

BROADBAND COMMUNICATIONS LINK

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: 4600 - 5700 Eisenhower Ave
 REPORTING AREA: Eisenhower West

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: Varies

Broadband Communications Link													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	2,579,824	2,579,824	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
Cash Capital	49,227	49,227	-	-	-	-	-	-	-	-	-	-	-
State/Federal Grants	2,511,855	2,511,855	-	-	-	-	-	-	-	-	-	-	-
TIP	18,742	18,742	-	-	-	-	-	-	-	-	-	-	-
Financing Plan Total	2,579,824	2,579,824	-	-	-	-	-	-	-	-	-	-	-

CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

PROJECT DESCRIPTION & JUSTIFICATION

The Eisenhower Broadband Communications Link project designs and constructs the expansion of the Smart Mobility fiber optic communications (broadband) network onto Eisenhower Avenue, between Van Dorn Street and Clermont Avenue. This will allow the City to better synchronize traffic signals along Eisenhower Avenue, install traffic detection cameras, and provide the platform to install future smart technology.

With the proposed development in the Eisenhower West area, smart traffic signals will better manage the vehicles on this roadway. This project aims to mitigate the impacts of proposed development along Eisenhower Avenue by laying the groundwork with fiber optic cable and surveillance cameras to support for real time traffic monitoring and a communications network that will connect the new and existing traffic signals to provide synchronization along this corridor.

This project will build onto the infrastructure installed with the ongoing ITS Integration projects. Design was completed in 2023 and construction began in FY 2026 and is anticipated to be complete in FY 2027.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

N/A

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

DASH TECHNOLOGIES

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide
 REPORTING AREA: Citywide

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: 16 - 20 Years

DASH Technologies													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	5,020,340	3,566,340	104,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,454,000
Financing Plan													
NVTA 30% Funds	1,649,453	195,453	104,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,454,000
NVTA 70% Funds	150,000	150,000	-	-	-	-	-	-	-	-	-	-	-
State/Federal Grants	3,220,887	3,220,887	-	-	-	-	-	-	-	-	-	-	-
Financing Plan Total	5,020,340	3,566,340	104,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	150,000	1,454,000
Operating Impact	1,401,700	-	-	137,900	142,100	146,300	150,700	155,200	159,800	164,600	170,000	175,100	1,401,700

CHANGES FROM PRIOR YEAR CIP

Project funding for FY 2027 reduced by \$46,000 based upon review of available balances. Funding added for FY 2036.

PROJECT DESCRIPTION & JUSTIFICATION

This project funds DASH technology initiatives which provide better operational data to both customers and planners. This project allows DASH to operate more efficiently and help to improve the overall DASH customer experience. Past initiatives that have been funded by this project include Automated Passenger Counters (APC's), real-time passenger information upgrades, upgraded Scheduling Software and Operations Management platforms. These projects have improved operational efficiencies, reduced manual processes for operations staff, provide better ridership data, and improved passenger experience.

In FY 2026, DASH began pursuing a CAD/AVL (Computer-Aided Dispatch/Automated Vehicle Locator) System Replacement project that will improve its ability to manage daily service demands, effectively deal with major service disruptions, track operating statistics, and provide better real-time information and service alerts to customers. The current CAD/AVL System was procured in 2015 and has reached the end of its useful 10-year life, per industry guidance. This project will allow DASH to explore new, state-of-the-art, cloud-based CAD/AVL platforms, which can be integrated with other existing DASH technologies.

DASH has been proactive in piloting technology through grant opportunities. NVTA 30% funding has provides the local match for these grant opportunities.

This project is being coordinated with the City's Smart Mobility Program and other transit and street technology enhancement projects.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Smart Mobility Program, Alexandria Transit Vision Plan, Alexandria Mobility Plan

ADDITIONAL OPERATING IMPACTS

Annual fee for licensing and support of data systems implemented by this project.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS) INTEGRATION

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide
 REPORTING AREA: Citywide

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: Varies

Intelligent Transportation Systems (ITS) Integration													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	15,393,019	15,393,019	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
Cash Capital	344,803	344,803	-	-	-	-	-	-	-	-	-	-	-
State/Federal Grants	12,475,196	12,475,196	-	-	-	-	-	-	-	-	-	-	-
TIP	2,573,020	2,573,020	-	-	-	-	-	-	-	-	-	-	-
Financing Plan Total	15,393,019	15,393,019	-	-	-	-	-	-	-	-	-	-	-
Operating Impact	361,200	-	-	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	41,200	361,200

CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

PROJECT DESCRIPTION & JUSTIFICATION

This project provides funding for the design and installation of upgrades to the City's Smart Mobility initiative, which keeps City streets safe and running smoothly, while also laying the groundwork for emerging technologies that will shape transportation in the future. Completion of this project will replace much of the City's 30-year old traffic signal communications and allow public safety departments to monitor real time conditions on the City's roadway network. TES Staff is working with the ITS Department to coordinate work with the Municipal Fiber Project and combine conduit resources to achieve savings.

This project has four phases that largely focus on the design and installation of the City's fiber optic communications (broadband) network, which is laying cable that allows regional transportation agencies to communicate faster and more efficiently to manage traffic and respond to emergencies. The project also includes the installation of field devices such as traffic cameras, weather stations, and pavement temperature sensors which capture data that can be used to reduce congestion and better manage the City's roadways. These projects have been funded by the Virginia Department of Transportation (VDOT).

The four phases are as follows:

- Phase I (Complete): Installed a broadband fiber optic communications network, 11 traffic surveillance cameras, and a traffic management center. (UPC 70580 - \$1,980,327)
- Phase II (Complete): Supplemented the first phase, expanded the broadband network and installed additional traffic surveillance cameras. (UPC 103932 - \$2,600,534)
- Phase III (Complete): This phase includes connecting 50 traffic signals to the fiber optic backbone and running fiber optic cable along parts of Van Dorn Street and the western end of Duke Street. The design for Phase III began in FY 2019 and was completed in FY 2023. Construction began in FY 2024 and final work was completed in Fall 2025. (UPC 106563 - \$1,658,118)
- Phase IV: This phase added 10 traffic surveillance cameras and connected 46 traffic signals to the fiber optic backbone. The Traffic Management Center was also upgraded during this phase. The design for Phase IV began in FY 2022 and active construction will be completed in FY 2027. (UPC 106562 - \$7,747,430)

VDOT Project IDs: UPCs 7-580 (Ph I), 103932 (Ph II), 106563 (Ph III), 106562 (Ph IV)

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

ADDITIONAL OPERATING IMPACTS

Smart Mobility Framework Document/ Alexandria Mobility Plan

Additional equipment and devices will need to be included in operating budget

PARKING TECHNOLOGIES

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide
 REPORTING AREA: Citywide

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: 6 - 10 Years

Parking Technologies													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	2,062,190	2,062,190	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
State/Federal Grants	2,062,190	2,062,190	-	-	-	-	-	-	-	-	-	-	-
Financing Plan Total	2,062,190	2,062,190	-	-	-	-	-	-	-	-	-	-	-

CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

PROJECT DESCRIPTION & JUSTIFICATION

Parking and curbside management is high priority for the City. By using parking technology, the City can more effectively manage on and off-street parking resources and help provide more information about parking options to the community and visitors. This project provides funding for an analysis of potential parking technologies for the City, development of an implementation plan, and the deployment of new parking technologies. These technologies could include real time parking occupancy systems for on-street spaces and parking garages/lots, and web-based interactive maps, dynamic signage that illustrates real-time parking availability in city-owned garages, and other parking technologies. These technologies will mostly be off-the-shelf solutions requiring minimal design and engineering.

This project was fully funded with Virginia Department of Transportation (VDOT) CMAQ/RSTP funds each year from FY 2018 – 2023. Major project milestones have included:

- **FY 2021:** The City completed a framework plan for implementation of parking technologies that prioritized specific categories of technologies to purchase and implement. The plan focuses on user experience and payment technologies as well as data collection and management systems.
- **FY 2023:** The City implemented new technology in City garages that improves the user’s experience, including additional pay on foot machines and enhanced payment options to expedite the exit process.
- **FY 2024:** Real time signage indicating space availability was added to three of the garages and expanded validation options were made available. Staff also upgraded parking meters in Old Town that had reached the end of their useful life with new meters using updated technology for payment options and enforcement.
- **FY 2026:** The City implemented new License Plate Readers (LPRs) for the Parking Enforcement unit. This will improve enforcement by using technology that is shared across enforcement officers’ equipment. Additionally, the City purchased software to assist with mapping the City’s curbs and associated parking restrictions, and documenting this in a standardized format known as Curb Data Specification (CDS). This data can be shared with third parties, such as rideshare companies, delivery companies, and autonomous vehicles to help facilitate more efficient and compliant use of the City’s curb.

