Introduced 9/4/18
Public Hearing 9/17/18
Council Action 10/1/18
Executive Action 10/9/18
Effective Date 10/9/18

County Council of Howard County, Maryland

2018 Legislative Session

Legislative Day No. 12

Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

Introduced by: The Chairperson at the request of the County Executive

AN ACT to assist in the implementation of the Ellicott City flood mitigation plan by transferring a total of ~~$15,759,000~~15,981,000 to Capital Project C0337, Ellicott City Improvements and Enhancements, and a total of $1,000,000 to Capital Project D1175, Valley Mede/Chatham Flood Mitigation, from various capital projects in the Fiscal Year 2019 Capital Budget.

Introduced and read first time September 4, 2018. Ordered posted and hearing scheduled.

By order Jessica Feldmark
Jessica Feldmark, Administrator

Having been posted and notice of time & place of hearing & title of Bill having been published according to Charter, the Bill was read for a second time at a public hearing on September 17, 2018.

By order Jessica Feldmark
Jessica Feldmark, Administrator

This Bill was read the third time on October 1, 2018 and Passed ___, Passed with amendments ✓, Failed _____.

By order Jessica Feldmark
Jessica Feldmark, Administrator

Sealed with the County Seal and presented to the County Executive for approval this 4th day of October, 2018 at 3 a.m./p.m.

By order Jessica Feldmark
Jessica Feldmark, Administrator

Approved/Vetoed by the County Executive Oct 9, 2018

Allan H. Kittleman
Allan H. Kittleman, County Executive

NOTE: [[text in brackets]] indicates deletions from existing law; TEXT IN SMALL CAPITALS indicates additions to existing law; ~~Strike-out~~ indicates material deleted by amendment; Underlining indicates material added by amendment.

WHEREAS, as a result of the destructive flooding that occurred in Historic Ellicott City and Valley Mede in 2016 and 2018, the County recognizes that significant changes need to be made in those areas in order to protect life, health and property; and

WHEREAS, the County intends to implement the Ellicott City flood mitigation plan ("Plan") which will result in the ~~demolition and construction~~ acquisition, removal, relocation, deconstruction, or demolition of some of the structures in both Historic Ellicott City and Valley Mede; and

WHEREAS, in order to implement the Plan, funding needs to be transferred to Capital Project C0337, Ellicott City Improvements and Enhancements, and to Capital Project D1175, Valley Mede/Chatham Flood Mitigation; and

WHEREAS, the County expects to receive a grant from the State for road resurfacing in the amount of ~~$1,734,000~~ $1,741,000, for which there is already $750,000 in spending authority in the Fiscal Year 2019 Capital Budget; and

WHEREAS, in order to transfer all of the spending authority enabled by the State grant, the County will transfer ~~$984,000~~$1,206,000 from prior Fiscal Year appropriation in C0214, Category Contingency Fund, to C0337, Ellicott City Improvements and Enhancements; and

WHEREAS, appropriation is available from prior Fiscal Year appropriation in Capital Projects F5975, Route One Fire Station, and N3973, East Columbia Library Athletic Field and Site Improvements, because the County is still in negotiations to acquire some or all of the land necessary for those projects; and

WHEREAS, appropriation is available from Capital Projects C0301, Technology Infrastructure Upgrades, because the County has chosen to defer and reprioritize certain projects; and

WHEREAS, Section 609(b) of the Howard County Charter authorizes and empowers the County to make such transfers; and

WHEREAS, the County has indicated that the funds are available for transfer from the respective projects.

Section 1. Be It Enacted *by the County Council of Howard County, Maryland, that, subject to the provisions of Maryland law, the Howard County Charter, and the Howard County Code relating to the budgetary and fiscal procedures, the amount hereafter specified is hereby approved, appropriated, and authorized to be disbursed for the general County purposes specified and in sums itemized for the fiscal year beginning July 1, 2018 and ending June 30, 2019, as hereinafter indicated:*

Donor Projects:

C0214	**Category Contingency Fund**		
	Appropriation Fiscal Year 2019 before transfer	$0	
	Less amount transferred to C0337	(~~$984,000~~ $1,206,000)	(G)
	Appropriation Fiscal Year 2019 after transfer	(~~$984,000~~ $1,206,000)	
C0301	**Technology Infrastructure Upgrades**		
	Appropriation Fiscal Year 2019 before transfer	$ 2,500,000	
	Less amount transferred to C0337	($1,100,000)	(B)
	Appropriation Fiscal Year 2019 after transfer	$1,400,000	
F5975	**Route One Fire Station**		
	Appropriation Fiscal Year 2019 before transfer	$ 0	
	Less amount transferred to C0337	($9,975,000)	(B)
	Less amount transferred to D1175	($1,000,000)	(B)
	Appropriation Fiscal Year 2019 after transfer	($10,975,000)	
N3973	**East Columbia Library Athletic Field and Site Improvements**		
	Appropriation Fiscal Year 2019 before transfer	$0	
	Less amount transferred to C0337	($3,700,000)	(B)

	Appropriation Fiscal Year 2019 after transfer		($3,700,000)	

Recipient Projects:

C0337	**Ellicott City Improvements and Enhancements**			
	Appropriation Fiscal Year 2019 before transfer		$1,415,000	
	Plus amount transferred from C0214	~~$984,000~~	$1,206,000	(G)
	Plus amount transferred from C0301		$1,100,000	(B)
	Plus amount transferred from F5975		$9,975,000	(B)
	Plus amount transferred from N3973		$3,700,000	(B)
	Appropriation Fiscal Year 2019 after transfer	~~$17,174,000~~	$17,396,000	

D1175	**Valley Mede/Chatham Flood Mitigation**		
	Appropriation Fiscal Year 2019 before transfer	$500,000	
	Plus amount transferred from F5975	$1,000,000	(B)
	Appropriation Fiscal Year 2019 after transfer	$1,500,000	

Section 2. And Be It Further Enacted *by the County Council of Howard County, Maryland that, in order to incorporate the changes made in this Act, the Detail Pages for Capital Projects C0301, F5975, N3973, C0214, C0337 and D1175 shall be amended as shown ~~in red~~ in the attached amended Detail Pages.*

Section 3. And Be It Further Enacted *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference including the Capital Budget Detail pages, all subtotals, totals, and other calculated figures shall be corrected to accommodate amendments to this Act.*

Section 4. And Be It Further Enacted *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference, no funds shall be used to demolish historic properties until the historic buildings slated for removal as part of the 2018 Flood Mitigation Plan are evaluated by the Ellicott City Historic Structures Review Committee created by Executive Order 2018-16 to determine if the building, façade, or other historical elements are suitable to be deconstructed and properly stored for incorporation in the 2018 Flood Mitigation Plan area redevelopment efforts.*

Section 5. And Be It Further Enacted *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference, no funds shall be used to demolish historic structures in the 2018 Flood Mitigation Plan area until a Section 106 of the National Historic Preservation Act review, as required by Federal law and defined in the Department of Interior Standards, is conducted.*

~~***Section 4.***~~ ***Section 6. And Be It Further Enacted*** *by the County Council of Howard County, Maryland that this Act shall be effective immediately upon its enactment.*

Fiscal 2019 Capital Budget

GENERAL COUNTY PROJECTS

Project: FY199- CATEGORY CONTINGENCY FUND

Number: C0214

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
CONSTRUCTION	68,658	~~0 (984)~~ (1,206)	~~68,658~~ ~~67,674~~ 67,452	10,000	0	10,000	0	10,000	30,000	0	10,000	0	0	~~108,658~~ ~~107,674~~ 107,452
OTHER	1,100	0	1,100	0	0	0	0	0	0	0	0	0	0	1,100
Total Expenditures	**69,758**	**~~0 (984)~~ (1,206)**	**~~69,758~~ ~~68,774~~ 68,552**	**10,000**	**0**	**10,000**	**0**	**10,000**	**30,000**	**0**	**10,000**	**0**	**0**	**~~109,758~~ ~~108,774~~ 108,552**
GRANTS	68,658	~~0 (984)~~ (1,206)	~~68,658~~ ~~67,674~~ 67,452	10,000	0	10,000	0	10,000	30,000	0	10,000	0	0	~~108,658~~ ~~107,674~~ 107,452
OTHER SOURCES	1,100	0	1,100	0	0	0	0	0	0	0	0	1	0	1,100
Total Funding	**69,758**	**~~0 (984)~~ (1,206)**	**~~69,758~~ ~~68,774~~ 68,552**	**10,000**	**0**	**10,000**	**0**	**10,000**	**30,000**	**0**	**10,000**	**0**	**0**	**~~109,758~~ ~~108,774~~ 108,552**

$0 spent and encumbered through February 2018
spent and encumbered through February 2017
Project Status :

FY 2018 Budget	70,500	0	**70,500**	10,000	0	10,000	0	10,000	**30,000**	0	10,000	0		**110,500**
Difference 2018 / 2019	(742)	0	**(742)**	0	0	0	0	0	**0**	0	0	0	0	**(742)**

TAO#1 - 2018 moves $742,000 Grant revenue to H2014.

TAO#1 -2019 MOVES $1,206,000 GRANT REVENUE TO C0337.

Fiscal 2019 Capital Budget

GENERAL COUNTY PROJECTS

Project: FY2005 TECHNOLOGY INFRASTRUCTURE UPGRADES

Number: C0301

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
PLANS & ENGINEERING	9,180	~~1,250~~ 700	~~10,430~~ 9,880	~~2,000~~ 2,550	2,500	2,000	2,000	2,000	~~10,500~~ 11,050	0	0	0	0	20,930
CONSTRUCTION	11,931	0	11,931	0	0	0	0	0	0	0	0	0	0	11,931
ADMINISTRATION	265	0	265	0	0	0	0	0	0	0	0	0	0	265
EQUIPMENT & FURNISHINGS	60	~~1,250~~ 700	~~1,310~~ 760	~~1,250~~ 1,800	0	0	0	0	~~1,250~~ 1,800	0	0	0	0	2,560
Total Expenditures	**21,436**	~~**2,500**~~ **1,400**	~~**23,936**~~ **22,836**	~~**3,250**~~ **4,350**	**2,500**	**2,000**	**2,000**	**2,000**	~~**11,750**~~ **12,850**	**0**	**0**	**0**	**0**	**35,686**
BONDS	20,551	~~2,500~~ 1,400	~~23,051~~ 21,951	~~3,250~~ 4,350	2,500	2,000	2,000	2,000	~~11,750~~ 12,850	0	0	0	0	34,801
PAY AS YOU GO	885	0	885	0	0	0	0	0	0	0	0	0	0	885
Total Funding	**21,436**	~~**2,500**~~ **1,400**	~~**23,936**~~ **22,836**	~~**3,250**~~ **4,350**	**2,500**	**2,000**	**2,000**	**2,000**	~~**11,750**~~ **12,850**	**0**	**0**	**0**	**0**	**35,686**

$18,627,623 spent and encumbered through February 2018
$16,088,583 spent and encumbered through February 2017

Project Status : FY 16 - WiFi and VOiP continue to be installed according to planned phased approach; equipment continues to be refreshed to ensure robust network. Cyber Security enhancements continue in order to strengthen the County`s network infrastructure.
FY 17 - Completed new intranet and internet sites for the County; continued the phased approach to installing WiFi and VOiP county-wide, refreshed and upgraded County network infrastructure as well as enhancements to Cyber Security to ensure robust and secure network.
FY 18 - Refreshed and upgraded County network infrastructure to ensure robust and secure network. Furthered the initiative to install WiFi and VOiP county-wide in a phased approach.

FY 2018 Budget	21,436	2,500	**23,936**	2,500	2,500	2,500	2,500	0	**10,000**	0	0	0	**33,936**
Difference 2018 / 2019	0	0	**0**	750	0	(500)	(500)	2,000	**1,750**	0	0	0	0	**1,750**

TAO#1-2019 MOVES $1,100,000 TO CO337.

Fiscal 2019 Capital Budget

Project: C0337-FY2014 ELLICOTT CITY IMPROVEMENTS and ENHANCEMENTS

GENERAL COUNTY PROJECTS

Number: C0337

Description

This is a project to provide a variety of repairs and improvements to public infrastructure and address other community improvements and to make improvements to the downtown and historic district of the Howard County Seat. This project may include land acquisition ~~AND STRUCTURE REMOVAL/RELOCATION~~; STRUCTURE REMOVAL, RELOCATION, DECONSTRUCTION, OR DEMOLITION; AND THE PRESERVATION OF KEY HISTORICAL ELEMENTS. THIS PROJECT WILL ADDRESS ~~for~~ water quality OR QUANTITY and drainage needs and other public improvements.

Justification

Community has requested improvements to the downtown Ellicott City area.

Remarks

1. A portion of current request represents funding to be generated from legislation CB-8 & CR21 for stormwater utility funding, known as Watershed Protection and Restoration fund.
2. Construction of some projects may be dependent upon donation of the necessary easements and/or resident cost share participation.
3. TAO #3 - 2014 current pending legislation will add $100,000 grant funding for Ellicott City Streetscape program.
4. Construction of some projects may be dependent on the donation of the necessary easements and/or property owner cost share participation.
5. OTHER SOURCES revenue represents homeowner contribution.
6. GRANT represents anticipated FEMA and State funding for Ellicott City.

Project Schedule

FY19 - Continue work to repair damage from July 2016 storm.

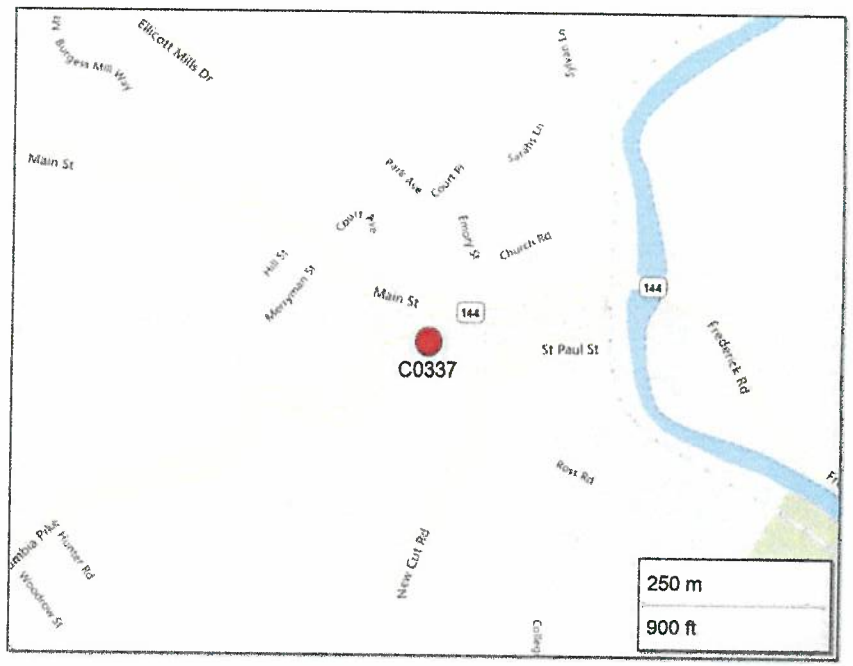
ACQUISITION AND ~~DEMOLITION~~ REMOVAL, RELOCATION, DECONSTRUCTION, OR DEMOLITION OF STRUCTURES IN LOWER MAIN STREET ELLICOTT CITY REPLACE/IMPROVE FAILED CULVERTS AND RECONSTRUCT ROADWAYS, AND DESIGN LOWER MAIN ~~RIVERWALK~~ OPEN SPACE AND HUDSON BEND STREAM CHANNEL EXPANSION.

FY20 – ACQUISITION AND ~~DEMOLITION~~ REMOVAL, RELOCATION, DECONSTRUCTION, OR DEMOLITION OF STRUCTURES IN UPPER MAIN STREET ELLICOTT CITY REPAIR NEW CUT ROAD SLOPE FAILURE, CONSTRUCT STORM DRAINS AND H7 AND QUAKER MILL FLOOD MITIGATION PONDS AND DESIGN MARYLAND AVENUE AND FREDERICK ROAD CULVERTS.

FY21 – HUDSON BEND STREAM CHANNEL EXPANSION AND MARYLAND AVENUE AND FREDERICK ROAD CULVERT CONSTRUCTION.

Operating Budget Impact

Annual Bond Redemption $ $76,500



FY22 – HUDSON BEND STREAM CHANNEL EXPANSION.

