



# Traffic Signal System Modernization

(P500704)

Category	Transportation	Date Last Modified	01/04/18
SubCategory	Traffic Improvements	Administering Agency	Transportation
Planning Area	Countywide	Status	Ongoing

## EXPENDITURE SCHEDULE (\$000s)

Cost Elements	Total	Thru FY17	Est FY18	Total 6 Years	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	Beyond 6 Years
Planning, Design and Supervision	14,822	14,222	-	600	100	100	100	100	100	100	-
Site Improvements and Utilities	29,997	20,074	3,095	6,828	1,138	1,138	1,138	1,138	1,138	1,138	-
Construction	680	680	-	-	-	-	-	-	-	-	-
Other	967	125	842	-	-	-	-	-	-	-	-
<b>TOTAL EXPENDITURES</b>	<b>46,466</b>	<b>35,101</b>	<b>3,937</b>	<b>7,428</b>	<b>1,238</b>	<b>1,238</b>	<b>1,238</b>	<b>1,238</b>	<b>1,238</b>	<b>1,238</b>	<b>-</b>

## FUNDING SCHEDULE (\$000s)

Funding Source	Total	Thru FY17	Est FY18	Total 6 Years	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	Beyond 6 Years
G.O. Bonds	15,494	15,494	-	-	-	-	-	-	-	-	-
Contributions	295	295	-	-	-	-	-	-	-	-	-
Current Revenue: General	9,899	534	1,937	7,428	1,238	1,238	1,238	1,238	1,238	1,238	-
Recordation Tax Premium (MCG)	8,778	6,778	2,000	-	-	-	-	-	-	-	-
State Aid	12,000	12,000	-	-	-	-	-	-	-	-	-
<b>TOTAL FUNDING SOURCES</b>	<b>46,466</b>	<b>35,101</b>	<b>3,937</b>	<b>7,428</b>	<b>1,238</b>	<b>1,238</b>	<b>1,238</b>	<b>1,238</b>	<b>1,238</b>	<b>1,238</b>	<b>-</b>

## OPERATING BUDGET IMPACT (\$000s)

Impact Type	Total 6 Years	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24
Maintenance	54	3	5	8	10	13	15
Program-Staff	600	50	50	100	100	150	150
Program-Other	36	3	3	6	6	9	9
<b>NET IMPACT</b>	<b>690</b>	<b>56</b>	<b>58</b>	<b>114</b>	<b>116</b>	<b>172</b>	<b>174</b>
<b>FULL TIME EQUIVALENT (FTE)</b>		<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>

## APPROPRIATION AND EXPENDITURE DATA (\$000s)

Appropriation FY 19 Request	38	Year First Appropriation	FY07
Appropriation FY 20 Request	1,238	Last FY's Cost Estimate	45,190
Cumulative Appropriation	40,238		
Expenditure / Encumbrances	36,882		
Unencumbered Balance	3,356		

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## Project Description

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This project provides for the modernization of the County's aged traffic signal system. Phase I consisted of planning, requirements development, systems engineering, and testing. Phase II consists of acquisition of central system hardware and software, acquisition, and implementation of control equipment and communications for intersections, as well as reconfiguration of the communications cable plant. Phase I was completed in FY08. Phase II implementation commenced in FY09. As a result of the November 2009 failure of the existing system, Phase II was refined into two sub-phases, A and B, so that replacement of the existing system could be accelerated. Phase IIA encompassed critical work that was necessary to deactivate the existing system. Phase IIB includes all other work that is not critical to replacement of the existing system.

## Estimated Schedule

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Phase I - completed FY07-08; Phase IIA - completed FY12; Phase IIB - FY13-16; ongoing Life Cycle Upgrades - FY17 and beyond.

## Cost Change

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Cost increase due to the addition of FY23 and FY24 to this ongoing level-of-effort project partially offset by FY18 reductions related to a FY18 savings plan.

## Project Justification

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The existing traffic signal control system, though it has been highly reliable, is an aging system dependent on dated technology. Central and field communications devices are obsolete and problematic to maintain. As the technologies employed in the Advanced Transportation Management System (ATMS) have advanced, it has become increasingly difficult to interface with the existing traffic signal control system (COMTRAC). Because of the limited functionality of COMTRAC, the system is not able to take advantage of the capabilities of the current generation of local intersection controllers. These capabilities provide a greater level of flexibility to manage traffic demands. In November 2009, the existing traffic signal system experienced a failure that caused significant congestion and delays throughout the County for nearly two days. This event led to an acceleration of the schedule to replace the existing system. The following reports were developed as part of the research, planning, and system engineering work on this project. These reports documented the existing condition and need to modernize the existing signal control system, as well as the evaluation and engineering of specific components of the replacement system: White paper on the Status and Future of the Traffic Control System in Montgomery County, March 2001; Concept of Operations (rev 1.4), October 2007; TSSM Requirements (rev g), October 2007; TSSM Communications Master Plan (rev c), February 2009; TSSM Risk Assessment and Analysis (rev e), April 2009. Given the effort to modernize the signal system and its infrastructure, it is important and prudent to take steps to prevent the system from becoming outdated. A proactive program to replace equipment by its "life cycle" usefulness is required given the dependency on technology driven devices and software to maintain traffic control capabilities and full redundancy fail-over systems. This assumes a level of effort (LOE) designation and funding be appropriated beginning in FY17.

## Fiscal Note

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The county's traffic signal system supports approximately 800 traffic signals, about 550 of which are owned by the Maryland State Highway Administration (MSHA) and maintained and operated by the County on a reimbursement basis. MSHA plans to separately fund and implement other complementary work and intersection upgrades amounting to approximately \$12.5 million that are not reflected in the project costs displayed above. Project appropriations were reduced in FY09 (-\$106,000) and FY11 (-\$269,000) to reconcile the recall of a \$375,000 federal earmark that was originally programmed in FY07. MSHA has committed to provide \$12 million in State aid to this project. This aid was originally programmed during FY09-14, but did not materialize due to the State's fiscal situation. In addition \$2 million in State Aid was moved to the TSSM project from the State Transportation

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Participation (STP) CIP (No. 500722) in FY11 with repayment to STP programmed in FY17. In FY16, \$9,000 in Current Revenue was transferred from the Brookville Service Park CIP (#509928). In FY16, a funding switch of \$295,000 in Contributions added to this project, fully offsetting a similar amount in Current Revenue.

## Disclosures

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Expenditures will continue indefinitely. The County Executive asserts that this project conforms to the requirement of relevant local plans, as required by the Maryland Economic Growth, Resource Protection and Planning Act.

## Coordination

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Advanced Transportation Management System, Fibernet, State Transportation Participation, Traffic Signals Project, Department of Technology Services, Maryland State Highway Administration