



**Committee:** T&E  
**Committee Review:** Completed  
**Staff:** Keith Levchenko, Senior Legislative Analyst  
**Purpose:** To make preliminary decisions – straw vote expected  
**Keywords:** #Stormwater

AGENDA ITEM #3  
May 8, 2023  
**Worksession**

## SUBJECT

Worksession: Amendments to the FY23-28 Capital Improvements Program: Conservation of Natural Resources – Stormwater Management

## EXPECTED ATTENDEES

- Vicky Wan, Acting Deputy Director, Department of Environmental Protection (DEP)
- Stan Edwards, Chief, Energy, Climate & Compliance Division
- Saeyin Oh, Watershed Restoration Division, DEP
- Rich Harris, , Fiscal and Policy Analyst, Office of Management and Budget

## DESCRIPTION/ISSUE

- On March 15,2023 the Executive transmitted additional FY23-28 CIP amendments which included three stormwater management projects:
  - Facility Planning: Stormwater Management (shift \$778,000 in Water Quality Protection Fund (WQPF) Current Revenue from the Operating Budget to this project)
  - Flood Control Study (Add \$2.8 million in WQPF current revenue to move into Phase II work)
  - Wheaton Regional Dam Flooding Mitigation (Delay the construction schedule one year to coincide with the latest schedule for the Dennis Ave. Bridge M-0194 Replacement. Add \$96,000 in State Aid received for this project and reduce WQPF bonds by the same amount.
- Public hearings on these and the other March 15, 2023 CIP amendments were held on April 11 and 13.

## T&E COMMITTEE RECOMMENDATION

- The T&E Committee met on May 4, 2023 and recommended approval of each amendment as transmitted by the County Executive.

### This report contains:

May 4, 2023 T&E Committee Staff Report

### Page #

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T&E COMMITTEE #5  
May 4, 2023

**Worksession**

**MEMORANDUM**

May 1, 2023

TO: Transportation & Environment Committee

FROM: Keith Levchenko, Senior Legislative Analyst

SUBJECT: **Worksession: Additional Amendments to the FY23-28 Capital Improvements Program (CIP) Conservation of Natural Resources: Stormwater Management**

***NOTE: The Stormwater Management CIP is funded via the Water Quality Protection Fund and therefore changes in expenditures in these projects do not affect the County's CIP affordability calculations regarding General Obligation Bonds or General Current Revenue.***

The following officials and staff will be attending this meeting:

**Stormwater Management CIP**

- Vicky Wan, Acting Deputy Director, Department of Environmental Protection (DEP)
- Stan Edwards, Chief, Energy, Climate & Compliance Division
- Frank Dawson, Chief, Watershed Restoration Division, DEP
- Amy Stevens, Watershed Restoration Division, DEP
- Pam Parker, Watershed Restoration Division, DEP
- Saeyin Oh, Watershed Restoration Division, DEP
- Rich Harris, Fiscal and Policy Analyst, Office of Management and Budget

**Attachments**

- Excerpts from the County Executive's Recommended FY23-28 CIP amendments March 15, 2023 (©1-11)
- Flood Control Study Presentation Slide Deck (©12-38)

At its February 27 meeting, the T&E Committee discussed and recommended approval of the Executive's January 17 FY24 Capital Budget and recommended amendments to the FY23-28 Stormwater Management CIP. The Full Council discussed the Executive's recommendations on

March 28 and preliminarily recommended approval as well. For more information, please see the Council Staff reports for the [T&E](#) and [Full Council](#) worksessions.

On March 15, the Executive [transmitted additional FY23-28 CIP amendments](#) which included three stormwater management projects (see ©1-11). Public hearings were held on April 11 and 13.

Facility Planning: Stormwater Management								
	Total	Six-Year	FY23	FY24	FY25	FY26	FY27	FY28
<b>FY23-28 Approved</b>		<b>6,407</b>	1,018	1,037	1,057	1,077	1,098	1,120
<b>FY23-28 CE Amended</b>		<b>10,297</b>	1,018	1,815	1,835	1,855	1,876	1,898
change from approved		3,890	-	778	778	778	778	778
percent change from approved		60.7%	0.0%	75.0%	73.6%	72.2%	70.9%	69.5%

This project (project description form on ©7-8) provides watershed level planning (such as countywide and tributary watershed assessments), development of the Total Maximum Daily Load (TMDL) Implementation Plan required in the new NPDES-MS4 permit, as well as general project management and planning for the program. Specific activities associated with individual projects are captured in the other project-specific Stormwater Management projects and the Countywide project.

The Executive is recommending shifting \$778,000 annually from the Operating Budget beginning in FY24 to consolidate stream monitoring and gauge costs in the CIP. The funding source will remain current revenue from the Water Quality Protection Fund. This shift also has the benefit of improving the debt service coverage ratio in the Operating Budget for this project based on the increased work required from the new NPDES-MS4 permit.

**Council Staff recommends approval of the CIP amendment as transmitted by the County Executive.**

Flood Control Study								
	Total	Six-Year	FY23	FY24	FY25	FY26	FY27	FY28
<b>FY23-28 Approved</b>		<b>1,200</b>	1,200					
<b>FY23-28 CE Amended</b>		<b>4,000</b>	1,200	1,900	900			
change from approved		2,800	-	1,900	900	-		
percent change from approved		233.3%	0.0%					

This project (project description form on ©9-10) was approved last May and is intended to proactively address current flooding problems in the County as well as more frequent and intense rain events expected in the future as a result of climate change. DEP staff provided a presentation on the status of the study to the T&E Committee at its February 27 meeting (see slide deck on ©12-38).

Phase I of the study, to identify watersheds that need attention and develop an overall strategy, was recently completed. DEP has indicated that the results of the Phase I work are being finalized and will be made public as soon as it is available.

Regarding next steps, DEP has noted that it has a consultant contract in place and that,

*“Phase 2 of the CFMP will begin in spring of 2023. The primary goal of Phase 2 is to conduct more detailed studies in priority watersheds identified in Phase 1 to assess flooding risks and*

*the potential vulnerability of critical infrastructure, vulnerable populations, residential and commercial properties, etc. and to begin to evaluate the benefits/costs of mitigation alternatives. The prioritization of watersheds for study will result from preliminary analyses done in Phase 1. Phase 2 will also continue work begun in Phase 1 related to the County’s organizational approach (i.e., staffing, budget, programs, regulations, etc.) to flooding and flood mitigation to evaluate potential changes that would increase the County’s flood resilience and response.”*

*“The modeling work will begin in a pilot watershed to refine the process for data collection and current condition assumptions, and a determination of future climate and land-use scenarios to model. The first watershed-based results should be available in late FY24. These analyses will include initial assessments of flood mitigation opportunities, which would be further fleshed out in Phase 3 of the CFMP.”*

The Phase 2 spending will cover 8 to 12 of the watersheds of most concern as well as the continuation of the governance work and regulatory issues. DEP is planning to do a pilot Phase 2 assessment of Sligo Creek which will help guide the Phase 2 work in the other watersheds. Based on the results of the Phase 2 study, future work will be identified to implement flood mitigation alternatives.

**Council Staff recommends approval of the CIP amendment as transmitted by the County Executive.**

Wheaton Regional Dam Flooding Mitigation									
	Total	Thru FY22	Six-Year	FY23	FY24	FY25	FY26	FY27	FY28
<b>FY23-28 Approved</b>	<b>4776</b>	997	<b>3,779</b>	1,909	1,870				
<b>FY23-28 CE Amended</b>	<b>4776</b>	997	<b>3,779</b>	69	1,840	1,870			
change from approved			-	(1,840)	(30)	1,870	-		
percent change from approved			0.0%	-96.4%	-1.6%				

This project (project description form on ©11) provides for the upgrading of the Wheaton Regional Dam, the Dennis Avenue Culvert, and the stream channel along Glenhaven Drive in Wheaton to address flooding problems in the area. This work is to be done in conjunction with the Dennis Ave. Bridge M-0194 Replacement project managed by DOT.

The total recommended project cost is \$4.78 million.

The Executive’s recommended amendment includes two changes to the project:

1. The revised project includes additional State aid received (\$96,000) which allows for a corresponding reduction in Water Quality Protection Bonds.
2. As discussed at the T&E Committee’s February 27 meeting, as part of his January 17 CIP amendments, the Executive recommended an amendment to the Dennis Ave. Bridge M-0194 Replacement project. The Executive’s January 17, 2023, transmittal includes a summary of the bridge project amendment which notes,

*“Schedule change (including slippage) and cost increase due to updated construction costs reflecting final design and additional utility relocations that were not previously expected.”*



The amended project has construction scheduled to start in the Spring of 2024 instead of the Spring of 2023 (as had been approved last year). Completion has been pushed back one year from the Fall of 2023 to the Fall of 2024.

Based on the bridge project delay, an equivalent delay in the Wheaton Regional Dam Flooding Mitigation project is required as well.

