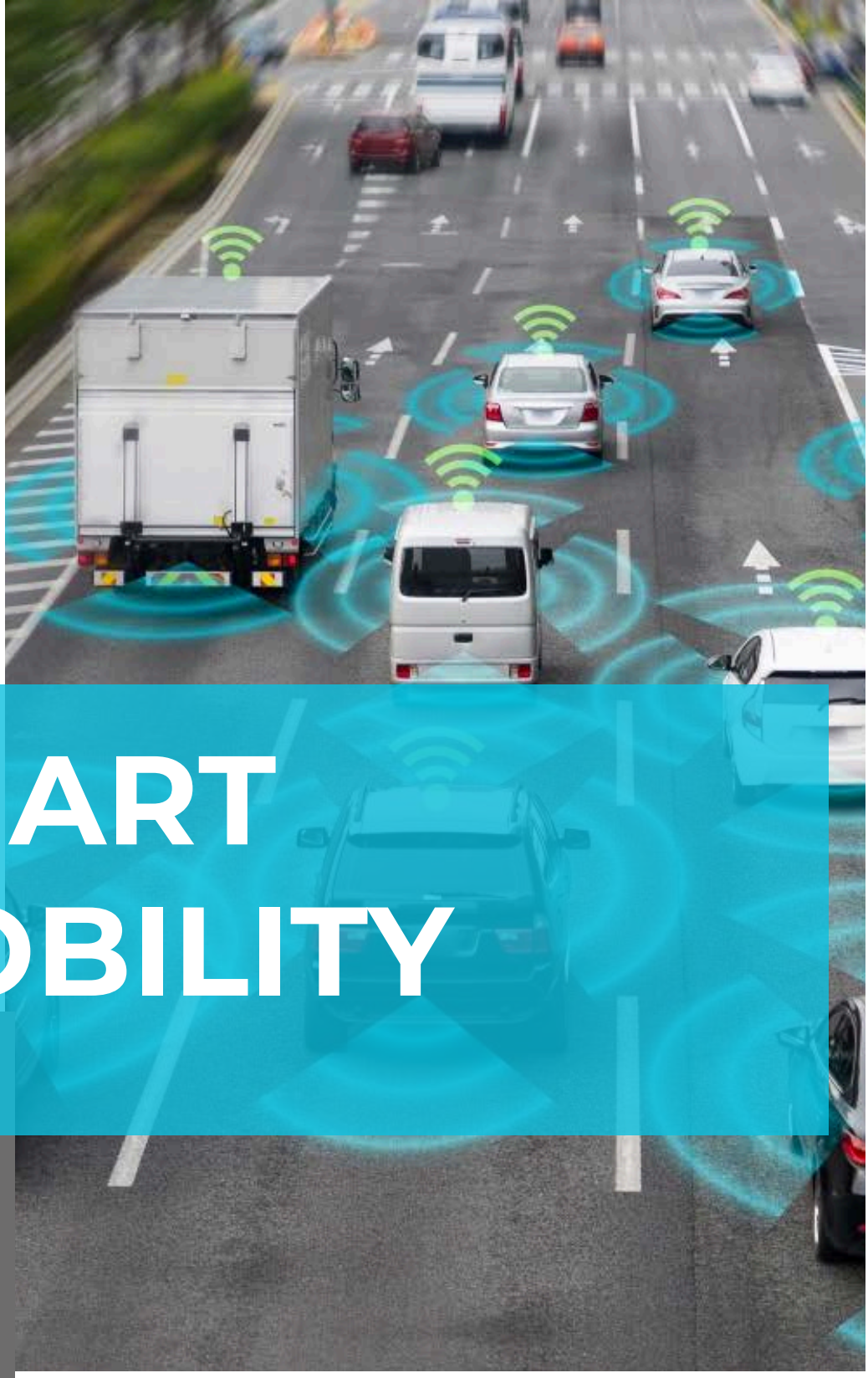
FY 2025 REPORT &
FY 2026 WORK PLAN

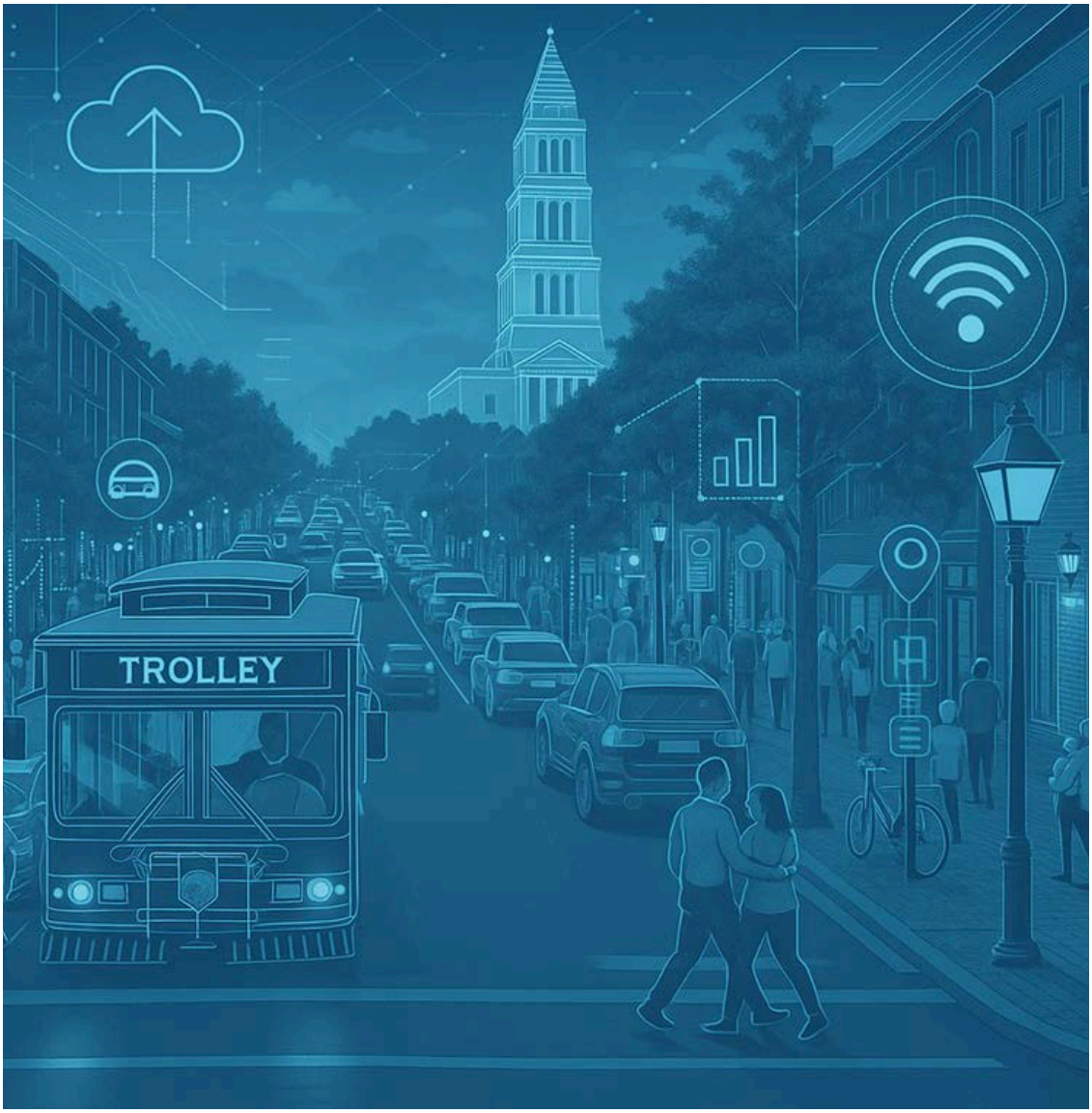


SMART MOBILITY

WE ARE T&ES

Department of Transportation & Environmental Services

Transportation Engineering Division



ABOUT SMART MOBILITY

Smart Mobility exists at the intersection of technology and transportation. This program brings in new technologies and organizes data to better orchestrate city-wide traffic patterns to improve trip reliability and increase travel options. It also strives to provide individual travelers with information they need to take safer and more enjoyable trips. This can look like traffic signals that respond to real-time conditions, moving buses through their routes quicker, and understanding where pedestrians and cyclists are at a higher risk. Alexandria is committed to being a leader in this space so the City can take advantage of future transportation infrastructure advancements, such as autonomous vehicles and real-time traffic management.

FY 2025 MAJOR ACCOMPLISHMENTS

Smart Mobility Lab

In partnership with the Virginia Tech Transportation Institute (VTTI) the City launched the Virginia Tech Smart Mobility Lab (SML), supported by a grant the City was awarded for $937K from the National Institute of Standards and Technology (NIST). This investment established lab operations and initiated key research and technology development to attract and engage industry partners.

The City of Alexandria partnered with Virginia Tech and regional collaborators to host the “Smart Intersections and Lighting in Alexandria” workshop, bringing together leaders from government, academia, and industry to explore connected mobility and smart infrastructure.

Held at the Virginia Tech Academic Building, the event introduced the Smart Mobility Lab, a real world testbed for transportation innovation, and marked a key milestone in Alexandria’s FY 2025 Smart Mobility work plan.

FY 2025 MAJOR ACCOMPLISHMENTS

US DOT SMART GRANT AWARD

The City of Alexandria was awarded $900,000 through the U.S. DOT SMART Grant Program to plan its "Smart Detection" initiative. The project will use advanced cameras and sensors to create a real-time digital inventory of roadway assets such as pavement, sidewalks, signs, and markings. It will support data-driven infrastructure maintenance and help prepare the City for connected and autonomous vehicles by evaluating technologies and their integration with City operations.

