



Project Description Form – 6R

Basic Project Information

Submitting Jurisdiction/Agency: Arlington County

Project Title: Lee Highway Corridor Intelligent Transportation System Enhancements

Project Location: Along Lee Highway from the City of Falls Church border to near the DC border in Rosslyn.



Project Description: The Lee Highway Corridor is an important parallel route to I-66 that must accommodate regional thru traffic and local residential and commercial traffic. With high traffic volumes, several congested intersections, dangerous pedestrian crossings, and the planned expansion of ART service, the Lee Highway Corridor has numerous regional and local mobility constraints. The Lee Highway Intelligent Transportation System (ITS) project proposes to address these issues by installing an Intelligent Transportation System and corresponding Adaptive Traffic Control System program, to better manage traffic flow for both automobiles and buses. The project will install additional Bluetooth devices, count stations, CCTV cameras, and Forward Looking Infrared (FLIR) detectors in order to monitor traffic flow and safety of all modes. At the interchange of Lee Highway and I-66, the project will upgrade two signals, providing a better-timed connection between I-66 and Lee Highway. The project will also upgrade existing mast arm signals and add or improve existing streetlights along Lee Highway.

As a corridor-wide system, the Intelligent Transportation System and Adaptive Traffic Control System program are adaptive responsive traffic control systems that help monitor real time traffic conditions, including volume, speeds, delays and queues. The system automatically optimizes the traffic signal timings depending upon real time traffic situations. The system also helps monitor and adjust the operation of traffic signals during emergency situations and facilitates the smooth operation of evacuation routes. The system will also provide for coordinated transit signal priority, which will improve transit service times along the corridor. As Arlington Transit (ART) adds more bus service along Lee Highway, increased bus service and signal priority provide the first phase in potential future large-scale multimodal improvements for the corridor.

Project Analysis Summary*

NVTA Quantitative Score	51.08	Rank	7
Congestion Reduction Relative to Cost Ratio (NVTA Share)	1.56	hours saved/\$	Rank 2
Congestion Reduction Relative to Cost Ratio (Total Cost)	1.56	hours saved/\$	Rank 1

*Detailed scoring information can be found at: <http://www.thenovaauthority.org/planning-programming/fy2017-program/>

For pedestrians and bicyclists, the system reduces delay timings and facilitates safe crossing at busy intersections. This project reduces vehicular and transit congestion along the corridor and improves the safety of vehicular, bicycle, and pedestrian users on County roadways. The goal of these improvements is to optimize roadway functionality for all modes, ensuring safe, efficient travel.

Project Milestones

Project Milestones by Project Phase:

- **Systems Engineering:** Expected Start July 2016; Expected End June 2017
- **Design:** Expected start January 2017; Expected End December 2017
- **Right of Way Acquisition:** Expected Start June 2017; Expected End June 2018
- **Construction:** Expected Start June 2018; Expected End September 2019

Project Cost

Requested NVTA FY2017 Funds: \$3,000,000

Total Cost to Complete Project: \$3,000,000

Project Phases	Requested NVTA FY2017 Funds	Other Sources of Funding	Total Cost by Phase
Systems Engineering	\$100,000 (FY2017)		\$100,000 (FY2017)
Environmental Work			
Design	\$375,000 (FY2017)		\$375,000 (FY2017)
Right of Way Acquisition	\$100,000 (FY2018)		\$100,000 (FY2018)
Construction	\$1,000,000 (FY2019) \$1,425,000 (FY2020)		\$1,000,000 (FY2019) \$1,425,000 (FY2020)
Capital Asset Acquisitions			
Other			
TOTAL	\$3,000,000		\$3,000,000

Project Impacts

What regional benefit(s) does this project offer? This project offers vehicular and transit travel time savings for those traveling the Lee Highway (US-29) corridor. This corridor provides important regional vehicular and transit connections between the East Falls Church and Rosslyn Metro stations / activity centers, servicing numerous residential and commercial destinations in between. The corridor is part of the National Highway System and is an important parallel route to I-66, with regional connections to the City of Falls Church, Fairfax County, Fairfax City, and downtown Washington, DC. By providing real-time based driver information, improving safety, and optimizing vehicular and transit travel times, Lee Highway can better move people through the County and provide a safe and efficient alternative to I-66 during incidents.