**Council Staff recommends approval of the Wheaton Regional Dam Flooding Mitigation CIP amendment as transmitted by the County Executive.**

Attachments



OFFICE OF THE COUNTY EXECUTIVE

Marc Elrich  
County Executive

MEMORANDUM

March 15, 2023

TO: Evan Glass, President  
Montgomery County Council

FROM: Marc Elrich, County Executive *Marc Elrich*

SUBJECT: Amendments to the Recommended FY23-28 Capital Improvements Program and the FY23 Capital Budget

In January 2023, I submitted my Recommended Amended FY23-28 Capital Improvement Program (CIP). Since that time, I have had an opportunity to consider additional needs balanced against operating budget affordability considerations. The most important factor impacting my recommended March amendments is the further reduction of recordation tax revenues (-\$61.6 million) compared to my January Recommended CIP.

Today, I am recommending the attached CIP Amendments.

**FY23 Supplemental Appropriation Request**

Under separate cover, I am requesting an additional \$1.0 million supplemental appropriation for the Public Safety Communications Center Phase II Electrical Distribution and HVAC Upgrade Project. Additional funding is required to support post-bid cost increases not projected in January related to the mechanical HVAC unit. In total, when added to the prior approved FY23 supplemental appropriation, this request will increase the project costs by \$5.8 million.

**New Projects**

I am proposing a new Ride On Fare Equipment Replacement project to replace outdated fare collection equipment. This equipment replacement is required to maintain compatibility with the Washington Metropolitan Area Transit Authority SmarTrip system as support for our older farebox system is ending in calendar year 2025. In addition, a new IJIS Correction and Rehabilitation Information Management System (CRIMS) Upgrade project is required to upgrade the existing software to meet modern County information technology security standards

and operational needs.

### **Scope Changes**

Funding is added to the Flood Control Study project to reflect Phase II work modeling watersheds for the County's flood mitigation plan. This work is intended to improve public safety and water quality and reduce property damage due to flooding from extreme weather events. In addition, the Facility Planning: Stormwater Management project is amended to reflect the shift of stream monitoring and stream gauge costs from the operating budget to the CIP. Consolidating these costs in the CIP will help minimize debt service coverage requirements in the operating budget.

The Facility Planning – Pedestrian Facilities and Bikeways; Facility Planning – Roads; and Facility Planning: Mass Transit projects are amended to reflect 1) a new streamlined planning and review process; 2) reductions when projects are being addressed by private developers or through other County projects; and 3) delays to reflect funding constraints. In addition, funds are added to the Facility Planning – Pedestrian Facilities and Bikeways project to support planning and design of permanent Streets in Bethesda, Silver Spring and Wheaton. The Bethesda and Silver Spring Parking Lot District Facility Renovation projects have also been adjusted to reflect affordability constraints.

Finally, the County Radio Life Cycle Replacement project is amended to replace additional units required to support Police and Fire and Rescue personnel and to reflect unit cost increases.

In addition, funds are added to the School Based Health and Linkages to Learning Centers project to include construction of a Linkages to Learning site at Greencastle Elementary School as part of a planned school addition programmed in the Montgomery County Public Schools CIP. This work will allow for expanded Linkages to Learning services at Greencastle Elementary School, which currently operates a partial site. A related supplemental appropriation request is being transmitted separately to expedite work on the facility.

For Montgomery College, the Collegewide Central Plant and Distribution Systems project is amended to reflect additional State Aid received through the Facilities Renewal Grant.

Finally, in the Cost Sharing: MCG project, funds are added to support State capital grant cost share requirements, for other major priority community capital projects, and to support non-arts related capital grants in underserved communities.

### **Schedule Adjustments/Cost Savings**

These amendments reflect a one-year delay in the Kennedy Shriver Aquatic Center Building Envelope Improvement project in order to ensure project phasing is aligned with the opening of the new South County Regional Recreation and Aquatic Center. The Holiday Park Net Zero

Initiative project is deferred one-year to reflect delays related to project phasing. Recent project bids for the Noyes Library for Young Children Rehabilitation and Renovation project significantly exceeded the budget, and the project is deferred one-year to let construction markets stabilize prior to rebidding the project to improve competitive pricing. The Observation Drive Extended -project schedule is updated, deferring construction to FY28 to reflect delays in final design. The Wheaton Regional Dam Flooding Mitigation project is delayed one-year to reflect schedule adjustments resulting from the proposed one-year deferral of the Dennis Avenue Bridge Replacement project. This amendment also reflects a funding switch replacing Water Quality Protection Bonds with State Aid. Further project implementation delays are reflected for the White Oak Science Gateway Redevelopment Project; this adjustment can be revisited if the private developer demonstrates significant advances in project execution.

The Second District Police Station is reduced due to project cost savings. This project is complete and will be added to the closeout list.

All agencies will share in delays in light of our constrained resources. As a result, the following projects have reductions or deferrals based on affordability: Americans with Disabilities Act (ADA) Compliance; MCPS Affordability Reconciliation; College Affordability Reconciliation; and M-NCPPC Affordability Reconciliation.

### **Technical Adjustments**

An amendment for the Fibernet project shifting project support from the Cable Fund to the General Fund is included to reflect the impact of reduced Cable Fund revenues related to consumers' shift away from cable to streaming services.

The recommended amendments also include technical adjustments to reflect other funding switches, updated project description forms based on previously submitted supplementals or amendments, and to adjust appropriation requests.

Department staff will be happy to answer any of your questions as you consider these amendments.

ME: jrb

Enclosure: FY23-28 Amended Biennial CIP: March Budget Amendments Summary  
Amended Project Description Forms  
General Obligation Bond Adjustment Chart and Slippage Chart  
Current Revenue Adjustment Chart  
Maryland-National Capital Park and Planning Commission Bond Adjustment Chart  
Tax Supported Current Revenues Adjustment Chart

**FY 23-28 Biennial Recommended CIP  
Budget Amendments Summary (\$000s) - Round 1**

Project #	Project Name	Explanation of Adjustment	FY23-28 Change (\$000s)	Funding Sources
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**New Projects**

P342402	IJIS - Correction and Rehabilitation Information Management System (CRIMS) Upgrade	Begin replacement of the CRIMS arrest and booking system to ensure efficient, secure availability of critical public safety capabilities.	365	Current Revenue: General
P502404	Ride On Fare Equipment Replacement	New project adds funding to replace fare vaults at County depots and to replace some fareboxes.	1,015	Current Revenue: Mass Transit

**FY23 Supplementals**

P472102	Public Safety Communications Center, Phase II, Electrical Distribution and HVAC Upgrade	Reflects post-bid cost increase for mechanical HVAC equipment.	1,000	G.O. Bonds
P640400	School Based Health and Linkages to Learning Centers	Adds funding to to convert the partial Linkages to Learning program at Greencastle Elementary School to a full Linkages to Learning program site.	850	G.O. Bonds
P846540	Relocatable Classrooms	Reflects a supplemental previously transmitted to Council to appropriate funds in FY23 to ensure the installation of relocatable classrooms in time for the 2023-2024 school year. Relocatable classrooms are needed to address enrollment growth and the implementation of the Blueprint for Maryland's Future Act.	0	

**Scope Change**

P342301	County Radio Life Cycle Replacement	Adds funding for replacement of Police and Fire and Rescue digital vehicle repeater systems as well as funding to cover radio unit cost increases.	3,320	Short-Term Financing
P502308	Facility Planning: Mass Transit	Reflects the removal of the Clarksburg Transit Center and Hillandale Bus Layover projects since they will be developed through the MD355 Bus Rapid Transit and private Hillandale Gateway projects.	(960)	Current Revenue: Mass Transit
P502312	Facility Planning - Pedestrian Facilities and Bikeways	Reflects the addition of Streateries in Bethesda, Silver Spring and Wheaton, and cost reductions due to the following: 1) a new streamlined planning and review process; 2) reductions when projects are being addressed by private developers or through other County projects; 3) and delays to reflect funding constraints.	(3,610)	Current Revenue: General
P509337	Facility Planning-Roads	Reflects savings from streamlined planning and review process and removal of the MD355 project in anticipation of updates to the Clarksburg Master Plan.	(930)	Current Revenue: General
P720601	Cost Sharing: MCG	Adds funding for Capital Community Grants.	2,000	Current Revenue: General
P662001	Collegewide Central Plant and Distribution Systems	Adds State grant funds.	823	State Aid

**Cost Change**

P361107	Americans with Disabilities Act (ADA): Compliance	Prior year cost decrease and minor FY25 and FY26 schedule adjustments due to fiscal capacity.	0	G.O. Bonds
P471200	2nd District Police Station	Cost change reflects project savings prior to FY23. This project can be closed out.	0	G.O. Bonds

**FY 23-28 Biennial Recommended CIP  
Budget Amendments Summary (\$000s) - Round 1**

Project #	Project Name	Explanation of Adjustment	FY23-28 Change (\$000s)	Funding Sources
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**Schedule Adjustments**

P361701	White Oak Science Gateway Redevelopment Project	Deferred based on project progress to date.	(7,000)	G.O. Bonds
P451502	White Flint Fire Station 23	Defers the project one additional year for a total deferral of two years due to fiscal capacity.	0	G.O. Bonds
P472101	Outdoor Firearms Training Center	Defers the project one additional year for a total three-year delay due to fiscal capacity.	(1,702)	G.O. Bonds
P500718	MacArthur Blvd Bikeway Improvements	Defers the project one and a half years due to fiscal capacity.	0	G.O. Bonds
P501507	Observation Drive Extended	Schedule changed to reflect delays in final design stage.	(25,611)	G.O. Bonds
P711704	Noyes Library for Young Children Rehabilitation and Renovation	Project deferred one year due to the need to rebid the project.	0	G.O. Bonds
P722301	Holiday Park Net Zero Initiative	Deferred construction costs for one year to reflect project phasing.	0	G.O. Bonds
P721503	Kennedy Shriver Aquatic Center Building Envelope Improvement	Deferred construction costs for one year to ensure that the South County Recreation and Aquatic Center is fully operational before closing the Kennedy Shriver Aquatic Center.	0	G.O. Bonds

