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## 5 SUMMARY OF RECOMMENDATIONS

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This chapter summarizes this study's recommendations regarding transportation improvements for the study area. These recommendations are based on engineering and planning analyses and on discussions with the study advisory committee members, the general public, and City staff. They are presented in two categories: short-term and long-term. The short-term improvements, such as on-street parking alteration, traffic signal retiming, pedestrian crosswalk installation, and other traffic management strategies, generally are low-cost and could be implemented relatively quickly. The long-term improvements, such as intersection geometry modification, traffic signal installation, and traffic signal coordination, are more costly and would take longer to implement. However, these improvements do not involve major roadway realignments or land takings and can be implemented before the planning horizon of 2010.

### 5.1 Short-Term Improvements

The following list summarizes the main points of the recommended short-term improvements for each location. For detailed descriptions of the recommended improvements, please see Chapter 4.

#### *Riley Plaza and Vicinity*

- Washington Street at Norman/New Derby Street
  - Install "Do Not Block Intersection" signs on all approaches, and enforce the rule.
  - Enforce the parking prohibition on New Derby Street near the intersection.
  - Install a "Lane Ends" sign at the northeast corner of the intersection.
- Norman Street at Margin Street
  - Install crosshatched pavement marking inside the intersection.
  - Remove the existing parking space at the southwest corner of the intersection.
  - Consider relocating the existing handicapped parking space on Norman Street.
- Washington Street at Canal Street/Mill Street
  - Enforce the parking prohibition on Washington Street from the intersection to Pond Street.

#### *Essex Street at North/Summer Street*

- Rearrange the signal phasing by switching the eastbound traffic phase and the exclusive pedestrian phase.
- Relocate 4 seconds of green time from the southbound left-turn/through phase to the southbound/northbound phase.

#### *Lafayette Street at Harbor Street*

- Prohibit parking at the corners of the intersection.
- Prohibit double-parking on Lafayette Street from this intersection to Derby Street.

#### *Essex Street at Hawthorne Boulevard/Washington Square West*

- Prohibit parking near the intersection during the PM peak period (4:00 to 6:00).

- Retime the traffic signal by adding about 10 seconds of green time for the northbound/southbound phase during the AM and PM peak periods.

***Pedestrian Circulation on Washington Street***

- Install crosswalks at Church Street, at the driveway of the district court, and at Federal Street on the east side of Washington Street.
- Install “Cross Only at Crosswalks” regulatory signs at Essex Street and in front of the district courthouse.
- Designate the four parking spaces inside the intersection of Washington Street at Federal Street for compact vehicles only.
- At the intersection with Church/Lynde Street, on both approaches of Washington Street, remove the parking space adjacent to the intersection.
- Deter jaywalking by installing low-height vegetation or decorative bollards at the northeast corner of the intersection with Front Street.
- Improve lighting conditions at major pedestrian crossing locations.
- Give parking signs a uniform format and remove redundant parking limit signs.
- Consider installing warning sign such as “Slow, Heavy Pedestrian Crossings” or “Expect Delays, Heavy Pedestrian Crossings” at both ends of the study section.

***Pedestrian Access to the Commuter Rail Station***

- Access to the Station from Points Southwest
  - North Street at Bridge Street Interchange
    - Extend sidewalk curbs on both sides of North Street near the interchange area.
    - Consolidate the two desired pathways across the North Street southbound ramps.
    - Install pedestrian crossing signs on both directions approaching the Bridge Street crosswalk.
  - North Street at Federal Street and Lynde Street
    - Add curb extensions to both corners of Federal Street west of North Street.
    - Add a curb extension to the south corner of Federal Street east of North Street.
    - Consider relocating the crosswalk across North Street somewhat farther north.
    - Install traffic signs making clear the direction of one-way traffic on Federal Street and Lynde Street.
    - Add a raised median on North Street between Federal Street and Lynde Street.
    - Stripe the pavement at the Federal Street intersection with crosshatching to prevent intersection blockage by the southbound traffic.
- Access to the Station from Points Northwest
  - North Street at Franklin Street
    - Install a speed limit sign on North Street northbound before Franklin Street.
    - Stripe pedestrian crosswalks on both sides of North Street
    - Stripe a pedestrian crosswalk across the business driveway on the south side of Franklin Street just off of North Street.
    - Repair or construct sidewalks on both sides of Franklin Street.

