

To: Project Advisory Committee (PAC) **From:** Thomas Errico, P.E.

Date: May 26, 2015

Re: State and High Streets Two-Way Conversion Study

MEMORANDUM

This Memorandum serves as an Executive Summary of the Study and summarizes key results of the study evaluation.

Purpose and Need

The purpose of the State and High Streets Two-Way Conversion Study is to study the effects of re-introducing two-way traffic flow on State and High Streets. The study will evaluate whether changes in transportation infrastructure will support the existing mix of land uses and neighborhoods in the study area. Both streets need to serve automobiles, trucks, transit, pedestrians, and cyclists equitably, as well as serve both those who are traveling within the City as well as through the City. From a safety and health perspective, new infrastructure should be designed to accommodate pedestrian and cyclist safety and increase livability. From an urban design perspective, changes should provide a positive experience, and actively connect historic neighborhoods. Changes should also serve the transportation needs of those living off the peninsula by creating convenient access to city amenities and work places. Changes should be compatible and coordinate with other related City planning projects, including the redesign of Congress Square.

Traffic Volume Changes

In general, total traffic volumes on State and High Streets are about the same during the AM and PM peak hours. With the change to two-way traffic, projected 2035 traffic volumes would be slightly higher on State Street, with the greatest increase between the Casco Bay Bridge and Danforth Street. On State Street, traffic would increase by 100 vehicles in both AM and PM peak hours, with the exception of a 300-vehicle increase between Casco Bay Bridge and Danforth Street. Projected 2035 traffic volumes on High Street would be unchanged or slightly lower, with the greatest reduction between York Street and Spring Street. On High Street, traffic declines by 400 vehicles between York Street and Danforth Street and declines by 200 vehicles between Danforth Street and Spring Street. A significant diversion of peninsula traffic to smaller side streets did not materialize in the model. Some destination-specific diversion is expected, such as traffic increases headed toward the West End via Danforth Street, due to improved accessibility to this neighborhood from the Casco Bay Bridge.

Vehicle Mobility

A significant increase in traffic congestion would not be expected following the conversion to two-way flow. Intersections would experience a slightly increased delay, and travel time across the peninsula would be projected to increase by approximately 2-4 minutes during peak hours.

Vehicle Speed

Several traffic speed surveys have been conducted along State and High Streets. The data indicates that the 85th% speeds are slightly higher than the posted speed limit (27 to 30 MPH speeds in a 25 MPH zone). The data also shows that a portion of vehicles (3%, or several hundred a day) are significantly exceeding (at 35 to 45 MPH) the posted speed limit. Additional speed survey information on a comparable two-way arterial street is in a separate document; details will be presented at the upcoming committee meeting.

Heavy Vehicles/Truck Deliveries

The change to two-way would have a positive impact on truck circulation due to improved accessibility. Data indicates truck volumes are low. The change will require geometric improvements at many intersections and it is assumed that some truck movements would encroach into other lanes. We have reviewed truck deliveries to the State Theatre and other commercial businesses along the corridors and the two-way conversion does not present problems. Most deliveries to commercial businesses occur on side streets, and those conditions will not change. Residential deliveries may require establishment of on-street loading areas.

On-Street Parking

The conversion of High and State Streets to two-way would reduce the on-street parking supply. The loss of parking is primarily related to the need to adjust turning lane alignment in the signalized intersections. The results of the analysis indicate an on-street parking supply reduction of approximately 9%, or 30 parking spaces. This reduction is essential to making the two-way configuration work. Adding additional spaces in and around the study area may be possible.

Bicyclist Safety/Mobility

Bicycle users will see some improvements. The change would eliminate wrong-way bicycle crashes, provide more direct routing, potentially reduce vehicle speeds and make left-turn bicycle movements safer. However, vehicles currently have more room to pass bicycles under the existing one-way condition; the change would eliminate this benefit. The Bicycle Coalition of Maine has reviewed the plan and supports the change with implementation of formal shared lane conditions.

Pedestrian Safety/Mobility

Pedestrian mobility would improve with slower vehicular speeds (mostly at off-peak) and improved driver/pedestrian visibility at unsignalized crossings. However, the conversion to two-way would result in more intersection vehicle turn movements, and these will increase conflicts with pedestrians. A multi-modal pedestrian level of service analysis was conducted and little change in performance was identified.

Intersection Geometry Impacts

With the introduction of new turn movements under two-way flow, some intersection corners would need to be modified. A detailed engineering evaluation has been performed. The evaluation is striking a balance between the urban context, actual truck activity (generally not using a large interstate truck), and allowing some movements to encroach into opposing lanes. Some noteworthy locations that will need improvements include:

- State Street/Park Avenue – Adjustments to southern corners.
- State Street/Congress Street (Longfellow Square) – Adjustments to the easterly corners
- High Street/York Street – Corner and lane alignment improvements.

- High Street/Congress Street (Congress Square) – Corner and lane alignment improvements.
- High Street/Cumberland Avenue
- High Street/York Street
- Casco Bay Bridge Approach to State Street

Winter Maintenance

A two-way configuration will require additional snow removal activity in order to keep two full lanes open to moving traffic. Some level of parking constraint may be required during large storms. The City of Portland typically budgets for 8-10 major snow events and another 22 lower level salt/sand operations per winter season. Data regarding the cost of added activity will be available at the PAC Meeting.

Cost

The preliminary construction cost estimate for the project is estimated at \$3,225,000. It should be noted that approximately \$2,000,000 of this estimate is for replacement of the existing traffic signal system, which needs to be upgraded regardless of the outcome of this study. That means that the change to two-way would cost an additional \$1,225,000.