Fiscal 2019 Capital Budget

Project: FY2014 ELLICOTT CITY IMPROVEMENTS and ENHANCEMENTS

GENERAL COUNTY PROJECTS

Number: C0337

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
PLANS & ENGINEERING	500	~~0~~ 1,200	~~500~~ 1,700	~~0~~ 200	0	0	0	0	~~0~~ 200	0	0	0	0	~~500~~ 1,900
LAND ACQUISITION	1,000	~~0~~ ~~9,500~~ 9,900	~~1,000~~ ~~10,500~~ 10,900	~~0~~ 3,300	0	0	0	0	~~0~~ 3,300	0	0	0	0	~~1,000~~ ~~13,800~~ 14,200
CONSTRUCTION	2,875	~~1,415~~ ~~6,474~~ 6,296	~~4,290~~ ~~9,349~~ 9,171	~~0~~ 21,200	~~0~~ 12,800	~~0~~ 10,000	0	0	~~0~~ 44,000	0	0	0	0	~~4,290~~ ~~53,349~~ 53,171
Total Expenditures	**4,375**	~~**1,415**~~ ~~**17,174**~~ **17,396**	~~**5,790**~~ ~~**21,549**~~ **21,771**	**0** **24,700**	**0** **12,800**	**0** **10,000**	**0**	**0**	**0** **47,500**	**0**	**0**	**0**	**0**	**5,790** ~~**69,049**~~ **69,271**
BONDS	1,700	~~0~~ 14,775	~~1,700~~ 16,475	~~0~~ 20,200	~~0~~ 6,800	0	0	0	~~0~~ 27,000	0	0	0	0	~~1,700~~ 43,475
DEVELOPER CONTRIBUTION	0	165	165	0	0	0	0	0	0	0	0	0	0	165
GRANTS	170	~~1,250~~ ~~2,234~~ 2,456	~~1,420~~ ~~2,404~~ 2,626	~~0~~ 4,500	~~0~~ 6,000	~~0~~ 10,000	0	0	~~0~~ 20,500	0	0	0	0	~~1,420~~ ~~22,904~~ 23,126
OTHER SOURCES	5	0	5	0	0	0	0	0	0	0	0	0	0	5
PAY AS YOU GO	1,000	0	1,000	0	0	0	0	0	0	0	0	0	0	1,000
STORMWATER UTILTY FUNDING	1,500	0	1,500	0	0	0	0	0	0	0	0	0	0	1,500
Total Funding	**4,375**	~~**1,415**~~ ~~**17,174**~~ **17,396**	~~**5,790**~~ ~~**21,549**~~ **21,771**	**0** **24,700**	**0** **12,800**	**0** **10,000**	**0**	**0**	**0** **47,500**	**0**	**0**	**0**	**0**	**5,790** ~~**69,049**~~ **69,271**

$3,998,515 spent and encumbered through February 2018
$2,723,815 spent and encumbered through February 2017
Project Status : Performed design for Main St. crosswalk.
Performed concept design for Parking Lot F improvements.
Partial funding for Parking Lot E improvements.
Performed design for water quality bumpout on Ellicott Mills Drive.
Performed inspection of stream walls and began repairs of walls.
Repair walls at Court Ave, Tonge Row, Lot E northeast corner, Precious Gifts, and 84 inch Culvert.
Perform re-paving of Main Street
Perform design for Courthouse Drive roadway stabilization.

FY 2018 Budget	4,375	2,800	7,175	0	0	0	0	0	0	0	0	0		7,175
Difference 2018 / 2019	0	(1,385)	(1,385)	0	0	0	0	0	0	0	0	0	0	(1,385)

TAO#1-2019 TRANSFERS IN $15,981,000.

Project: D1175-FY-2018 VALLEY MEDE/CHATHAM FLOOD MITIGATION

Number: D1175

Description

This project is for the study, design and construction of flood mitigation and stormwater/waterway improvement efforts in the Valley Mede and Chatham subwatersheds. Projects may include drainage improvements, stormwater retrofits, flood control, stream improvements, ~~BUILDING~~ ACQUISITION AND REMOVAL OR DEMOLITION, and design of additional drainage facilities.

Justification

Valley Mede and Chatham subwatersheds have the potential to suffer significant flood damage.

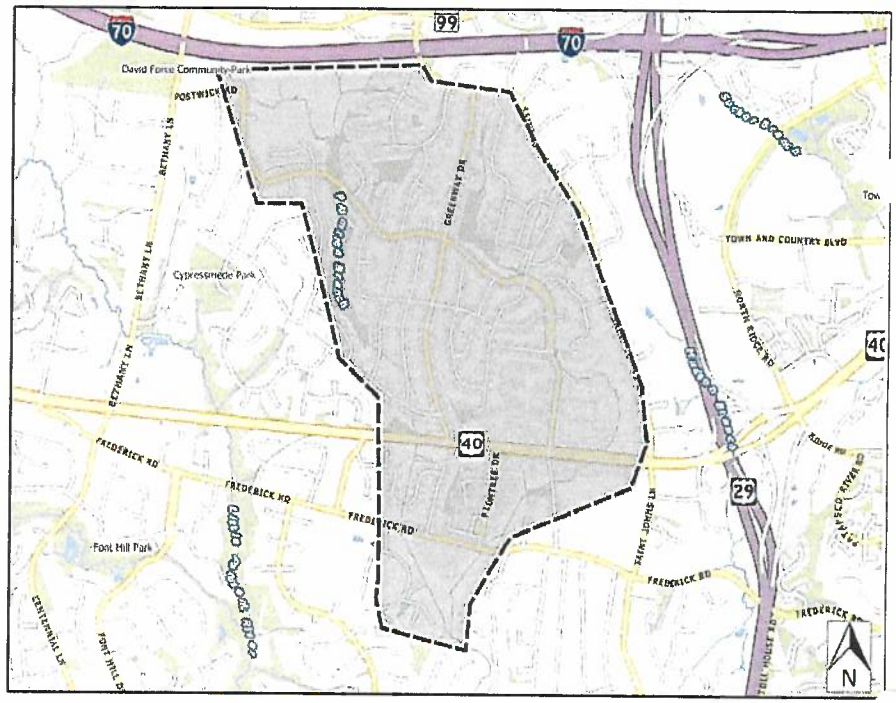
Remarks

1. Future years once projects cost/benefits ~~detrermined~~ DETERMINED, apply for FEMA grants;
2. OTHER SOURCES represents Stormwater Bonds backed by Watershed Protection and Restoration fund.
3. Construction of some projects may be dependent upon donation of the necessary easements and/or property owner cost share participation.

Project Schedule

FY19 - Begin design of projects identified in Plumtree/Little Plumtree study.

FY19 – BEGIN BUILDING ACQUISITION AND REMOVAL OR DEMOLITION OF THOSE IN THE MOST VULNERABLE FLOODING AREAS.



Fiscal 2019 Capital Budget

Project: FY-2018 VALLEY MEDE/CHATHAM FLOOD MITIGATION

DRAINAGE PROJECTS

Number: D1175

(In Thousands)				Five Year Capital Program						Master Plan				
Appropriation Object Class	**Prior Appr.**	**FY2019 Budget**	**Appr. Total**	**Fiscal 2020**	**Fiscal 2021**	**Fiscal 2022**	**Fiscal 2023**	**Fiscal 2024**	**Sub Total**	**Fiscal 2025**	**Fiscal 2026**	**Fiscal 2027**	**Fiscal 2028**	**Total Project**
PLANS & ENGINEERING	0	500	500	500	500	0	0	0	1,000	0	0	0	0	1,500
LAND ACQUISITION	0	1,000	1,000	3,500	0	0	0	0	3,500	0	0	0	0	4,500
CONSTRUCTION	700	0	700	~~3,000~~ 3,300	3,000	0	0	0	~~6,000~~ 6,300	0	0	0	0	~~6,700~~ 7,000
ADMINISTRATION	0	0	0	100	100	0	0	0	200	0	0	0	0	200
Total Expenditures	**700**	~~500~~ **1,500**	~~1,200~~ **2,200**	~~3,600~~ **7,400**	**3,600**	**0**	**0**	**0**	~~7,200~~ **11,000**	**0**	**0**	**0**	**0**	~~8,400~~ **13,200**
OTHER SOURCES	700	500	1,200	3,600	3,600	0	0	0	7,200	0	0	0	0	8,400
BONDS	0	1,000	1,000	3,800	0	0	0	0	3,800	0	0	0	0	4,800
Total Funding	**700**	~~500~~ **1,500**	~~1,200~~ **2,200**	~~3,600~~ **7,400**	**3,600**	**0**	**0**	**0**	~~7,200~~ **11,000**	**0**	**0**	**0**	**0**	~~8,400~~ **13,200**

$355,079 spent and encumbered through February 2018 spent and encumbered through February 2017

Project Status : Constructed Longview stream project.

FY 2018 Budget	700	3,800	**4,500**	2,200	0	0	0	0	**2,200**	0	0	0		**6,700**
Difference 2018 / 2019	0	(3,300)	**(3,300)**	1,400	3,600	0	0	0	**5,000**	0	0	0	0	**1,700**

TAO#1-2019 TRANSFERS IN $1,000,000.

Fiscal 2019 Capital Budget

Project: FY2010 ROUTE ONE FIRE STATION

FIRE PROJECTS and EQUIPMENT

Number: F5975

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
PLANS & ENGINEERING	2,070	0	2,070	0	0	0	0	0	0	0	0	0	0	2,070
LAND ACQUISITION	1,130	0	1,130	870	0	0	0	0	870	0	0	0	0	2,000
CONSTRUCTION	11,500	~~0~~ (10,975)	~~11,500~~ 525	~~1,000~~ 11,975	0	0	0	0	~~1,000~~ 11,975	0	0	0	0	12,500
ADMINISTRATION	30	0	30	5	0	0	0	0	5	0	0	0	0	35
EQUIPMENT & FURNISHINGS	550	0	550	0	0	0	0	0	0	0	0	0	0	550
Total Expenditures	**15,280**	~~**0**~~ **(10,975)**	~~**15,280**~~ **4,305**	~~**1,875**~~ **12,850**	**0**	**0**	**0**	**0**	~~**1,875**~~ **12,850**	**0**	**0**	**0**	**0**	**17,155**
BONDS	10,975	0 (10,975)	~~10,975~~ 0	~~1,875~~ 12,850	0	0	0	0	~~1,875~~ 12,850	0	0	0	0	12,850
OTHER SOURCES	2,005	0	2,005	0	0	0	0	0	0	0	0	0	0	2,005
TRANSFER TAX	2,300	0	2,300	0	0	0	0	0	0	0	0	0	0	2,300
Total Funding	**15,280**	~~**0**~~ **(10,975)**	~~**15,280**~~ **4,305**	~~**1,875**~~ **12,850**	**0**	**0**	**0**	**0**	~~**1,875**~~ **12,850**	**0**	**0**	**0**	**0**	**17,155**

$713,601 spent and encumbered through February 2018
$327,583 spent and encumbered through February 2017
Project Status : Building design complete; SDP review to be complete in Spring 2018. Start of construction pending execution of land transfer with state.

FY 2018 Budget	15,280	0	**15,280**	0	0	0	0	0	**0**	0	0	0		**15,280**
Difference 2018 / 2019	0	0	**0**	1,875	0	0	0	0	**1,875**	0	0	0	0	**1,875**

TAO#1-2019 MOVES $9,975,000 TO C0337, AND $1,000,000 TO D1175.

Fiscal 2019 Capital Budget

Project: FY2014 EAST COLUMBIA LIBRARY ATHLETIC FIELD and SITE IMPROVEMENTS

PARKS PROJECTS

Number: N3973

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
PLANS & ENGINEERING	200	0	200	0	0	0	0	0	0	0	0	0	0	200
CONSTRUCTION	3,700	0 (3,700)	~~3,700~~ 0	0 3,700	0	0	0	0	0 3,700	0	0	0	0	3,700
Total Expenditures	**3,900**	**0** **(3,700)**	**~~3,900~~** **200**	**0** **3,700**	**0**	**0**	**0**	**0**	**0** **3,700**	**0**	**0**	**0**	**0**	**3,900**
BONDS	3,900	0 (3,700)	~~3,900~~ 200	0 3,700	0	0	0	0	0 3,700	0	0	0	0	3,900
Total Funding	**3,900**	**0** **(3,700)**	**~~3,900~~** **200**	**0** **3,700**	**0**	**0**	**0**	**0**	**0** **3,700**	**0**	**0**	**0**	**0**	**3,900**

$162,205 spent and encumbered through February 2018
$153,960 spent and encumbered through February 2017
Project Status :

FY 2018 Budget	3,900	0	**3,900**	0	0	0	0	0	**0**	0	0	0		**3,900**
Difference 2018 / 2019	0	0	**0**	0	0	0	0	0	**0**	0	0	0	0	**0**

TAO #1-2019 MOVES $3,700,000 TO C0337.

BY THE COUNCIL

This Bill, having been approved by the Executive and returned to the Council, stands enacted on October 9, 2018.

Jessica Feldmark

Jessica Feldmark, Administrator to the County Council

BY THE COUNCIL

This Bill, having been passed by the yeas and nays of two-thirds of the members of the Council notwithstanding the objections of the Executive, stands enacted on _____, 2018.

_____

Jessica Feldmark, Administrator to the County Council

BY THE COUNCIL

This Bill, having received neither the approval nor the disapproval of the Executive within ten days of its presentation, stands enacted on _____, 2018.

_____

Jessica Feldmark, Administrator to the County Council

BY THE COUNCIL

This Bill, not having been considered on final reading within the time required by Charter, stands failed for want of consideration on _____, 2018.

_____

Jessica Feldmark, Administrator to the County Council

BY THE COUNCIL

This Bill, having been disapproved by the Executive and having failed on passage upon consideration by the Council stands failed on _____, 2018.

_____

Jessica Feldmark, Administrator to the County Council

BY THE COUNCIL

This Bill, the withdrawal of which received a vote of two-thirds (2/3) of the members of the Council, is withdrawn from further consideration on _____, 2018.

_____

Jessica Feldmark, Administrator to the County Council

Amendment 1 to Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

BY: The Chairperson at the request of the County Executive

Legislative Day 13
Date: October 1, 2018

Amendment No. 1

(This amendment:
1. Clarifying terminology;
2. Increasing state grant amounts to reflect the receipt of additional grant funding;
3. Amends certain remarks on detail pages; and
4. Substitutes detail pages to reflect a consistent format.)

In the title, in the second line, strike "15,759,000" and substitute "15,981,000".

On page 1, in line 6, strike "demolition and construction" and substitute "acquisition, removal, relocation, deconstruction, or demolition".

On page 1, in line 14, strike "$1,734,000" and substitute "$1,741,000".

In the following instances, strike "$984,000" and substitute "$1,206,000":
1. On page 1, in line 18;
2. On page 2, in lines 14 and 15; and
3. On page 3, in line 5.

On page 3, in line 9, strike "$17,174,000" and substitute "$17,396,000".

On page 3, in line 18, strike "in red"

Remove all Detail Pages attached to the TAO as filed and substitute the detail pages as attached to this amendment. Insert the first page for Capital Project D1175, as attached to this amendment.

ADOPTED as amended 10/1/18
FAILED
SIGNATURE Jessica Feldmark

am to tao 1

Fiscal 2019 Capital Budget

Project: FY199- CATEGORY CONTINGENCY FUND

GENERAL COUNTY PROJECTS

Number: C0214

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
CONSTRUCTION	68,658	~~0 (984)~~ (1,206)	~~68,658~~ ~~67,674~~ 67,452	10,000	0	10,000	0	10,000	30,000	0	10,000	0	0	~~108,658~~ ~~107,674~~ 107,452
OTHER	1,100	0	1,100	0	0	0	0	0	0	0	0	0	0	1,100
Total Expenditures	**69,758**	**~~0 (984)~~ (1,206)**	**~~69,758~~ ~~68,774~~ 68,552**	**10,000**	**0**	**10,000**	**0**	**10,000**	**30,000**	**0**	**10,000**	**0**	**0**	**~~109,758~~ ~~108,774~~ 108,552**
GRANTS	68,658	~~0 (984)~~ (1,206)	~~68,658~~ ~~67,674~~ 67,452	10,000	0	10,000	0	10,000	30,000	0	10,000	0	0	~~108,658~~ ~~107,674~~ 107,452
OTHER SOURCES	1,100	0	1,100	0	0	0	0	0	0	0	0	1	0	1,100
Total Funding	**69,758**	**~~0 (984)~~ (1,206)**	**~~69,758~~ ~~68,774~~ 68,552**	**10,000**	**0**	**10,000**	**0**	**10,000**	**30,000**	**0**	**10,000**	**0**	**0**	**~~109,758~~ ~~108,774~~ 108,552**

$0 spent and encumbered through February 2018
spent and encumbered through February 2017
Project Status :

FY 2018 Budget	70,500	0	**70,500**	10,000	0	10,000	0	10,000	**30,000**	0	10,000	0		**110,500**
Difference 2018 / 2019	(742)	0	**(742)**	0	0	0	0	0	**0**	0	0	0	0	**(742)**

TAO#1 - 2018 moves $742,000 Grant revenue to H2014.

TAO#1 -2019 MOVES $1,206,000 GRANT REVENUE TO C0337.

Fiscal 2019 Capital Budget

Project: FY2005 TECHNOLOGY INFRASTRUCTURE UPGRADES

GENERAL COUNTY PROJECTS

Number: C0301

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
PLANS & ENGINEERING	9,180	~~1,250~~ 700	~~10,430~~ 9,880	~~2,000~~ 2,550	2,500	2,000	2,000	2,000	~~10,500~~ 11,050	0	0	0	0	20,930
CONSTRUCTION	11,931	0	11,931	0	0	0	0	0	0	0	0	0	0	11,931
ADMINISTRATION	265	0	265	0	0	0	0	0	0	0	0	0	0	265
EQUIPMENT & FURNISHINGS	60	~~1,250~~ 700	~~1,310~~ 760	~~1,250~~ 1,800	0	0	0	0	~~1,250~~ 1,800	0	0	0	0	2,560
Total Expenditures	**21,436**	**~~2,500~~ 1,400**	**~~23,936~~ 22,836**	**~~3,250~~ 4,350**	**2,500**	**2,000**	**2,000**	**2,000**	**~~11,750~~ 12,850**	**0**	**0**	**0**	**0**	**35,686**
BONDS	20,551	~~2,500~~ 1,400	~~23,051~~ 21,951	~~3,250~~ 4,350	2,500	2,000	2,000	2,000	~~11,750~~ 12,850	0	0	0	0	34,801
PAY AS YOU GO	885	0	885	0	0	0	0	0	0	0	0	0	0	885
Total Funding	**21,436**	**~~2,500~~ 1,400**	**~~23,936~~ 22,836**	**~~3,250~~ 4,350**	**2,500**	**2,000**	**2,000**	**2,000**	**~~11,750~~ 12,850**	**0**	**0**	**0**	**0**	**35,686**

$18,627,623 spent and encumbered through February 2018
$16,088,583 spent and encumbered through February 2017

Project Status : FY 16 - WiFi and VOiP continue to be installed according to planned phased approach; equipment continues to be refreshed to ensure robust network. Cyber Security enhancements continue in order to strengthen the County`s network infrastructure.
FY 17 - Completed new intranet and internet sites for the County; continued the phased approach to installing WiFi and VOiP county-wide, refreshed and upgraded County network infrastructure as well as enhancements to Cyber Security to ensure robust and secure network.
FY 18 - Refreshed and upgraded County network infrastructure to ensure robust and secure network. Furthered the initiative to install WiFi and VOiP county-wide in a phased approach.

