

## 6.0. Implementation

### OVERVIEW

The recommended strategy for the Route 3 corridor was developed so that it could be implemented over-time and in phases. The phases are likely to be a combination of stand-alone projects oriented specifically toward the recommended strategy and shared projects that modify the roadway, intersections, technology, or other corridor infrastructure also while advancing the recommended strategy.

As previously noted, the recommended strategy presented in this study does not specifically identify the implementation of additional transit services along Route 3. It instead recommends the incremental development of infrastructure to support high-quality transit services as well as vanpool services and carpool activities. In addition to incremental infrastructure measures included in the recommended strategy, policy initiatives and coordination are recommended to support the evolution of development patterns along portions of the Route 3 that would better support and encourage alternative travel mode trip-making.

### PARTNERSHIP APPROACH

Implementing elements of the recommended plan will require the cooperation of, and funding from a number of entities. These include the following:

- City of Fredericksburg
- Spotsylvania County
- Fredericksburg Area Metropolitan Planning Organization (FAMPO)
- Virginia Department of Transportation (VDOT)
- Virginia Department of Rail and Public Transportation (DRPT)
- Private land owners and developers

- Federal Transit Administration (FTA)
- Federal Highway Administration (FHWA)

### FOLLOW-UP

The recommended corridor strategy will need to be further developed through detailed engineering studies and designs. Key steps early in the implementation process should include the following:

- **Approval of the Recommended Strategy.** The City of Fredericksburg, Spotsylvania County, VDOT, and FAMPO should approve the Strategy for Providing High-Quality Transit Services in the Route 3 Corridor study. Recommendations and concepts presented in the study should be referred to as local and regional prioritization processes are undertaken and funds are sought and allocated for the construction of infrastructure modifications.
- **Funding and Programming.** Funds for design and construction should be programmed by local, regional, and state agencies. The nature of the recommended strategy and the many transportation modes it affects makes it eligible for funding from many local, state, and federal highway and transit sources. Additionally, some elements of the recommended strategy, sidewalk and multiuse trail components in particular, have the potential to be funded and constructed by developers as development and redevelopment occurs. Local development proffers for development may also be an avenue that is available for the implementation of some elements of the recommended strategy.

- **Organization and Coordination.** The corridor spans two jurisdictions. A deliberate effort should be undertaken to coordinate project programming and design activities to support the logical and efficient implementation of the recommended strategy. Traffic signal controllers, interconnect, timing plans, pre-emption devices, and operations plans should be coordinated to ensure interoperability. In addition, the overall concept of operations for the corridor should be consistent between jurisdictions.
- **Additional Planning and Policy Implementation.** The recommended strategy for Route 3 suggest that adjustments are made to local zoning and land use policies to affect a change in the way that land is developed. Any policy and ordinance changes would need to be developed by, and coordinated at the local jurisdiction level. A transportation demand management policy should be developed and applied to key areas of the corridor to encourage non-auto trip making. Along with changes to development-related ordinances, an appropriate access management policy and plan should be developed for Route 3 to guide the consolidation of vehicular entrances along Route 3. Policy, ordinance, and plan development initiatives can be undertaken and implemented before the construction of any physical modifications to the corridor.
- **Operations Analysis and Design.** Implementation of early phases of the recommended strategy could involve the replacement of traffic signal equipment, construction of signal interconnect (fiber optic cable), and the development of corridor-wide coordinated signal timing plans. Detailed systems and operations studies will need to be conducted to quantify the

benefits of making traffic signal and roadway modifications at intersections; identify the optimal traffic signal equipment for the corridor to support current and long-term operations; identify the location of new signal equipment; develop coordinated signal operations plan; and identify the type of emitter and detector technology to support TSP. Along with these studies, designs and/or specifications will need to be prepared for the implementation of TSP equipment, other operations-related equipment for the corridor, and infrastructure modifications. An interoperability discussion/forum for TSP and other transit-related technologies and operational considerations will need to be convened early in the implementation process to establish a regionally accepted standard for technology, operations, maintenance, and other considerations.