In addition to analyzing transportation issues for locations in downtown Salem, at the request of the study advisory committee CTPS examined the issue of school crossings at Saltonstall School (K–5, located on Lafayette Street just south of the study area). Detailed analyses and recommendations are presented in a technical memorandum (see Appendix E). All the

recommendations to improve student safety for crossing Lafayette Street can be implemented in the short term.

## 5.2 Long-Term Improvements

The following list summarizes the recommended long-term improvements for the locations examined by this study. For detailed descriptions of the improvements, please see Chapter 4.

### *Riley Plaza and Vicinity*

- Washington Street at Canal Street/Mill Street
  - Realign Canal Street and add an exclusive left-turn lane on the northbound approach.
  - Adjust the signal phasing to accommodate the northbound left-turn movement.
- Margin Street at Mill Street
  - Signalize the intersection.
  - Coordinate the traffic signal at this intersection with the signal at the intersection of Washington Street at Canal Street/Mill Street.

### *Derby Street at Congress Street/Hawthorne Boulevard*

- Signalize the intersection.
- Remove two on-street parking spaces on Congress Street northbound and create an exclusive right-turn lane.
- Coordinate the traffic signal at the intersection of Essex Street at Hawthorne Boulevard/Washington Square West with this signal.

### *Lafayette Street at Harbor Street and at Washington Street*

- Signalize the intersection at Harbor Street.
- Tighten the intersection layout at Washington Street by extending the parkland and moving the two existing crosswalks closer to the intersection.
- Replace the two pedestrian crossing signals with full traffic signal control.
- Coordinate the traffic signal at Harbor Street with the proposed signal at Washington Street.

### *Pedestrian Access to the Commuter Rail Station*

- Access to the Station from Points Northwest
  - North Street across the North River and Bridge Street
    - Create a well-lit, paved sidewalk between Franklin Street and the station, using the existing desire lines.
    - Create a well-lit, paved sidewalk under the North Street overpass bridge.
- Access to the Station from Points Northeast
  - Connect the existing sidewalk/bikeway on the east side of the railroad tracks to the sidewalk on the north side of Bridge Street.
- Access to the Station from Points Southwest
  - Bridge Street West of North Street
    - Create a buffer between the road and the existing south-side sidewalk.
    - Construct a sidewalk on the north side of Bridge Street.

### 5.3 Implementation

In general, all the recommended improvements are located on roadways administered by the City of Salem and could be implemented with private, city, state, or federal funds.

Implementation with private funds could occur in cases where developments may impact locations where improvement recommendations were made in this study and the City would require that development impacts be mitigated.

Most of the recommended short-term improvements could be implemented by the City of Salem at a relatively low cost as part of regular maintenance by staff of the Salem Department of Public Works. As a courtesy, the City should notify the MassHighway District 4 office of short-term improvements made on state-numbered routes.

The recommended long-term improvements, which generally require more resources and have a wider impact, should be implemented as a collective effort of the City, funding agencies, the Boston Region MPO, interested groups, and residents. Table 5-1 summarizes the estimated cost of each of the proposed long-term improvements.

**Table 5-1 Estimated Costs of Recommended Long-Term Improvements**

Location	Proposed Improvement(s)	Estimated Cost <sup>1</sup>
Riley Plaza and vicinity: Washington St. @ Canal St./ Mill St.	Realign Canal St. and add an exclusive left-turn lane on the northbound approach	\$50,000
Riley Plaza and vicinity: Margin St. @ Mill St.	Install traffic signal	\$150,000
Riley Plaza and vicinity: Mill St. signal coordination	Coordinate signals at Canal St. and Margin St.	\$30,000
Derby St. @ Congress St./ Hawthorne Blvd.	Install traffic signal	\$150,000
Hawthorne Blvd. signal coordination	Coordinate signals at Essex St. and Congress St.	\$30,000
Lafayette St. @ Harbor St.	Install traffic signal	\$150,000
Lafayette St. @ Washington St.	Modify intersection layout	\$250,000
	Install new traffic signal	
Lafayette St. signal coordination	Coordinate signals at Washington St. and Harbor St.	\$30,000
Pedestrian access to commuter rail station	Construct a walkway across North River to the station following the existing desired path	\$80,000
	Connect the existing sidewalk east of the railroad tracks to Bridge St.	
	Construct a sidewalk on the north side of Bridge St. under the North St. bridge <sup>2</sup>	\$180,000
	Install sidewalk on the north side and create landscape buffer for pedestrians on both sides of Bridge St. west of North St. <sup>2</sup>	

<sup>1</sup>Cost estimates are preliminary and do not include right-of-way acquisition or other contingency costs.