FY 2025 MAJOR ACCOMPLISHMENTS

Digital Mobility Ecosystem $2 million AWARD

The team applied for and was awarded nearly $2 million through Commonwealth's Innovation and Technology Transportation Fund (ITTF) to build the foundation of a citywide Digital Mobility Ecosystem, with a focus on developing a functional digital twin for transportation operations.

In partnership with VTTI and the Smart Mobility Lab, the City is deploying smart sensors and data-sharing tools to power the digital twin. This platform will help staff simulate traffic scenarios, respond to issues faster, and plan smarter for the future.

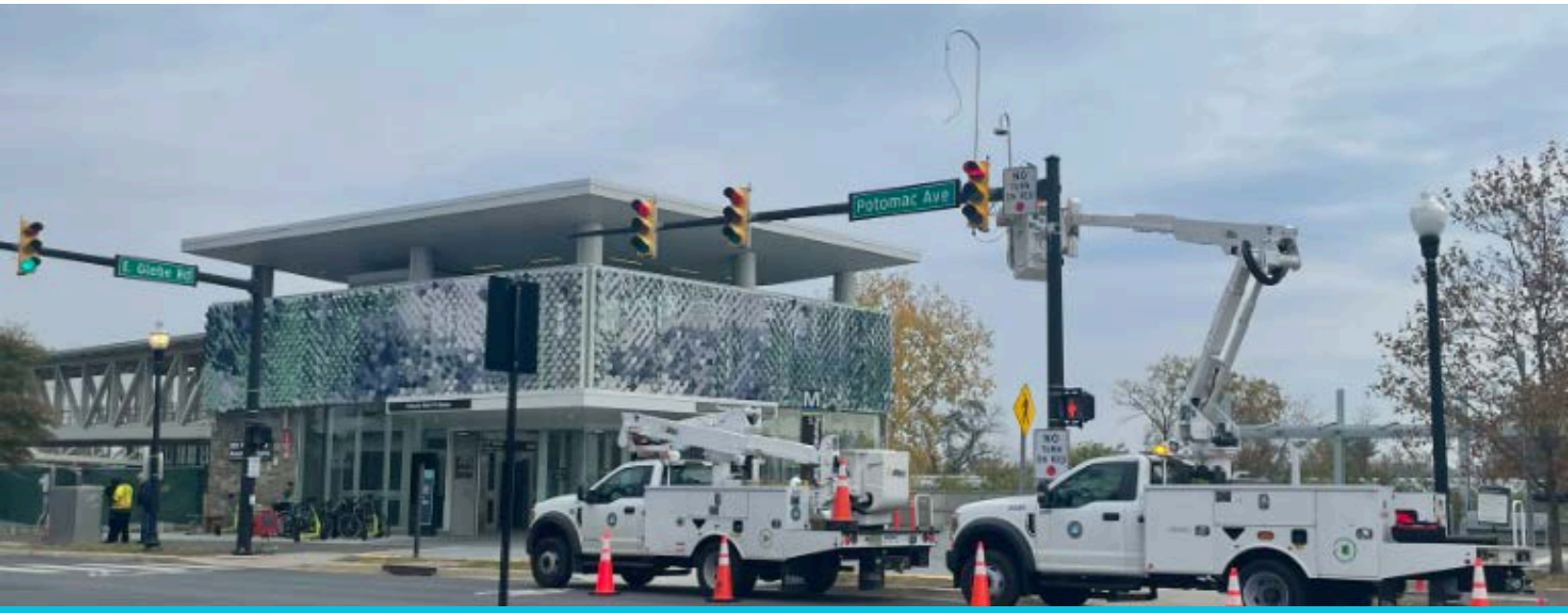
The project marks a major step forward in Alexandria's Smart Mobility Program, laying the groundwork for predictive analytics, connected vehicle integration, and long-term transportation innovation.