**Affordability Adjustments**

P056516	MCPS Affordability Reconciliation	Additional affordability adjustments needed due to reduced recordation tax estimates.	(31,500)	G.O. Bonds, State Aid
P661401	College Affordability Reconciliation	Additional affordability adjustments needed due to reduced recordation tax estimates.	(2,900)	G.O. Bonds
P871747	M-NCPPC Affordability Reconciliation	Additional affordability adjustments needed due to reduced recordation tax estimates.	(1,500)	G.O. Bonds

**Parking Lot Districts**

P508255	Parking Bethesda Facility Renovations	Increases in investment income will support additional renovations. Projects are also deferred from FY24 and FY25 to later years due to fiscal constraints.	853	Current Revenue: Parking - Bethesda
P508250	Parking Silver Spring Facility Renovations	Total costs was reduced due to fiscal constraints.	(2,239)	Current Revenue: Parking - Silver Spring

**Stormwater Management**

P809319	Facility Planning: Stormwater Management	Consolidates monitoring costs in the CIP which also relieves operating budget pressure related to the debt service coverage ratio.	3,890	Current Revenue: Water Quality Protection
P802202	Flood Control Study	Adds Phase II work which will include modelling of specific watersheds.	2,800	Intergovernmental, Current Revenue: Water Quality Protection

**FY 23-28 Biennial Recommended CIP  
Budget Amendments Summary (\$000s) - Round 1**

Project #	Project Name	Explanation of Adjustment	FY23-28 Change (\$000s)		Funding Sources
P801710	Wheaton Regional Dam Flooding Mitigation	State Aid was increased to reflect the award of a \$96,000 grant, with an offsetting reduction of Water Quality Protection Bonds. In addition, the schedule was updated to reflect a delay in the start of construction.	0	0	State Aid, Water Quality Protection Bonds
<b>Technical Adjustments</b>					
P5009651	FiberNet	Funding switch from Current Revenue: Cable TV to Current Revenue: General Fund due to reduced Cable Fund fees. Fee reductions are due to customers switching from cable to streaming services.	0	0	Current Revenue: General, Current Revenue: Cable TV
P500914	Residential and Rural Road Rehabilitation	Funding switch between GO Bonds and land sale proceeds.	0	0	G.O. Bonds, Land Sale
P500511	Resurfacing: Residential/Rural Roads	Funding switch between land sale proceeds and GO Bonds.	0	0	G.O. Bonds, Land Sale
P508182	Sidewalk and Curb Replacement	Funding switch between land sale proceeds and GO Bonds.	0	0	G.O. Bonds, Land Sale
P501404	MCG Reconciliation PDF	Reflects updated recordation tax premium revenue estimates with offsetting funding switches. Reflects schedule adjustments for available prior year impact tax receipts.	0	0	G.O. Bonds, Impact Tax, Recordation Tax Premium (MCG)
P766995	Roof Replacement: MCPS	Funding switch between State Aid and GO Bonds to update the State Aid assumption for this project.	0	0	G.O. Bonds, State Aid
P076510	MCPS Funding Reconciliation	Reflects updated recordation tax revenue estimates with offsetting funding switches as well as other small adjustments in the prior to the 6 year-period to correct the FY22 allocation of actuals.	0	0	G.O. Bonds, Recordation Tax



# Facility Planning: Stormwater Management (P809319)

<b>Category</b>	Conservation of Natural Resources	<b>Date Last Modified</b>	03/14/23
<b>SubCategory</b>	Stormwater Management	<b>Administering Agency</b>	Environmental Protection
<b>Planning Area</b>	Countywide	<b>Status</b>	Ongoing

	Total	Thru FY22	Rem FY22	Total 6 Years	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	Beyond 6 Years
<b>EXPENDITURE SCHEDULE (\$000s)</b>											
Planning, Design and Supervision	25,765	15,064	404	10,297	1,018	1,815	1,835	1,855	1,876	1,898	-
Construction	20	20	-	-	-	-	-	-	-	-	-
Other	448	448	-	-	-	-	-	-	-	-	-
<b>TOTAL EXPENDITURES</b>	<b>26,233</b>	<b>15,532</b>	<b>404</b>	<b>10,297</b>	<b>1,018</b>	<b>1,815</b>	<b>1,835</b>	<b>1,855</b>	<b>1,876</b>	<b>1,898</b>	<b>-</b>

<b>FUNDING SCHEDULE (\$000s)</b>											
Current Revenue: General	5,000	5,000	-	-	-	-	-	-	-	-	-
Current Revenue: Water Quality Protection	18,803	9,395	311	9,097	818	1,615	1,635	1,655	1,676	1,698	-
Intergovernmental	68	-	68	-	-	-	-	-	-	-	-
State Aid	140	140	-	-	-	-	-	-	-	-	-
Stormwater Management Waiver Fees	2,222	997	25	1,200	200	200	200	200	200	200	-
<b>TOTAL FUNDING SOURCES</b>	<b>26,233</b>	<b>15,532</b>	<b>404</b>	<b>10,297</b>	<b>1,018</b>	<b>1,815</b>	<b>1,835</b>	<b>1,855</b>	<b>1,876</b>	<b>1,898</b>	<b>-</b>

<b>APPROPRIATION AND EXPENDITURE DATA (\$000s)</b>			
Appropriation FY 24 Request	1,815	Year First Appropriation	FY93
Cumulative Appropriation	16,954	Last FY's Cost Estimate	22,343
Expenditure / Encumbrances	15,868		
Unencumbered Balance	1,086		

## PROJECT DESCRIPTION

This project provides for facility planning, Municipal Separate Storm Sewer System (MS4) Permit program implementation and water quality monitoring, watershed assessments, and Total Maximum Daily Load (TMDL) Implementation Planning to evaluate watershed conditions, stream health, water quality, and pollution sources to assist with the planning and programming of restoration projects for stormwater management, stormwater retrofit, Environmental Site Design (ESD)/Low Impact Development (LID), stream restoration projects, tree planting and reforestation, and other alternative best management practices. This project supports the regulatory requirements in the MS4 permit for water quality improvements through management programs, stormwater restoration, TMDL implementation planning, and assessment of controls. Watershed assessment plans are developed to comprehensively understand the changes that have taken place in the County's watersheds, to evaluate the current understanding of watershed conditions, and are used to support the planning to identify potential restoration opportunities for in the County's current and future MS4 Permit. The project also provides for development of the annual Comprehensive TMDL Implementation Plan required by the MS4 permit. The plan lays out the County's progress toward reducing pollutants through past, current, and future planned restoration projects and is used to support the planning to identify potential pollutant reductions from potential restoration opportunities. Restoration projects are implemented in the Stormwater Management Retrofit Countywide project (No. 808726). Facility planning represents planning, monitoring, and programming to support concept and project opportunities in advance of full programming of a restoration project for stormwater management, stormwater retrofit, ESD/LID, stream restoration projects.

## COST CHANGE

In FY24, there was a shift of \$778,000 from the operating budget to Current Revenue: WQP in this PDF to consolidate stream monitoring and gauge costs in the capital budget while also relieving debt service coverage ratio pressure in the operating budget.

## PROJECT JUSTIFICATION

The facility planning products support the requirements outlined in the County's MS4 Permit. This project establishes the facilities planning data and opportunities and alternatives analysis needed to identify and set priorities for individual capital projects. Facility planning costs for projects which are ultimately included in stand-alone Project Description Forms (PDFs) are reflected here and not in the resulting individual project. Future individual CIP projects which result from facility planning will reflect reduced planning and design costs.

## FISCAL NOTE

In FY23, \$200,000 in Stormwater Management Waiver Fees was transferred to Stormwater Management: Countywide (P808726). FY21 supplemental in Intergovernmental for the amount of \$67,509. Expenditures in the outyears include expected costs to meet the requirements of the County's current MS4 permit, effective November 5, 2021 to November 4, 2026.

## DISCLOSURES

Expenditures will continue indefinitely. The County Executive asserts that this project conforms to the requirement of relevant local plans, as required by the



**COORDINATION**

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Maryland-National Capital Park and Planning Commission, U. S. Army Corps of Engineers, Washington Suburban Sanitary Commission, Department of Transportation, Montgomery County Public Schools, Stormwater Management Retrofit Countywide (No. 808726).