<sup>2</sup>Improvements can be incorporated into the second phase of the Bridge Street Improvements project.

Brief outlines of the processes by which proposed highway and public transportation improvements may be implemented are given below. These outlines are intended to help community officials and residents understand the steps that the community needs to follow in order to initiate and further the processes.

### **Massachusetts Highway Department Projects**

The following process description is based on Chapter 2 of the draft 2005 MassHighway Design Guidebook, which will be under public review shortly. The text below borrows heavily from that draft document.

#### ***Need Identification***

At this step, for each of the locations at which the City of Salem wishes to implement an improvement, it will have to lead an effort to define the problem, establish project goals and objectives, and define the scope of the planning needed towards implementation. To that end, the City will have to complete a Project Need Form (PNF), which states in general terms the deficiencies or needs related to the transportation facility or location. The PNF should document the problems and explain why corrective action is needed. All the information defining the need for the project should be drawn from the present report. Also, at this point in the process, the City should meet with potential participants, such as MassHighway district staff, the Boston Region Metropolitan Planning Organization (MPO), and community members, to allow for a proactive, informal review of the project.

The City should submit the PNF to MassHighway's Project Review Committee (PRC) and the MPO for review. MassHighway's PRC includes the Chief Engineer, each District Highway Director, and representatives of the Project Management, Environmental, Planning, Right-of-Way, Traffic, and Bridge departments and the Capital Expenditure Program Office (CEPO). The outcome of this step is a determination of whether the project requires further planning, whether it is already well supported by prior planning studies and, therefore, able to move forward into design, or whether it should be dismissed from further consideration.

#### ***Planning***

This phase will likely not be required for the implementation of the improvements proposed under this planning study, as this planning report should actually constitute the outcome of this step. However, in general, the purpose of this implementation step is for the project proponent to identify issues, impacts, and approvals that may need to be obtained, so that the subsequent design and permitting processes are understood. The level of planning needed will vary widely, based on the complexity of the project. Typical tasks include: define existing context, confirm project need, establish goals and objectives, initiate public outreach, define project, collect data, develop and analyze alternatives, make recommendations, and provide documentation. Likely outcomes include consensus on project definition to enable it to move forward into environmental documentation (if needed) and design, or a recommendation to delay the project or dismiss it from further consideration.

### ***Project Initiation***

At this point, the proponent, in this case the City of Salem, fills out for each improvement a Project Initiation Form (PIF) and submits it to the PRC and the MPO for review. The PIF documents the project type and description, summarizes the project planning process, identifies likely funding and project management responsibility, and defines a plan for interagency and public participation. First the PRC reviews and evaluates the proposed project based on the Executive Office of Transportation's statewide priorities and criteria. If the result is positive, the PRC provides guidance and support to the City in moving the project forward into design and programming review by the MPO. The PRC may also provide a Project Management Plan to define roles and responsibilities for subsequent steps. The MPO review includes project evaluation based on the MPO's regional priorities and criteria. The MPO may assign a project evaluation criteria score, possible Transportation Improvement Program (TIP) year, tentative project category, and tentative funding category.

### ***Environmental, Design, and Right-of-Way Process***

This step has four distinct but closely integrated elements: public outreach, environmental documentation and permitting (if required), design, and right-of-way acquisition (if required). The outcome of this step is a fully designed and permitted project ready for construction. However, a project does not have to be fully designed in order for the MPO to program it in the TIP.

### ***Programming***

Programming, which typically begins during design, can actually occur at any time during the process from planning to design. In this step, which is distinct from project initiation, where the MPO receives preliminary information on the proposed project, the proponent requests that the MPO place the project in the region's TIP. The MPO considers the project in terms of regional needs, evaluation criteria, and compliance with the regional Transportation Plan and decides whether to place it in the draft TIP for public review and then in the final TIP.

Typical funding categories for TIP projects include, in no particular order:

*Congestion Mitigation and Air Quality Improvements (CMAQ)* These are funds for projects in the Clean Air Act nonattainment areas for ozone and carbon monoxide. The funding split for this program is 80% federal funds and 20% state funds.

*Interstate Maintenance (IM)* These are funds for rehabilitation, restoration, and resurfacing on the interstate highway system, and for the reconstruction of bridges, interchanges, and overpasses along existing interstate routes and the acquisition of right-of-way. The funding split for this program is 90% federal funds and 10% state funds.

*National Highway System (NHS)* These are funds for all National Highway System roadways. NHS roadways include interstate routes and a large percentage of urban and rural arterials. The funding split for this program is 80% federal funds and 20% state funds. All projects on

NHS roadways are to be designed in conformance with the latest edition of the AASHTO (American Association of State Highway Transportation Officials) Green Book.

