FIXED TRANSPORTATION EQUIPMENT

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Fixed Transportation Equipment
Approved FY 2015 – 2024 Capital Improvement Program
Summary of Projects

CIP Section/Subsection/Project	*Unallocated (2/14)*	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 15-24 TOTAL
Fixed Transportation Equipment												
Fixed Transportation Equipment	*$1,010,000*	$490,000	$850,000	$850,000	$1,450,000	$850,000	$850,000	$850,000	$850,000	$2,350,000	$850,000	$10,240,000
Intelligent Transportation Systems (ITS) Integration	*$1,567,019*	$2,450,000	$1,975,000	$0	$0	$0	$0	$0	$0	$0	$0	$4,425,000
Citywide Transportation Management System (SCOOT/TDi)	*$0*	$500,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$500,000
Transportation Technologies	*$550,000*	$0	$250,000	$250,000	$0	$250,000	$0	$0	$250,000	$0	$250,000	$1,250,000
Parking Technologies	*$0*	$0	$0	$0	$110,000	$200,000	$0	$0	$0	$0	$0	$310,000
Fixed Transportation Equipment Total	*$3,127,019*	$3,440,000	$3,075,000	$1,100,000	$1,560,000	$1,300,000	$850,000	$850,000	$1,100,000	$2,350,000	$1,100,000	$16,725,000

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Fixed Transportation Equipment

Document Subsection: Fixed Transportation Equipment
Managing Department: Transportation & Environmental Services
Supporting Department(s): N/A
ORG: 49411771

Project Location: Citywide
Reporting Area: Citywide
Project Category: 1 – Asset Maintenance
Estimated Useful Life: Varies

Fixed Transportation Equipment													
	A	*B*	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Allocated Balance (02/14)	*Unallocated (02/14)*	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	*535,836*	*1,010,000*	490,000	850,000	850,000	1,450,000	850,000	850,000	850,000	850,000	2,350,000	850,000	10,240,000
Financing Plan													
Prior City Funding	*535,836*	*1,010,000*	0	0	0	0	0	0	0	0	0	0	0
Cash Capital	*0*	*0*	45,000	425,000	425,000	725,000	425,000	425,000	425,000	425,000	1,175,000	425,000	4,920,000
General Obligation Bonds	*0*	*0*	245,000	425,000	425,000	725,000	425,000	425,000	425,000	425,000	1,175,000	425,000	5,120,000
Prior Year CIP/Close-Out	*0*	*0*	200,000	0	0	0	0	0	0	0	0	0	200,000
Total Financing Plan	*535,836*	*1,010,000*	490,000	850,000	850,000	1,450,000	850,000	850,000	850,000	850,000	2,350,000	850,000	10,240,000
Add. Operating Impact													
Annual Impact			0	2,500	5,000	7,500	10,000	12,500	15,000	17,500	20,000	22,500	112,500
Cumulative Impact			0	2,500	7,500	15,000	25,000	37,500	52,500	70,000	90,000	112,500	112,500

Changes from Prior Year CIP: Funding reduced in FY 2015 only based on available project balances. Planned funding was $850,000 in last year's CIP. Funding has been reduced to $490,000 in FY 2015 only. Funding is added for FY 2024.

Project Description & Justification

This project provides annual funding for the upgrade, maintenance and replacement of traffic control and parking equipment, as well as the installation of new traffic signals. Of particular importance is the replacement of the traffic signal poles in Old Town. These poles are rusting and will pose a safety hazard to the public if they are not replaced within the next five years. Staff plans to replace the poles at five intersections per year.

Funding is also provided for replacement of the multi-space meters in East Eisenhower/Carlyle in 2018 and in Old Town in 2023. As with all technology driven devices these meters will have reached the end of their useful life and will need to be replaced. The manufacturer has indicated that they will no longer manufacture replacement parts for the East Eisenhower/Carlyle meters after 2014, so the replacement schedule may need to be revisited in future Capital Improvement Programs.

All funding will be used for the procurement of equipment and constructions service. No engineering or design services will be paid from this funding.

Annual funding maintains the value of the City's physical assets sustainability by funding the maintenance of critical infrastructure. Additionally, public safety concerns are addressed by installing new traffic signals to improve the safety at dangerous intersections.