# Flood Control Study

## (P802202)

<b>Category</b>	Conservation of Natural Resources	<b>Date Last Modified</b>	02/23/23
<b>SubCategory</b>	Stormwater Management	<b>Administering Agency</b>	Environmental Protection
<b>Planning Area</b>	Countywide	<b>Status</b>	Planning Stage

Total	Thru FY22	Rem FY22	Total 6 Years	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	Beyond 6 Years
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### EXPENDITURE SCHEDULE (\$000s)

Planning, Design and Supervision	4,100	-	100	4,000	1,200	1,900	900	-	-	-	-
<b>TOTAL EXPENDITURES</b>	<b>4,100</b>	<b>-</b>	<b>100</b>	<b>4,000</b>	<b>1,200</b>	<b>1,900</b>	<b>900</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

### FUNDING SCHEDULE (\$000s)

Current Revenue: General	1,300	-	100	1,200	1,200	-	-	-	-	-	-
Current Revenue: Water Quality Protection	2,500	-	-	2,500	-	1,700	800	-	-	-	-
Intergovernmental	300	-	-	300	-	200	100	-	-	-	-
<b>TOTAL FUNDING SOURCES</b>	<b>4,100</b>	<b>-</b>	<b>100</b>	<b>4,000</b>	<b>1,200</b>	<b>1,900</b>	<b>900</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

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

Appropriation FY 24 Request	1,900	Year First Appropriation	FY22
Cumulative Appropriation	1,300	Last FY's Cost Estimate	1,300
Expenditure / Encumbrances	-		
Unencumbered Balance	1,300		

## PROJECT DESCRIPTION

This project concerns the development of a Comprehensive Flood Management Plan (CFMP) for Montgomery County.

The CFPM will improve the County's ability to address flooding based on scientific and engineering data and a comprehensive, coordinated approach to identify potentially affected residents and businesses, particularly underserved communities and businesses that are least prepared to respond to and recover from flooding events. The CFPM will, among other things:

- gather data on historic flooding in the County, including input from affected communities;
- examine the potential impacts of climate change and other significant factors that can cause flooding in the County, including the effect of updated rainfall predictions
- provide recommendations for regulatory, policy, and organizational changes necessary for the County to comprehensively plan for, respond to, and recover from flooding events; and
- include detailed hydrologic and hydraulic modeling, vulnerability assessments, and the development of adaptation/mitigation design plans.

Typical tasks in the development of specific watershed/sub-watershed assessments may include evaluations of current risk, future risk due to climate change, and assessment of risk due to aging assets. More specifically, the effort will include identifying areas at risk of flooding, quantifying that risk, developing mitigation alternatives, and conducting cost-benefit analyses, including evaluation of impacts to disadvantaged communities. Additional results may include development of prioritized CIP projects and implementation schedules. The level of detail and budget required to accomplish these tasks will vary by watershed. There are 8 major watersheds and almost 150 smaller watersheds in the County.

This study will complement the state's efforts under Stormwater Management Law, Environment Article 4-201.1, which requires the Maryland Department of the Environment (MDE) to report on the most recent precipitation data available, investigate flooding events since 2000, and update Maryland's stormwater quantity management standards for flood control.

## ESTIMATED SCHEDULE

Phase 1 will identify watersheds that should be prioritized for initial assessments and provide recommendations related to County programs, policies, budgets, and other components of the County's flood management programs is expected to be completed in early 2023. Modeling of specific watersheds, which is the key component of Phase 2 of the CFMP, will begin in early 2023.

## COST CHANGE

Increase to reflect costs for Phase 2 work.

## PROJECT JUSTIFICATION

Flooding incidents in Montgomery County have been increasing in frequency and severity for several years. The built environment also affects flooding. An April 2021 report from the Office of Legislative Oversight (OLO) identified an upward trend of urban flooding in the County, from two to four occurrences a year before

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2010 to 11 to 39 occurrences per-year since 2010, and the severity has increased in terms of property damage and loss of life. According to the U.S. Environmental Protection Agency, precipitation in Maryland has increased by about 5 percent in the last century but precipitation from extremely heavy storms has increased in the eastern United States by more than 25 percent since 1958.

To determine the best way to address flooding problems, the County needs a systematic watershed and subwatershed-based analysis of flooding and the impact of increased rainfall in the County due to climate changes and other significant contributing factors.

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**FISCAL NOTE**

In addition to County support, the Department of Environmental Protection will pursue outside funding to fund these efforts. FY22 supplemental in Current Revenue: General for the amount of \$1,300,000.

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**COORDINATION**

Department of Permitting Services, Office of Emergency Management and Homeland Security, Department of Transportation, Montgomery County Fire and Rescue Service, Maryland-National Capital Park and Planning Commission, Maryland Department of the Environment; United States Army Corps of Engineers



# Wheaton Regional Dam Flooding Mitigation (P801710)

<b>Category</b>	Conservation of Natural Resources	<b>Date Last Modified</b>	03/13/23
<b>SubCategory</b>	Stormwater Management	<b>Administering Agency</b>	Environmental Protection
<b>Planning Area</b>	Kensington-Wheaton	<b>Status</b>	Planning Stage

	Total	Thru FY22	Rem FY22	Total 6 Years	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	Beyond 6 Years
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### EXPENDITURE SCHEDULE (\$000s)

Planning, Design and Supervision	1,276	741	256	279	69	90	120	-	-	-	-
Construction	3,500	-	-	3,500	-	1,750	1,750	-	-	-	-
<b>TOTAL EXPENDITURES</b>	<b>4,776</b>	<b>741</b>	<b>256</b>	<b>3,779</b>	<b>69</b>	<b>1,840</b>	<b>1,870</b>	-	-	-	-

### FUNDING SCHEDULE (\$000s)

Current Revenue: Water Quality Protection	628	628	-	-	-	-	-	-	-	-	-
Long-Term Financing	369	113	256	-	-	-	-	-	-	-	-
State Aid	96	-	-	96	-	-	96	-	-	-	-
Water Quality Protection Bonds	3,683	-	-	3,683	69	1,840	1,774	-	-	-	-
<b>TOTAL FUNDING SOURCES</b>	<b>4,776</b>	<b>741</b>	<b>256</b>	<b>3,779</b>	<b>69</b>	<b>1,840</b>	<b>1,870</b>	-	-	-	-

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

Appropriation FY 24 Request	-	Year First Appropriation	FY16
Cumulative Appropriation	4,776	Last FY's Cost Estimate	4,776
Expenditure / Encumbrances	912		
Unencumbered Balance	3,864		

### PROJECT DESCRIPTION

This flood mitigation project, located along Glenhaven Drive and Dennis Avenue in Wheaton, will excavate and expand the stream channel upstream of the Wheaton Regional Pond and modify the pond's riser structure. This project will be constructed in parallel with the Department of Transportation's (DOT) Dennis Avenue bridge replacement. The two projects will modify the current 100-year floodplain boundary just upstream of the pond. The post-project 100-year floodplain will not include the residential properties located in the current 100-year floodplain.

### ESTIMATED SCHEDULE

The riser modification and channel design began in FY18 with the riser repair construction expected to start in FY24 and conclude in FY25. The excavation of the channel will occur in coordination with DOT's culvert replacement in FY23 and FY24.

### PROJECT JUSTIFICATION

An engineering analysis by the Department of Environmental Protection indicates that the effect of the riser structure associated with the Wheaton Regional Pond, the Dennis Avenue Culvert, and an undersized stream channel along Glenhaven Drive, cumulatively, will cause flooding of roads and private property upstream of the pond during a 100-year storm event. Flooding of adjacent roads and private property has already occurred in 2006 and 2010.

### FISCAL NOTE

In FY24, State Aid increased \$96,000 to reflect a State grant for tree planting, with an offsetting reduction in Water Quality Protection bonds. Funding sources updated in FY23 to include Water Quality Protection Fund bonds in FY23-FY28. The County intends for a portion of Long Term Financing in FY22 to also be paid for with Water Quality Protection Fund bonds. This project will be done in conjunction with the DOT Dennis Avenue bridge replacement project (P501701).

### DISCLOSURES

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

Department of Transportation, Federal Emergency Management Agency, Maryland Emergency Management Agency, and Dennis Ave Bridge M-0194 Replacement (No. 501701).



# Development of a Comprehensive Flood Management Plan for Montgomery County, Maryland



# Agenda



- Why do we need a Comprehensive Flood Management Plan (CFMP)?
- Background on flooding and what causes it
- Why flooding risk has increased
- What is the CFMP?
- Q&A

