Purpose

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

• Determine *transportation system* improvements

• Provide *order of magnitude* costs

• Identify *implementation* priorities
Study Area Overview
Key Redevelopment Parcels
Programmed Mitigation

City of Salem

North River Site

Legacy Park Apartments Site

Flynntan Site

Gateway Center

Riverview Place

LEGEND
- Add Right turn lane
- Flashing hazard beacon
- Optimize Signal
- New Traffic Signal
- Dynamic speed sign
- 30' Commercial Street Extension Reservation
- Chapter 90 Improvements
- Bridge Street Widening

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City of Salem
Department of Planning & Community Development

North River Canal Corridor Transportation Plan
Preliminary Recommendations Overview

City of Salem

Harmony Grove Cemetery

Phase 1 – Improve signs and markings
Phase 2 – If all-way stop proves to be ineffective, design mini-roundabout if feasible with truck apron and possibly mountable center island or intersection with green-space, crosswalks

Phase 1 – Install geometric and marking changes with flush median and make more pedestrian and bicycle friendly; update hazard beacon with mast arms

Phase 2 – If geometry alone is unsuccessful, consider fully actuated signal

Provide well-marked Grove Street section with sidewalks both sides, minimum curb-to-curb width of 28 feet plus 5-foot sidewalks. Provide curbs from future multi-use path to Mason Street.

Add compensatory flood storage and bio-retention/green space area where possible plus potential mountable mini-roundabout with crosswalks and raised splitter islands. Add K’ on-street parking lanes south of multi-use path, if necessary on roundabout approaches

Rehabilitate and restripe Mason Street; define curve better with safety improvements near Friend Street to help slow traffic closer to posted 20 MPH limit

Consider new Goodhue/Bridge Connector to reduce Grove and Mason Street visibility without curb extensions

If new Goodhue/Bridge Connector is constructed, install coordinated signal with pedestrian and bike accommodations

Convert Flint Street to one-way eastbound

Flashing hazard beacon
All-way stop control
Optimize Signal
New Traffic Signal

New mini-roundabout
New two lane road with adjacent multi-use path
Mason St. Traffic Calming

Bike Lanes
Bike Sharrows
Consider Curb Extensions
New curb alignments for pedestrian enhancements
Flush median

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LEGEND
Approved Site Plan
Site Plan Under Review
Future Site Plan
Potential Site Drive
Future Multiuse Path

5-10 year Horizon Modifications
**Suggested Implementation Overview**

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**LEGEND**

- Approved Site Plan
- Site Plan Under Review
- Future Site Plan
- Potential Site Drive
- Future Multiuse Path

**Recommended Elements - Key**

1-X Priority 1 - Less than 3 years
2-X Priority 2 - From 3-5 years
3-X Priority 3 - 5+ years

North River Canal Corridor Transportation Plan
## NRCC Transportation Study Recommendation Elements
### Preliminary Order of Magnitude Costs

<table>
<thead>
<tr>
<th>Priority</th>
<th>Location</th>
<th>Projected Low Cost</th>
<th>Projected High Costs</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Mason Street Traffic Calming - 1</td>
<td>$20,000</td>
<td>$30,000</td>
<td>Striping/markings/signs</td>
</tr>
<tr>
<td>1-2</td>
<td>Tremont /Mason Streets</td>
<td>$40,000</td>
<td>$60,000</td>
<td>Pavement repair, southbound lane &amp; all way stop with crosswalk enhancements</td>
</tr>
<tr>
<td>1-3</td>
<td>Flint Street/Mason Streets - 1</td>
<td>$75,000</td>
<td>$90,000</td>
<td>All-way stop with hazard beacons and minor geometric modifications</td>
</tr>
<tr>
<td>1-4</td>
<td>Aborn /Boston Streets (Excluding signal)</td>
<td>$80,000</td>
<td>$120,000</td>
<td>Geometric modifications without signalization</td>
</tr>
<tr>
<td>1-5</td>
<td>Harmony Grove Road shoulder bike lanes</td>
<td>$20,000</td>
<td>$30,000</td>
<td>Add bike lanes both sides</td>
</tr>
</tbody>
</table>

