Typical Signalized Crosswalk

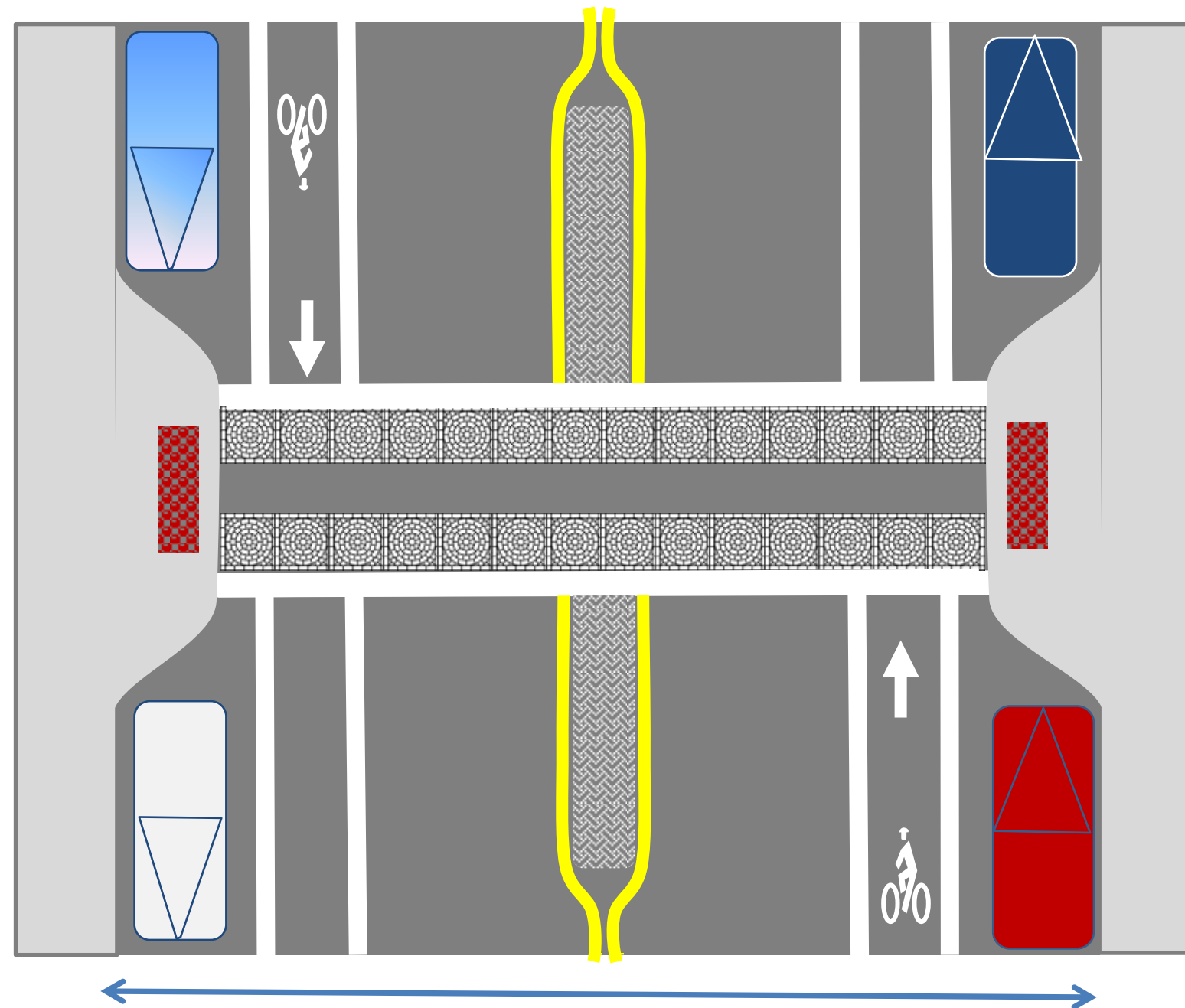


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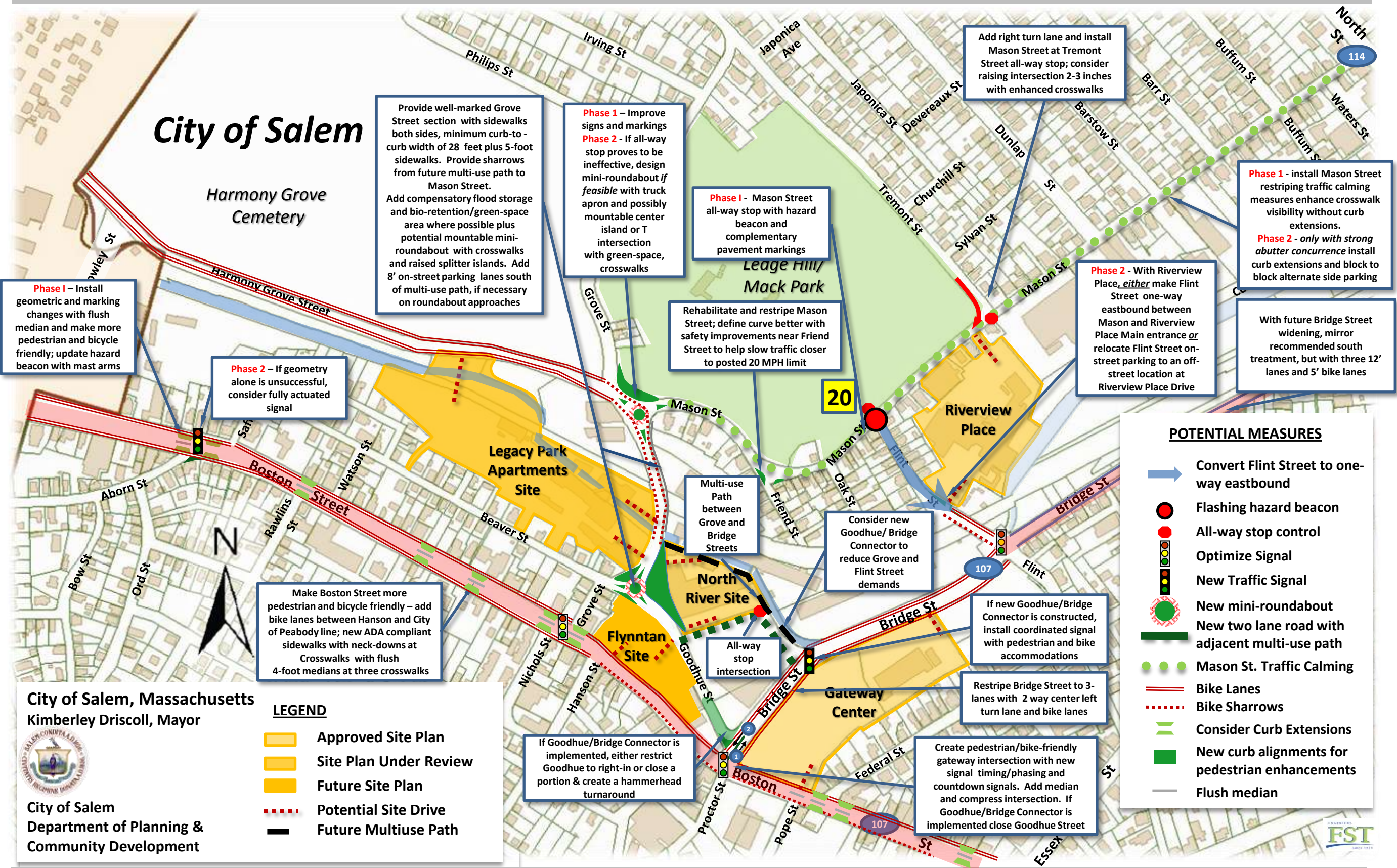
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Boston Street – Typical Crosswalk Suggestion (overhead view)



Typically 52-54' curb to curb

Preliminary Recommendations Overview



5-10 year Horizon Modifications

Next Steps

- Receive and review comments
- Refine Recommendations
- Identify priorities for implementation
- Estimate Order of Magnitude Costs





Planning Board and Public Comments

- 1) Mason Street Calming**
- 2) Flint Street**
- 3) Harmony Grove Road, Grove, and Goodhue Streets**
- 4) Bridge Street**
- 5) Boston Street**
- 6) Aborn at Boston Streets**

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