# Why do we need a Comprehensive Flood Management Plan (CFMP)?





# Why do we need a CFMP?





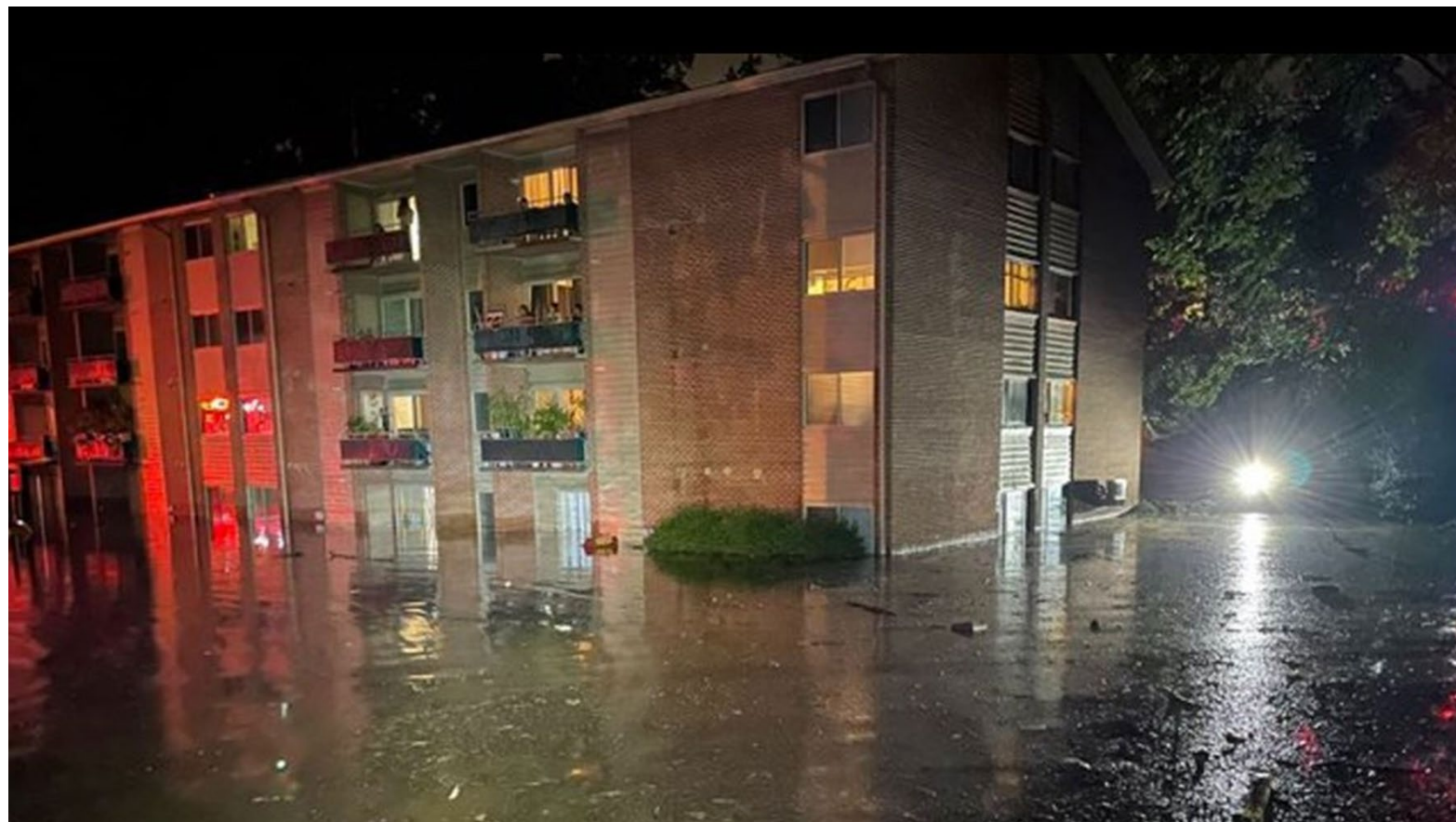
# Why do we need a CFMP?



# Why do we need a CFMP?



# Why do we need a CFMP?



# Flooding Basics



# Need for Terminology Clarification



- Definition of flooding
- Quality control / quantity control
- Green infrastructure / grey infrastructure
- Stormwater management, stormwater drainage, flood mitigation



# Background on Flooding

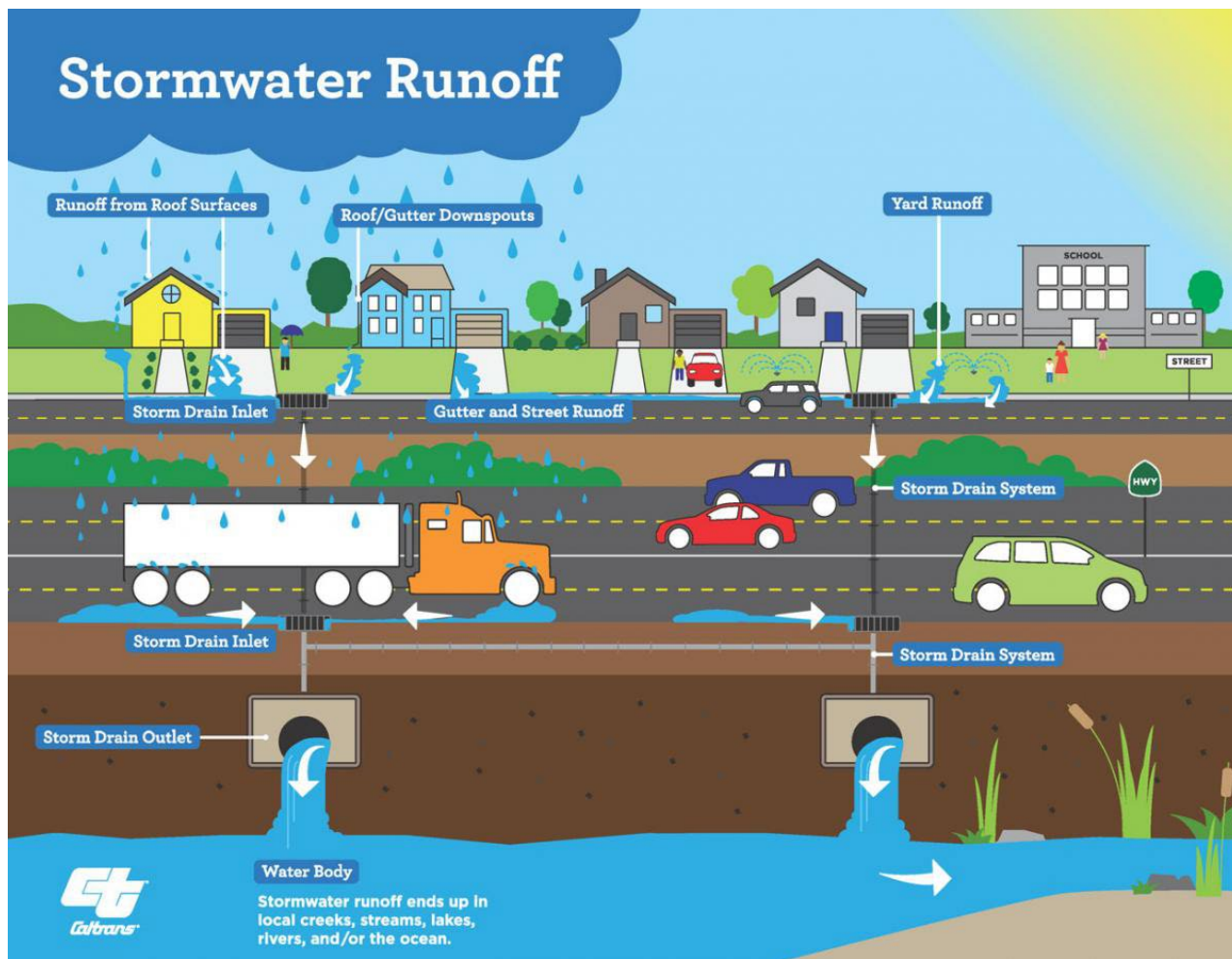


Image Source: California Department of Transportation (CalTrans)

# Background on Flooding

## Fluvial / Riverine

Precipitation creates flows that overtop stream/river channels



## Pluvial / Urban

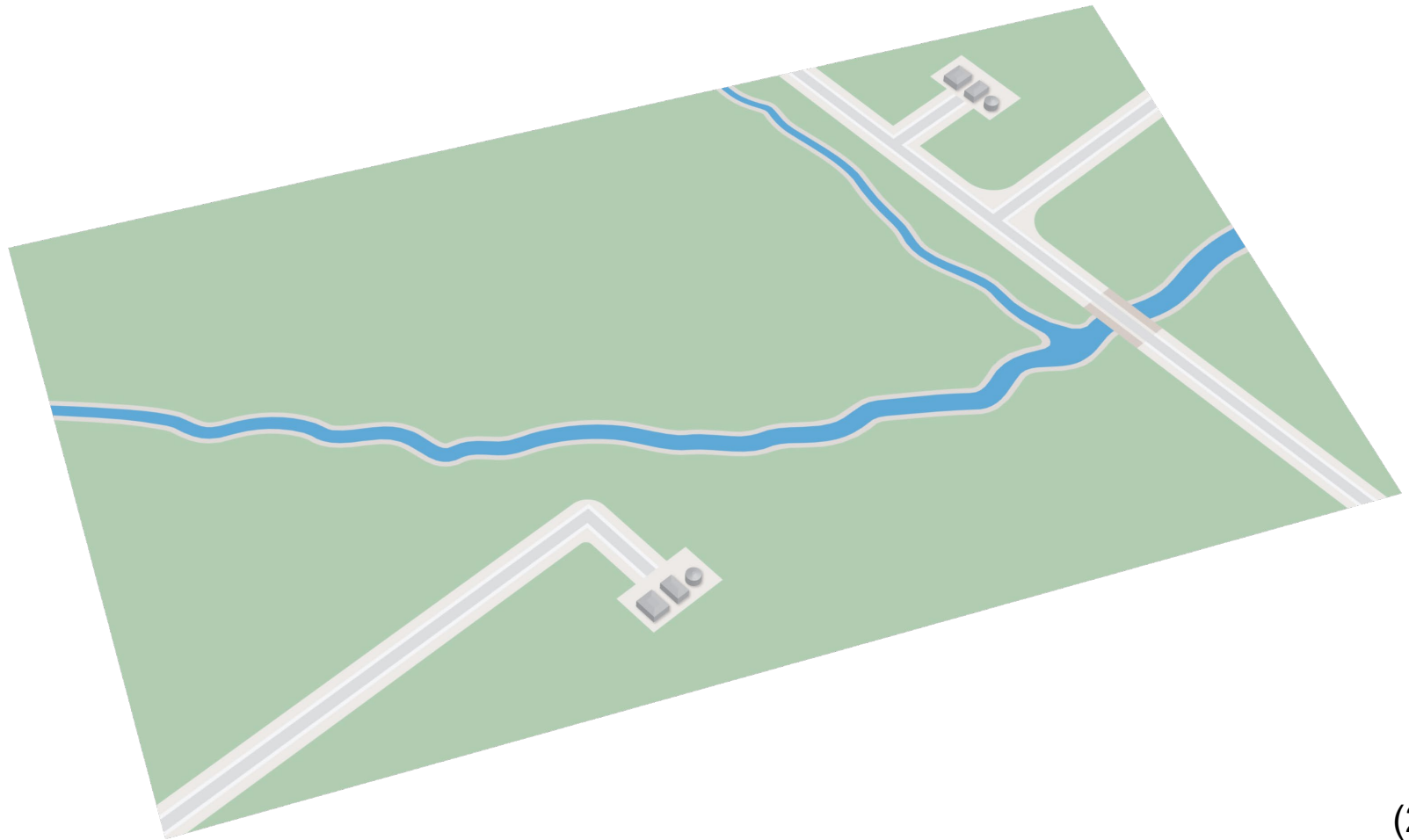
Precipitation exceeds capacity of local drainage infrastructure





