ANNAUAL WORK PLAN
FY 2024

ALEXANDRIA SMART MOBILITY

WE ARE T&ES

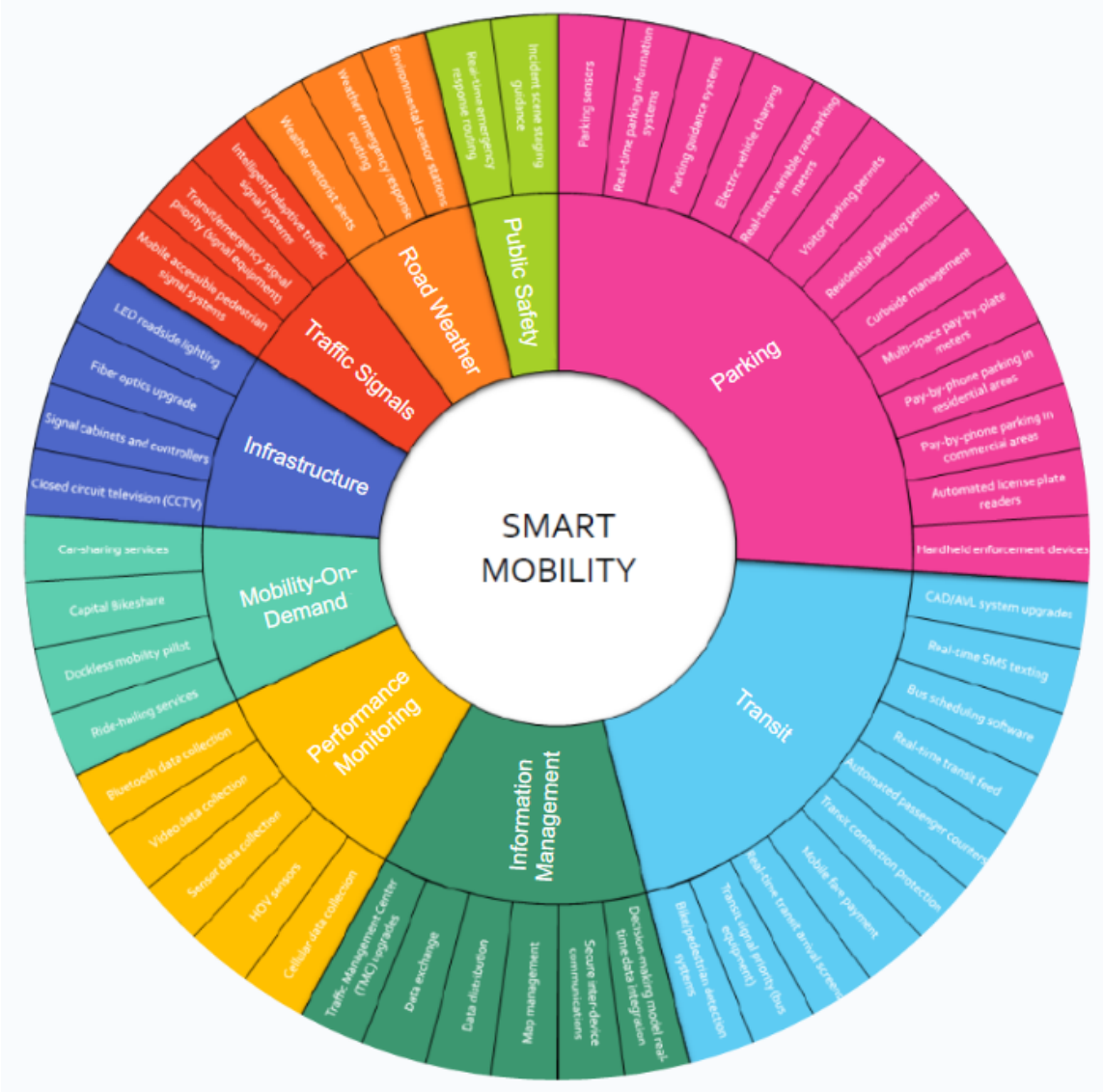
- City of Alexandria, VA
- Department of Transportation & Environmental Services
- Transportation Engineering Division

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 self-driving cars and real-time traffic management.