FY 2018 Budget	21,436	2,500	**23,936**	2,500	2,500	2,500	2,500	0	**10,000**	0	0	0		**33,936**
Difference 2018 / 2019	0	0	**0**	750	0	(500)	(500)	2,000	**1,750**	0	0	0	0	**1,750**

TAO#1-2019 MOVES $1,100,000 TO CO337.

Fiscal 2019 Capital Budget

Project: C0337-FY2014 ELLICOTT CITY IMPROVEMENTS and ENHANCEMENTS

GENERAL COUNTY PROJECTS

Number: C0337

Description

This is a project to provide a variety of repairs and improvements to public infrastructure and address other community improvements and to make improvements to the downtown and historic district of the Howard County Seat. This project may include land acquisition ~~AND STRUCTURE REMOVAL/RELOCATION~~; STRUCTURE REMOVAL, RELOCATION, DECONSTRUCTION, OR DEMOLITION; AND THE PRESERVATION OF KEY HISTORICAL ELEMENTS. THIS PROJECT WILL ADDRESS ~~for~~ water quality OR QUANTITY and drainage needs and other public improvements.

Justification

Community has requested improvements to the downtown Ellicott City area.

Remarks

1. A portion of current request represents funding to be generated from legislation CB-8 & CR21 for stormwater utility funding, known as Watershed Protection and Restoration fund.
2. Construction of some projects may be dependent upon donation of the necessary easements and/or resident cost share participation.
3. TAO #3 - 2014 current pending legislation will add $100,000 grant funding for Ellicott City Streetscape program.
4. Construction of some projects may be dependent on the donation of the necessary easements and/or property owner cost share participation.
5. OTHER SOURCES revenue represents homeowner contribution.
6. GRANT represents anticipated FEMA and State funding for Ellicott City.

Project Schedule

FY19 - Continue work to repair damage from July 2016 storm.

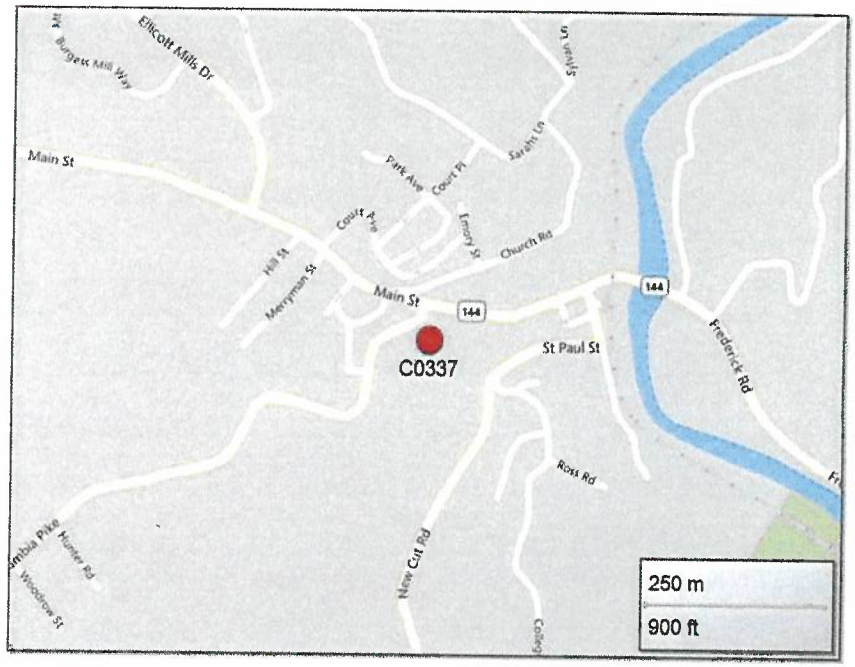
ACQUISITION AND ~~DEMOLITION~~ REMOVAL, RELOCATION, DECONSTRUCTION, OR DEMOLITION OF STRUCTURES IN LOWER MAIN STREET ELLICOTT CITY REPLACE/IMPROVE FAILED CULVERTS AND RECONSTRUCT ROADWAYS, AND DESIGN LOWER MAIN ~~RIVERWALK~~ OPEN SPACE AND HUDSON BEND STREAM CHANNEL EXPANSION.

FY20 – ACQUISITION AND ~~DEMOLITION~~ REMOVAL, RELOCATION, DECONSTRUCTION, OR DEMOLITION OF STRUCTURES IN UPPER MAIN STREET ELLICOTT CITY REPAIR NEW CUT ROAD SLOPE FAILURE, CONSTRUCT STORM DRAINS AND H7 AND QUAKER MILL FLOOD MITIGATION PONDS AND DESIGN MARYLAND AVENUE AND FREDERICK ROAD CULVERTS.

FY21 – HUDSON BEND STREAM CHANNEL EXPANSION AND MARYLAND AVENUE AND FREDERICK ROAD CULVERT CONSTRUCTION.

Operating Budget Impact

Annual Bond Redemption $ $76,500



FY22 – HUDSON BEND STREAM CHANNEL EXPANSION.

Fiscal 2019 Capital Budget

Project: FY2014 ELLICOTT CITY IMPROVEMENTS and ENHANCEMENTS

GENERAL COUNTY PROJECTS

Number: C0337

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
PLANS & ENGINEERING	500	~~0~~ 1,200	~~500~~ 1,700	~~0~~ 200	0	0	0	0	~~0~~ 200	0	0	0	0	~~500~~ 1,900
LAND ACQUISITION	1,000	~~0~~ ~~9,500~~ 9,900	~~1,000~~ ~~10,500~~ 10,900	~~0~~ 3,300	0	0	0	0	~~0~~ 3,300	0	0	0	0	~~1,000~~ ~~13,800~~ 14,200
CONSTRUCTION	2,875	~~1,415~~ ~~6,474~~ 6,296	~~4,290~~ ~~9,349~~ 9,171	~~0~~ 21,200	~~0~~ 12,800	~~0~~ 10,000	0	0	~~0~~ 44,000	0	0	0	0	~~4,290~~ ~~53,349~~ 53,171
Total Expenditures	**4,375**	~~**1,415**~~ ~~**17,174**~~ **17,396**	~~**5,790**~~ ~~**21,549**~~ **21,771**	~~**0**~~ **24,700**	~~**0**~~ **12,800**	~~**0**~~ **10,000**	**0**	**0**	~~**0**~~ **47,500**	**0**	**0**	**0**	**0**	~~**5,790**~~ ~~**69,049**~~ **69,271**
BONDS	1,700	~~0~~ 14,775	~~1,700~~ 16,475	~~0~~ 20,200	~~0~~ 6,800	0	0	0	~~0~~ 27,000	0	0	0	0	~~1,700~~ 43,475
DEVELOPER CONTRIBUTION	0	165	165	0	0	0	0	0	0	0	0	0	0	165
GRANTS	170	~~1,250~~ ~~2,234~~ 2,456	~~1,420~~ ~~2,404~~ 2,626	~~0~~ 4,500	~~0~~ 6,000	~~0~~ 10,000	0	0	~~0~~ 20,500	0	0	0	0	~~1,420~~ ~~22,904~~ 23,126
OTHER SOURCES	5	0	5	0	0	0	0	0	0	0	0	0	0	5
PAY AS YOU GO	1,000	0	1,000	0	0	0	0	0	0	0	0	0	0	1,000
STORMWATER UTILTY FUNDING	1,500	0	1,500	0	0	0	0	0	0	0	0	0	0	1,500
Total Funding	**4,375**	~~**1,415**~~ ~~**17,174**~~ **17,396**	~~**5,790**~~ ~~**21,549**~~ **21,771**	~~**0**~~ **24,700**	~~**0**~~ **12,800**	~~**0**~~ **10,000**	**0**	**0**	~~**0**~~ **47,500**	**0**	**0**	**0**	**0**	~~**5,790**~~ ~~**69,049**~~ **69,271**

$3,998,515 spent and encumbered through February 2018
$2,723,815 spent and encumbered through February 2017
Project Status : Performed design for Main St. crosswalk.
Performed concept design for Parking Lot F improvements.
Partial funding for Parking Lot E improvements.
Performed design for water quality bumpout on Ellicott Mills Drive.
Performed inspection of stream walls and began repairs of walls.
Repair walls at Court Ave, Tonge Row, Lot E northeast corner, Precious Gifts, and 84 inch Culvert.
Perform re-paving of Main Street
Perform design for Courthouse Drive roadway stabilization.

FY 2018 Budget	4,375	2,800	7,175	0	0	0	0	0	0	0	0	0			7,175
Difference 2018 / 2019	0	(1,385)	(1,385)	0	0	0	0	0	0	0	0	0	0		(1,385)

TAO#1-2019 TRANSFERS IN $15,981,000.

Project: D1175-FY-2018 VALLEY MEDE/CHATHAM FLOOD MITIGATION

Number: D1175

Description

This project is for the study, design and construction of flood mitigation and stormwater/waterway improvement efforts in the Valley Mede and Chatham subwatersheds. Projects may include drainage improvements, stormwater retrofits, flood control, stream improvements, ~~BUILDING~~ ACQUISITION AND REMOVAL OR DEMOLITION, and design of additional drainage facilities.

Justification

Valley Mede and Chatham subwatersheds have the potential to suffer significant flood damage.

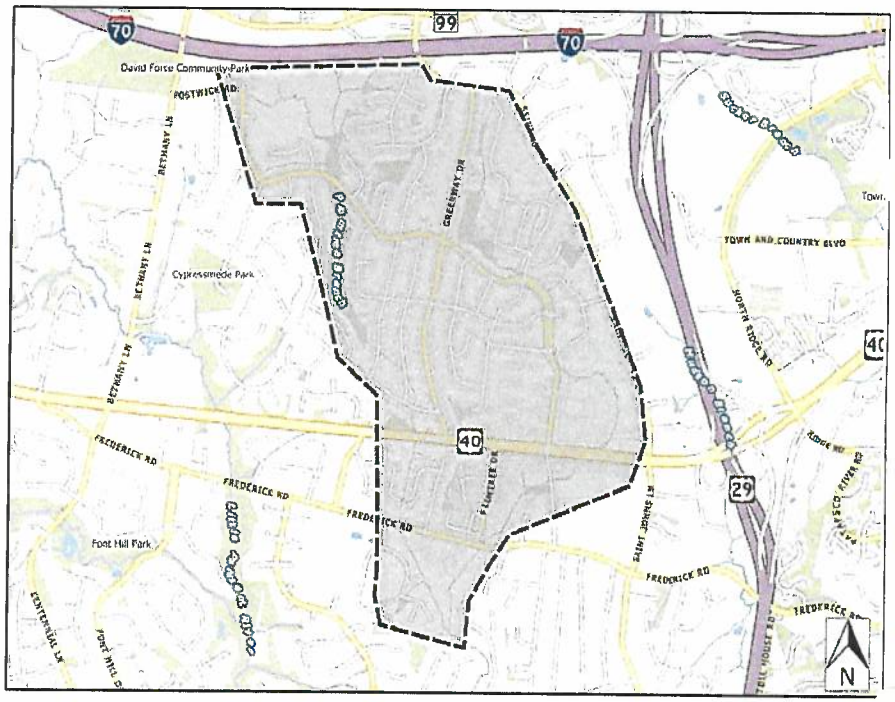
Remarks

1. Future years once projects cost/benefits ~~detrermined~~ DETERMINED, apply for FEMA grants;
2. OTHER SOURCES represents Stormwater Bonds backed by Watershed Protection and Restoration fund.
3. Construction of some projects may be dependent upon donation of the necessary easements and/or property owner cost share participation.

Project Schedule

FY19 - Begin design of projects identified in Plumtree/Little Plumtree study.

FY19 – BEGIN BUILDING ACQUISITION AND REMOVAL OR DEMOLITION OF THOSE IN THE MOST VULNERABLE FLOODING AREAS.



Fiscal 2019 Capital Budget

Project: FY-2018 VALLEY MEDE/CHATHAM FLOOD MITIGATION

DRAINAGE PROJECTS

Number: D1175

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
PLANS & ENGINEERING	0	500	500	500	500	0	0	0	1,000	0	0	0	0	1,500
LAND ACQUISITION	0	1,000	1,000	3,500	0	0	0	0	3,500	0	0	0	0	4,500
CONSTRUCTION	700	0	700	~~3,000~~ 3,300	3,000	0	0	0	~~6,000~~ 6,300	0	0	0	0	~~6,700~~ 7,000
ADMINISTRATION	0	0	0	100	100	0	0	0	200	0	0	0	0	200
Total Expenditures	700	~~500~~ 1,500	~~1,200~~ 2,200	~~3,600~~ 7,400	3,600	0	0	0	~~7,200~~ 11,000	0	0	0	0	~~8,400~~ 13,200
OTHER SOURCES	700	500	1,200	3,600	3,600	0	0	0	7,200	0	0	0	0	8,400
BONDS	0	1,000	1,000	3,800	0	0	0	0	3,800	0	0	0	0	4,800
Total Funding	700	~~500~~ 1,500	~~1,200~~ 2,200	~~3,600~~ 7,400	3,600	0	0	0	~~7,200~~ 11,000	0	0	0	0	~~8,400~~ 13,200

$355,079 spent and encumbered through February 2018 spent and encumbered through February 2017

Project Status : Constructed Longview stream project.

FY 2018 Budget	700	3,800	**4,500**	2,200	0	0	0	0	**2,200**	0	0	0		**6,700**
Difference 2018 / 2019	0	(3,300)	**(3,300)**	1,400	3,600	0	0	0	**5,000**	0	0	0	0	**1,700**

TAO#1-2019 TRANSFERS IN $1,000,000.

Fiscal 2019 Capital Budget

Project: FY2010 ROUTE ONE FIRE STATION

FIRE PROJECTS and EQUIPMENT

Number: F5975

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
PLANS & ENGINEERING	2,070	0	2,070	0	0	0	0	0	0	0	0	0	0	2,070
LAND ACQUISITION	1,130	0	1,130	870	0	0	0	0	870	0	0	0	0	2,000
CONSTRUCTION	11,500	~~0~~ (10,975)	~~11,500~~ 525	~~1,000~~ 11,975	0	0	0	0	~~1,000~~ 11,975	0	0	0	0	12,500
ADMINISTRATION	30	0	30	5	0	0	0	0	5	0	0	0	0	35
EQUIPMENT & FURNISHINGS	550	0	550	0	0	0	0	0	0	0	0	0	0	550
Total Expenditures	**15,280**	**~~0~~** **(10,975)**	**~~15,280~~** **4,305**	**~~1,875~~** **12,850**	**0**	**0**	**0**	**0**	**~~1,875~~** **12,850**	**0**	**0**	**0**	**0**	**17,155**
BONDS	10,975	0 (10,975)	~~10,975~~ 0	~~1,875~~ 12,850	0	0	0	0	~~1,875~~ 12,850	0	0	0	0	12,850
OTHER SOURCES	2,005	0	2,005	0	0	0	0	0	0	0	0	0	0	2,005
TRANSFER TAX	2,300	0	2,300	0	0	0	0	0	0	0	0	0	0	2,300
Total Funding	**15,280**	**~~0~~** **(10,975)**	**~~15,280~~** **4,305**	**~~1,875~~** **12,850**	**0**	**0**	**0**	**0**	**~~1,875~~** **12,850**	**0**	**0**	**0**	**0**	**17,155**

$713,601 spent and encumbered through February 2018
$327,583 spent and encumbered through February 2017
Project Status : Building design complete; SDP review to be complete in Spring 2018. Start of construction pending execution of land transfer with state.

FY 2018 Budget	15,280	0	**15,280**	0	0	0	0	0	**0**	0	0	0		**15,280**
Difference 2018 / 2019	0	0	**0**	1,875	0	0	0	0	**1,875**	0	0	0	0	**1,875**

TAO#1-2019 MOVES $9,975,000 TO C0337, AND $1,000,000 TO D1175.