# Background on Flooding

## Pre-Development

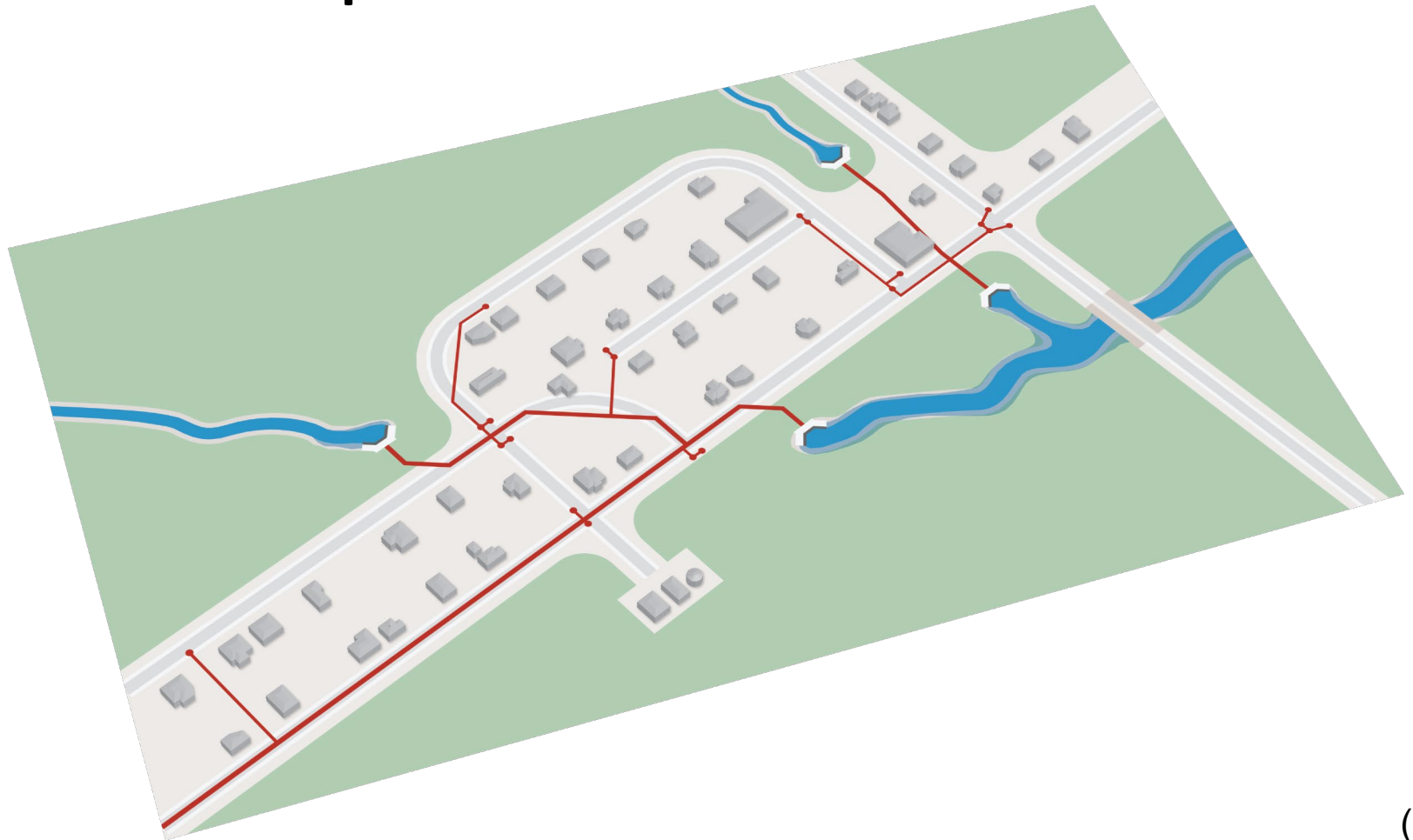






# Background on Flooding

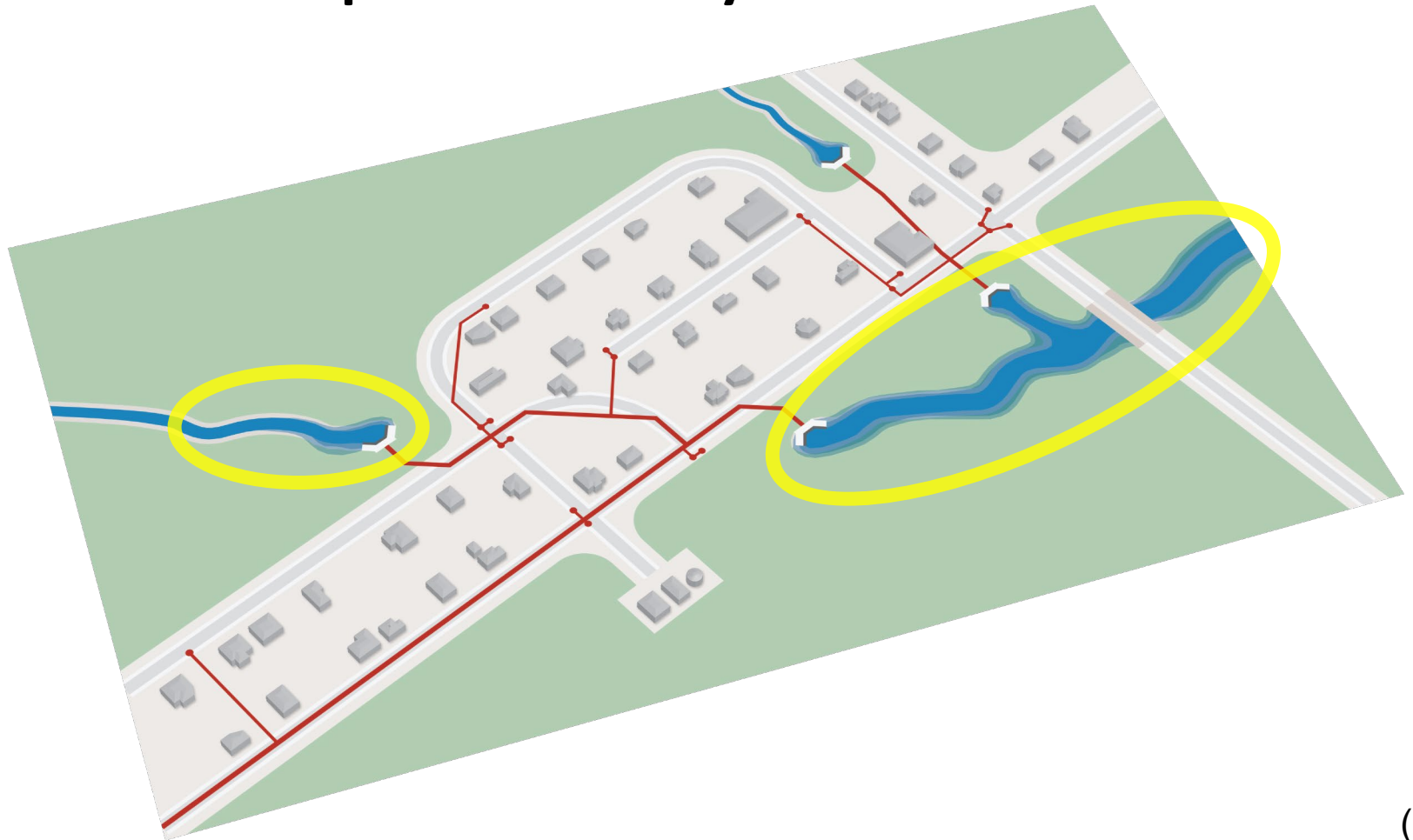
## Initial Development



# Background on Flooding



## Initial Development – Heavy Rainfall





# Background on Flooding

## Intense Development



# Background on Flooding

## Intense Development – Heavy Rainfall

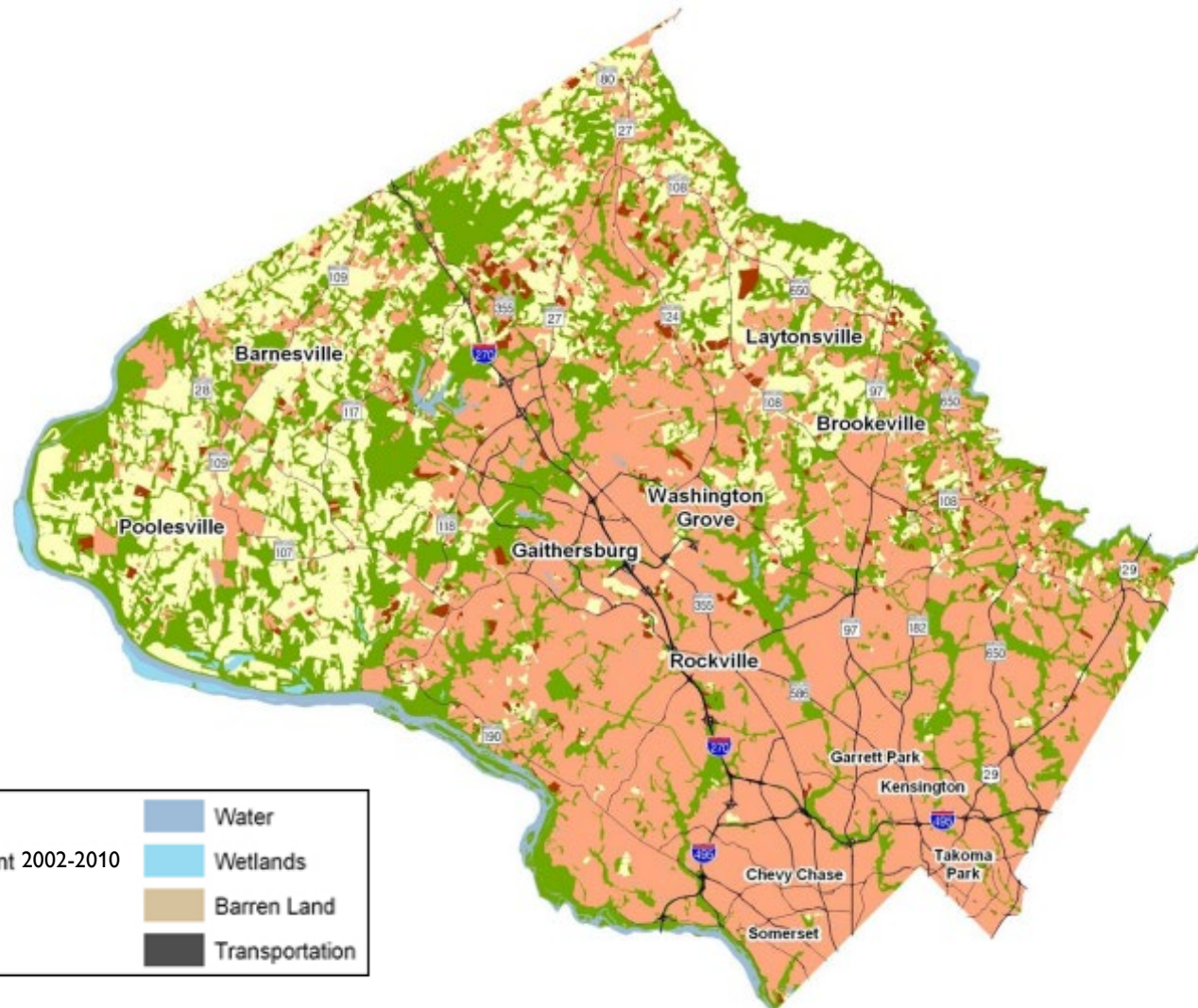


Why is flood risk increasing?





# Changes in Flood Risk – Urbanization



Developed Land	Water
New Development 2002-2010	Wetlands
Agriculture	Barren Land
Forest	Transportation

Source: Maryland Department of Planning

# Changes in Flood Risk – Aging Infrastructure



The Washington Post  
*Democracy Dies in Darkness*

TRANSPORTATION

## I-270 sinkhole work could last weeks during drainage pipe repairs

By Justin George  