FY23 MAJOR ACCOMPLISHMENTS

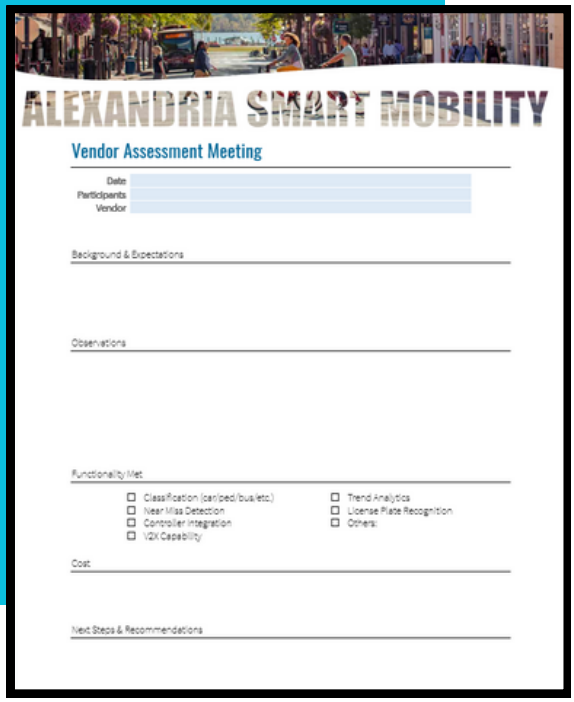
- **Standardized vendor assessment** process for consistent evaluation of functionality across tools
- **Updated public-facing maps**, webpages, and reference documents to tell the team's story
- **Designed 6 smart intersection tests**
- **Initiated asset management processes t**o track our inventory of transportation technology
- Completed **design of Adaptive 1 and ITS Phase 3**

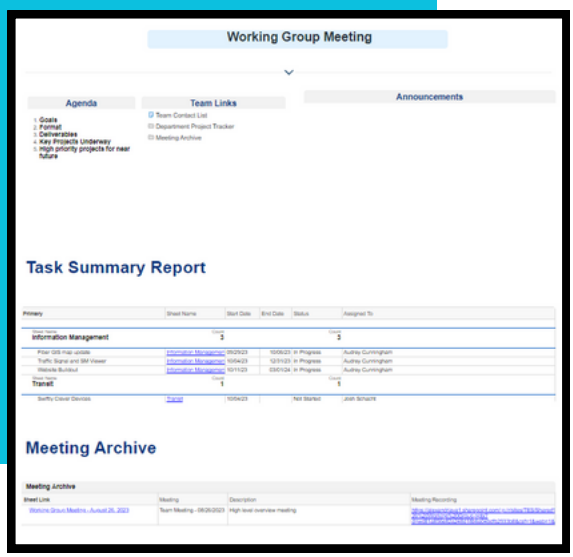


FY23 MAJOR ACCOMPLISHMENTS

Standardized Vendor Assessment

Starting with Smart Intersection technologies, we standardized a process for evaluating vendors against shared functionality. We track each interaction we have with a vendor, and log an index of which tools can solve key problem areas. This process is scalable to other program areas like parking and asset management technologies, and the Working Group will help us tailor the process to each new area.





Smart Mobility Working Group

Based on the pillars and guiding principles defined in the Smart Mobility Framework, we have organized cross-disciplinary committees to manage and standardize projects. Committees will 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.

FY24 MAJOR WORK OBJECTIVES

Adaptive Signal Control

This project will install new cameras, controllers, and a management system to enable signals to handle real-time conditions and predict near term impacts. New technologies have evolved since the origin of this project, and our team is working to deliver this project faster and in a way that is easier to maintain. This year we will identify the adaptive technology that will be deployed, and advertise Phase One of the project, deploying along the Duke Street and Van Dorn Street Corridors.

Traffic Data Governance

Traffic counts, turning movement counts, and near miss counts are gathered through several different methods and stored in different formats. Our team is building processes to make all this information comparable and accessible. This year we will use a tool called DataPoint to merge historic count data with new, real-time counts that we are gathering from AI powered tools

FY24 MAJOR WORK OBJECTIVES

Smart Intersections

Modern machine learning models can differentiate between cars, buses, pedestrians, and cyclists. These tools use these classifications to detect near misses, count traffic patterns, and can actuate change based on what they observe. This year, our team is deploying 6 of these tools in partnership with the Virginia Tech Transportation Institute to understand their capabilities and leverage their insights to better engineer our intersections.

