

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

**Date:** December 31, 2014

**Re:** State and High Streets Two-Way Conversion Study

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## MEMORANDUM

This Memorandum serves to summarize the results of the transportation evaluation that will be presented at the January 7, 2015 Public Advisory Committee meeting. The information that will be presented includes:

- Traffic Volumes
- Level of Service / Traffic Mobility
- On-Street Parking Impacts
- Intersection Geometric Improvement Needs
- Other Municipal Experiences
- Pro/Con Evaluation Criteria Summary Table

### **Traffic Volumes Forecasts:**

Kevin Hooper completed 2035 traffic volume forecasts for study area roadways for both the existing One-Way configuration and for a possible conversion to a Two-Way street network on State and High Streets. In general, total traffic volumes on State and High Streets remain about the same during the AM and PM peak hours. Figures 1 and 2 present the directional increases and decreases during the AM and PM peak hours. Key findings are noted below:

- Projected traffic volumes are slightly higher on State Street with the greatest increase between the Casco Bay Bridge and Danforth Street. Some noteworthy changes on State Street include:
  - In the AM and PM peak hours traffic increases by 100 vehicles per hour on many roadway sections with the exception of a 300-vehicle increase between Casco Bay Bridge and Danforth Street for each of the peak hours.
- Projected traffic volumes on High Street are unchanged or slightly lower with the greatest volume reduction between York Street and Spring Street. Some noteworthy changes on High Street include:
  - In the AM and PM peak hours traffic declines by 400 vehicles per hour between York Street and Danforth Street and declines by 200 vehicles between Danforth Street and Spring Street.
- A significant diversion of Peninsula traffic to neighborhood streets is not expected. Some localized diversion is expected - such as traffic increases on Danforth Street headed to the West End - due to improved accessibility from the Casco Bay Bridge.

**Level of Service:**

The Synchro/SimTraffic traffic simulation model was used to evaluate traffic conditions in 2035 during the AM and PM peak hours with Two-Way flow. The analysis concluded that the change would not create unacceptable congestion levels at the study intersections. Figures 3 and 4 present level of service conclusions at the study intersections for both One-Way and Two-Way options. The following should be noted:

- The Casco Bay Bridge approach to State Street/York Street will need to be modified to accommodate a left lane onto State Street. This can be accomplished by removing the median barrier.
- The level of service at the State Street/Forest Avenue/Marginal Way intersection will decline in the AM peak hour.
- The level of service at the High Street/Congress Street intersection will decline to D in the AM and PM peak hours
- The level of service at the High Street/Spring Street intersection will decline to D in the AM peak hour.

**On-Street Parking:**

The conversion of High and State Streets to Two-Way will reduce the on-street parking supply. Figure 5 presents the number of parking spaces that are currently provided and the resultant number of spaces under a Two-Way configuration. Figures 6 and 7 present the net change in on-street parking spaces on a street block basis following a Two-Way conversion. Key conclusions are noted below:

- Nineteen (19) parking spaces will be lost on State Street between Park Avenue and York Street primarily due to intersection needs following the Two-Way conversion.
- Fourteen (14) parking spaces will be lost on High Street between Park Avenue and Commercial Street primarily due to intersection needs following the Two-Way conversion.
- Ten (10) parking spaces will be lost on High Street between Park Avenue and Forest Avenue.
- Thirty-seven (37) parking spaces can be added on Park Avenue in the area of State and High Streets. These spaces could likely be added under a One-Way configuration, if Park Avenue lanes are reduced, as proposed under the Two-Way conversion plan.
- Twenty (20) parking spaces can be added on State Street through Deering Oaks. These spaces could likely be added under a One-Way configuration with reduction in lane widths. It should be noted that a bicycle lane is not included in the plan on this section of State Street and if deemed desirable, the noted parking spaces would be eliminated.

**Intersection Geometry Impacts:**

With the introduction of new turn movements under Two-Way flow, some intersection corners will 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, which is currently taking place on city streets now. Figure 8 illustrates intersection corners within the study area that will need to be modified or that will allow for lane encroachment. Figure 9 presents an example of a concept improvement plan at the State Street/Park Avenue intersection

under Two-Way flow. As illustrated in blue, the south side corners (where curb extensions exist) will need to be adjusted. Detailed plans have been prepared that illustrate the suggested changes and these will be presented at the January meeting. 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.

**Other Municipal Experiences:**

A summary of experiences following a One-Way to Two-Way conversion from other cities is summarized and will be distributed prior to the Meeting.

**Pro/Con Evaluation Criteria Summary:**

A summary of the evaluation criteria assessment is presented in the attached table.