These technologies will support economic development by providing more efficient parking strategies for residents, employees, and visitors and will allow the City to manage parking and traffic assets more efficiently. Funds from this grant will be expended in FY 2026, but new parking technologies will continue to be evaluated and deployed through the Smart Mobility Program.

VDOT UPC: 102943

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Alexandria Mobility Plan; T&ES Strategic Plan; Old Town Area Parking Study; Del Ray Parking Study

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

SCALABLE DIGITAL MODELS

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide
 REPORTING AREA: Citywide

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: Varies

Scalable Digital Models													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	1,950,000	650,000	1,300,000	-	-	-	-	-	-	-	-	-	1,300,000
Financing Plan													
State/Federal Grants	1,950,000	650,000	1,300,000	-	-	-	-	-	-	-	-	-	1,300,000
Financing Plan Total	1,950,000	650,000	1,300,000	-	-	-	-	-	-	-	-	-	1,300,000

CHANGES FROM PRIOR YEAR CIP

New project added to FY 2027 - FY 2036 CIP; project received grant funding totaling \$0.7 million via the Fall 2025 Supplemental Appropriation Ordinance (SAO).

PROJECT DESCRIPTION & JUSTIFICATION

This project is funded through the Commonwealth’s Innovation and Technology Transportation Fund (ITTF). This multi-phase project will build the foundation of a citywide Digital Mobility Ecosystem, with a focus on developing a functional digital twin for transportation operations. The project funds the deployment of smart sensors and data-sharing tools, which will allow the City to simulate traffic scenarios, respond to issues faster, and plan more efficiently for the future. The digital twin platform will also support predictive analytics, connected vehicle integration, and other long-term transportation innovation initiatives.

The Digital Mobility Ecosystem is a key initiative in Alexandria’s Smart Mobility Program. By leveraging real-time data and advanced simulation capabilities, this project will enhance the City’s ability to manage traffic, anticipate challenges, and make data-driven decisions. It builds on previous Smart Mobility efforts and lays the groundwork for integrating emerging technologies and new data sources to improve mobility citywide. This project will begin in FY 2026 and will be completed in FY 2028.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Smart Mobility Framework Plan, Alexandria Mobility Plan

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

SMART & CONNECTED VEHICLE INFRASTRUCTURE

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide
 REPORTING AREA: Citywide

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: Varies

Smart & Connected Vehicle Infrastructure													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	5,050,000	-	5,050,000	-	-	-	-	-	-	-	-	-	5,050,000
Financing Plan													
NVTA 70% Funds	5,000,000	-	5,000,000	-	-	-	-	-	-	-	-	-	5,000,000
TIP	50,000	-	-	-	-	-	-	-	-	-	-	-	50,000
Financing Plan Total	5,050,000	-	5,050,000	-	-	-	-	-	-	-	-	-	5,050,000

CHANGES FROM PRIOR YEAR CIP

New project added to FY 2027 - FY 2036 CIP.

PROJECT DESCRIPTION & JUSTIFICATION

This project will deploy vehicle-to-infrastructure (V2X) technology to improve roadway safety, reduce congestion, and support more reliable travel for all users. V2X technology enables traffic signals to respond to real-time conditions, making streets safer, reducing congestion, and allowing smoother movement through intersections. In addition, the system is being designed with high-level Connected and Automated Vehicle (CAV) preparedness, laying the groundwork for future integration with automated vehicles and advanced mobility technologies.

The project will be implemented in and around the Potomac Yard area, a rapidly growing innovation district anchored by the Virginia Tech Innovation Campus and the new Metrorail station, and a key connection between Old Town Alexandria and National Landing. Intersections will be selected based on current congestion, safety risk, and high pedestrian activity to maximize public benefit.

In FY 2027, \$50,000 from the City's Transportation Technology program was allocated to this project to assess available technologies and develop a more clearly defined project scope. Given the rapid pace of change in this field, this early assessment will ensure the project is well-informed and appropriately structured, addressing uncertainties that existed at the time the grant was originally developed.