- **Right-of-Way Acquisition.** At the time of the study, accurate right-of-way information was not available and concept plans were not prepared to a level of detail sufficient to identify potential impacts and issues. A concept plan should be prepared to a level of detail sufficient to identify potential right-of-way impacts of implementing elements of the recommended strategy.

## PHASING

Potential phases for implementing recommended corridor and intersection modifications in support of future high-capacity and high quality transit services along Route 3 are identified in Tables 6.1, 6.2, and 6.3. The tables organize recommendations by type, phase, and location. Phases are described below.

- **Phase 1.** This phase primarily includes signal coordination (with some minor modifications to infrastructure) for the entire Route 3 corridor. This phase also includes upgrades of selected bus stops to meet “improved stop” guidelines.
- **Phase 2.** This phase primarily includes spot intersection and corridor improvements to support the implementation of TSP at the most congested intersections along the corridor. Where TSP and queue jump lanes (or shared transit/HOV lanes) are constructed and there are adjacent bus stops, improvements should be constructed to bus stops to provide an appropriate level of accommodation. As a part of the implementation of TSP in this phase, in addition to the installation and/or upgrade of field (signal) equipment, emitters will need to be installed on appropriate transit vehicles along with central computer system upgrades to accommodate transit schedule-based TSP.
- **Phase 3.** This phase includes additional TSP implementation (at remaining intersections) and further modifications to existing right-turn lanes to accommodate transit operations and HOV. Similar to the previous phase, transit stations and stops should be improved appropriately where they will be permanent along the corridor.
- **Phase 4.** This phase would primarily involve the construction of the remaining sections of the recommended continuous shared transit/HOV lane between Gordon Road and US 1. Similar to previous phases, transit stations and stops should be improved appropriately where they will be permanent along the corridor.

## OPINION OF COST

Recommended modifications to Route 3 will carry a significant monetary cost. Standard methodologies were used to develop an order-of-magnitude cost for the implementation of substantive elements of the Route 3 strategy. The following is a summary of order-of-magnitude construction costs for significant elements of the Route 3 strategy:

- Traffic signal coordination: \$550,000 to \$650,000
- Transit signal priority: \$650,000 to \$750,000
- Conversion of existing right-turn lanes to shared transit/HOV lanes: \$200,000 to \$300,000
- Construction of transit/HOV lane extensions to create a continuous transit/HOV lane: \$8 million to \$9 million
- Construction of new general purpose right-turn lanes: \$4 million to \$4.5 million
- Bus stop/station modifications: \$3 million to \$3.5 million
- Sidewalks, crosswalks, and multiuse paths: \$1.75 million to \$2 million

## NEXT STEPS

While this plan is comprehensive in its approach to phasing the recommended strategy, for individual elements to be implemented, momentum will need to be maintained. The identification of specific funding sources and amounts, identification of partner projects to assist in implementation, and the adoption of priorities will need to be undertaken to carry the recommended strategy forward. In addition to identifying physical measures and operational strategies, the implementation summary in Table 6.1 identifies follow-up studies and other actions.