City's Strategic Plan & City Manager's Performance Plan

Primary Strategic Plan Goal: Goal 3 – Transportation

Focus Area: Accountable, Effective, & Well-Managed Government

- Ensure the government is accountable to the community
- Ensure the fiscal strength of the City government

Focus Area: Livable, Green, and Prospering City

- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure
- Increase transportation system mobility, connectivity, and accessibility that supports the City's economy

External or Internal Adopted Plan or Recommendation

- N/A

Additional Operating Budget Impact

This project is ongoing and provides for the upgrade, maintenance and replacement of traffic control and parking equipment, as well as the installation of new traffic signals and small scale parking meter projects. Staff estimates that one new traffic signal will be constructed per year with an annual operating impact of $2,500 per signal. Each new parking meter would have an annual operating impact of $2,000 per multi-space meter, however, this impact would be offset by the expected $15,000 in annual revenue generated by the meter. Only additional operating costs with new signals are shown above.

Fixed Transportation Equipment (Continued)

Fixed Transportation Equipment Category 1 Project List

Fiscal Year 2015		
Description		Amount
Reconstruct King and Taylor Signal	$	85,000
Reconstruct King, Callahan and Russell Signal	$	85,000
Reconstruct King and Peyton Signal	$	75,000
Reconstruct King and West Signal	$	75,000
Reconstruct King and Fayette Signal	$	75,000
Infrastructure Repair	$	95,000
Total Fiscal Year 2015	$	490,000
Fiscal Year 2016		
Description		Amount
Reconstruct Preston and Quaker Signal	$	85,000
Reconstruct Wythe and St Asaph Signal	$	85,000
Reconstruct Cameron and St Asaph Signal	$	85,000
Reconstruct Madison and St Asaph Signal	$	85,000
Reconstruct King and 28th Signal	$	85,000
Reconstruct Van Dorn and Kenmore Signal	$	85,000
Reconstruct Slaters and Abingdon Signal	$	85,000
Reconstruct Bashford and Abingdon Signal	$	85,000
New Signal (undetermined location)	$	85,000
Infrastructure Repair	$	85,000
Total Fiscal Year 2016	$	850,000
Fiscal Year 2017		
Description		Amount
Reconstruct Duke and Columbus Signal	$	85,000
Reconstruct Patrick and Madison Signal	$	85,000
Reconstruct Cameron and Columbus Signal	$	85,000
Reconstruct Wilkes and Columbus Signal	$	85,000
Reconstruct Alfred and Prince Signal	$	85,000
Reconstruct Alfred and Cameron Signal	$	85,000
Reconstruct Columbus and Prince Signal	$	85,000
Reconstruct Patrick and Oronoco Signal	$	85,000
New Signal Request (undetermined location)	$	85,000
Infrastructure Repair	$	85,000
Total Fiscal Year 2017	$	850,000

Intelligent Transportation Systems (ITS) Integration

Document Subsection: Fixed Transportation Equipment
Managing Department: Transportation & Environmental Services
Supporting Department(s): N/A
ORG: 49411772

Project Location: Citywide
Reporting Area: Citywide
Project Category: 3 – New Facilities
Estimated 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	*Through FY 2014*	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	8,626,896	*4,201,896*	2,450,000	1,975,000	0	0	0	0	0	0	0	0	4,425,000
Financing Plan													
Prior City Funding	1,727	*1,727*	0	0	0	0	0	0	0	0	0	0	0
CMAQ/RSTP	7,533,057	*3,108,057*	2,450,000	1,975,000	0	0	0	0	0	0	0	0	4,425,000
Urban Funds	346,987	*346,987*	0	0	0	0	0	0	0	0	0	0	0
FHWA	745,125	*745,125*	0	0	0	0	0	0	0	0	0	0	0
Total Financing Plan	8,626,896	*4,201,896*	2,450,000	1,975,000	0	0	0	0	0	0	0	0	4,425,000
Add. Operating Impact													
Annual Impact			0	10,000	20,000	20,600	21,218	21,855	22,510	23,185	23,881	24,597	187,847
Cumulative Impact			0	10,000	30,000	50,600	71,818	93,673	116,183	139,368	163,249	187,847	187,847

Changes from Prior Year CIP: New federal guidelines governing the use of CMAQ/RSTP funding no longer allow the purchase of DASH replacement buses. As such, CMAQ/RSTP funding has been removed from the DASH bus replacement project, and reprogrammed to other eligible projects. In last year's CIP, there was no funding available to continue work on this project beyond FY 2014; CMAQ/RSTP funding will now continue to support this project in FY 2015 and FY 2016.

Project Description & Justification

This project provides funding for the deployment and upgrade of Intelligent Transportation Systems (ITS). Much of this work will focus on designing and constructing a broadband communications network, installing traffic cameras and other field devices such has weather stations, flood monitoring equipment, pavement temperature sensors, etc.