In FY 2028, \$5.0 million of NVTA 70% funding has been awarded to procure and deploy the selected technology. This funding will support both the required infrastructure and up to five years of associated operating costs, including cloud-based software and data services.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Alexandria Mobility Plan, Smart Mobility Framework Plan

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

SMART MOBILITY IMPLEMENTATION

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide
 REPORTING AREA: Citywide

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: Varies

Smart Mobility Implementation													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	6,501,869	5,421,869	1,080,000	-	-	-	-	-	-	-	-	-	1,080,000
Financing Plan													
CMAQ/RSTP	1,080,000	-	1,080,000	-	-	-	-	-	-	-	-	-	1,080,000
State/Federal Grants	5,421,869	5,421,869	-	-	-	-	-	-	-	-	-	-	-
Financing Plan Total	6,501,869	5,421,869	1,080,000	-	-	-	-	-	-	-	-	-	1,080,000

CHANGES FROM PRIOR YEAR CIP

Funding schedule updated to reflect latest grant schedule for project.

PROJECT DESCRIPTION & JUSTIFICATION

Smart mobility helps the city better manage our transportation network through technology. The goal is to improve the user experience, safety and efficiency of streets, traffic signals, vehicles, parking systems, and other transportation infrastructure, while providing data to improve long-term decision-making about where and what changes to make. In the coming decade, converging innovations and technology are likely to play a transformative role in transportation. This Smart Mobility Implementation project will focus on tools and specifications that enable data exchange between platforms, use cases, and jurisdictions. This data sharing groundwork will activate new levers for the city to manage transportation, including regional traffic planning, connected and autonomous vehicles, and dynamic curb management.

- I-95 Detour Signal Upgrades (Complete)
 - In FY 2024, the I-95 Corridor Improvement Plan allocated program funds to the Northern Virginia District to enhance arterial operations along I-95 parallel facilities. A portion of these funds were awarded to Alexandria for installing new CCTV cameras at key intersections along Duke Street, Van Dorn Street, and Edsall Road. Additionally, Automated Traffic Signal Performance Measures technology will be deployed on Eisenhower Avenue from Stovall Street to Mill Road to optimize signal timing and manage detour traffic from the interstate during incidents. This project was completed in FY 2025.
- Smart Mobility Lab
 - In FY 2025, the City received a \$963,000 federal grant from the National Institute of Standards and Technology to establish the Smart Mobility Lab in partnership with the Virginia Tech Transportation Institute (VTI). This funding supports an ongoing collaboration with VTI to install cameras and sensors that collect traffic data for the City, through a data-sharing platform. The Smart Mobility Lab will develop a digital model and dashboards, enabling the City to make informed, data-driven decisions.
- Smart Signal Equipment and Communication Upgrades
 - In FY 2026, the City received approximately \$3M to install infrastructure to better manage traffic and the transportation network. This project improves traffic operations and the overall transportation network by installing modern infrastructure at signalized intersections. New equipment collects and analyzes real-time traffic data at each intersection. Additionally, the equipment enables direct communication between traffic signals and the Traffic Management Center and lays the groundwork for future transportation technologies, including connected and autonomous vehicles. The project began in FY 2026 and is scheduled to continue installation through FY 2027.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Smart Mobility Framework Plan, Alexandria Mobility Plan

ADDITIONAL OPERATING IMPACTS

It is anticipated that many of these services will be cloud based and future operating costs will be in the form of subscription-based services.

SMART ROADWAY MANAGEMENT

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: WEST END
 REPORTING AREA: WEST END

PROJECT CATEGORY:
 ESTIMATE USEFUL LIFE:

SMART Roadway Management													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	900,000	900,000	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
State/Federal Grants	900,000	900,000	-	-	-	-	-	-	-	-	-	-	-
Financing Plan Total	900,000	900,000	-	-	-	-	-	-	-	-	-	-	-

CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

PROJECT DESCRIPTION & JUSTIFICATION

The City is advancing the use of camera- and sensor-based technologies to modernize roadway maintenance and asset management. Through a partnership with Virginia Tech Transportation Institute (VTTI), the project will pilot and evaluate “Smart Detection” technology to create a real-time inventory of roadway assets and conditions, enabling more proactive, data-driven maintenance and operational decisions.