How will the project reduce congestion? This project reduces congestion by improving the level of vehicular and transit service on the facility and optimizing the performance of the roadway to better manage traffic. The Adaptive Signal Control System has the ability to adjust signal timing in real-time to better utilize the signal throughput and more efficiently move people through the intersection. This technique can improve the LOS at intersections along Lee Highway. Additionally, passive pedestrian detection has the capability to drop calls if pedestrians move out of the area. In this case, the unused signal time can be returned to the main phase, thus providing an increase in through capacity. Real-time driver information will also improve congestion by alerting drivers to alternate routes, incidents, and detours. This ITS project will also provide the infrastructure for Transit Signal Priority, reducing travel times for transit vehicles and increasing transit throughput of the corridor. Finally, by making Lee Highway a faster and more convenient travel option for all modes, this project will reduce congestion on I-66 caused by Lee Highway traffic that unnecessarily diverts to I-66.

How will the project increase capacity? This project will increase the capacity of bus transit and vehicular traffic on the Lee Highway Corridor. The Adaptive Signal Control System has the ability to adjust signal timing in real-time to better utilize the signal throughput and more efficiently move people through the intersection. This technique can increase the signal capacity from cycle to cycle to increase the capacity of the roadway for personal and transit vehicles. The project also includes passive pedestrian detection, which maintains the capability to drop calls if pedestrians move out of the area. In this case, the time can be returned to the main phase, thus providing an increase in capacity for all vehicle types.

By cycling buses along the corridor faster, the same number of buses will be able to provide more trips, thus increasing transit capacity without requiring an increase in transit vehicles. Transit travel times will be reduced, thereby increasing capacity, by utilizing technologies such as queue jumps and transit signal priority. This project will include the physical infrastructure to enable these transit improvements.

Additionally, improvements to signals at Lee Highway at Washington Boulevard will improve the operations of the intersection and increase capacity by providing additional queuing space for left-turns onto I-66.

How will the project improve auto and pedestrian safety? This project will improve safety for automobile drivers and passengers, bicyclists, pedestrians, and transit users. This project will enhance automobile safety by managing the flow of vehicles to reduce congestion and optimize performance, making traffic more predictable and reducing unanticipated stop-and-go incidents. Incident management and response times should be improved due to the improved monitoring and messaging provided by the project. Additionally,

the system also helps monitor and adjust the operation of traffic signals during emergency situations and facilitates the smooth operation of evacuation routes.

Pedestrian and bicycle safety will be improved through the installation of lead pedestrian intervals at high activity crossings. Accessible pushbutton systems will also help disabled pedestrians utilize crossings more safely. For all users, improved streetlights will improve visibility and help provide safety for pedestrians and automobiles. Improved monitoring due to additional CCTC camera installations will also help provide for better response and coordination among public safety agencies.

How will the project improve regional connectivity? The Lee Highway corridor is a major east-west route from Washington, D.C. to Fairfax County, Falls Church, and areas west. The project limits will directly extend between the **Falls Church** activity center and the **Rosslyn** and **Courthouse** activity centers. Within the project limits, this ITS project will enhance vehicular and transit service and provide enhanced and safer pedestrian and bicycle connections.

The corridor has critical importance as an alternate route to I-66 and also connects to several major regional routes outside project boundaries, such as I-66, Route 110, and the George Washington Parkway in **Rosslyn**, I-495 in **Merrifield/Dunn Loring**, US-50 in **Fairfax City**, . Lee Highway connects many of the neighborhoods and activity centers in Arlington County to the wider region, including **Georgetown and Downtown Washington, DC**, and also provides a safe and direct access to the East Falls Church Metro station.

How will the project improve bicycle and pedestrian travel options? The ITS system is capable of detecting and optimizing service along the corridor for pedestrians and bicyclists as well as vehicles. The installation of infrared detection will allow for detection of bicycles in bike lanes or travel lanes, accommodating bicyclists with the same travel time and congestion improvement benefits as for other vehicles.

This project will install Lead Pedestrian Interval Signals at intersection of high pedestrian and bicycle traffic, eliminating most conflicts between crossing pedestrians and turning cars. It will also install audible accessible pushbutton systems, making signals ADA accessible. The capability of passive detection at areas of high pedestrian activity will allow for automatic detection of bicycles and pedestrians using crosswalks, enhancing their safety. Accommodating the safe movement of these users along the corridor is critical providing last mile access for residents or workers to access ART and Metrobus service on the corridor.

How will the project improve the management and operation of existing facilities through technology applications? This project is primarily a technology and operations project that, through the installation of ITS infrastructure, will enable the improved operations and management of the existing roadway configuration and transit service along Lee Highway.

Additional Information in Support of This Project