Fiscal 2019 Capital Budget

Project: FY2014 EAST COLUMBIA LIBRARY ATHLETIC FIELD and SITE IMPROVEMENTS

PARKS PROJECTS

Number: N3973

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
PLANS & ENGINEERING	200	0	200	0	0	0	0	0	0	0	0	0	0	200
CONSTRUCTION	3,700	~~0~~ (3,700)	~~3,700~~ 0	~~0~~ 3,700	0	0	0	0	~~0~~ 3,700	0	0	0	0	3,700
Total Expenditures	**3,900**	**~~0~~** **(3,700)**	**~~3,900~~** **200**	**~~0~~** **3,700**	**0**	**0**	**0**	**0**	**~~0~~** **3,700**	**0**	**0**	**0**	**0**	**3,900**
BONDS	3,900	~~0~~ (3,700)	~~3,900~~ 200	~~0~~ 3,700	0	0	0	0	~~0~~ 3,700	0	0	0	0	3,900
Total Funding	**3,900**	**~~0~~** **(3,700)**	**~~3,900~~** **200**	**~~0~~** **3,700**	**0**	**0**	**0**	**0**	**~~0~~** **3,700**	**0**	**0**	**0**	**0**	**3,900**

$162,205 spent and encumbered through February 2018
$153,960 spent and encumbered through February 2017
Project Status :

FY 2018 Budget	3,900	0	**3,900**	0	0	0	0	0	**0**	0	0	0		**3,900**
Difference 2018 / 2019	0	0	**0**	0	0	0	0	0	**0**	0	0	0	0	**0**

TAO #1-2019 MOVES $3,700,000 TO C0337.

Amendment 1 to Amendment 1 to
Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

BY: The Chairperson at the request of the County Executive

Legislative Day 13
Date: October 1, 2018

Amendment No. 1 to Amendment No. 1

(This amendment makes a technical correction.)

In the first detail page for D1175, in the "Description" in the last sentence, after "stream improvements," strike "BUILDING".

ADOPTED 10/1/18
FAILED
WITHDRAWN

Amendment 1 to Amendment #3
Transfer of Appropriation Ordinance No. 1-FY2019

BY: **Mary Kay Sigaty**
Greg Fox
Jon Weinstein

Legislative Day No: 13
Date: October 1, 2018

Amendment No. 1 to Amendment #3

(This amendment would require that a Section 106 of the National Historic Preservation Act review is completed before funds can be used for demolition of historic structures in the 2018 Flood Mitigation Plan area.).

On page 1, in the amendment explanation, in line 3, immediately following the period, insert the following:

"*Also, this amendment would ensure that a Section 106 of the National Historic Preservation Act review is completed, as required by Federal law, before funds can be used for demolition of historic structures in the 2018 Flood Mitigation Plan area.*".

On page 1, in line 14, strike the quotation marks and the second period.

On page 1, immediately following line 15, insert the following:

"***Section 5. And Be It Further Enacted*** *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference, no funds shall be used to demolish historic structures in the 2018 Flood Mitigation Plan area until a Section 106 of the National Historic Preservation Act review, as required by Federal law and defined in the Department of Interior Standards, is conducted.*".

ADOPTED 10/1/18
FAILED
WITHDRAWN Jessica Feldmark

Amendment 3 to Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

BY: Mary Kay Sigaty
Calvin Ball
Greg Fox
Jon Weinstein

Legislative Day No: 13
Date: October 1, 2018

Amendment No. 3

(This amendment proposes to state the Council's intent that, where possible, that the redevelopment effort in the 2018 Flood Mitigation Plan area incorporate deconstructed historic facades. Also, this amendment would ensure that a Section 106 of the National Historic Preservation Act review is completed, as required by Federal law, before funds can be used for demolition of historic structures in the 2018 Flood Mitigation Plan area.)

On page 3, immediately following line 25, insert the following:

Section 4. And Be It Further Enacted *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference, no funds shall be used to demolish historic properties until the historic buildings slated for removal as part of the 2018 Flood Mitigation Plan are evaluated by the Ellicott City Historic Structures Review Committee created by Executive Order 2018-16 to determine if the building, façade, or other historical elements are suitable to be deconstructed and properly stored for incorporation in the 2018 Flood Mitigation Plan area redevelopment efforts.*

Section 5. And Be It Further Enacted *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference, no funds shall be used to demolish historic structures in the 2018 Flood Mitigation Plan area until a Section 106 of the National Historic Preservation Act review, as required by Federal law and defined in the Department of Interior Standards, is conducted.*

Renumber the remainder of the bill accordingly.

ADOPTED as amended 10/1/18
FAILED
SIGNATURE Jessica Feldmark

Amendment 2 to TAO1-FY2019

BY: Calvin Ball
Jennifer Terrasa

Legislative Day No. 13
Date: 10/1/18

Amendment No. 2

(This amendment removes F5975, Route One Fire Station, as a donor project for D1175, Valley Mede/Chatham Flood Mitigation.)

On page 2:

- strike line 25.
- In line 26, strike "($10,975,000)" and substitute "($9,975,000)".

On page 3:

- strike line 13 in its entirety; and
- in line 14, strike "$1,500,000" and substitute "$500,000".

ADOPTED
FAILED 10/1/18
SIGNATURE Jessica Feldmark

Amendment 4 to Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

BY: Calvin Ball
Jennifer Terrasa

Legislative Day No: 13
Date: 10/1/18

Amendment No. 4

(This amendment proposes to:

- *Require that the Section 106 of the National Historic Preservation Act review is completed before funds can be used for demolition of historic properties in the 2018 Flood Mitigation Plan area;*
- *Require that a public hearing is conducted before funds can be used for demolition of historic properties in the 2018 Flood Mitigation Plan area;*
- *Indicate that if the County does acquire historic properties in the 2018 Flood Mitigation Plan area that certain protections are put into place before the property is turned over to another entity; and*
- *Indicate the County's preference to transfer historic properties that it acquires in the 2018 Flood Mitigation Plan area to a public/private urban development organization.)*

On page 3, immediately following line 25, insert the following:

"***Section 4. And Be It Further Enacted*** *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference, no funds shall be used to demolish historic structures in the 2018 Flood Mitigation Plan area until the following conditions are met:*

1. *A Section 106 of the National Historic Preservation Act review, as defined in the Department of Interior Standards, is conducted; and*
2. *A public hearing is conducted by the County Executive with the Directors of the Department of Public Works and the Department of Planning and Zoning to: present the results of the Section 106 review; present the plan and timeline for implementation of the projects identified in the 2016 McCormick Taylor H&H study and in later McCormick Taylor evaluations, including post-2018 evaluations; present an independent fiscal and constructability study for bored*

tunnels to divert floodwaters; present a structural stabilization and waterproofing plan for all County-owned historic contributing structures; present the results from the evaluation of obtaining funding from Program Open Space to create a community park; and hear testimony from the public on all of the issues above. At least 30 days prior to the public hearing, the County shall post all of the items to be presented on the County's website along with notice of the date, time, and place of the hearing.

Section 5. And Be It Further Enacted *by the County Council of Howard County, Maryland that, no funds from the current expense budget and capital budget attached to this Act or incorporated by reference be used by the County to acquire property within the Historic District unless at closing a covenant or deed restriction is recorded on the property that specifies that if the County decides to transfer the property at any point, it shall only transfer the property to a non-profit economic development organization created to support and revitalize Ellicott City with the mission to retain and expand its historic character, economic opportunity, and health and well-being of its residents and employees.*

Section 6. And Be It Further Enacted *by the County Council of Howard County, Maryland that, no funds from the current expense budget and capital budget attached to this Act or incorporated by reference be used by the County to acquire property within the Historic District unless at closing a covenant or deed restriction is recorded on the property that specifies that if the County decides to transfer the property at any point, it shall only transfer the property with preservation protections such as easements in place.*".

Renumber the remainder of the bill accordingly.

ADOPTED _____
FAILED 10/1/18
SIGNATURE Jessica Feldmark

Amendment 5 to TAO1-FY2019

BY: Calvin Ball

Legislative Day No. 13

Date: 10/1/18

Amendment No. 5

(This amendment provides that flood insurance proceeds are considered when purchasing properties.)

On page 3:

- after line 25, insert:

  "***Section 4. And Be It Further Enacted*** *by the County Council of Howard County, Maryland, that funds in the current expense budget and capital budget attached to this Act or incorporated by reference may only be used to acquire property as part of the Ellicott City flood mitigation plan if:*

  (1) the purchase price does not exceed the appraised pre-flood value of the property; and

  (2) the purchase is conditioned so that any proceeds from flood insurance on the property either reduce the purchase price commensurately or are paid to the County.".

- in line 26, strike "Section 4" and substitute "*Section 5*".

ADOPTED _____

FAILED 10/1/18

SIGNATURE Jessica Feldmark

Amendment 1 to Amendment #5
Transfer of Appropriation Ordinance No. 1-FY2019

BY: Calvin Ball

Legislative Day No: 13
Date: October 1, 2018

Amendment No. 1 to Amendment #5

(This amendment specifies the intent of a condition.)

On page 1, in line 9, immediately before the period, insert:
"*such that the combined total of the purchase price and insurance proceeds received by the property owner for flood damage to the property do not exceed the appraised pre-flood value of the property*".

ADOPTED 10/1/18
FAILED
SIGNATURE Jessica Feldmark

Introduced _____
Public Hearing _____
Council Action _____
Executive Action _____
Effective Date _____

County Council of Howard County, Maryland

2018 Legislative Session

Legislative Day No. 12

Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

Introduced by: The Chairperson at the request of the County Executive

AN ACT to assist in the implementation of the Ellicott City flood mitigation plan by transferring a total of $15,759,000 to Capital Project C0337, Ellicott City Improvements and Enhancements, and a total of $1,000,000 to Capital Project D1175, Valley Mede/Chatham Flood Mitigation, from various capital projects in the Fiscal Year 2019 Capital Budget.

Introduced and read first time _____, 2018. Ordered posted and hearing scheduled.

By order _____
Jessica Feldmark, Administrator

Having been posted and notice of time & place of hearing & title of Bill having been published according to Charter, the Bill was read for a second time at a public hearing on _____, 2018.

By order _____
Jessica Feldmark, Administrator

This Bill was read the third time on _____, 2018 and Passed ___, Passed with amendments _____, Failed _____.

By order _____
Jessica Feldmark, Administrator

Sealed with the County Seal and presented to the County Executive for approval this ___day of _____, 2018 at ___ a.m./p.m.

By order _____
Jessica Feldmark, Administrator

Approved/Vetoed by the County Executive _____, 2018

_____
Allan H. Kittleman, County Executive

NOTE: [[text in brackets]] indicates deletions from existing law; TEXT IN SMALL CAPITALS indicates additions to existing law; ~~Strike-out~~ indicates material deleted by amendment; Underlining indicates material added by amendment.

WHEREAS, as a result of the destructive flooding that occurred in Historic Ellicott City and Valley Mede in 2016 and 2018, the County recognizes that significant changes need to be made in those areas in order to protect life, health and property; and

WHEREAS, the County intends to implement the Ellicott City flood mitigation plan ("Plan") which will result in the demolition and construction of some of the structures in both Historic Ellicott City and Valley Mede; and

WHEREAS, in order to implement the Plan, funding needs to be transferred to Capital Project C0337, Ellicott City Improvements and Enhancements, and to Capital Project D1175, Valley Mede/Chatham Flood Mitigation; and

WHEREAS, the County expects to receive a grant from the State for road resurfacing in the amount of $1,734,000, for which there is already $750,000 in spending authority in the Fiscal Year 2019 Capital Budget; and

WHEREAS, in order to transfer all of the spending authority enabled by the State grant, the County will transfer $984,000 from prior Fiscal Year appropriation in C0214, Category Contingency Fund, to C0337, Ellicott City Improvements and Enhancements; and

WHEREAS, appropriation is available from prior Fiscal Year appropriation in Capital Projects F5975, Route One Fire Station, and N3973, East Columbia Library Athletic Field and Site Improvements, because the County is still in negotiations to acquire some or all of the land necessary for those projects; and

WHEREAS, appropriation is available from Capital Projects C0301, Technology Infrastructure Upgrades, because the County has chosen to defer and reprioritize certain projects; and

WHEREAS, Section 609(b) of the Howard County Charter authorizes and empowers the County to make such transfers; and

WHEREAS, the County has indicated that the funds are available for transfer from the respective projects.

Section 1. Be It Enacted *by the County Council of Howard County, Maryland, that, subject to the provisions of Maryland law, the Howard County Charter, and the Howard County Code relating to the budgetary and fiscal procedures, the amount hereafter specified is hereby approved, appropriated, and authorized to be disbursed for the general County purposes specified and in sums itemized for the fiscal year beginning July 1, 2018 and ending June 30, 2019, as hereinafter indicated:*

Donor Projects:

C0214	**Category Contingency Fund**		
	Appropriation Fiscal Year 2019 before transfer	$0	
	Less amount transferred to C0337	($984,000)	(G)
	Appropriation Fiscal Year 2019 after transfer	($984,000)	
C0301	**Technology Infrastructure Upgrades**		
	Appropriation Fiscal Year 2019 before transfer	$ 2,500,000	
	Less amount transferred to C0337	($1,100,000)	(B)
	Appropriation Fiscal Year 2019 after transfer	$1,400,000	
F5975	**Route One Fire Station**		
	Appropriation Fiscal Year 2019 before transfer	$ 0	
	Less amount transferred to C0337	($9,975,000)	(B)
	Less amount transferred to D1175	($1,000,000)	(B)
	Appropriation Fiscal Year 2019 after transfer	($10,975,000)	
N3973	**East Columbia Library Athletic Field and Site Improvements**		
	Appropriation Fiscal Year 2019 before transfer	$0	
	Less amount transferred to C0337	($3,700,000)	(B)
	Appropriation Fiscal Year 2019 after transfer	($3,700,000)	

Recipient Projects:

C0337	**Ellicott City Improvements and Enhancements**		
	Appropriation Fiscal Year 2019 before transfer	$1,415,000	
	Plus amount transferred from C0214	$984,000	(G)
	Plus amount transferred from C0301	$1,100,000	(B)
	Plus amount transferred from F5975	$9,975,000	(B)
	Plus amount transferred from N3973	$3,700,000	(B)
	Appropriation Fiscal Year 2019 after transfer	$17,174,000	
D1175	**Valley Mede/Chatham Flood Mitigation**		
	Appropriation Fiscal Year 2019 before transfer	$500,000	
	Plus amount transferred from F5975	$1,000,000	(B)
	Appropriation Fiscal Year 2019 after transfer	$1,500,000	

Section 2. And Be It Further Enacted *by the County Council of Howard County, Maryland that, in order to incorporate the changes made in this Act, the Detail Pages for Capital Projects C0301, F5975, N3973, C0214, C0337 and D1175 shall be amended as shown in red in the attached amended Detail Pages.*

Section 3. And Be It Further Enacted *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference including the Capital Budget Detail pages, all subtotals, totals, and other calculated figures shall be corrected to accommodate amendments to this Act.*

Section 4. And Be It Further Enacted *by the County Council of Howard County, Maryland that this Act shall be effective immediately upon its enactment.*

Fiscal 2019 Capital Budget

Project: FY2014 EAST COLUMBIA LIBRARY ATHLETIC FIELD and SITE IMPROVEMENTS

PARKS PROJECTS

Number: N3973

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
PLANS & ENGINEERING	200	0	200	0	0	0	0	0	0	0	0	0	0	200
CONSTRUCTION	3,700	~~0~~ (3,700)	~~3,700~~ 0	~~0~~ 3,700	0	0	0	0	~~0~~ 3,700	0	0	0	0	3,700
Total Expenditures	**3,900**	~~0~~ (3,700)	~~3,900~~ 200	~~0~~ 3,700	**0**	**0**	**0**	**0**	~~0~~ 3,700	**0**	**0**	**0**	**0**	**3,900**
BONDS	3,900	~~0~~ (3,700)	~~3,900~~ 200	~~0~~ 3,700	0	0	0	0	~~0~~ 3,700	0	0	0	0	3,900
Total Funding	**3,900**	~~0~~ (3,700)	~~3,900~~ 200	~~0~~ 3,700	**0**	**0**	**0**	**0**	~~0~~ 3,700	**0**	**0**	**0**	**0**	**3,900**

$162,205 spent and encumbered through February 2018
$153,960 spent and encumbered through February 2017
Project Status :

FY 2018 Budget	3,900	0	**3,900**	0	0	0	0	0	**0**	0	0	0		**3,900**
Difference 2018 / 2019	0	0	**0**	0	0	0	0	0	**0**	0	0	0	0	**0**

Fiscal 2019 Capital Budget

Project: FY2005 TECHNOLOGY INFRASTRUCTURE UPGRADES

GENERAL COUNTY PROJECTS

Number: C0301

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
PLANS & ENGINEERING	9,180	~~1,250~~ 700	~~10,430~~ 9,880	~~2,000~~ 2,750	2,500	2,000	2,000	2,000	~~10,500~~ 11,050	0	0	0	0	20,930
CONSTRUCTION	11,931	0	11,931	0	0	0	0	0	0	0	0	0	0	11,931
ADMINISTRATION	265	0	265	0	0	0	0	0	0	0	0	0	0	265
EQUIPMENT & FURNISHINGS	60	~~1,250~~ 700	~~1,310~~ 760	~~1,250~~ 1,800	0	0	0	0	~~1,250~~ 1,800	0	0	0	0	2,560
Total Expenditures	**21,436**	~~2,500~~ 1,400	~~23,936~~ 22,836	~~3,250~~ 4,350	**2,500**	**2,000**	**2,000**	**2,000**	~~11,750~~ 12,850	**0**	**0**	**0**	**0**	**35,686**
BONDS	20,551	~~2,500~~ 1,400	~~23,051~~ 21,951	~~3,250~~ 4,350	2,500	2,000	2,000	2,000	~~11,750~~ 12,850	0	0	0	0	34,801
PAY AS YOU GO	885	0	885	0	0	0	0	0	0	0	0	0	0	885
Total Funding	**21,436**	~~2,500~~ 1,400	~~23,936~~ 22,836	3,250 4,350	**2,500**	**2,000**	**2,000**	**2,000**	~~11,750~~ 12,850	**0**	**0**	**0**	**0**	**35,686**

$18,627,623 spent and encumbered through February 2018
$16,088,583 spent and encumbered through February 2017

Project Status : FY 16 - WiFi and VOiP continue to be installed according to planned phased approach; equipment continues to be refreshed to ensure robust network. Cyber Security enhancements continue in order to strengthen the County`s network infrastructure.
FY 17 - Completed new intranet and internet sites for the County; continued the phased approach to installing WiFi and VOiP county-wide, refreshed and upgraded County network infrastructure as well as enhancements to Cyber Security to ensure robust and secure network.
FY 18 - Refreshed and upgraded County network infrastructure to ensure robust and secure network. Furthered the initiative to install WiFi and VOiP county-wide in a phased approach.

