

## **Chapter 8 Recommendation**

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Based on the evaluation performed for the Burlington-Essex Corridor Alternatives Analysis, it is clear that a single modal alternative does not address the transportation needs of the corridor and goals of the region. A multimodal mix of improvements appears to present the best opportunity to improve transportation in the corridor. These improvements have been evaluated preliminarily as part of this alternatives analysis. Further work is needed in order to develop and refine each improvement to a level where the scope of the improvement is defined in detail, and the full costs and benefits are established. Subsequent to that project development effort, engineering could proceed.

### **8.1 Transportation Systems Management**

The TSM improvements that were studied improved traffic operations to an acceptable level of service at all key intersections, with the exception of Five Corners. It is recommended that these improvements be implemented. Improvements include signalization of E. Spring St. at VT 15, addition of a second left turn lane at Lime Kiln Road, and improvements to signal timing along the length of the corridor.

It is also recommended that fifteen-minute service in peak hours be implemented on CCTA Route #2, with close monitoring of ridership, on-time performance and costs, to further assess the viability of this alternative.

### **8.2 Highway**

TSM-type highway improvements were not adequate to bring the critical intersection at Five Corners in Essex Junction to an acceptable level of service. Preliminary analysis indicated that a roundabout has the potential to provide an excellent level of service for motor vehicles at that location. However, a roundabout may present an unacceptable condition for bicycles and pedestrians. Engineering and urban design efforts are needed to develop the roundabout concept to a level where the benefits and impacts can be fully evaluated. If a roundabout is not found to be feasible or acceptable to the community, further analysis is required to develop a viable solution to traffic delays at Five Corners.

The new highway facilities evaluated had benefits for the corridor in terms of additional access, and fairly evenly balanced impacts in terms of addition and subtraction of traffic. They did not result in significant improvement in corridor-level highway operations. Greater benefits could be obtained by implementing the TSM alternatives. However, this study did not evaluate the full potential benefits and costs of these new facilities in the regional context. As these improvements—the Circumferential Highway, a full exit at Exit 15, and a new road through Camp Johnson—originated from efforts outside this alternatives analysis, it is recommended that the concepts be developed further through separate analysis, such as the update of the Metropolitan Transportation Plan.

### **8.3 Bus**

Improvements to bus service have the potential to draw people from cars to public transit, and to create a transit-oriented mentality on the part of travelers. In the evaluation, the bus system improvements resulted in only small increases in ridership, but they did have some impact. Bus transit improvements were of two types: additional routes and express service. The express bus operations that were evaluated did not generate sufficient ridership to offset the relatively high capital and operating costs that they entailed.

It is recommended that the potential benefits of additional routes in the corridor be evaluated further, particularly local routes in the area of Susie Wilson Rd./Kellogg Rd., and around U.S. 2/U.S. 7 north of I 89.

If a commuter rail line is implemented in the corridor, bus feeder service will be critical to the success of the rail line. Further work is needed to define the bus service that would best complement the rail line, and to ensure its financial viability.

### **8.4 Commuter Rail**

The commuter rail alternative demonstrated an ability to attract travelers to rail, and to increase transit mode share. The addition of service from Burlington to Essex has the effect of leveraging the investment in the Charlotte to Burlington line by increasing ridership beyond a straight passenger-per-additional-mile level. This demonstrated value of extending a rail network may also apply to the various other regional rail connections that are under study, and which would be complemented by the Burlington-Essex line. The addition of rail also expands the transportation options available in the corridor.

The costs for rail construction are moderately high, particularly for the half-hourly service scenario. However, a preliminary assessment of the cost per new rider for the commuter rail alternatives using FTA methodology indicates that the cost-effectiveness for both alternatives is within the range of New Starts projects recommended by FTA in recent years.

As a major new element of transportation infrastructure, commuter rail has the potential to shape development in the corridor, and is likely to do so in ways that are compatible with regional goals.

The commuter rail alternative offers the potential to increase the capacity of the corridor far beyond what would be possible with highway improvements, although its projected impact on traffic operations is low due to the level of ridership. Rail operations can move far more people per hour within a limited right of way than can be moved in autos, and with greater flexibility to meet fluctuating demand. As such, an investment in rail may be seen as an investment in future capacity in the corridor.

It is recommended that the commuter rail alternative be developed further to refine the concept and to further assess its costs, benefits and impacts. The development of the concept would be done within the context of the federal process for developing and evaluating new rail transit projects. The next phase of development would entail:

- initial engineering assessments for rail, track, bridges, tunnels and grade crossings
- assessment of environmental impacts
- refinement of operating concepts
- definition of station locations
- refinement of multimodal feeder and access concepts (bus, auto, bicycles and pedestrians)
- development of plans for ownership or leasing of the right-of-way
- refinement of operating and capital costs
- development of a plan for financing capital and operating costs

These efforts would lead up to potential federal approval to undertake preliminary engineering for the project.

## 8.5 Costs of Recommended Alternative

The costs associated with the recommended alternative have been developed based on costs for each of the alternatives. Estimated costs are shown in Table 8-1.

**Table 8-1 – Recommended Alternative Costs**

Cost Type	Cost	
	Rail-Hourly	Rail 1/2-Hourly
<b>Capital</b>		
TSM	500,000	500,000
Highway	750,000	750,000
Bus	900,000	900,000
Rail	25,700,000	67,000,000
<b>Total</b>	<b>\$27,850,000</b>	<b>\$69,150,000</b>
<b>Operating</b>	<b>Rail-Hourly</b>	<b>Rail 1/2-Hourly</b>
TSM	Negligible	Negligible
Highway	Negligible	Negligible
Bus	516,865	516,865
Rail	1,400,800	2,847,600
<b>Total</b>	<b>\$1,917,665</b>	<b>\$3,364,465</b>

Those costs are based on the following assumptions:

- **TSM** – Capital costs are for intersection and signal improvements only. Costs for bus-related aspects of the TSM improvement would be interim costs pending implementation of the rail service, and are not included. Operating costs of the TSM intersection and signal improvements would be incidental to highway maintenance costs.
- **Highway** – Capital costs include a figure to cover potential improvements at Five Corners. This is of necessity a very rough estimated, as the nature of the improvements has not been defined. Maintenance costs would depend on the nature of the improvement.
- **Bus** – Capital costs include the purchase of vehicles for operation of the feeder service to the rail alternative. These vehicles could conceivably be purchased early and used for the interim service described in the TSM alternative. Operating costs reflect the cost of operating feeder service to the rail.
- **Rail** – Two sets of capital and operating costs are provided, reflecting the two operating scenarios. Capital costs include all facility improvement, purchase of new trains, where appropriate, and stations. Operating costs include the incremental cost of extending the current Charlotte to Burlington service to IBM in Essex Junction. .

These costs are necessarily preliminary, and were developed with contingency allocations and order-of-magnitude figures to reflect the conceptual level at which the project currently stands. Operating and capital costs will be refined at each stage of the project through final design.