FY 2025 MAJOR ACCOMPLISHMENTS

Smart Intersections

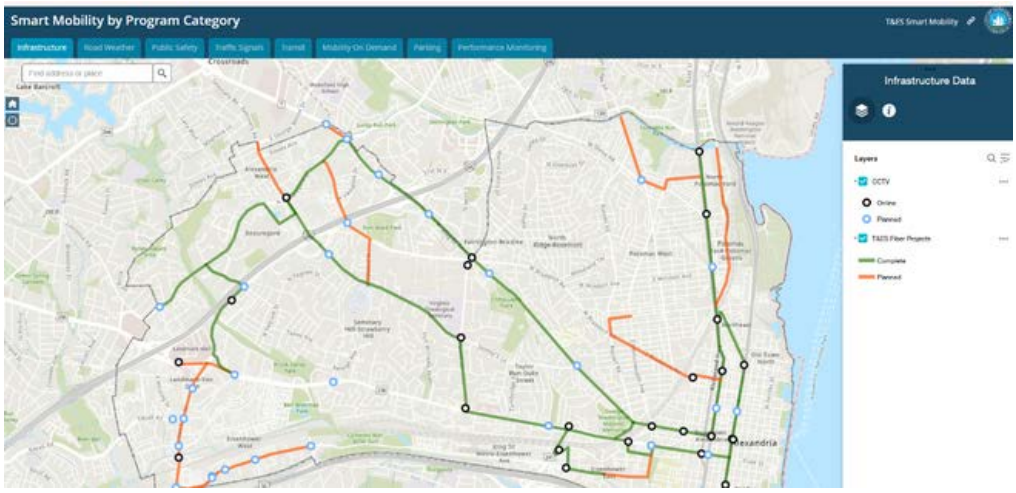
This pilot project, conducted from FY 2024 to FY 2025, evaluated advanced machine learning tools capable of identifying vehicles, buses, pedestrians, and cyclists, as well as detecting near misses and analyzing traffic patterns. In partnership with the Virginia Tech Transportation Institute (VTTI), the City deployed these tools at key intersections to assess their effectiveness in real-world conditions. A final report completed in FY 2025 highlights how these insights are informing intersection design and safety improvements.

The project received the **ITS Virginia (ITSVA) award** and was spotlighted at the **State of GovTech** and Cites Today Institute (CTI) **Leadership Forum on Mobility**, recognizing it as a leading example of innovation in transportation technology.



FY 2025 MAJOR ACCOMPLISHMENTS

Smart Mobility Map Viewer



The updated viewer now offers enhanced navigation and clearly organized program tabs, making it easier to explore projects and data aligned with the City's Smart Mobility Framework.

Intelligent Transportation Systems (ITS) Integration - Phase III

Construction on Phase III of the ITS Integration project is completed, marking a significant milestone in enhancing our transportation infrastructure. This phase continues to lay the groundwork for connected signals and infrastructure by applying fiber optic cable to the City's traffic signal system. This will ultimately improve traffic management, safety, and efficiency across the network.

FY 2026 MAJOR WORK OBJECTIVES

SMART Roadway Management

The City aims to use cameras and sensors to improve roadway maintenance. In partnership with VTTI, the project will test “Smart Detection” technology to develop a real-time inventory of roadway assets and their conditions. This will enable more proactive and data-driven decision-making. The planning phase began in FY 2025, with implementation anticipated to begin in FY 2026. Stage 1 will focus on the West End and Old Town Historic District, evaluating data accuracy and integration into the City’s operational platforms.

ITS Integration - Phase IV & Eisenhower Broadband

Phase IV of the ITS Integration Project will be completed in FY 2026. This phase includes the installation of 10 additional traffic surveillance cameras and the connection of 46 traffic signals to the City’s expanded fiber optic network. These upgrades will significantly enhance traffic management capabilities, improve safety, and increase operational efficiency across Alexandria’s transportation system. Fiber optic cable will also be installed along Eisenhower Avenue.

FY 2026 MAJOR WORK OBJECTIVES

Broadband Communications Link

The Eisenhower Broadband Communications Link project supports the City's Smart Mobility efforts by expanding fiber optic infrastructure along Eisenhower Avenue, between Van Dorn Street and Clermont Avenue. This will enable better synchronization of traffic signals, the installation of surveillance cameras, and create a foundation for future smart technology.

Asset Management

Maintenance of Alexandria's transportation infrastructure can be optimized if we know when a component was installed, how heavily it has been used, and any issues that have been observed. Many future technologies will also require minimum hardware or software specifications to operate. The team is leveraging CityWorks StoreRoom this year to implement processes that track changes to our inventory, starting with our traffic signals and controllers.

FY 2026 MAJOR WORK OBJECTIVES

Transit Signal Priority (TSP)