FY 2018 Budget	21,436	2,500	**23,936**	2,500	2,500	2,500	2,500	0	**10,000**	0	0	0	**33,936**
Difference 2018 / 2019	0	0	**0**	750	0	(500)	(500)	2,000	**1,750**	0	0	0	0	**1,750**

Fiscal 2019 Capital Budget

Project: FY2010 ROUTE ONE FIRE STATION

FIRE PROJECTS and EQUIPMENT

Number: F5975

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
PLANS & ENGINEERING	2,070	0	2,070	0	0	0	0	0	0	0	0	0	0	2,070
LAND ACQUISITION	1,130	0	1,130	870	0	0	0	0	870	0	0	0	0	2,000
CONSTRUCTION	11,500	(10,975) 0	~~11,500~~ 525	~~1,000~~ 11,975	0	0	0	0	~~1,000~~ 11,975	0	0	0	0	12,500
ADMINISTRATION	30	0	30	5	0	0	0	0	5	0	0	0	0	35
EQUIPMENT & FURNISHINGS	550	0	550	0	0	0	0	0	0	0	0	0	0	550
Total Expenditures	**15,280**	(10,975) ~~0~~ 4,305	~~15,280~~ 16,930	~~1,875~~ 12,850	**0**	**0**	**0**	**0**	~~1,875~~ 12,850	**0**	**0**	**0**	**0**	**17,155**
BONDS	10,975	(10,975) ~~0~~ 0	~~10,975~~ 12,850	~~1,875~~ 12,850	0	0	0	0	~~1,875~~ 12,850	0	0	0	0	12,850
OTHER SOURCES	2,005	0	2,005	0	0	0	0	0	0	0	0	0	0	2,005
TRANSFER TAX	2,300	0	2,300	0	0	0	0	0	0	0	0	0	0	2,300
Total Funding	**15,280**	(10,975) ~~0~~ 4,305	~~15,280~~ 12,850	~~1,875~~ 12,850	**0**	**0**	**0**	**0**	~~1,875~~ 12,850	**0**	**0**	**0**	**0**	**17,155**

$713,601 spent and encumbered through February 2018
$327,583 spent and encumbered through February 2017
Project Status : Building design complete; SDP review to be complete in Spring 2018. Start of construction pending execution of land transfer with state.

FY 2018 Budget	15,280	0	**15,280**	0	0	0	0	0	**0**	0	0	0		**15,280**
Difference 2018 / 2019	0	0	**0**	1,875	0	0	0	0	**1,875**	0	0	0	0	**1,875**

Fiscal 2019 Capital Budget

Project: FY199- CATEGORY CONTINGENCY FUND

GENERAL COUNTY PROJECTS

Number: C0214

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
CONSTRUCTION	68,658	~~0~~ (984)	~~68,658~~ 67,674	10,000	0	10,000	0	10,000	30,000	0	10,000	0	0	~~108,658~~ 107,674
OTHER	1,100	0	1,100	0	0	0	0	0	0	0	0	0	0	1,100
Total Expenditures	**69,758**	~~0~~ (984)	~~69,758~~ 68,774	**10,000**	**0**	**10,000**	**0**	**10,000**	**30,000**	**0**	**10,000**	**0**	**0**	~~109,758~~ 108,774
GRANTS	68,658	~~0~~ (984)	~~68,658~~ 67,674	10,000	0	10,000	0	10,000	30,000	0	10,000	0	0	~~108,658~~ 107,674
OTHER SOURCES	1,100	0	1,100	0	0	0	0	0	0	0	0	0	0	1,100
Total Funding	**69,758**	~~0~~ (984)	~~69,758~~ 68,774	**10,000**	**0**	**10,000**	**0**	**10,000**	**30,000**	**0**	**10,000**	**0**	**0**	~~109,758~~ 108,774

$0 spent and encumbered through February 2018
spent and encumbered through February 2017
Project Status :

FY 2018 Budget	70,500	0	**70,500**	10,000	0	10,000	0	10,000	**30,000**	0	10,000	0		**110,500**
Difference 2018 / 2019	(742)	0	**(742)**	0	0	0	0	0	**0**	0	0	0	0	(742)

TAO#1 - 2018 moves $742,000 Grant revenue to H2014.

Fiscal 2019 Capital Budget

GENERAL COUNTY PROJECTS

Project: C0337-FY2014 ELLICOTT CITY IMPROVEMENTS and ENHANCEMENTS

Number: C0337

Description

This is a project to provide a variety of repairs and improvements to public infrastructure and address other community improvements and to make improvements to the downtown and historic district of the Howard County Seat. This project may include land acquisition for water quality and drainage needs and other public improvements. AND STRUCTURE DEMOLITION

Justification

Community has requested improvements to the downtown Ellicott City area.

Remarks

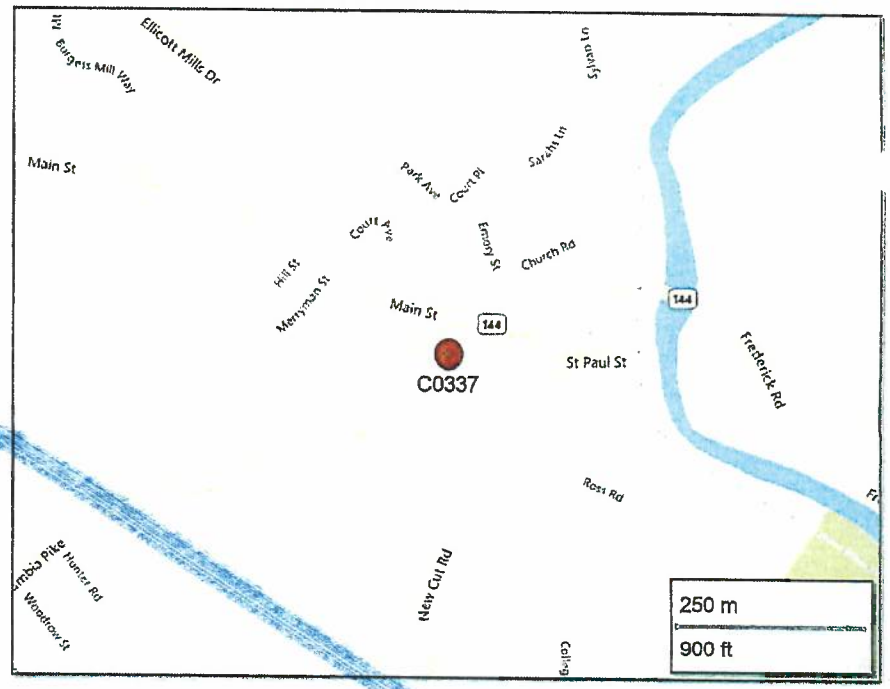
1. A portion of current request represents funding to be generated from legislation CB-8 & CR21 for stormwater utility funding, known as Watershed Protection and Restoration fund.
2. Construction of some projects may be dependent upon donation of the necessary easements and/or resident cost share participation.
3. TAO #3 - 2014 current pending legislation will add $100,000 grant funding for Ellicott City Streetscape program.
4. Construction of some projects may be dependent on the donation of the necessary easements and/or property owner cost share participation.
5. OTHER SOURCES revenue represents homeowner contribution.
6. GRANT represents anticipated FEMA and State funding for Ellicott City.

Project Schedule

FY19 - Continue work to repair damage from July 2016 storm.

Operating Budget Impact

Annual Bond Redemption $ $76,500



Acquisition and demolition of structures in Lower Main Street Ellicott City ; , replace/improve failed culverts and reconstruct roadways, and design Lower Main Riverwalk and Hudson Bend stream channel expansion.

FY20 - Acquisition and demolition of structures in Upper Main Street Ellicott City , repair New Cut Road slope failure, construct storm drains and H7 and Quaker Mill flood mitigation ponds and design Maryland Avenue and Frederick Road culverts.

FY21 - Hudson Bend stream channel expansion and Maryland Avenue and Frederick Road culvert construction.

FY22 - Hudson Bend stream channel expansion.

Fiscal 2019 Capital Budget

Project: FY2014 ELLICOTT CITY IMPROVEMENTS and ENHANCEMENTS

GENERAL COUNTY PROJECTS

Number: C0337

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
PLANS & ENGINEERING	500	~~0~~ 1,200	~~500~~ 1,700	~~0~~ 200	0	0	0	0	~~0~~ 200	0	0	0	0	~~500~~ 1,900
LAND ACQUISITION	~~1,000~~	~~0~~ 9,500	~~1,000~~ 10,500	~~0~~ 3,300	0	0	0	0	~~0~~ 3,300	0	0	0	0	~~1,000~~ 13,800
CONSTRUCTION	2,875	~~1,415~~ 6,474	~~4,290~~ 9,349	~~0~~ 21,200	~~0~~ 12,800	~~0~~ 10,000	0	0	~~0~~ 44,000	0	0	0	0	~~4,290~~ 53,340
Total Expenditures	**4,375**	~~1,415~~ 17,174	~~5,790~~ 21,549	~~0~~ 24,700	~~0~~ 12,800	~~0~~ 10,000	**0**	**0**	~~0~~ 47,500	**0**	**0**	**0**	**0**	~~5,790~~ 69,044
BONDS	1,700	~~0~~ 14,775	~~1,700~~ 16,475	~~0~~ 20,200	~~0~~ 6,800	0	0	0	~~0~~ 27,000	0	0	0	0	~~1,700~~ 43,475
DEVELOPER CONTRIBUTION	0	165	165	0	0	0	0	0	0	0	0	0	0	165
GRANTS	170	~~1,250~~ 2,234	~~1,420~~ 2,404	~~0~~ 4,500	~~0~~ 6,000	~~0~~ 10,000	0	0	~~0~~ 20,500	0	0	0	0	~~1,420~~ 22,904
OTHER SOURCES	5	0	5	0	0	0	0	0	0	0	0	0	0	5
PAY AS YOU GO	1,000	0	1,000	0	0	0	0	0	0	0	0	0	0	1,000
STORMWATER UTILTY FUNDING	1,500	0	1,500	0	0	0	0	0	0	0	0	0	0	1,500
Total Funding	**4,375**	~~1,415~~ 17,174	~~5,790~~ 21,549	~~0~~ 24,700	~~0~~ 12,800	~~0~~ 10,000	**0**	**0**	~~0~~ 47,500	**0**	**0**	**0**	**0**	~~5,790~~ 69,049

$3,998,515 spent and encumbered through February 2018
$2,723,815 spent and encumbered through February 2017
Project Status : Performed design for Main St. crosswalk.
Performed concept design for Parking Lot F improvements.
Partial funding for Parking Lot E improvements.
Performed design for water quality bumpout on Ellicott Mills Drive.
Performed inspection of stream walls and began repairs of walls.
Repair walls at Court Ave, Tonge Row, Lot E northeast corner, Precious Gifts, and 84 inch Culvert.
Perform re-paving of Main Street
Perform design for Courthouse Drive roadway stabilization.

FY 2018 Budget	4,375	2,800	7,175	0	0	0	0	0	0	0	0	0		7,175
Difference 2018 / 2019	0	(1,385)	(1,385)	0	0	0	0	0	0	0	0	0	0	(1,385)

Fiscal 2019 Capital Budget

Project: FY-2018 VALLEY MEDE/CHATHAM FLOOD MITIGATION

DRAINAGE PROJECTS

Number: D1175

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
PLANS & ENGINEERING	0	500	500	500	500	0	0	0	1,000	0	0	0	0	1,500
LAND ACQUISITION	0	1,000	1,000	3,500	0	0	0	0	3,500	0	0	0	0	4,500
CONSTRUCTION	700	0	700	~~3,000~~ 3,300	3,000	0	0	0	~~6,000~~ 6,300	0	0	0	0	~~6,700~~ 7,000
ADMINISTRATION	0	0	0	100	100	0	0	0	200	0	0	0	0	200
Total Expenditures	**700**	~~500~~ 1,500	~~1,200~~ 2,200	~~3,600~~ 7,400	**3,600**	**0**	**0**	**0**	~~7,200~~ 11,000	**0**	**0**	**0**	**0**	~~8,400~~ 13,200
OTHER SOURCES	700	500	1,200	3,600	3,600	0	0	0	7,200	0	0	0	0	8,400
BONDS	0	1,000	1,000	3,800	0	0	0	0	3,800	0	0	0	0	4,800
Total Funding	**700**	~~500~~ 1,500	~~1,200~~ 2,200	~~3,600~~ 7,400	**3,600**	**0**	**0**	**0**	~~7,200~~ 11,000	**0**	**0**	**0**	**0**	~~8,400~~ 13,200

$355,079 spent and encumbered through February 2018
spent and encumbered through February 2017
Project Status : Constructed Longview stream project.

FY 2018 Budget	700	3,800	**4,500**	2,200	0	0	0	0	**2,200**	0	0	0		**6,700**
Difference 2018 / 2019	0	(3,300)	**(3,300)**	1,400	3,600	0	0	0	**5,000**	0	0	0	0	**1,700**

Project: D1175-FY-2018 VALLEY MEDE/CHATHAM FLOOD MITIGATION

Number: D1175

Description

This project is for the study, design and construction of flood mitigation and stormwater/waterway improvement efforts in the Valley Mede and Chatham subwatersheds. Projects may include drainage improvements, stormwater retrofits, flood control, stream improvements, BUILDING ACQUISITION AND REMOVAL OR DEMOLITION, and design of additional drainage facilities.

Justification

Valley Mede and Chatham subwatersheds have the potential to suffer significant flood damage.

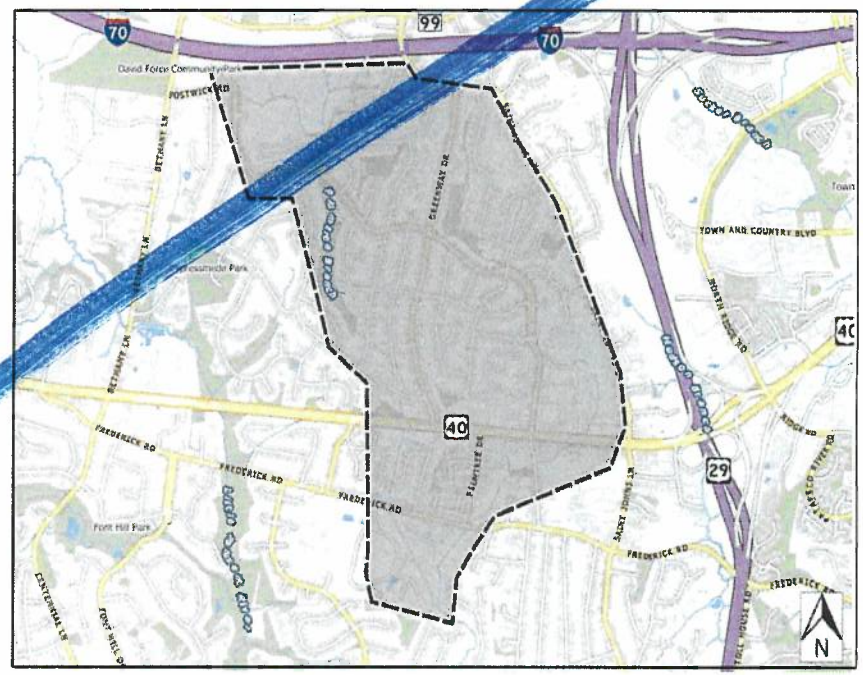
Remarks

1. Future years once projects cost/benefits ~~detrermined~~ DETERMINED, apply for FEMA grants;
2. OTHER SOURCES represents Stormwater Bonds backed by Watershed Protection and Restoration fund.
3. Construction of some projects may be dependent upon donation of the necessary easements and/or property owner cost share participation.

Project Schedule

FY19 - Begin design of projects identified in Plumtree/Little Plumtree study.

FY19 – BEGIN BUILDING ACQUISITION AND REMOVAL OR DEMOLITION OF THOSE IN THE MOST VULNERABLE FLOODING AREAS.



Amendment 3 to Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

BY: **Mary Kay Sigaty**
Calvin Ball
Greg Fox
Jon Weinstein

Legislative Day No. 13
Date: 10/1/18

Amendment No. 3

(This amendment proposes to state the Council's intent that, where possible, that the redevelopment effort in the 2018 Flood Mitigation Plan area incorporate deconstructed historic facades.)

On page 3, immediately following line 25, insert the following:

"***Section 4. And Be It Further Enacted*** *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference, no funds shall be used to demolish historic properties until the historic buildings slated for removal as part of the 2018 Flood Mitigation Plan are evaluated by the Ellicott City Historic Structures Review Committee created by Executive Order 2018-16 to determine if the building, façade, or other historical elements are suitable to be deconstructed and properly stored for incorporation in the 2018 Flood Mitigation Plan area redevelopment efforts.*".