Table 6.1: General Implementation Summary

Recommendation	Timeframe			
	Ongoing	Short Term (0 to 5 years)	Mid Term (5 to 10 years)	Long Term (beyond 10 years)
<b>Follow-up Study and Design</b>				
Zoning and land use policy considerations		Development and adoption of corridor overlays and/or policies		
Transportation demand management policy development				
Access management plan development	Spot consolidation based on opportunities	Plan development	Site access modification construction	
Corridor service plan development				
Engineering design and studies for corridor modifications		Signal coordination and spot modifications	TSP and corridor section modifications	
Right-of-way evaluation and acquisition		Concept studies to establish conceptual ROW needs	Preliminary engineering plans to better define right-of-way impacts and early acquisition phases	Ongoing acquisition
<b>Bicycle and Pedestrian Improvements</b>				
Sidewalk construction	Spot construction		New sidewalk construction along roadway segments accompanying development and other roadway construction	
Multiuse path construction	Spot construction		New multiuse construction along roadway segments accompanying development and other roadway construction	
Pedestrian-oriented intersection modifications (crosswalks, pedestrian signals, curb ramps)	Spot construction		Intersection modifications accompanying development and other roadway construction	
<b>Physical Modifications</b>				
Transit stop upgrade to "Improved Stop" (at existing stop locations)	Incremental improvements to bus stops	Targeted improvements to existing stops located in coordination with long-term corridor plans		
Right-turn lane conversion (pavement markings, signage, and modification of lane termini)				Construction of continuous corridor improvements
New dedicated lane construction (including pavement markings, signage, parking lot modification, utility adjustment, property acquisition)				
New exclusive right-turn lane construction				
Intersection modifications (including pavement markings, signage, traffic signal equipment, and utility adjustment)		Spot modifications at intersections		
Transit stops/stations construction (including related amenities based on type of stop)			Improvements to permanent (long-term plan) stations/stops	
<b>Systems Improvements</b>				
Traffic signal coordination (including signal interconnect, signal equipment and software upgrades, signal timing plan preparation and implementation)		Coordinated with ongoing Route 3 projects with the City and County		
Transit signal priority			At high-priority locations	Entire corridor
Traffic signals and signal timing modification				

Source: Kimley-Horn and Associates, Inc., 2010

Table 6.2: Intersection Modification Draft Implementation Summary

Element		Route 3 (Intersecting Cross Streets Noted Below)																		
		Gordon Road	Old Plank Road	Rutherford Drive/Chewing Lane	Ukrops Entrance	Salem Church Road	Heatherstone Drive	Taskforce Drive	Bragg Road	Spotsylvania Mall Drive/Central Park	Carl D. Silver Parkway	I-95 Southbound Ramps	I-95 Northbound Ramps	Gateway Boulevard/Ramseur Street	Altoona Drive/Mahone Street	Westwood Shopping Center Entrance	Huntington Hills Lane	Westmont Drive/Westwood Drive	US 1 Southbound Ramps	
Bicycle and Pedestrian Modifications	Install Sidewalks		3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3	3
	Install Multi-use Path		3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3	3
	Pedestrian-oriented Intersection Modifications	Install Crosswalks and Curb Ramps	3	3	3	3	3	3	3	2	2	2	3	3	3	3	3	3	3	3
		Install Pedestrian Signal Heads	3	3	3	3	3	3	3	2	2	2			3	3	3	3	3	
Traffic Signal Modifications	Signal Coordination	Interconnect Signals	1	1	1	1	1	1	1	1	1			1	1	1	1	1		
		Upgrade Controllers as Needed	1	1	1	1	1	1	1	1	1			1	1	1	1	1		
		Implement Coordinated Signal Timings	1	1	1	1	1	1	1	1	1			1	1	1	1	1		
	Transit Signal Priority	Upgrade Signal Firmware, Install Detectors (Opticon), and Install Emitters	3	3	3	3	3	3	3	2	2	2			3	3	3	3	3	
		Construct Signal Modifications to Accommodate Transit/HOV Lane	3	3	3	3	3	3	3	2	2	2			3	3	3	3	3	
		Implement TSP Timing Plans	3	3	3	3	3	3	3	2	2	2			3	3	3	3	3	
Roadway Modifications	Queue Jump Lanes	Reconfigure Existing Right-turn Lane			3	3	3	3	3	2	2	2		3	3	3				
		Construct New Lane	3	3	3		3	3			2	2		3		3				
	Continuous Transit/HOV Lanes	Exclusive Right-turn Lane			4	4	4	4	4	4	4	4		4						
Transit Stop/Station Modifications	Improved Stops		1			1			1							1				
	Enhanced Stops		3						3							3				
	Super Stops					3														

Source: Kimley-Horn and Associates, Inc., 2010