The City is already implementing Phase I of the ITS Integration project which consists of the installation of traffic surveillance cameras, a fiber optic communications network, and a transportation management center. The engineering of Phase II began in November 2012 and will consist of expanding the communications network and the installation of more cameras, building on Phase I. Future phases will add to completed work if additional funding becomes available.

This project is constructed almost entirely with State and Federal grant funding. City staff will explore future grant opportunities to enhance work completed in Phases I and II of this project.

Completion of this project will replace much of the City's 30 year old traffic signal communications, and allow public safety department technology to monitor conditions on the City's roadway network.

City's Strategic Plan & City Manager's Performance Plan

Primary Strategic Plan Goal: Goal 3 – Transportation

Focus Area: Livable, Green, and Prospering City

- Increase transportation system mobility, connectivity, and accessibility that supports the City's economy
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure

External or Internal Adopted Plan or Recommendation

- N/A

Additional Operating Budget Impact

Additional operating costs estimated based on hardware and software requirements to run CCTV cameras and manage the network.

Citywide Transportation Management System (SCOOT/TDi)

Document Subsection: Fixed Transportation Equipment
Managing Department: Transportation & Environmental Services
Supporting Department(s): N/A
ORG: TBD

Project Location: Citywide
Reporting Area: Citywide
Project Category: 3 – New Facilities
Estimated Useful Life: Varies

Citywide Transportation Management System (SCOOT/Tdi)													
	A (B+M)	*B*	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	*Through FY 2014*	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	500,000	*0*	500,000	0	0	0	0	0	0	0	0	0	500,000
Financing Plan													
NVTA 70%	500,000	*0*	500,000	0	0	0	0	0	0	0	0	0	500,000
Total Financing Plan	500,000	*0*	500,000	0	0	0	0	0	0	0	0	0	500,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	0	0	0	0	0	0
Cumulative Impact			0	0	0	0	0	0	0	0	0	0	0
Changes from Prior Year CIP: New project for FY 2015 using NVTA 70% funds. Initial planning and feasibility funding only.													

Project Description & Justification

The Split Cycle Offset Optimization Technique/Transportation Data Information (SCOOT/TDi) system is an advanced, real-time system that tracks movement of all transportation modes through the transportation network. This technology will advance the City's signal system so that staff can utilize this real time travel information for better optimization of signal timings as well as optimal planning for infrastructure projects.

SCOOT analyzes real-time traffic data to optimize the operation of traffic signals in the network. TDi anonymously locates and tracks the movement of cellular devices (3G/4G/CDNA/GSM networks). Filters differentiate between modes of transportation and vehicles. By monitoring cellular device movement over time, the system is able to determine the speed at which a vehicle/pedestrian is traveling and thus the flow of traffic along any section of road. Tracking specific anonymous cellular devices provides current and historical data on origins, destinations, route selection and travel speed providing powerful and robust planning and operations data.

This project has three components – concept strategy and benefits mapping (CS), preliminary engineering (PE), and implementation. Funding is provided only for the CS phase through NVTA 70% funds in FY 2015.

The concept strategy (CS) phase will involve thorough understanding of the City of Alexandria travel and traffic arrangements, key stakeholders and the benefits to be realized from a project of this scale. Major wireless service providers will be queried to assess interest and determine the costs and ability of the various providers to provide the required service. The concept phase output will be a full brief for the PE and implementation phases.

The future PE phase will involve developing (1) concept of operations, (2) system requirements, (3) high level design, (4) detailed design, and (5) bid package, estimates, and project schedule, and (6) system and subsystem validation, verification and testing plans. The implementation phase will involve installation, integration, validation, verification, testing, and acceptance of the system.

City's Strategic Plan & City Manager's Performance Plan

Primary Strategic Plan Goal: Goal 3 – Transportation

Focus Area: Livable, Green, and Prospering City

- Increase transportation system mobility, connectivity, and accessibility that supports the City's economy
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure

External or Internal Adopted Plan or Recommendation

- N/A

Additional Operating Budget Impact

None at this time. Funding provided for an initial planning and feasibility study only.