Renumber the remainder of the bill accordingly.

Amendment 1 to Amendment 1 to
Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

BY: The Chairperson at the request of the County Executive

Legislative Day 13
Date: October 1, 2018

Amendment No. 1 to Amendment No. 1

(This amendment makes a technical correction.)

In the first detail page for D1175, in the "Description" in the last sentence, after "stream improvements," strike "BUILDING".

Amendment 1 to Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

BY: The Chairperson at the request of the County Executive

Legislative Day 13
Date: October 1, 2018

Amendment No. 1

(This amendment:
1. *Clarifying terminology;*
2. *Increasing state grant amounts to reflect the receipt of additional grant funding;*
3. *Amends certain remarks on detail pages; and*
4. *Substitutes detail pages to reflect a consistent format.)*

In the title, in the second line, strike "15,759,000" and substitute "15,981,000".

On page 1, in line 6, strike "demolition and construction" and substitute "acquisition, removal, relocation, deconstruction, or demolition".

On page 1, in line 14, strike "$1,734,000" and substitute "$1,741,000".

In the following instances, strike "$984,000" and substitute "$1,206,000":

1. On page 1, in line 18;
2. On page 2, in lines 14 and 15; and
3. On page 3, in line 5.

On page 3, in line 9, strike "$17,174,000" and substitute "$17,396,000".

On page 3, in line 18, strike "in red"

Remove all Detail Pages attached to the TAO as filed and substitute the detail pages as attached to this amendment. Insert the first page for Capital Project D1175, as attached to this amendment.

Fiscal 2019 Capital Budget

Project: FY199- CATEGORY CONTINGENCY FUND

GENERAL COUNTY PROJECTS

Number: C0214

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
CONSTRUCTION	68,658	0 ~~(984)~~ (1,206)	~~68,658~~ ~~67,674~~ 67,452	10,000	0	10,000	0	10,000	30,000	0	10,000	0	0	~~108,658~~ ~~107,674~~ 107,452
OTHER	1,100	0	1,100	0	0	0	0	0	0	0	0	0	0	1,100
Total Expenditures	69,758	0 ~~(984)~~ (1,206)	~~69,758~~ ~~68,774~~ 68,552	10,000	0	10,000	0	10,000	30,000	0	10,000	0	0	~~109,758~~ ~~108,774~~ 108,552
GRANTS	68,658	0 ~~(984)~~ (1,206)	~~68,658~~ ~~67,674~~ 67,452	10,000	0	10,000	0	10,000	30,000	0	10,000	0	0	~~108,658~~ ~~107,674~~ 107,452
OTHER SOURCES	1,100	0	1,100	0	0	0	0	0	0	0	0	1	0	1,100
Total Funding	69,758	0 ~~(984)~~ (1,206)	~~69,758~~ ~~68,774~~ 68,552	10,000	0	10,000	0	10,000	30,000	0	10,000	0 ~~–~~ –	0	~~109,758~~ ~~108,774~~ 108,552

$0 spent and encumbered through February 2018
spent and encumbered through February 2017
Project Status :

FY 2018 Budget	70,500	0	70,500	10,000	0	10,000	0	10,000	30,000	0	10,000	0		110,500
Difference 2018 / 2019	(742)	0	(742)	0	0	0	0	0	0	0	0	0	0	(742)

TAO#1 - 2018 moves $742,000 Grant revenue to H2014.

TAO#1 -2019 MOVES $1,206,000 GRANT REVENUE TO C0337.

Fiscal 2019 Capital Budget

GENERAL COUNTY PROJECTS

Project: FY2005 TECHNOLOGY INFRASTRUCTURE UPGRADES

Number: C0301

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
PLANS & ENGINEERING	9,180	~~1,250~~ 700	~~10,430~~ 9,880	~~2,000~~ 2,550	2,500	2,000	2,000	2,000	~~10,500~~ 11,050	0	0	0	0	20,930
CONSTRUCTION	11,931	0	11,931	0	0	0	0	0	0	0	0	0	0	11,931
ADMINISTRATION	265	0	265	0	0	0	0	0	0	0	0	0	0	265
EQUIPMENT & FURNISHINGS	60	~~1,250~~ 700	~~1,310~~ 760	~~1,250~~ 1,800	0	0	0	0	~~1,250~~ 1,800	0	0	0	0	2,560
Total Expenditures	**21,436**	**~~2,500~~ 1,400**	**~~23,936~~ 22,836**	**~~3,250~~ 4,350**	**2,500**	**2,000**	**2,000**	**2,000**	**~~11,750~~ 12,850**	**0**	**0**	**0**	**0**	**35,686**
BONDS	20,551	~~2,500~~ 1,400	~~23,051~~ 21,951	~~3,250~~ 4,350	2,500	2,000	2,000	2,000	~~11,750~~ 12,850	0	0	0	0	34,801
PAY AS YOU GO	885	0	885	0	0	0	0	0	0	0	0	0	0	885
Total Funding	**21,436**	**~~2,500~~ 1,400**	**~~23,936~~ 22,836**	**~~3,250~~ 4,350**	**2,500**	**2,000**	**2,000**	**2,000**	**~~11,750~~ 12,850**	**0**	**0**	**0**	**0**	**35,686**

$18,627,623 spent and encumbered through February 2018
$16,088,583 spent and encumbered through February 2017

Project Status : FY 16 - WiFi and VOiP continue to be installed according to planned phased approach; equipment continues to be refreshed to ensure robust network. Cyber Security enhancements continue in order to strengthen the County's network infrastructure.
FY 17 - Completed new intranet and internet sites for the County; continued the phased approach to installing WiFi and VOiP county-wide, refreshed and upgraded County network infrastructure as well as enhancements to Cyber Security to ensure robust and secure network.
FY 18 - Refreshed and upgraded County network infrastructure to ensure robust and secure network. Furthered the initiative to install WiFi and VOiP county-wide in a phased approach.

FY 2018 Budget	21,436	2,500	**23,936**	2,500	2,500	2,500	2,500	0	**10,000**	0	0	0		**33,936**
Difference 2018 / 2019	0	0	**0**	750	0	(500)	(500)	2,000	**1,750**	0	0	0	0	**1,750**

TAO#1-2019 MOVES $1,100,000 TO CO337.

Fiscal 2019 Capital Budget

Project: C0337-FY2014 ELLICOTT CITY IMPROVEMENTS and ENHANCEMENTS

Description

This is a project to provide a variety of repairs and improvements to public infrastructure and address other community improvements and to make improvements to the downtown and historic district of the Howard County Seat. This project may include land acquisition ~~AND STRUCTURE REMOVAL/RELOCATION~~; STRUCTURE REMOVAL, RELOCATION, DECONSTRUCTION, OR DEMOLITION; AND THE PRESERVATION OF KEY HISTORICAL ELEMENTS. THIS PROJECT WILL ADDRESS ~~for~~ water quality OR QUANTITY and drainage needs and other public improvements.

Justification

Community has requested improvements to the downtown Ellicott City area.

Remarks

1. A portion of current request represents funding to be generated from legislation CB-8 & CR21 for stormwater utility funding, known as Watershed Protection and Restoration fund.
2. Construction of some projects may be dependent upon donation of the necessary easements and/or resident cost share participation.
3. TAO #3 - 2014 current pending legislation will add $100,000 grant funding for Ellicott City Streetscape program.
4. Construction of some projects may be dependent on the donation of the necessary easements and/or property owner cost share participation.
5. OTHER SOURCES revenue represents homeowner contribution.
6. GRANT represents anticipated FEMA and State funding for Ellicott City.

Project Schedule

FY19 - Continue work to repair damage from July 2016 storm.

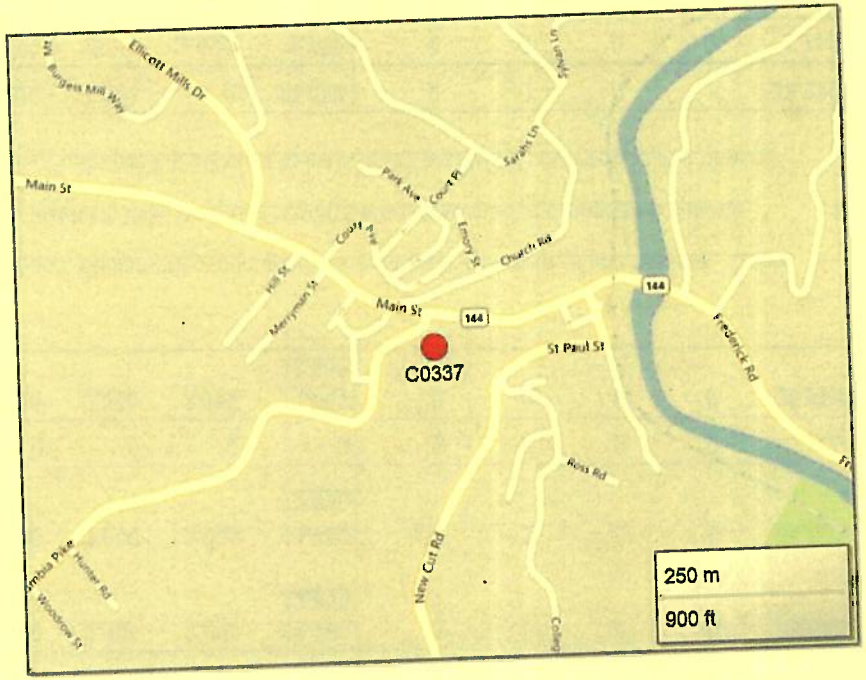
ACQUISITION AND ~~DEMOLITION~~ REMOVAL, RELOCATION, DECONSTRUCTION, OR DEMOLITION OF STRUCTURES IN LOWER MAIN STREET ELLICOTT CITY REPLACE/IMPROVE FAILED CULVERTS AND RECONSTRUCT ROADWAYS, AND DESIGN LOWER MAIN ~~RIVERWALK~~ OPEN SPACE AND HUDSON BEND STREAM CHANNEL EXPANSION.

FY20 – ACQUISITION AND ~~DEMOLITION~~ REMOVAL, RELOCATION, DECONSTRUCTION, OR DEMOLITION OF STRUCTURES IN UPPER MAIN STREET ELLICOTT CITY REPAIR NEW CUT ROAD SLOPE FAILURE, CONSTRUCT STORM DRAINS AND H7 AND QUAKER MILL FLOOD MITIGATION PONDS AND DESIGN MARYLAND AVENUE AND FREDERICK ROAD CULVERTS.

FY21 – HUDSON BEND STREAM CHANNEL EXPANSION AND MARYLAND AVENUE AND FREDERICK ROAD CULVERT CONSTRUCTION.

Operating Budget Impact

Annual Bond Redemption $ $76,500



FY22 – HUDSON BEND STREAM CHANNEL EXPANSION.

GENERAL COUNTY PROJECTS

Fiscal 2019 Capital Budget

Number: C0337

Project: FY2014 ELLICOTT CITY IMPROVEMENTS and ENHANCEMENTS

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Five Year Capital Program: Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Master Plan: Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
PLANS & ENGINEERING	500	~~0~~ 1,200	~~500~~ 1,700	~~0~~ 200	0	0	0	0	~~0~~ 200	0	0	0	0	~~500~~ 1,900
LAND ACQUISITION	1,000	~~0~~ ~~9,500~~ 9,900	~~1,000~~ ~~10,500~~ 10,900	~~0~~ 3,300	0	0	0	0	~~0~~ 3,300	0	0	0	0	~~1,000~~ ~~13,800~~ 14,200
CONSTRUCTION	2,875	~~1,415~~ ~~6,474~~ 6,296	~~4,290~~ ~~9,349~~ 9,171	~~0~~ 21,200	~~0~~ 12,800	~~0~~ 10,000	0	0	~~0~~ 44,000	0	0	0	0	~~4,290~~ ~~53,349~~ 53,171
Total Expenditures	**4,375**	~~1,415~~ ~~17,174~~ 17,396	~~5,790~~ ~~21,549~~ 21,771	~~0~~ 24,700	~~0~~ 12,800	~~0~~ 10,000	0	0	~~0~~ 47,500	0	0	0	0	~~5,790~~ ~~69,049~~ 69,271
BONDS	1,700	~~0~~ 14,775	~~1,700~~ 16,475	~~0~~ 20,200	~~0~~ 6,800	0	0	0	~~0~~ 27,000	0	0	0	0	~~1,700~~ 43,475
DEVELOPER CONTRIBUTION	0	165	165	0	0	0	0	0	0	0	0	0	0	165
GRANTS	170	~~1,250~~ ~~2,234~~ 2,456	~~1,420~~ ~~2,404~~ 2,626	~~0~~ 4,500	~~0~~ 6,000	~~0~~ 10,000	0	0	~~0~~ 20,500	0	0	0	0	~~1,420~~ ~~22,904~~ 23,126
OTHER SOURCES	5	0	5	0	0	0	0	0	0	0	0	0	0	5
PAY AS YOU GO	1,000	0	1,000	0	0	0	0	0	0	0	0	0	0	1,000
STORMWATER UTILTY FUNDING	1,500	0	1,500	0	0	0	0	0	0	0	0	0	0	1,500
Total Funding	**4,375**	~~1,415~~ ~~17,174~~ 17,396	~~5,790~~ ~~21,549~~ 21,771	~~0~~ 24,700	~~0~~ 12,800	~~0~~ 10,000	0	0	~~0~~ 47,500	0	0	0	0	~~5,790~~ ~~69,049~~ 69,271

$3,998,515 spent and encumbered through February 2018
$2,723,815 spent and encumbered through February 2017
Project Status : Performed design for Main St. crosswalk.
Performed concept design for Parking Lot F improvements.
Partial funding for Parking Lot E improvements.
Performed design for water quality bumpout on Ellicott Mills Drive.
Performed inspection of stream walls and began repairs of walls.
Repair walls at Court Ave, Tonge Row, Lot E northeast corner, Precious Gifts, and 84 inch Culvert.
Perform re-paving of Main Street
Perform design for Courthouse Drive roadway stabilization.

Fiscal 2019 Capital Budget

GENERAL COUNTY PROJECTS

FY 2018 Budget	4,375	2,800	7,175	0	0	0	0	0	0	0	0	0		7,175
Difference 2018 / 2019	0	(1,385)	(1,385)	0	0	0	0	0	0	0	0	0	0	(1,385)

TAO#1-2019 TRANSFERS IN $15,981,000.

Fiscal 2019 Capital Budget

Project: D1175-FY-2018 VALLEY MEDE/CHATHAM FLOOD MITIGATION

Description

This project is for the study, design and construction of flood mitigation and stormwater/waterway improvement efforts in the Valley Mede and Chatham subwatersheds. Projects may include drainage improvements, stormwater retrofits, flood control, stream improvements, BUILDING ACQUISITION AND REMOVAL OR DEMOLITION, and design of additional drainage facilities.

Justification

Valley Mede and Chatham subwatersheds have the potential to suffer significant flood damage.

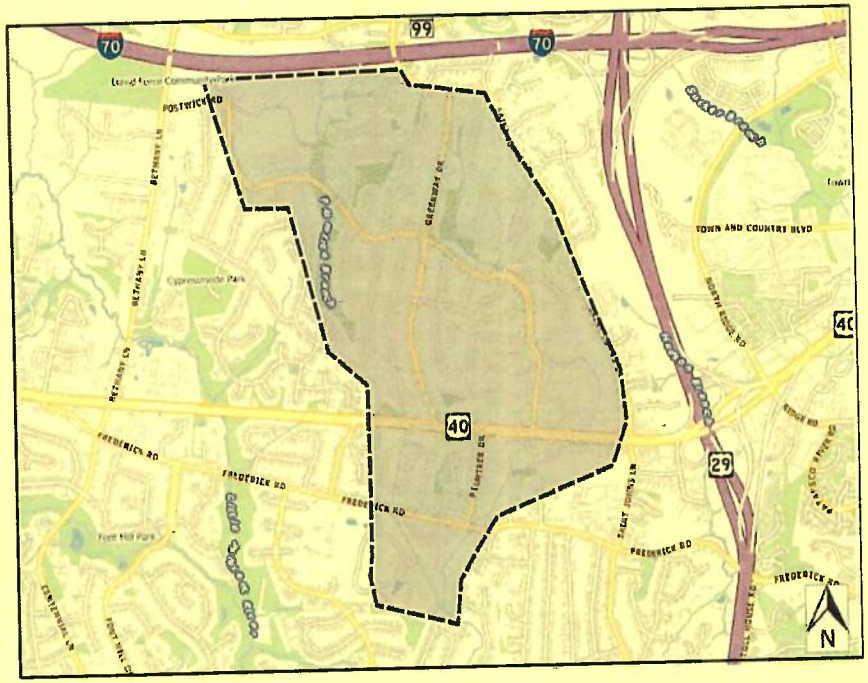
Remarks

1. Future years once projects cost/benefits ~~detrermined~~ DETERMINED, apply for FEMA grants;
2. OTHER SOURCES represents Stormwater Bonds backed by Watershed Protection and Restoration fund.
3. Construction of some projects may be dependent upon donation of the necessary easements and/or property owner cost share participation.

Project Schedule

FY19 - Begin design of projects identified in Plumtree/Little Plumtree study.

FY19 – BEGIN BUILDING ACQUISITION AND REMOVAL OR DEMOLITION OF THOSE IN THE MOST VULNERABLE FLOODING AREAS.