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<tbody>
<tr>
<td>2-1</td>
<td>Grove Street between Mason and Goodhue Streets</td>
<td>$440,000</td>
<td>$550,000</td>
<td>Add new sidewalk/bike/ greenspace and potential mini-roundabout enhancements</td>
</tr>
<tr>
<td>2-2</td>
<td>Bridge Street/Boston Street intersection modifications</td>
<td>$200,000</td>
<td>$300,000</td>
<td>New median with walk-ADA-friendly crossings and signal modifications.</td>
</tr>
<tr>
<td>2-3</td>
<td>Flint Street/Mason Streets - 2 plus Flint Street one-way /Riverview access</td>
<td>$170,000</td>
<td>$250,000</td>
<td>Geometric modifications plus sign/signal modifications striping changes</td>
</tr>
<tr>
<td>2-4</td>
<td>Mason Street Calming - 2</td>
<td>$300,000</td>
<td>$450,000</td>
<td>Miscellaneous improvements with new concrete sidewalks</td>
</tr>
</tbody>
</table>
## NRCC Transportation Study Recommendation Elements

### Preliminary Order of Magnitude Costs

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</tr>
</thead>
<tbody>
<tr>
<td>2-5</td>
<td>Goodhue Street between Beaver and Bridge Sts.</td>
<td>$230,000</td>
<td>$350,000</td>
<td>Add new greenspace sidewalk/bike/geometric changes and potential mini-roundabout</td>
</tr>
<tr>
<td>2-6</td>
<td>New Bridge Street - Goodhue Street Connector w/multi-use path(^2)</td>
<td>$600,000</td>
<td>$800,000</td>
<td>Add 26-foot road with 10-foot multiuse path and signal at Bridge/Connector</td>
</tr>
<tr>
<td>2-7</td>
<td>Aborn Street/Boston Street (with Signal)</td>
<td>$100,000</td>
<td>$150,000</td>
<td>Full traffic signal control</td>
</tr>
</tbody>
</table>

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<th>Location</th>
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</thead>
<tbody>
<tr>
<td>3-1</td>
<td>Boston Street Cross walk enhancements</td>
<td>$350,000</td>
<td>$450,000</td>
<td>Curb extensions, required drainage/utility, median work</td>
</tr>
<tr>
<td>3-2</td>
<td>Bridge Street - Flint to Boston (excludes Boston/Bridge Intersection)</td>
<td>$25,000</td>
<td>$35,000</td>
<td>Remove existing markings; add new markings and bike lanes</td>
</tr>
<tr>
<td>3-3</td>
<td>Boston Street Corridor Essex Street to Peabody line</td>
<td>$7,000,000</td>
<td>$9,000,000</td>
<td>New pavement and sidewalks with new pavement markings/bike circulation/streetscape/lighting and traffic signal enhancements</td>
</tr>
</tbody>
</table>
## NRCC Transportation Study Recommendation Elements
### Preliminary Order of Magnitude Costs - SUMMARY

<table>
<thead>
<tr>
<th>Priority Category</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal Priority 1 (Less than 3 years)*</td>
<td>$235,000</td>
<td>$330,000</td>
</tr>
<tr>
<td>Subtotal Priority 2 (3-5 years)*</td>
<td>$2,480,000</td>
<td>$3,400,000</td>
</tr>
<tr>
<td>Subtotal Priority 3 (5+ years)*</td>
<td>$7,375,000</td>
<td>$9,485,000</td>
</tr>
<tr>
<td>Grand Total - All Actions</td>
<td>$10,090,000</td>
<td>$13,215,000</td>
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</tbody>
</table>

* Measures should be coordinated with development activities. Does not include land easement or acquisition costs or programmed Bridge Street widening between Flint and North Streets assumed to be implemented within the next 10 years. It is recommended that design of those plan elements approved by the City for action begin as soon as possible.

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Department of Planning & Community Development
Next Steps

• Adjust priorities based on comments received

• Prepare report
Planning Board
and Public Comments/Questions