Transportation Technologies

Document Subsection: Fixed Transportation Equipment
Managing Department: Transportation & Environmental Services
Supporting Department(s): N/A
ORG: 49412090

Project Location: Citywide
Reporting Area: Citywide
Project Category: 3 – New Facilities
Estimated 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	*Through FY 2014*	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	1,850,000	*600,000*	0	250,000	250,000	0	250,000	0	0	250,000	0	250,000	1,250,000
Financing Plan													
Cash Capital - TIP	1,850,000	*600,000*	0	250,000	250,000	0	250,000	0	0	250,000	0	250,000	1,250,000
Total Financing Plan	1,850,000	*600,000*	0	250,000	250,000	0	250,000	0	0	250,000	0	250,000	1,250,000
Add. Operating Impact													
Annual Impact			0	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Cumulative Impact			0	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Changes from Prior Year CIP: Planned funding in FY 2018 moved to FY 2017 based on availability of TIP funding. FY 2024 is added.

Project Description & Justification

This project funds the deployment of small, undefined transportation technology projects to improve efficiency of the transportation network through technology.

In FY 2015, funding available from prior years ($550,000) will be used to fund the implementation of the Real-Time Transit Information project at high ridership, high priority transit stations throughout the City. In future years funding will expand this technology at additional transit stops, upgrades transit signal priority technology, additional traffic monitoring cameras and pavement temperature sensors.

Funds will be used for the engineering and design as well as deployment of new technologies. All funding is through the City's Transportation Improvement Program (TIP).

Installation of these new technologies will improve traffic flow and public safety through equipment and systems designed to monitor and allow the more efficient operation of the City's transportation network.

City's Strategic Plan & City Manager's Performance Plan

Primary Strategic Plan Goal: Goal 3 – Transportation

Focus Area: Livable, Green, and Prospering City

- Increase transportation system mobility, connectivity, and accessibility that supports the City's economy
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure

External or Internal Adopted Plan or Recommendation

- N/A

Additional Operating Budget Impact

Unknown at this time. Operating costs will be determined once the full scope of work for the technologies implemented are identified.

Parking Technologies

Document Subsection: Fixed Transportation Equipment
Managing Department: Transportation & Environmental Services
Supporting Department(s): N/A
ORG: TBD

Project Location: Citywide
Reporting Area: Citywide
Project Category: 3 – New Facilities
Estimated Useful Life: 10 years

Parking Technologies													
	A (B+M)	*B*	C	D	E	F	G	H	I	J	K	L	M (C:L)
	Total Budget & Financing	*Through FY 2014*	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total FY 2015-2024
Expenditure Budget	310,000	*0*	0	0	0	110,000	200,000	0	0	0	0	0	310,000
Financing Plan													
CMAQ/RSTP	310,000	*0*	0	0	0	110,000	200,000	0	0	0	0	0	310,000
Total Financing Plan	310,000	*0*	0	0	0	110,000	200,000	0	0	0	0	0	310,000
Add. Operating Impact													
Annual Impact			0	0	0	0	0	TBD	TBD	TBD	TBD	TBD	TBD
Cumulative Impact			0	0	0	0	0	TBD	TBD	TBD	TBD	TBD	TBD

Changes from Prior Year CIP: No changes from prior year CIP.

Project Description & Justification

This project provides funding for the deployment of new parking technologies, such as real time parking occupancy systems for on-street spaces, website based interactive parking map, dynamic signage that would illustrate real-time parking availability in city-owned garages, and other parking technology.

These technologies will mostly be off the shelf solutions requiring minimal design and engineering.

This project is fully funded with CMAQ/RSTP funds anticipated in FY 2018 – 2019. Specific projects include:

- FY 2018 ($110,000): Phase I – Begin installing sensors in all City owned garages; begin to install sensors or similar technology in on-street spaces; and install dynamic directional signage that would indicate real-time parking availability and direct parkers to available parking spaces.

- FY 2019 ($200,000): Phase II – Continue installing sensors in all City owned garages; continue installing sensors or similar technology in on-street spaces; and continue installing dynamic directional signage that would indicate real-time parking availability and direct parkers to available parking spaces.

Depending on technology selected to monitor on-street space utilization and availability, additional funding may be needed to complete this project.

Once implemented, these technologies will support economic development by providing more efficient parking strategies and allow the City to manage parking and traffic assets more efficiently.

City's Strategic Plan & City Manager's Performance Plan

Primary Strategic Plan Goal: Goal 3 – Transportation

Focus Area: Livable, Green, and Prospering City

- Increase transportation system mobility, connectivity, and accessibility that supports the City's economy
- Promote an attractive urban environment that reflects our history and provides well-functioning infrastructure
- Ensure Alexandria supports, retains, and attracts businesses

External or Internal Adopted Plan or Recommendation

- Old Town Area Parking Study

Additional Operating Budget Impact

Unknown at this time. Operating costs will be determined once specific technologies are identified.