Fiscal 2019 Capital Budget

Project: FY-2018 VALLEY MEDE/CHATHAM FLOOD MITIGATION

DRAINAGE PROJECTS

Number: D1175

(In Thousands)				Five Year Capital Program						Master Plan				
Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
PLANS & ENGINEERING	0	500	500	500	500	0	0	0	1,000	0	0	0	0	1,500
LAND ACQUISITION	0	1,000	1,000	3,500	0	0	0	0	3,500	0	0	0	0	4,500
CONSTRUCTION	700	0	700	~~3,000~~ 3,300	3,000	0	0	0	~~6,000~~ 6,300	0	0	0	0	~~6,700~~ 7,000
ADMINISTRATION	0	0	0	100	100	0	0	0	200	0	0	0	0	200
Total Expenditures	**700**	~~500~~ **1,500**	~~1,200~~ **2,200**	~~3,600~~ **7,400**	**3,600**	**0**	**0**	**0**	~~7,200~~ **11,000**	**0**	**0**	**0**	**0**	~~8,400~~ **13,200**
OTHER SOURCES	700	500	1,200	3,600	3,600	0	0	0	7,200	0	0	0	0	8,400
BONDS	0	1,000	1,000	3,800	0	0	0	0	3,800	0	0	0	0	4,800
Total Funding	**700**	~~500~~ **1,500**	~~1,200~~ **2,200**	~~3,600~~ **7,400**	**3,600**	**0**	**0**	**0**	~~7,200~~ **11,000**	**0**	**0**	**0**	**0**	~~8,400~~ **13,200**

$355,079 spent and encumbered through February 2018 spent and encumbered through February 2017

Project Status : Constructed Longview stream project.

FY 2018 Budget	700	3,800	**4,500**	2,200	0	0	0	0	**2,200**	0	0	0		**6,700**
Difference 2018 / 2019	0	(3,300)	**(3,300)**	1,400	3,600	0	0	0	**5,000**	0	0	0	0	**1,700**

TAO#1-2019 TRANSFERS IN $1,000,000.

Fiscal 2019 Capital Budget

Project: FY2010 ROUTE ONE FIRE STATION

FIRE PROJECTS and EQUIPMENT

Number: F5975

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
PLANS & ENGINEERING	2,070	0	2,070	0	0	0	0	0	0	0	0	0	0	2,070
LAND ACQUISITION	1,130	0	1,130	870	0	0	0	0	870	0	0	0	0	2,000
CONSTRUCTION	11,500	~~0~~ (10,975)	~~11,500~~ 525	~~1,000~~ 11,975	0	0	0	0	~~1,000~~ 11,975	0	0	0	0	12,500
ADMINISTRATION	30	0	30	5	0	0	0	0	5	0	0	0	0	35
EQUIPMENT & FURNISHINGS	550	0	550	0	0	0	0	0	0	0	0	0	0	550
Total Expenditures	**15,280**	**~~0~~** **(10,975)**	**~~15,280~~** **4,305**	**~~1,875~~** **12,850**	**0**	**0**	**0**	**0**	**~~1,875~~** **12,850**	**0**	**0**	**0**	**0**	**17,155**
BONDS	10,975	~~0~~ (10,975)	~~10,975~~ 0	~~1,875~~ 12,850	0	0	0	0	~~1,875~~ 12,850	0	0	0	0	12,850
OTHER SOURCES	2,005	0	2,005	0	0	0	0	0	0	0	0	0	0	2,005
TRANSFER TAX	2,300	0	2,300	0	0	0	0	0	0	0	0	0	0	2,300
Total Funding	**15,280**	**~~0~~** **(10,975)**	**~~15,280~~** **4,305**	**~~1,875~~** **12,850**	**0**	**0**	**0**	**0**	**~~1,875~~** **12,850**	**0**	**0**	**0**	**0**	**17,155**

$713,601 spent and encumbered through February 2018
$327,583 spent and encumbered through February 2017
Project Status : Building design complete; SDP review to be complete in Spring 2018. Start of construction pending execution of land transfer with state.

FY 2018 Budget	15,280	0	**15,280**	0	0	0	0	0	**0**	0	0	0		**15,280**
Difference 2018 / 2019	0	0	**0**	1,875	0	0	0	0	**1,875**	0	0	0	0	**1,875**

TAO#1-2019 MOVES $9,975,000 TO C0337, AND $1,000,000 TO D1175.

Fiscal 2019 Capital Budget

Project: FY2014 EAST COLUMBIA LIBRARY ATHLETIC FIELD and SITE IMPROVEMENTS

PARKS PROJECTS

Number: N3973

(In Thousands)

Appropriation Object Class	Prior Appr.	FY2019 Budget	Appr. Total	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	Sub Total	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Total Project
				Five Year Capital Program						Master Plan				
PLANS & ENGINEERING	200	0	200	0	0	0	0	0	0	0	0	0	0	200
CONSTRUCTION	3,700	~~0~~ (3,700)	~~3,700~~ 0	~~0~~ 3,700	0	0	0	0	~~0~~ 3,700	0	0	0	0	3,700
Total Expenditures	3,900	~~0~~ (3,700)	~~3,900~~ 200	~~0~~ 3,700	0	0	0	0	~~0~~ 3,700	0	0	0	0	3,900
BONDS	3,900	~~0~~ (3,700)	~~3,900~~ 200	~~0~~ 3,700	0	0	0	0	~~0~~ 3,700	0	0	0	0	3,900
Total Funding	3,900	~~0~~ (3,700)	~~3,900~~ 200	~~0~~ 3,700	0	0	0	0	~~0~~ 3,700	0	0	0	0	3,900

$162,205 spent and encumbered through February 2018
$153,960 spent and encumbered through February 2017
Project Status :

FY 2018 Budget	3,900	0	3,900	0	0	0	0	0	0	0	0	0		3,900
Difference 2018 / 2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TAO #1-2019 MOVES $3,700,000 TO C0337.

Amendment 2 to TAO1-FY2019

BY: Calvin Ball
Jennifer Terrasa

Legislative Day No. 13
Date: 10/1/18

Amendment No. 2

(This amendment removes F5975, Route One Fire Station, as a donor project for D1175, Valley Mede/Chatham Flood Mitigation.)

On page 2:

- strike line 25.
- In line 26, strike "($10,975,000)" and substitute "($9,975,000)".

On page 3:

- strike line 13 in its entirety; and
- in line 14, strike "$1,500,000" and substitute "$500,000".

Amendment 1 to Amendment #3
Transfer of Appropriation Ordinance No. 1-FY2019

BY: Mary Kay Sigaty
Greg Fox
Jon Weinstein

Legislative Day No: 13
Date: October 1, 2018

Amendment No. 1 to Amendment #3

(This amendment would require that a Section 106 of the National Historic Preservation Act review is completed before funds can be used for demolition of historic structures in the 2018 Flood Mitigation Plan area.).

On page 1, in the amendment explanation, in line 3, immediately following the period, insert the following:

"*Also, this amendment would ensure that a Section 106 of the National Historic Preservation Act review is completed, as required by Federal law, before funds can be used for demolition of historic structures in the 2018 Flood Mitigation Plan area.*".

On page 1, in line 14, strike the quotation marks and the second period.

On page 1, immediately following line 15, insert the following:

"***Section 5. And Be It Further Enacted*** *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference, no funds shall be used to demolish historic structures in the 2018 Flood Mitigation Plan area until a Section 106 of the National Historic Preservation Act review, as required by Federal law and defined in the Department of Interior Standards, is conducted.*".

Amendment 3 to Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

BY: Mary Kay Sigaty
Calvin Ball
Greg Fox
Jon Weinstein

Legislative Day No: 13
Date: 10/1/18

Amendment No. 3

(This amendment proposes to state the Council's intent that, where possible, that the redevelopment effort in the 2018 Flood Mitigation Plan area incorporate deconstructed historic facades.)

On page 3, immediately following line 25, insert the following:

"***Section 4. And Be It Further Enacted*** *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference, no funds shall be used to demolish historic properties until the historic buildings slated for removal as part of the 2018 Flood Mitigation Plan are evaluated by the Ellicott City Historic Structures Review Committee created by Executive Order 2018-16 to determine if the building, façade, or other historical elements are suitable to be deconstructed and properly stored for incorporation in the 2018 Flood Mitigation Plan area redevelopment efforts.*".

Renumber the remainder of the bill accordingly.

Amendment 4 to Transfer of Appropriation Ordinance No. 1 Fiscal Year 2019

BY: Calvin Ball
Jennifer Terrasa

Legislative Day No: 13
Date: 10/1/18

Amendment No. 4

(This amendment proposes to:

- *Require that the Section 106 of the National Historic Preservation Act review is completed before funds can be used for demolition of historic properties in the 2018 Flood Mitigation Plan area;*
- *Require that a public hearing is conducted before funds can be used for demolition of historic properties in the 2018 Flood Mitigation Plan area;*
- *Indicate that if the County does acquire historic properties in the 2018 Flood Mitigation Plan area that certain protections are put into place before the property is turned over to another entity; and*
- *Indicate the County's preference to transfer historic properties that it acquires in the 2018 Flood Mitigation Plan area to a public/private urban development organization.)*

On page 3, immediately following line 25, insert the following:

"***Section 4. And Be It Further Enacted*** *by the County Council of Howard County, Maryland that, in the current expense budget and capital budget attached to this Act or incorporated by reference, no funds shall be used to demolish historic structures in the 2018 Flood Mitigation Plan area until the following conditions are met:*

1. *A Section 106 of the National Historic Preservation Act review, as defined in the Department of Interior Standards, is conducted; and*
2. *A public hearing is conducted by the County Executive with the Directors of the Department of Public Works and the Department of Planning and Zoning to: present the results of the Section 106 review; present the plan and timeline for implementation of the projects identified in the 2016 McCormick Taylor H&H study and in later McCormick Taylor evaluations, including post-2018 evaluations; present an independent fiscal and constructability study for bored*

tunnels to divert floodwaters; present a structural stabilization and waterproofing plan for all County-owned historic contributing structures; present the results from the evaluation of obtaining funding from Program Open Space to create a community park; and hear testimony from the public on all of the issues above. At least 30 days prior to the public hearing, the County shall post all of the items to be presented on the County's website along with notice of the date, time, and place of the hearing.

Section 5. And Be It Further Enacted *by the County Council of Howard County, Maryland that, no funds from the current expense budget and capital budget attached to this Act or incorporated by reference be used by the County to acquire property within the Historic District unless at closing a covenant or deed restriction is recorded on the property that specifies that if the County decides to transfer the property at any point, it shall only transfer the property to a non-profit economic development organization created to support and revitalize Ellicott City with the mission to retain and expand its historic character, economic opportunity, and health and well-being of its residents and employees.*

Section 6. And Be It Further Enacted *by the County Council of Howard County, Maryland that, no funds from the current expense budget and capital budget attached to this Act or incorporated by reference be used by the County to acquire property within the Historic District unless at closing a covenant or deed restriction is recorded on the property that specifies that if the County decides to transfer the property at any point, it shall only transfer the property with preservation protections such as easements in place.*".

Renumber the remainder of the bill accordingly.

Amendment 1 to Amendment #5
Transfer of Appropriation Ordinance No. 1-FY2019

BY: Calvin Ball

Legislative Day No: 13
Date: October 1, 2018

Amendment No. 1 to Amendment #5

(This amendment specifies the intent of a condition.)

On page 1, in line 9, immediately before the period, insert:

"*such that the combined total of the purchase price and insurance proceeds received by the property owner for flood damage to the property do not exceed the appraised pre-flood value of the property*".

Amendment 5 to TAO1-FY2019

BY: Calvin Ball

Legislative Day No. 13

Date: 10/1/18

Amendment No. 5

(This amendment provides that flood insurance proceeds are considered when purchasing properties.)

On page 3:

- after line 25, insert:

  "***Section 4. And Be It Further Enacted*** *by the County Council of Howard County, Maryland, that funds in the current expense budget and capital budget attached to this Act or incorporated by reference may only be used to acquire property as part of the Ellicott City flood mitigation plan if:*

  (1) the purchase price does not exceed the appraised pre-flood value of the property; and

  (2) the purchase is conditioned so that any proceeds from flood insurance on the property either reduce the purchase price commensurately or are paid to the County.".

- in line 26, strike "Section 4" and substitute "*Section 5*".

TAO1-FY19

Sayers, Margery

From: Lasser, Caryn
Sent: Friday, September 21, 2018 3:50 PM
To: Feldmark, Jessica
Cc: Sigaty, Mary Kay; Sager, Jennifer; CouncilMail
Subject: EC Flood Mitigation Plan - Council Requests and Responses
Attachments: Response to Question 13.pdf

Hi Jess,

Please find below, and attached as referenced below, responses to Council questions regarding the Ellicott City Flood Mitigation Plan. County staff are continuing to compile information to respond to the remaining questions. Additional responses will be shared as they become available. A wealth of information is available at: www.ECfloodrecovery.org.

Council Requests for Additional Information:

13. *Please provide a detailed breakdown of the five-year plan to include how much funding will be required in each of the five years, which projects will be completed each year, how much each project will cost, and how much flood mitigation impact each project will achieve.*

    Please see the attached file for a breakdown of the multi-year plan including funding and project descriptions as reflected in TAO1-FY2019 and CB61-2018. Flood mitigation impact was described in the plan presented; individual projects were not modeled separately.

8. *In addition, please provide a full briefing for Council Members on the proposed real estate deals including copies of the appraisals and any other details which may need to be kept confidential.*

    As noted in the response to Question #7, there are no real estate deals to date. The Council will need to provide funding authority before any real estate deals can occur. The current appraisals have an aggregate total of $9.5 million which is included in the line item for acquisition of buildings along Main Street in Ellicott City as described in the response to Question #13 and Question #9.

Additionally – Please find below an updated response to Questions 9.
The property list has been revised to include 8777 Frederick Road.

9. *Please provide a list of all the properties to be acquired with the owner of each property and the age of each building to be removed.*

    The properties in downtown Ellicott City include the following, including owner name and approximate year structure was built:

    - 8049 Main Street, owner: George C. Goeller.
      Rear was built in 1850, 1st floor in 1860s, and 2nd floor in 1920.

    - 8055 Main Street, owner: Sally Tennant.

1930s.

- 8059 Main Street, owner: American Touresorts, Inc.
  1890s w/later addition in 1930s.

- 8069 Main Street, owner: 8069 LLC.
  1880s and 1930s.

- 8081 Main Street, owner: Master's Ridge, LLC.
  1800s w/later addition.

- 8085 Main Street, owner: Blues Building, Inc.
  Late 1800s, addition 1920s, fire damage 1999, rebuilt 2000, flood damage 2016, renovated 2017.

- 8095 & 8101 Main Street, owner: Historic Ellicott Properties, Inc.
  1890, fire 1999 & rebuilt 2001, renovated in 2016 after 2016 flood.

- 8109 – 8113 Main Street, owner: Charles E. & Jane Best Wehland, and Walter L. and Jennifer D. Johnson.
  1900s, but added to over the years

- 8125 Main Street, owner: Caplan Department Store.
  1901.

- 8777 Frederick Road, owner: George Jenson.
  1899.

Thanks.

Caryn D. Lasser
Deputy Chief of Staff
Howard County Executive Office
3430 Courthouse Drive
Ellicott City, Maryland 21043
410-313-4308 Direct Office
410-313-2013 Main Office
443-537-3501 Cell

#13. Please provide a detailed breakdown of the five-year plan to include how much funding will be required in each of the five years, which projects will be completed each year, how much each project will cost, and how much flood mitigation impact each project will achieve.

Below please find a breakdown of the multi-year plan including funding and project description as reflected in TAO1-FY2019 and CB61.

Ellicott City Flood Mitigation Plan with Valley Mede Flood Mitigation and EC Restoration - Capital Budget Impact (000's)

Original

		FY19	FY20	FY21	FY22	Total
C0337	Acquisition and removal/relocation of buildings along Main Street Ellicott City.	10,600	3,700			14,300
C0337	Lower Main Open Space design (FY19) and construction (FY20, projected completion in CY2019).	600	4,000			4,600
C0337	Various road repair projects; replace failed culvert at Ellicott Mills Drive and re-construct roadway.	5,759				5,759
C0337	Roger Ave storm drainage improvements; design of Hudson Branch (Lot D) stream expansion.	800				800
C0337	New Cut Rd slope repair; H7 and Quaker Mill pond retention; storm drain repairs at various EC locations; design/repair of MD Ave and Frederick Rd Culverts and Hudson Bend (Lot D) stream expansion.	0	17,000	12,800	10,000	39,800
D1175	Acquisition and removal/relocation of buildings in Valley Mede.	1,000	3,800			4,800
	TAO1-FY19 & CB61	**18,759**	**28,500**	**12,800**	**10,000**	**70,059**

Note 1: Preliminary estimate indicates potentially $22-$30+ million Federal and State aid / reimbursement in total.

Note 2: Approximately $50 million are flood mitigation in historic Ellicott City (excluding Valley Mede and restoration work)

Below please find a breakdown of funding in FY2019, including pre-filed legislation and planned amendment to account for higher state aid and adjusted project cost.

Based on latest information including cost adjustment (decreased by $278K in FY19) and additional state funding ($222K in FY19), the administration plans to submit budget amendment to County Council next week. Revised TAO1-2019 & CB61 including cost breakdown and project description are shown below.