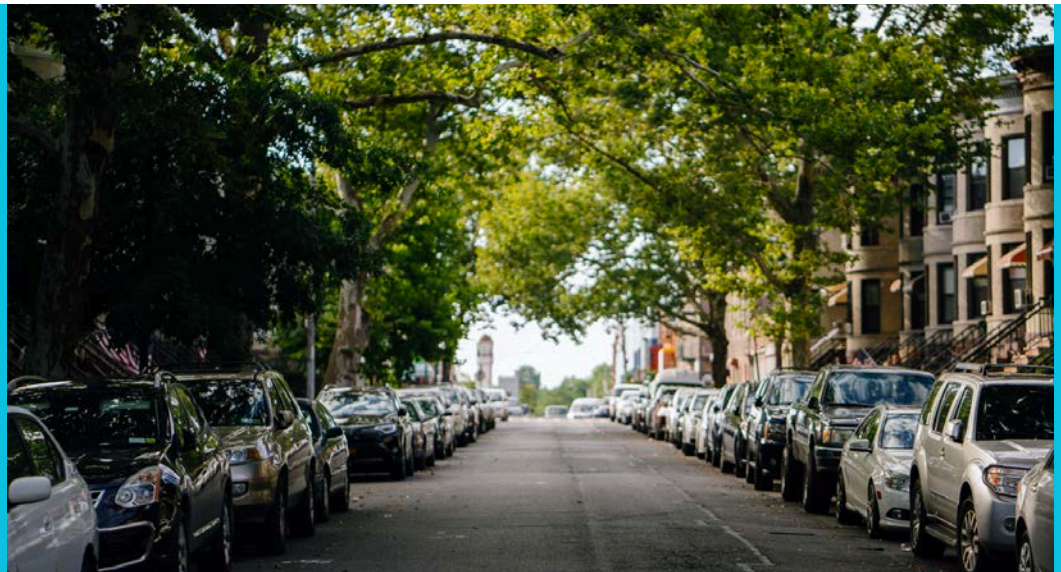
In FY26, TSP implementation will continue through funding secured via the Virginia Department of Transportation's Smart Scale Program, with installation planned on future high-capacity transit corridors. Additional funding may also be pursued to equip remaining intersections and ensure systemwide TSP coverage. This work aligns with the City's goals of increasing transit efficiency, reducing emissions, and improving emergency response.

The City's Transit Signal Priority (TSP) program improves bus service reliability by allowing transit vehicles to request extended or early green lights at signalized intersections, reducing delays and wait times for passengers. Emergency vehicles equipped with compatible technology can also utilize the system for signal preemption, helping to reduce emergency response times.

FY 2026 MAJOR WORK OBJECTIVES

Smart Parking Management

In FY 2026, staff will be implementing two new projects with this funding. First, in coordination with Alexandria Police Department, new License Plate Readers (LPRs) will be purchased for the Parking Enforcement unit. This will improve enforcement by using technology that is shared across enforcement officers' equipment. Second, staff will be 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. Once implemented, 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.



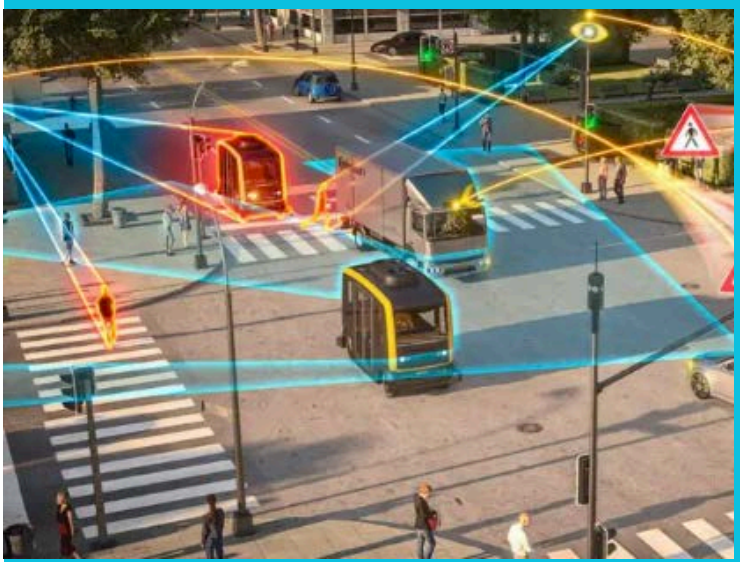
FY 2026 MAJOR WORK OBJECTIVES

Adaptive Traffic Signal Control

This project will deploy adaptive traffic signal control systems across Alexandria to reduce delays and cut-through traffic. Phase I installs adaptive control on Van Dorn and Duke Streets, with construction starting in FY 2026. Phase II expands the system and adds communications infrastructure, including along Route 1, with construction from FY 2026 to FY 2028.

T-Intersection Project

The T-Intersection Safety Enhancements project will provide safety upgrades at priority high risk intersections. Improvements will include installation of reflective signage, traffic signal enhancements such as high visibility backplates and leading pedestrian intervals, advanced detection systems, and pedestrian accessibility upgrades.



FY 2026 ONGOING WORK OBJECTIVES

Connected Vehicle Infrastructure

All vehicles built after 2020 are equipped with components that send and receive safety information. The Team will launch a study to inform the NVTA Funded Smart & Connected Vehicle Infrastructure project in Potomac Yard.

Autonomous Vehicle Preparedness

Autonomous Vehicles are being deployed in cities across the country, including nearby DC. The team is advocating for policy that empowers the City to permit and enforce AV operation and is collaborating at a national level on this topic. The collection of safety, incident, and trip data from AV companies is essential to integrating this new and uncertain technology into our transportation network.

Legislation for Autonomous Vehicles

The City recognizes the transformative potential of autonomous vehicles (AVs) in enhancing mobility and reducing traffic-related incidents. To safely integrate this technology into our transportation network, the City will work through the Virginia Municipal League to support the development ofr legislation that defines autonomous vehicles in state code and permits localities the authority to regulate them.