*Non-Federal Aid (NFA)* These are funds for construction, reconstruction, and improvement projects on roads and bridges in urban and rural areas at the discretion of the state. The state share is 100% of the project costs (Not typically included in TIPs, except in the Boston region.)

*State Aid Roadways (SA)* These are funds for construction, reconstruction, and improvement projects on town, city, and county roads, except interstate or state-owned highways. The state share is 100% for projects on State Aid Roadways that are arterials or collector roadways. On other State Aid Roadways the state share is 75% and the local share is 25% (Not typically included in TIPs, except in the Boston region.)

*Surface Transportation Program (STP)* These funds are for projects chosen by states and localities on any roads that are not functionally classified as local or as rural minor collectors. These roads are referred to as Federal-Aid Roads. The funding split for this program is 80% federal funds and 20% state funds.

*Highway Bridge Replacement/Rehabilitation* These funds are for the replacement or repair of bridges based on structural adequacy, safety, and serviceability. The funding split for this program is 80% federal funds and 20% state funds.

*Federal Aid (FA)* This is funding for projects that have specialized or proprietary funding and projects for which the specific federal category has not yet been identified.

### ***Procurement***

Following project design and programming, MassHighway publishes a request for proposals. It reviews the bids and awards the contract to the lowest qualified bidder.

### ***Construction***

After a construction contract is awarded, the proponent and the contractor need to develop a public participation plan and a management plan for the construction process.

### ***Project Assessment***

The purpose of this step is to receive constituents' comments on the project development process and the project's design elements. The proponent and MassHighway can apply what is learned to future projects.

### **Massachusetts Bay Transportation Authority Projects**

The MBTA's Service Delivery Policy provides a consistent procedure for the allocation of MBTA transit services within the Authority's service area; it covers both new service and service changes. All service proposals are subject to a review-and-approval process, to ensure

that they are consistent with the service guidelines and MBTA Board of Directors initiatives and that they can be implemented within the adopted budget. The process is described below:

1. Proposals for service changes or new service can be made by anyone—private citizens, elected officials, MBTA employees, representatives of neighborhood groups, business organizations, etc. Upon receipt by the MBTA, a proposal will be reviewed by the Manager of Service Planning. If the proposal appears to be consistent with the MBTA’s service guidelines and policies, it will be assigned to a service planner for analysis. If it is not consistent, the Planning Department will inform the party making the proposal, in writing, of why the proposal is not being pursued.
2. All analysis of service proposals will be done by the Service Planning unit. This analysis will be based on the factors described in the “Evaluation Criteria” section of the Service Delivery Policy. In conducting the analysis, Service Planning will coordinate with other MBTA departments that would be involved in the proposed change, as well as the proponent of the service change. The Service Planning unit will summarize the resources necessary to accommodate the proposal, along with expected impacts on the existing system in terms of frequency, span of service, and geographical coverage.
3. Following the analysis, the service proposal will be reviewed by the Service Planning Committee. The Service Planning unit will recommend to that committee that either (a) the proposal be implemented, (b) a variation of the proposal be implemented, (c) the proposal be deferred, or (d) the proposal be denied. A summary of the analysis and the final decision will be forwarded to the party that made the proposal.
4. If it is decided that a proposal or a variation of it should be implemented, the timing of implementation will depend on the significance of the change and whether or not capital expenditures are required:
  - In general, minor changes that can be made within the adopted budget will be implemented as quickly as possible. Minor changes that would increase costs will be held until they can be “bundled” with other changes that would reduce operating costs by an equal amount. Minor changes are implemented based upon the final recommendation of the Service Planning unit.
  - The implementation of moderate changes will be handled similarly to that of minor changes. If the change does not involve an increase in operating costs, it will be implemented as quickly as possible. Moderate changes that would increase costs will be held until they can be bundled with other changes that would reduce operating costs by an equal amount. Moderate changes must be approved by the Executive Service Oversight Committee.
  - Major changes will be evaluated within the context of a “comparative evaluation” and the development of periodic Service Plans. The comparative evaluation will weigh all of the potential major changes proposed and evaluated since the preceding Service Plan and determine which would represent the best allocation of resources. Major changes must be endorsed by the Executive Service Oversight Committee and



approved by the General Manager or the MBTA Board of Directors. In most cases, the MBTA Board's approval will occur in the form of approval of a new Service Plan.

The MBTA is currently reviewing this process.