In FY 2025, the City was awarded a USDOT SMART Grant to advance Stage 1 of the project, focusing on the West End and Old Town Historic District. Stage 1 will evaluate the accuracy and reliability of infrastructure assessment tools, data collection methods, and the ability to integrate results into City systems and workflows. Findings from this phase will position the City for larger-scale deployment under a future Stage 2, should funding be awarded. Preliminary vendor evaluation, procurement, field testing and validation began in FY 2026. Stage 1 will be completed in FY 2027.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Smart Mobility Framework

ADDITIONAL OPERATING IMPACTS

No additional operating impacts.

T-INTERSECTIONS INITIATIVES

DOCUMENT SUBSECTION: Smart Mobility	PROJECT LOCATION: CITY OF ALEXANDRIA
MANAGING DEPARTMENT: Department of Transportation and Environmental Services	REPORTING AREA: Citywide
	PROJECT CATEGORY: 1
	ESTIMATE USEFUL LIFE: 5-20 Years

T-Intersections Initiatives													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	2,029,061	2,029,061	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
State/Federal Grants	2,029,061	2,029,061	-	-	-	-	-	-	-	-	-	-	-
Financing Plan Total	2,029,061	2,029,061	-	-	-	-	-	-	-	-	-	-	-

CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

PROJECT DESCRIPTION & JUSTIFICATION

The T-Intersection Safety Enhancements project aims to improve safety at up to 80 T-intersections across the City of Alexandria by introducing a variety of advanced safety features, traffic control technologies, and operational improvements. These upgrades align with the City’s commitment to Vision Zero and are designed to reduce crashes, enhance pedestrian safety, and improve overall traffic flow. Intersections with the highest crash risk will be prioritized for treatments.

The project will include:

- Signage and Turning Restrictions:
 - Installation of new, retro-reflective signage to guide drivers and reduce confusion with increased visibility.
 - Implementation of turning restrictions where needed to minimize conflict points and improve safety.
- Traffic Signal Upgrades:
 - Installation of high-visibility signal backplates to enhance signal visibility.
 - Addition of leading pedestrian intervals (LPIs) at warranted locations to give pedestrians a head start when crossing.
 - Signal timing and operational adjustments to optimize traffic flow and improve safety.
- Enhanced Detection and Monitoring:
 - Installation of advanced traffic detection devices to improve signal responsiveness and intersection safety
 - Deployment of enhanced performance measurement tools for better traffic management and predictive analytics.
- Pedestrian and Accessibility Improvements:
 - Installation of audible push buttons to improve accessibility for visually impaired pedestrians.
 - Application of high-visibility crosswalk markings to increase pedestrian visibility and safety.

VDOT Project ID: UPC 125421

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION	ADDITIONAL OPERATING IMPACTS
Alexandria Mobility Plan, Smart Mobility Framemwork, Vision Zero Action Plan	No additional operating impacts.

TRAFFIC ADAPTIVE SIGNAL CONTROL

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide
 REPORTING AREA: Citywide

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: Varies

Traffic Adaptive Signal Control													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C/L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	16,001,147	16,001,147	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
State/Federal Grants	16,001,147	16,001,147	-	-	-	-	-	-	-	-	-	-	-
Financing Plan Total	16,001,147	16,001,147	-	-	-	-	-	-	-	-	-	-	-

CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

PROJECT DESCRIPTION & JUSTIFICATION

This project is funded through the Virginia Department of Transportation (VDOT) Smart Scale Program. This two-phase project will install new traffic control software, hardware, and detection systems to monitor and guide traffic in real-time. This project funds the design and installation of traffic adaptive signal control systems, which allows the City’s traffic signals to adjust in real-time to changing traffic, helping to eliminate delays and reduce the incentive to cut through neighborhoods. Where possible, the adaptive signal equipment will also provide data to support other smart intersection efforts like near miss detection and origin-destination analysis.

Traffic Adaptive Signal Control is a key project in the Smart Mobility program. Traffic navigation apps have rendered traditional time of day traffic signal control less effective. Navigation apps alter traffic behavior on a daily basis depending on regional traffic conditions. This project will utilize many of the features installed by previous Smart Mobility projects as well as seek to integrate with navigation apps and other data sources.