June 21, 2022 at 5:45 p.m. EDT

Listen 3 min   Comment 12   Save   Gift Article   Share

Maryam Shahzad  
@maryam\_mcm · Follow

The sinkhole on I-270 from the Muddy Branch Road overpass. @mymcmedia

Watch on Twitter

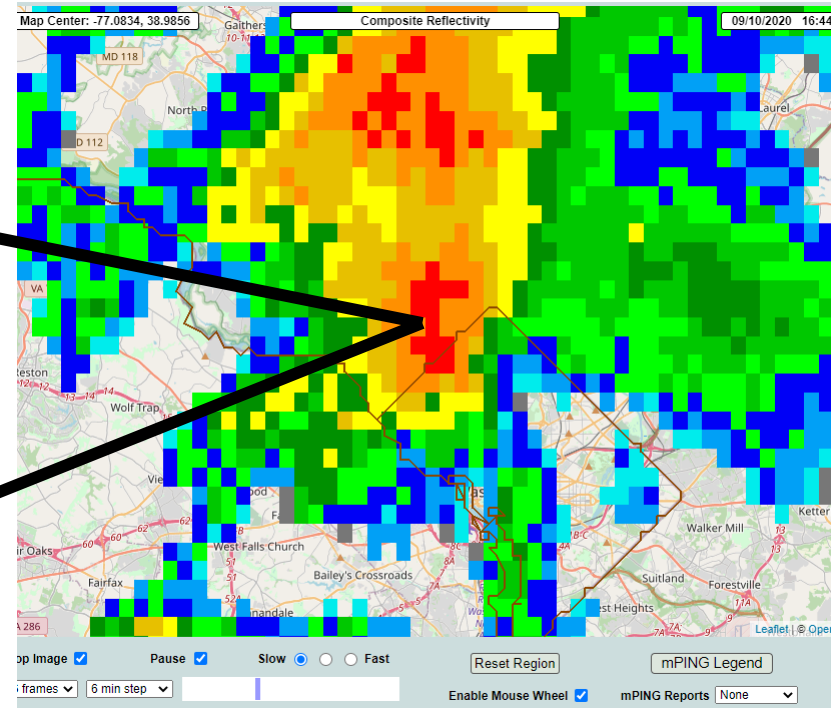
Image sources: MoCo Show, Washington Post



# Changes in Flood Risk – More Intense Storms



**High-intensity events exceeding storm drain inlet capacity result in localized flooding impacts**



*Weather radar showing cumulative 3-hour rainfall for the September 10, 2020 storm cell—a high-intensity short-duration event, with rain intensities as high as 10 inches per hour for 1 to 3 hours in some areas.*

Source: NOAA Multi-Radar Multi-Sensor (MRMS) Operational Product Viewer



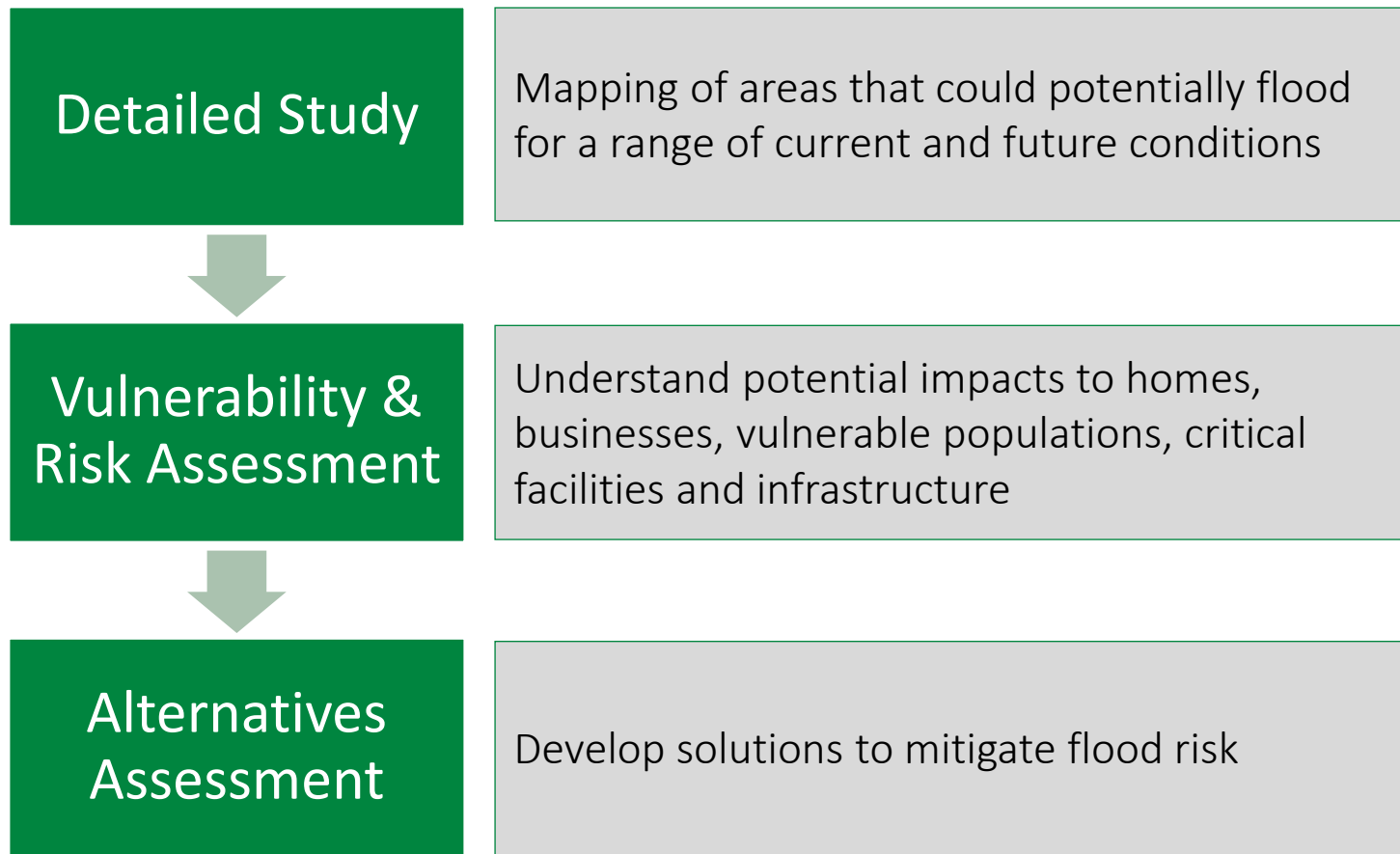
# The Comprehensive Flood Management Plan