PILOT PROJECT SPOTLIGHT

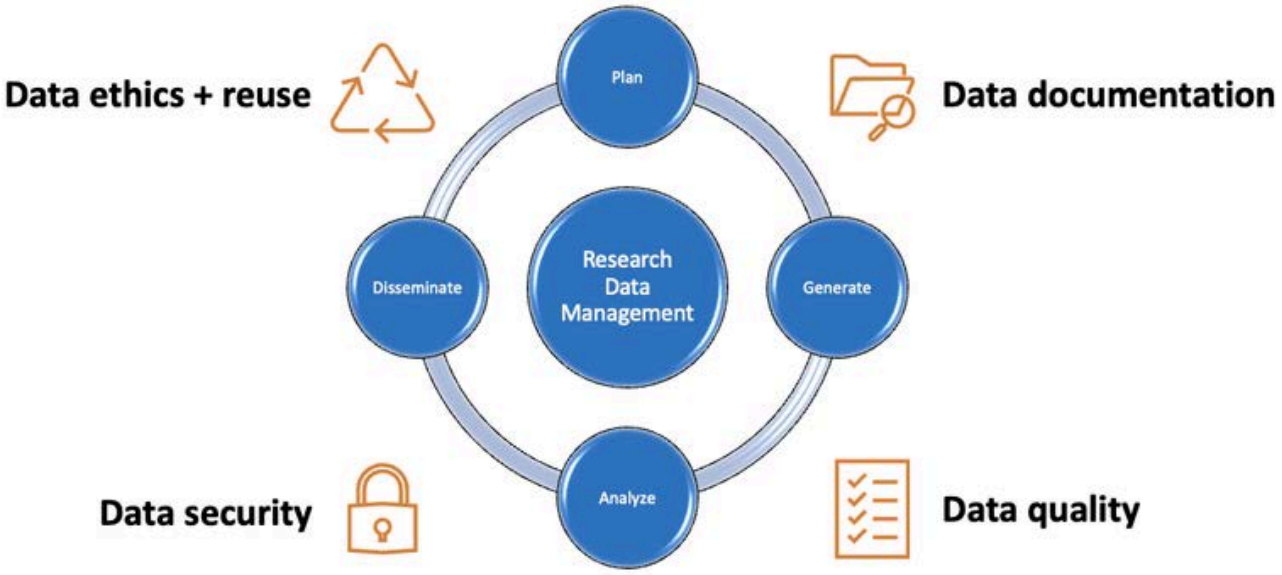
The City of Alexandria's Smart Mobility Program is implementing a series of pilot projects to assess the feasibility and performance of emerging transportation technologies within the City's existing systems. These pilots support the City's strategic efforts to advance data driven mobility solutions through real world testing and evaluation.

One current initiative involves the deployment of VivaCity sensing technology at the intersection of Duke and South Pickett Streets. Using advanced video analytics, the system captures traffic patterns, turning movements, and near miss incidents. This deployment is being evaluated alongside a similar pilot led by the Virginia Tech Transportation Institute at a separate location. Over the course of a year, the Smart Mobility team will compare outcomes from both pilots to assess their effectiveness and determine future applications. These efforts are conducted in collaboration with academic, public, and private partners and follow a test, learn, scale approach to inform future investment decisions.

ONGOING PROGRAM MANAGEMENT

Traffic Data Governance

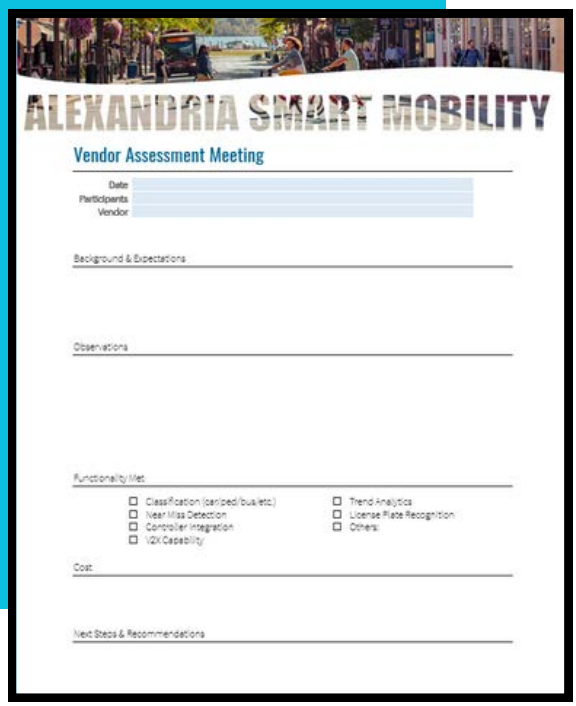
As the City of Alexandria advances its efforts to establish a central data repository, the Smart Mobility Team is strategically planning to transition away from our current dependence on the DataPoint platform. While DataPoint has been instrumental in enabling us to integrate historical traffic count data with real-time data obtained from AI-powered tools, the City recognizes the need for a solution that fully aligns with a long-term vision for traffic data management. Given the variety of data that is available through various platforms, the City aims to develop a central repository. Central to this initiative is the creation of a comprehensive framework that ensures seamless data integration, robust data governance, and adaptability to future technological advancements. The Smart Mobility team plans to initiate discussions with internal stakeholders and potential external partners to develop strategies, scope, intention, and implementation plan.