- Phase I: Phase I of this project will install a new server with a traffic signal management and adaptive system. Adaptive traffic systems will be implemented on both Van Dorn Street and Duke Street. This work involves upgrading vehicle detection as well as smart traffic signal controllers along the corridors. Construction will be completed in FY 2027.
- Phase II: This phase will expand adaptive control to other areas of the City as well as install communications infrastructure to traffic signals that are currently not served by fiber optic communications cable. As with Phase I, detection and smart traffic signal controllers will be installed along adaptive corridors. Phase II is currently planned for implementation along Route 1, Duke Street, South Washington Street, King Street, and Beauregard Street. Installation is slated to begin in FY 2027.

VDOT Project ID: UPC 109307 (Ph 1), UPC 111657 (Ph 2)

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Smart Mobility Framework Plan

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

TRAFFIC CONTROL UPGRADE

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide
 REPORTING AREA: Citywide

PROJECT CATEGORY: 1
 ESTIMATE USEFUL LIFE: Varies

Traffic Control Upgrade													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	4,178,800	915,800	215,000	221,000	228,000	235,000	242,000	492,000	500,000	500,000	315,000	315,000	3,263,000
Financing Plan													
Cash Capital	4,128,800	865,800	215,000	221,000	228,000	235,000	242,000	492,000	500,000	500,000	315,000	315,000	3,263,000
Private Capital Contributions	50,000	50,000	-	-	-	-	-	-	-	-	-	-	-
Financing Plan Total	4,178,800	915,800	215,000	221,000	228,000	235,000	242,000	492,000	500,000	500,000	315,000	315,000	3,263,000

CHANGES FROM PRIOR YEAR CIP

Funding added for FY 2036.

PROJECT DESCRIPTION & JUSTIFICATION

The Traffic Control Upgrade project funds ongoing capital maintenance, upgrades, and required hardware to support the City's Smart Mobility initiatives and maintain a state of good repair for traffic control assets. The project also ensures these assets remain flexible and scalable to support future technology deployments.

The project supports necessary technology upgrades and software/system support contracts associated with the City's traffic management and monitoring systems, broadband fiber optic communications network and hardware/systems in the management center. Additionally, this project provides funding for emergency repairs and replacement in cases of equipment failure of the existing traffic control system.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Alexandria Mobility Plan, Smart Mobility Framework

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

TRAFFIC MANAGEMENT CENTER

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: 2900 Business Center Dr
 REPORTING AREA: Citywide

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: Varies

Traffic Management Center													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	1,440,000	240,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	1,200,000
Financing Plan													
Cash Capital	1,440,000	240,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	1,200,000
Financing Plan Total	1,440,000	240,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	1,200,000

CHANGES FROM PRIOR YEAR CIP

Funding added for FY 2036.

PROJECT DESCRIPTION & JUSTIFICATION

This project provides funding for the sustained operation of the City’s Traffic Management Center (TMC). The TMC is used as the Departmental Operations Center (DOC) during weather and traffic events. The TMC/DOC will be critical to support signal management as the Smart Mobility program deploys more technology and links to the infrastructure installed through the Intelligent Transportation Systems (ITS) project. The TMC will also play a key role in data collection for traffic studies and traffic prediction as well as collaboration with surrounding agencies, such as VDOT, Arlington, and Washington D.C. As Alexandria adapts to new and unexpected forms of travel on city roads, the TMC will enable staff to leverage data to increase safety, accessibility, and efficiency.

This project funds the modernization and expansion of Alexandria's TMC, originally established in 2009. Building upon previous Intelligent Transportation Systems (ITS) integration phases, which included a video wall displaying 27 CCTV cameras via fiber and legacy copper communications, this project will significantly enhance the TMC's capabilities. Future ITS phases will expand communication infrastructure, add cameras, and upgrade video wall displays.

The modernized TMC will evolve into a collaborative fusion, control, and communication center, serving as a hub for real-time and historical data from various sources, including traffic and pedestrian signals, weather stations, traffic surveillance cameras, and other intelligent sensors. This enhanced TMC will improve incident response, facilitate information sharing with stakeholders, and support future technologies such as connected and autonomous vehicle data integration and advanced traffic management systems.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Smart Mobility Plan

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

TRANSIT SIGNAL PRIORITY

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide
 REPORTING AREA: Citywide

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: Varies

Transit Signal Priority													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	3,365,491	3,365,491	-	-	-	-	-	-	-	-	-	-	-
Financing Plan													
NVTA 30% Funds	60,000	60,000	-	-	-	-	-	-	-	-	-	-	-
NVTA 70% Funds	1,195,491	1,195,491	-	-	-	-	-	-	-	-	-	-	-
State/Federal Grants	2,110,000	2,110,000	-	-	-	-	-	-	-	-	-	-	-
Financing Plan Total	3,365,491	3,365,491	-	-	-	-	-	-	-	-	-	-	-

CHANGES FROM PRIOR YEAR CIP

No changes from prior CIP.