# Comprehensive Flood Management Plan



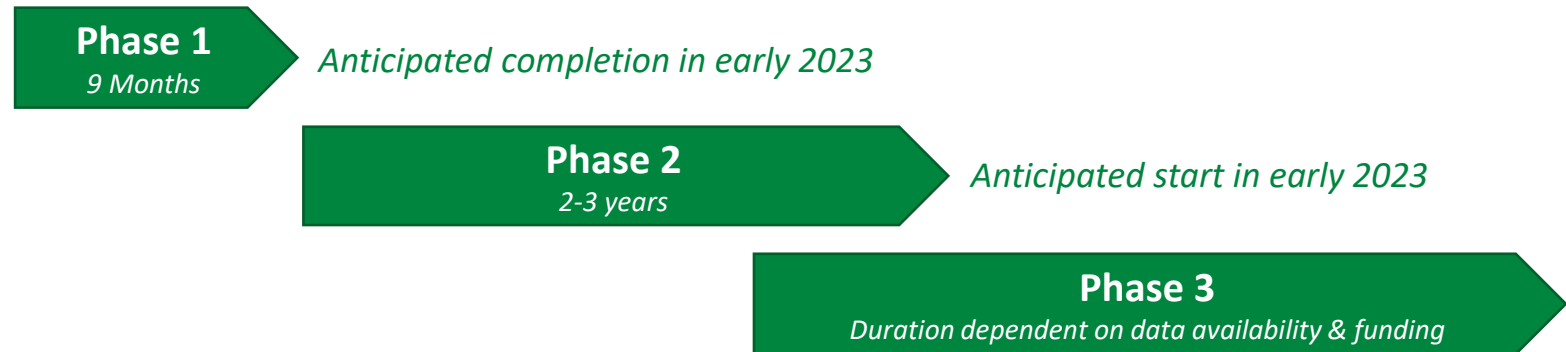
The Comprehensive Flood Management Plan (CFMP) will develop solutions to flooding based on an understanding of current and future flood risk.





# Comprehensive Flood Management Plan

- Phase 1: Understand current organizational approach to flooding and identify recommended changes
- Phase 2: Detailed studies including flooding risk assessment, vulnerability analysis, and preliminary alternatives analysis
- Phase 3: Implementation of flood mitigation alternatives



# Comprehensive Flood Management Plan

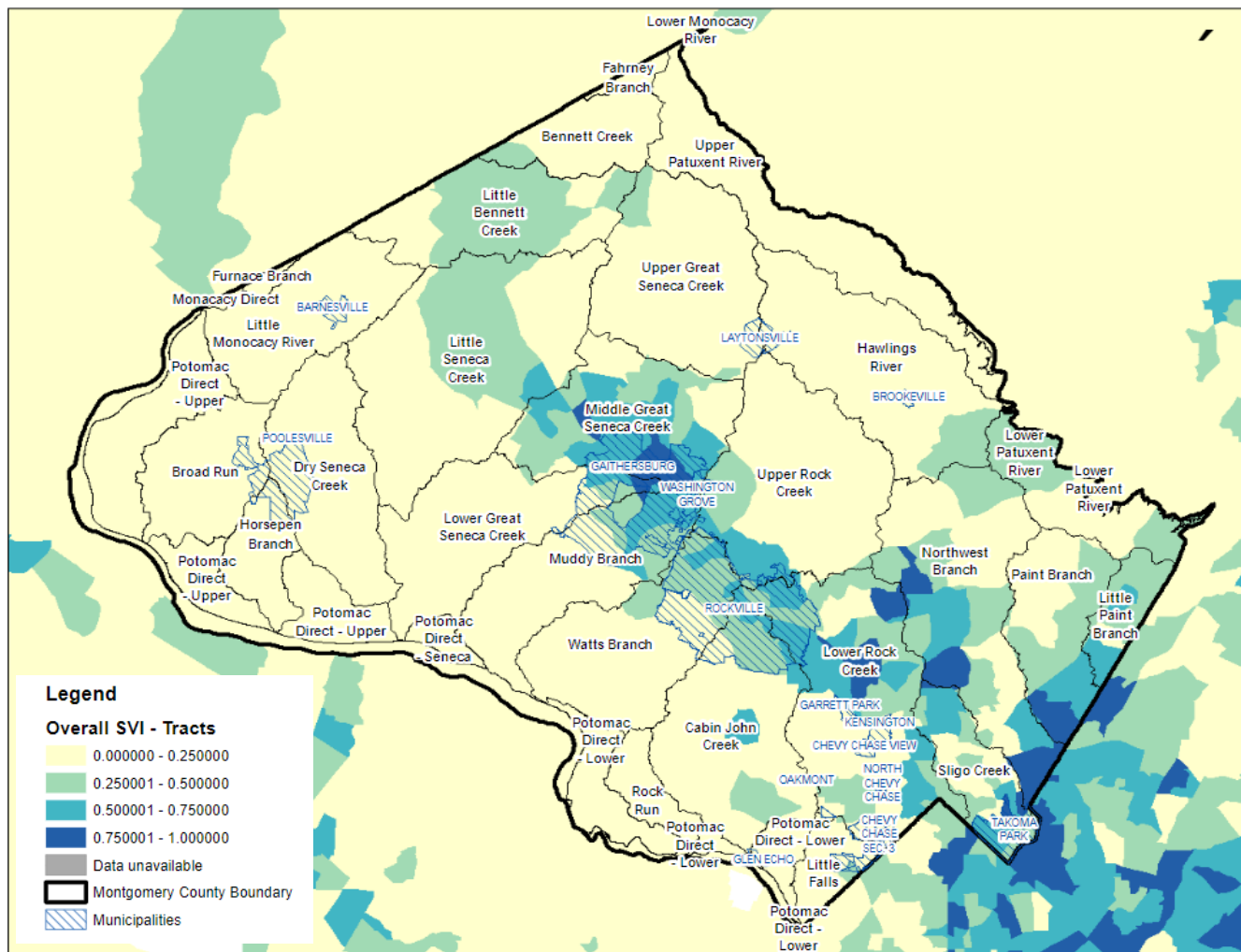


The Comprehensive Flood Management Plan (CFMP) will also focus on a variety of other issues related to flooding:

- Governance – Roles and responsibilities related to flooding are well understood
- Design standards and building codes – Standards and codes are evaluated and revised as appropriate to reflect flood risk, and processes are in place to implement and enforce them
- Flood information – Flooding data is developed and maintained for internal processes (e.g., development review) and external communication (e.g., alerting residents to flood risks)
- Budget – Adequate funding is provided to understand and address flooding risks



# Comprehensive Flood Management Plan



# Comprehensive Flood Management Plan



Jurisdiction	Area <sup>1</sup> (sq. mi.)	Population <sup>1</sup> (July 2021 est)	Capital Program
City of Alexandria	15	155,000	FY22 - FY31 <sup>2</sup> \$170 million, 11 projects
Arlington County	26	233,000	FY23 - FY32 <sup>3</sup> \$229 million, 16 projects
Montgomery County	493	1,055,000	???

[1] <https://www.census.gov/quickfacts/fact/table/US/PST045222>

[2] <https://www.alexandriava.gov/stormwater-management/storm-sewer-capacity-projects>

[3] <https://www.arlingtonva.us/files/sharedassets/public/budget/documents/cip-webpage/1.-cip-final/stormwater/3.-stormwater-management-stormwater-infrastructure-capacity-improvements.pdf>

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