ONGOING PROGRAM MANAGEMENT

Standardized Vendor Assessment

Starting with Smart Intersection technologies, the Smart Mobility team standardized a process for evaluating vendors against shared functionality. The team tracks each interaction with vendors logs an index of which tools can solve key problem areas. This process is scalable to other program areas like parking and asset management technologies. This year, the team met with 6 total vendors addressing objectives within the Smart Mobility pillars.


ALEXANDRIA SMART MOBILITY

Vendor Assessment Meeting

Date
Participants
Vendor

Background & Expectations

Observations

Functionality Met

- Classification (car/ped/bus/etc.)
- Near Miss Detection
- Controller Integration
- V2X Capability
- Trend Analytics
- License Plate Recognition
- Others:

Cost

Next Steps & Recommendations

Smart Mobility Working Group

The Smart Mobility team organized cross-disciplinary committees to manage and standardize projects. Committees report their progress quarterly using an easy form that feeds a central dashboard. Budget information, timelines, and standard documents like the vendor assessment will be included here. The Smart Mobility Working Group meets quarterly to align technology efforts across T&ES. It is comprised of committees that represent the core pillars outlined in the Smart Mobility Framework, and includes representatives from Traffic Ops, Transportation Engineering, DASH, Mobility Services, and Transportation Planning. This year, the team will expand to include staff from ITS and APD.

KEY PARTNERSHIPS

VIRGINIA TECH TRANSPORTATION INSTITUTE
VIRGINIA TECH

The City partnered with VTTI to test 5 smart intersection tools at the intersection of Potomac Ave. and East Glebe Rd. This academic partner will conduct deep analysis of the data collected by these tools, resulting in both new information about mobility behavior at the intersection and the capabilities of the vendors. This relationship also represents an opportunity to partner with VTTI on future projects in a time when civic-academic partnerships are highly valued by national funders.

Partners for Automated Vehicle Education (PAVE)

PAVE

The City of Alexandria is proud to partner with PAVE (Partners for Automated Vehicle Education), a coalition of 80+ organizations committed to educating the public on the safety, mobility, and sustainability benefits of automated vehicles. This collaboration supports our efforts to prepare the community for the future of transportation.

National Association of City Transportation Officials (NACTO)

NACTO

NACTO supports an autonomous future that enhances all aspects of cities' transportation systems, from improving safety for all road users, re-balancing the use of the right-of-way, and expanding mobility for all. In FY 2026, the City will co-chair the Emerging Technology and Innovation Peer Network.

KEY PARTNERSHIPS

NVTA Transportation Technology Committee

The Northern Virginia Transportation Authority (NVTA) relaunched its Transportation Technology Committee (TTC) in 2025 to advise the CEO on emerging technologies that can improve mobility, safety, and efficiency across the region. The committee plays a key role in shaping the TransAction Plan and Six Year Program by integrating technology into regional planning and investment strategies. The City of Alexandria will serve as a member of the relaunched committee, contributing insights from our Smart Mobility Program and supporting regional collaboration around transportation innovation.

Intelligent Transportation Society of Virginia (ITSVA)

The City of Alexandria is representing local government on the ITS Virginia (ITSVA) Board for this year. ITSVA is the statewide chapter of the Intelligent Transportation Society of America and plays a key role in advancing transportation innovation, technology deployment, and collaboration across the Commonwealth. Our participation on the board strengthens Alexandria's voice in shaping the future of intelligent transportation systems in Virginia and supports our continued leadership in smart mobility initiatives.

PROGRAM BUDGET

PROJECTS	PRIOR YEAR	FY 2026	FY 2027-2031
ITS Fiber and Traffic Management Center	$13M	$1.2M	$1M
Transit	$3.3M	$4.6M	$1.7m
Smart Mobility Implementation	$1.2	$4.1M	$1M
T-Intersections	$2M	$0	$0
Parking Technology	$2.1M	$0	$0
Smart & Connected Signals	$8M	$2M	$5M
SMART Roadway Management	$0	900K	$0
Digital Mobility Ecosystem	$0	$2M	$0