PROJECT DESCRIPTION & JUSTIFICATION

This project upgrades the City’s Transit Signal Priority (TSP) system to cloud-based technology, improving transit reliability and emergency response. TSP allows buses to request early or extended green lights at signalized intersections, reducing passenger wait times, bypassing congestion, and making transit faster and more dependable. Emergency vehicles equipped with compatible technology can also use TSP for signal preemption, helping to reduce response times during emergencies.

In FY 2026, TSP implementation continued with funding secured through the Virginia Department of Transportation’s (VDOT) Smart Scale Program, with installation planned on future high-capacity transit corridors. This work aligns with the City’s goals of increasing transit efficiency, reducing emissions, and supporting a more sustainable transportation network.

This project includes installing equipment at 50 intersections along high frequency transit corridors throughout the City. Additionally, the project retrofits existing DASH buses with TSP equipment. The project is being coordinated with the Emergency Vehicle Preemption (EVP) project with the fire department. The TSP signals will also be enabled with EVP to support faster emergency response. In addition, several locations will be enabled with real time traffic data collection.

This project started in FY 2026 and should be completed by early FY 2028.

VDOT Project ID: UPC 115546

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

Smart Mobility Framework Plan, Alexandria Transit Vision Plan

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.

TRANSPORTATION TECHNOLOGIES

DOCUMENT SUBSECTION: Smart Mobility
 MANAGING DEPARTMENT: Department of Transportation and Environmental Services

PROJECT LOCATION: Citywide
 REPORTING AREA: Citywide

PROJECT CATEGORY: 3
 ESTIMATE USEFUL LIFE: Varies

Transportation Technologies													
	A (B + M)	B	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	Prior Appropriations	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2036	Total FY 2027 - FY 2036
Expenditure Budget	5,565,112	2,167,112	250,000	310,000	319,000	329,000	339,000	349,000	359,000	370,000	381,000	392,000	3,398,000
Financing Plan													
GO Bonds	115,000	115,000	-	-	-	-	-	-	-	-	-	-	-
TIP	5,450,112	2,052,112	250,000	310,000	319,000	329,000	339,000	349,000	359,000	370,000	381,000	392,000	3,398,000
Financing Plan Total	5,565,112	2,167,112	250,000	310,000	319,000	329,000	339,000	349,000	359,000	370,000	381,000	392,000	3,398,000

CHANGES FROM PRIOR YEAR CIP

Funding added for FY 2036.

PROJECT DESCRIPTION & JUSTIFICATION

This project funds the deployment of small-scale transportation technology projects to improve efficiency of the transportation infrastructure including parking technology, traffic signals and signs. This technology will improve the reliability and integrity of future transportation studies and informed decision making. These technologies will also contribute to the engineering improvements being implemented as part of the City's Vision Zero and Complete Streets Programs as well as parking technologies to better manage on-street and garage parking.

Funding has previously been used to deploy pavement sensors, parking garage technology, assess vehicle electrification needs and support data collection efforts to better analyze traffic trends and enable real time decision making. Funds were also used to pilot equipment to improve travel efficiency and safety. This equipment includes signal detection technology to evaluate various systems, wireless communication for signals without communication to the Traffic Management Center, and data collection equipment that provides volume and user information.

Additionally, the City partnered with Virginia Tech Transportation Institute (VTTI) to deploy Smart Intersection technologies to aid in understanding the contributing factors of safety issues for Vulnerable Road Users (VRU's) by installing devices at the E. Glebe Road and Potomac Avenue intersection. These devices collect data regarding driver behavior, VRU behavior, risk assessment, travel data and trends. The result of this pilot would be the basis for potential devices used in the City and VTTI partnered Smart Mobility Lab.

In FY 2027, this project will fund expansion of the fiber optic cable traffic network and upgrade traffic signal equipment necessary to enable smart mobility implementation and better asset management.

EXTERNAL OR INTERNAL ADOPTED PLAN OR RECOMMENDATION

N/A

ADDITIONAL OPERATING IMPACTS

No additional operating impacts identified at this time.