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. Our team is leveraging CityWorks StoreRoom this year to implement processes that track changes to our inventory, starting with our traffic signals and controllers.

FY24 MAJOR WORK OBJECTIVES

Intelligent Transportation Systems (ITS) Phase 3

Phase 3 of this project began construction in FY24 and will lay fiber and install CCTV cameras in several new intersections. Construction of this project will be completed this year, and will open the door to adaptive signal control and further improvements to the Transportation Management Center.

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.

Connected Vehicle Infrastructure

All vehicles built after 2020 are equipped with components that send and receive safety information. The team is working to deploy Vehicle-to-Infrastructure technology that can increase safety and improve how we manage traffic flow on our roadways.

Securing Future Funding

The City is pursuing funding for several key projects. The team applied for NVTA 70% funding to support vehicle-to-infrastructure technology that will allow for connected vehicles to exchange location and signal phasing data with traffic signals. Later this year, the team will also pursue DOT SMART funding to support automatic infrastructure quality assessments.

ONGOING PROGRAM MANAGEMENT

Smart Mobility Working Group

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.

Transit Signal Priority

Transit Signal Priority (TSP) allows buses to receive longer green lights and shorter red lights to stay on schedule, increasing reliability and route speed. WMATA and DASH use different technologies to implement TSP, and our team is working to support both agencies in improving their services with minimal disruption to traffic flows.

Smart Parking Management

Dynamic parking pricing and transparent parking availability have a significant impact on our transportation system. Our current parking technology, Smarking, helps the city manage parking availability. Our team is working to maximize the value of Smarking and use it to plan for future technologies that improve curb management.

PROGRAM BUDGET

PROJECTS	PRIOR YEAR	FY 2024	FY 2025-2030
ITS & Broadband	$18.7M	$600K	$2.4M
Transit	$2.9M	$630K	$4.4M
Smart Mobility Implementation	$2.2M	$0	$5.7M
Parking Technology	$2.1M	$0	$0
Smart Signals	$8.4M	$0	$1.1M
Future Grants (unsecured*)	---	---	$8M

Total Prior Year Funding

$34M

FY 2024 Funding

$1.2M

FY 2025-2030 Funding

$22M*

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.

Regional Multi-Modal Mobility Program

RM3P
Travel Decisions Powered by Data

The RM3P is a collaborative and data-driven program to improve safety, reliability, and mobility for travelers in Northern Virginia. Led by VDOT, NVTA, and DRPT, the program focuses on standardizing transportation data to promote data exchange across the region. As the City tests and deploys new technologies, we are working to align reporting systems to the RM3P to maximize compatibility with nearby areas and future opportunities.

NACTO

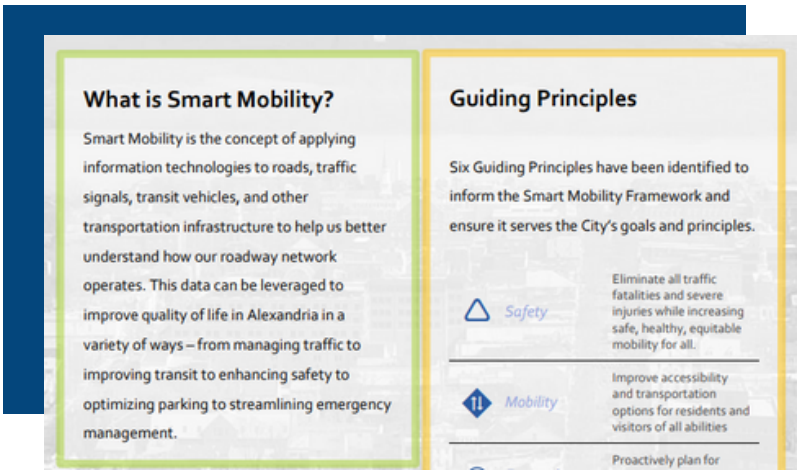
NACTO Emerging Technologies Work Group

The National Association of City Transportation Officials (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. The City participate on their work group to stay abreast of emerging topics.

KEY RESOURCES

Smart Mobility Home Page

This is the landing page for all Smart Mobility efforts. Come here for information on existing and planned projects, maps tracking current work, and high level vision documents like the Smart Mobility Framework



Smart Mobility Framework

This annually published document tracks updates to our major projects and outlines the nine pillars under which we organize our work.

Smart Mobility Viewer

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