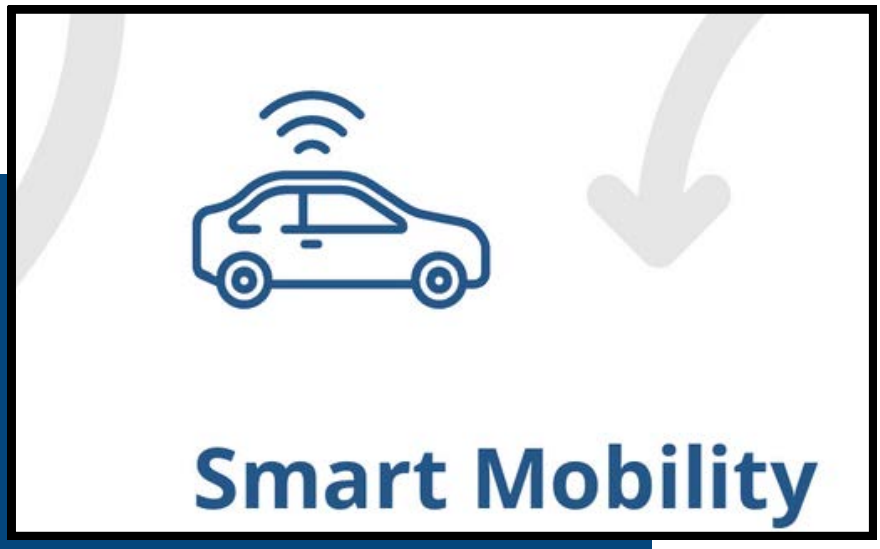
Total Prior Year Funding	FY 2026 Funding	FY 2027-2031 Funding	Grand Total Funding
$29.6M	$14.8M	$8.7M	$53.1M

KEY RESOURCES

Alexandria Mobility Plan (AMP)

The 2021 AMP included a new chapter focused on Smart Mobility. The Smart Mobility Chapter outlines how Alexandria will use technology and data to improve how people move around the city safely, efficiently, and sustainably. It focuses on integrating intelligent systems into transportation infrastructure to enhance mobility today and prepare for future innovations.

Alexandria Mobility Plan

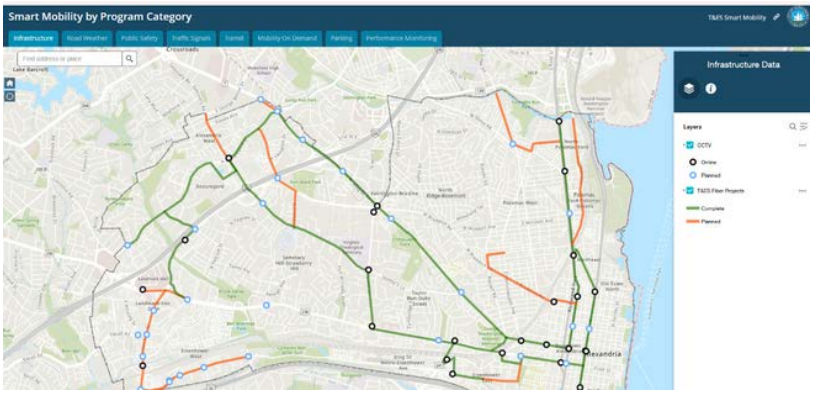


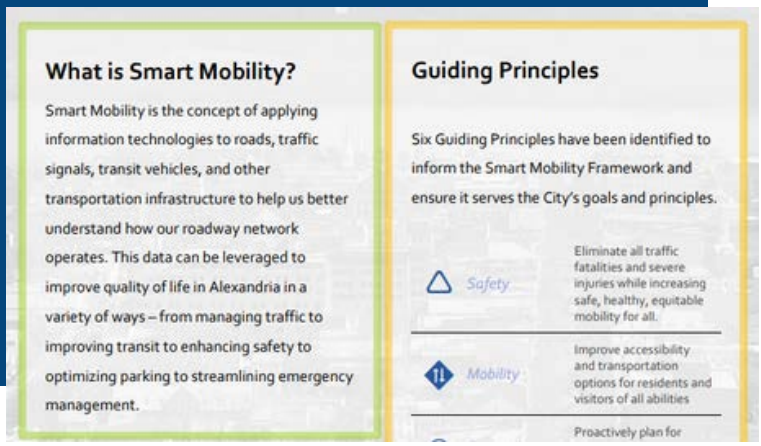
Smart Mobility Chapter

Building off of the Smart Mobility Framework and existing projects, the AMP is a guiding document that outlines policies, strategies, and metrics that help prioritize actions and projects for the Smart Mobility team.

KEY RESOURCES

Smart Mobility Home Page





Smart Mobility Framework

Alexandria's 2018 Smart Mobility Framework Plan describes a range of efforts that the City is taking to prepare for and incorporate technology into its transportation assets. Through these efforts, the City is working to lay the groundwork for future technology that will help better manage traffic on local streets.

Smart Mobility Viewer

This GIS map tracks our ongoing efforts, including fiber deployment, TSP intersections, and pedestrian safety measures.