Revised (after Proposed Amendment)

		FY19	FY20	FY21	FY22	Total
C0337	Acquisition and removal/relocation of buildings along Main Street Ellicott City.	11,000	3,700			14,700
C0337	Lower Main Open Space design (FY19) and construction (FY20, projected completion in CY2019).	600	4,000			4,600
C0337	Various road repair projects; replace failed culvert at Ellicott Mills Drive and re-construct roadway.	5,081				5,081
C0337	Roger Ave storm drainage improvements; design of Hudson Branch (Lot D) stream expansion.	800				800
C0337	New Cut Rd slope repair; H7 and Quaker Mill pond retention; storm drain repairs at various EC locations; design and repair of MD Ave and Frederick Rd Culverts and Hudson Bend (Lot D) stream expansion.	0	17,000	12,800	10,000	39,800
D1175	Acquisition and removal/relocation of buildings in Valley Mede.	1,000	3,800			4,800
	TAO1-FY19 & CB61	**18,481**	**28,500**	**12,800**	**10,000**	**69,781**

Note 1: Preliminary estimate indicates potentially $22-$30+ million Federal and State aid / reimbursement in total.

Note 2: Approximately $50 million are flood mitigation in historic Ellicott City (excluding Valley Mede and restoration work)

TA01 - FY19

Council Requests for Additional Information from the Administration on TAO1-FY19:

1. *Regarding the "Nationwide Trends" map from NOAA, please provide additional detail about the information reflected in the map -- timeframe, specific data points used, etc.*

   As described in the following weblink, the map appeared in chapter 2 of the 2014 report, 'Climate Change Impacts in the United States: The Third National Climate Assessment Report.' The figure and data it uses is updated from the 2009 'Global Climate Change Impacts in the United States,' editors of which were NOAA and the Marine Biological Laboratory. More information about the map and the data can be found through this link (and the sub-links within): https://data.globalchange.gov/report/nca3/chapter/our-changing-climate/figure/observed-change-in-very-heavy-precipitation-2

2. *Also, regarding the "Nationwide Trends" map from NOAA, please provide an updated map if possible. (Map shown was only through 2012.)*

   The map provided is the most recent from the source described in the response to question #1.

3. *Please provide a copy of the article focused specifically on eastern seaboard weather trends which Mr. Weinstein mentioned during the discussion of the "Nationwide Trends" map.*

   Please find attached a file with the Washington Post article that was referred to by Mr. Weinstein during the discussion of the "Nationwide Trends" map.

4. *Please provide an adjusted version of the "Full Plan Model" map to indicate the depth of water exceeding the channel.*

   We believe the Council is asking if there is a way to measure the water over and above the water that would be in the channel. This is what the model maps are showing – that once the water breaches the channel, it spills out and the colored areas of the map (any areas that are not a channel) reflect the level of water that might exceed the depth of the water in the channel. This can likely be more easily described visually during the work session.

7. *Please provide a summary of the real estate deals proposed with as much detail as can be made public.*

   There are no real estate deals to date. The Council will need to provide funding authority before any real estate deals can occur.

11. *How does the Flood Mitigation Plan align with the EC Master Plan to move EC forward as a vibrant, attractive, and exciting destination?*

The Ellicott City Master Plan was nearing its final phase – the delivery of a final draft plan - when the May 27, 2018 flood occurred. The draft master plan vision, which remains relevant, stated: "*Ellicott City and its watershed is a model, resilient community that thrives by protecting its people, commerce, history, culture and natural environment.*"

Prior to May 27, 2018, the master plan process included the presentation of several draft concepts to the community. Originally, master plan concepts would be recommended as near, medium or longer-term projects. These concepts included a major flood conveyance improvement called "Hudson Bend," a daylit, widened, terraced stream channel spanning from Court Avenue through Lot D. As many other communities have found, widened stream channels can be designed to function not only as flood mitigation but also as major amenity features – with landscaping, hardscaping and inviting open space.

To accommodate the space required for the widened stream channel, this master plan concept included the removal of the portion of the building housing La Palapa and removal and potential relocation of the Ellicott Mills Brewing outbuilding. Both of those buildings span the stream channel and would require removal for the stream channel widening to proceed.

Following the May 2018 flood, a priority was to develop an accelerated concept for flood mitigation. The five-year flood mitigation plan is the result, which now includes the Hudson Bend concept and the concept of a widened stream channel has been extended from Ellicott Mills Drive to Maryland Avenue. The master plan will provide guidance on how the widened channel can be terraced and designed to serve as a major amenity, similar to that envisioned for Hudson Bend. The five-year flood mitigation plan will serve as the near-term action plan and nest within the longer-term master plan.

14. *Please provide a copy of the presentation and any materials to be provided at the September 12 Master Plan public information meeting.*

The September 12, 2018 Ellicott City Watershed Master Plan meeting presentation and video are posted on the EC Master Plan webpage: www.howardcountymd.gov/ECMP.

A direct link to the powerpoint can be found here:
https://www.howardcountymd.gov/LinkClick.aspx?fileticket=lx-y592IJA%3d&portalid=0

The Washington Post

National

Immense rains are causing more flash flooding, and experts say it's getting worse

By Tim Craig and Angela Fritz
June 24

OLD FORT, N.C. — Brian Gentry was certain his 33,000-pound truck would be fine as he headed out into the heavy rains here in the Blue Ridge Mountains. But as he went to clear debris from a two-lane highway after more than a half-foot of rain, rocklike drops pounded the windows, and he heard the earth "crack" around him as the land began to slide.

Mud and uprooted trees slammed his vehicle, tossing it across the highway, over a 10-foot embankment and into the raging Catawba River. Gentry and a co-worker with the North Carolina Department of Transportation were rolled, and the truck came to rest in the water, just the passenger-side window peeking out.

"I looked around, and I saw everything that was going on, and I thought, 'I am going to die,' " Gentry, 47, recalled. "I thought, 'My life is about over, so I need to call my wife.' "

Gentry spent 40 minutes clinging to a rope in the water awaiting rescue, the victim of an alarming phenomenon: Torrential rain events across the United States are becoming more frequent and more intense, leading to record rainfall, rare extreme flooding and perilous infrastructure failures.

Experts say the immense rains — some spawned by tropical ocean waters, others by once-routine thunderstorms — are the product of long-rising air temperatures and an increase in the sheer size of the storms. Because warmer air can hold more water, large storms are dropping far more rain at a faster clip.

Such rains in recent weeks have deluged the Great Lakes region, the Deep South and the suburbs of major cities along the Atlantic coast. Philadelphia, Charlottesville, and Ocean City, Ellicott City and Frederick in Maryland all have experienced major flooding since mid-May. Several locations in Maryland had their wettest May on record, including Baltimore, which tallied more than eight inches, most of which fell in the second half of the month.

"Things are definitely getting more extreme," said Andreas Prein, an atmospheric scientist at the National Center for Atmospheric Research in Boulder, Colo. "You just have to look at the records. All areas of the continental U.S. have seen increases in peak rainfall rates in the past 50 years. . . . And there is a chance that we are underestimating the risk, actually."

On Friday, Richmond experienced its second-wettest day on record — 7.61 inches of rain, more than the city typically gets in the entire month of June, topping the previous record on Aug. 12, 1955, during Hurricane Connie. The torrential rains in the past week flooded Richmond International Airport, which closed its doors for more than two hours Friday.

Slow-moving thunderstorms on Wednesday triggered widespread flooding in suburban Pittsburgh, where residents posted online videos showing cars, television sets and dumpsters floating down streets and highways. Rainfall rates reached two to three inches per hour during that storm, according to the National Weather Service in Pittsburgh.

Several stalled storms last weekend resulted in catastrophic flooding of homes and businesses on the Upper Peninsula of Michigan, prompting Gov. Rick Snyder (R) to declare a state of disaster in the counties affected. In South Texas, days of heavy rain inundated subdivisions with several feet of water, and the Texas National Guard used helicopters to rescue stranded residents.

And in North Carolina, the May 29 flooding in McDowell County resulted in 18 people needing rescue, including the highway workers in Old Fort. As the runoff poured into mountain streams, officials ordered up to 2,000 residents to evacuate amid fears that the Lake Tahoma Dam could fail. There were also more than 40 landslides, which the McDowell County Office of Emergency Management described as unprecedented.

"The storms are worse. The rain is worse. The heat is worse," said Melissa Smith, an Old Fort resident, after a mountain stream overflowed that night and spilled several feet of mud, rocks and other debris into her yard. "Everything is worse."

Several atmospheric researchers said in interviews that they agree with that perception. They say it is getting worse.

Since 1880, global temperature has risen just more than 0.13 degrees per decade, for a total of 1.8 degrees Fahrenheit (1 degree Celsius). The amount of water air can hold is based on temperature — put very simply, the warmer the air is, the more water it can hold.

Theoretically, experts say, an additional 1.8 degrees would amount to about 7 percent more water in the air, resulting in a similar increase in extreme rainfall. But what Prein and other researchers have found is much higher across a vast portion of the United States.

According to the 2014 National Climate Assessment, the eastern half of the continental United States has seen the most dramatic change in extreme rainfall. The amount of rain during the most extreme storms in the Northeast has risen 71 percent since 1958; in the Midwest, heavy rain has increased 37 percent; in the Southeast, it's up 27 percent.

And the area covered by each storm also is getting larger, Prein said, another major factor in the increased precipitation. Prein's new research suggests thunderstorms will become 80 to 90 percent larger by the end of the century.

The heavy rain and the larger storms explain why the country has seen an increase in dangerous flash flooding like Old Fort saw three weeks ago.

The 900 residents who live here note that their town has been built around a culture of resiliency, living with the threat of flooding since its origins as a westernmost outpost in colonial America . It was named after the European settlers' forts constructed in the mid-1700s to ward off Native American tribes.

In 1916, after the remnants of two tropical systems merged over the area, floodwater inundated much of the community, washing away what was left of the town's original forts, said Carol Price, executive director of the McDowell Tourism Development Authority. The area also experienced a major flood following thunderstorms in 1977, and again in 2004, as the remains of Hurricane Ivan passed through.

But Price said the rainstorm last month appeared to easily surpass both of those floods. The waters of Mill Creek, a mountain stream that flows from the Eastern Continental Divide into the Catawba River, for the first time overtopped a retaining wall that had been built in the 1930s under President Franklin D. Roosevelt's Civilian Conservation Corps, Price said.

About 15 miles away, officials worried that a nearly 100-year-old dam could fail, prompting the mass evacuation downstream along Buck Creek. The alert was triggered after more than two feet of water began flowing over the top of the dam. A landslide near its base worried engineers, who though the integrity of the structure had been compromised.

At the historic Carson House, which was the estate of one of McDowell County's founders, Col. John Carson, museum officials were warned a 30-foot wall of water could topple the property if the dam failed. Amanda Finn, the museum's executive director, began rushing to remove historical artifacts, including a walking stick that President Andrew Jackson had given Carson.

Officials signaled the all-clear a few hours later, after they inspected the dam in the daylight, but Finn said Buck Creek still breached its banks, causing water to lap up to the foundation of the house.

"When it reached its highest point, we were very concerned," Finn said, noting there wasn't much else they could do to protect the historic home.

The rising waters caused similar concern for the residents of Ellicott City on May 27, when the town's streets were turned into a raging river for the second time in two years, sending people scurrying to second and third floors. Cars rode the waves on Main Street, and historic buildings were swept from their foundations.

The 2016 and 2018 floods both were caused by 1-in-1,000-year storms, meaning the odds are shifting, perplexing meteorologists such as Greg Carbin at the National Weather Service in College Park, Md.

"There's something that bothers me about that," Carbin said. "What are the chances that would happen twice within two years in Ellicott City?"

In western North Carolina, a deeply conservative region, most residents say they, too, now believe weather patterns are changing. But here in the "Blue Ridge Bible Belt," many say God — not man-made climate change — is to blame for the more extreme weather.

On Catawba River Road, which connects Old Fort to the 500,000-acre Pisgah National Forest, 80-year-old Leslie Allison lost part of his cow pasture in the May storm. But Allison and his wife, Virginia, 65, viewed the loss as a sign that God is dissatisfied with modern-day American values.

"You know what the problem is," said Leslie Allison, a devout Christian who repeatedly volunteered that he is a supporter of President Trump. "This country has turned away from God, and he is going to bring judgment to this country."

Dan Watson and his wife, Ann, manage Buck Creek R.V. Park, which is located about three miles downstream from the Lake Tahoma Dam. Ann Watson said her Baptist faith teaches her that the extreme weather is a sign Jesus will soon return to Earth, and she doesn't believe climate-change science. But Dan Watson said he believes man could be partly responsible for the shift in weather.

"I'm not going to be the one that sits down and does things differently in my activity because I'm worried about the Earth," Dan Watson said. "But do I think there could be some global warming? Yes."

Gentry, the North Carolina transportation worker whose truck was swamped in the May flooding, said he hopes residents here stay focused on the more immediate challenge: It's only a matter of time before the next dangerous flash flood occurs in these mountains.

"Water runs downhill; you got small valleys, and it rises quickly, and that is normal," said Gentry, who is also the head of the McDowell County Volunteer Department's rescue squad. "I am sure going to have my ear attuned to try to hear an earlier crack."

Tim Craig

Tim Craig is a national reporter on the America desk. He previously served as head of The Washington Post's Afghanistan-Pakistan bureau, based in Islamabad and Kabul. He has also reported from Iraq, the District and Baltimore. Follow

Angela Fritz

Angela Fritz is an atmospheric scientist and The Washington Post's deputy weather editor. Before joining The Post, Fritz worked as a meteorologist at CNN in Atlanta and Weather Underground in San Francisco. She has a BS in meteorology and an MS in earth and atmospheric science. Follow

TA01-FY19
9/17/18

Council Requests for Additional Information from the Adminstration:

5. *Please provide a list of all the scenarios considered with the following information for each scenario:*
    a. *a summary/description;*
    b. *the total estimated cost;*
    c. *the flood mitigation impact achieved;*
    d. *any road closures necessary to construct/implement (including locations and durations); and*
    e. *your evaluation of the pros & cons.*

    Please see the attached Memo from Mark De Luca.

6. *Please provide clarification on what the plan is now -- which projects are actually included and which are still being evaluated.*

    Please see the attached Memo from Mark De Luca.

10. *Looking at the various studies over time, please compile a list of all the recommendations from all the studies and, for each recommendation, indicate whether or not it is incorporated into the proposed plan and explain why.*

    Please see the attached Memo from Mark De Luca.

12. *What will this plan actually address and achieve? Can we quantify the impact of executing this plan in accomplishing a specific amount of flood mitigation?*

    Please see the attached Memo from Mark De Luca.

Howard County
Internal Memorandum

SUBJECT: Council Information Request

TO: Caryn Lasser

FROM: Mark De Luca

DATE: September 17, 2018

In response to the Council's request for more information please find the attached.

Specifically, their request as listed:

5. Please provide a list of all the scenarios considered with the following information
   a. a summary/description
   b. the total estimated cost
   c. the flood mitigation impact achieved
   d. any road closures necessary
   e. your evaluation of the pros and cons

10. Looking at the various studies over time, please compile a list of all the recommendations from all studies and, for each recommendation, indicate whether or not it is incorporated into the proposed plan and explain why.

The attached spreadsheets and report texts are offered to answer these two questions.

For Question 6, the 5-year plan consists of:

1. Ellicott City Property Acquisition/Removal
2. Lower Main Street Open Space Construction
3. Ellicott Mill Culvert Expansion
4. The Hudson Bend
5. Frederick Road Culvert Improvements
6. Church/Emory Streets Storm Drain Improvements.
7. Quaker Mill Retention Facility at Rogers Avenue
8. Hudson 7 Retention Facility at US 29/Rt. 40 Interchange
9. New Cut Road Slope Failure
10. Maryland Avenue Culverts

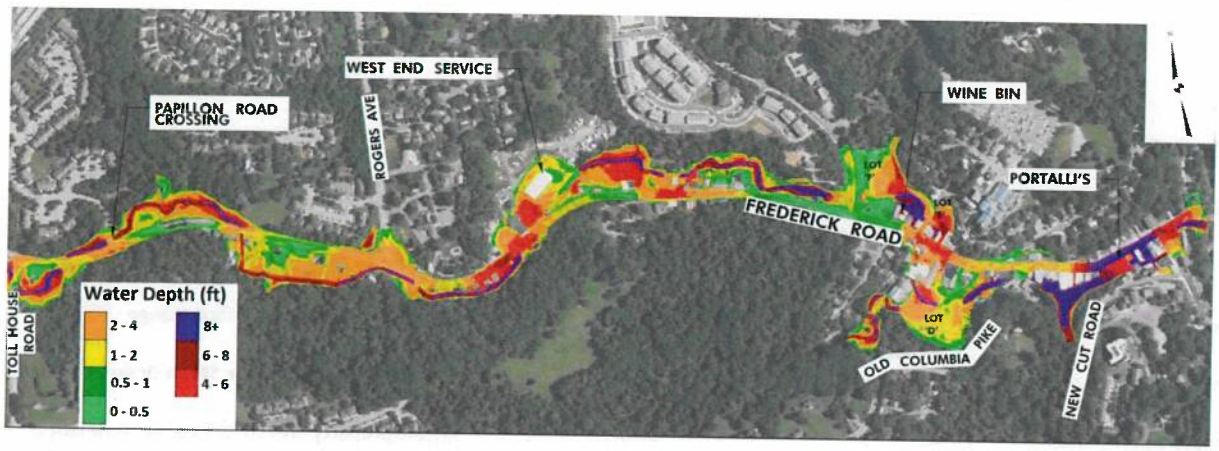
Listed below is an anticipated schedule for the work.

Projects	FY 19	FY 20	FY 21	FY 22	FY23
Acquisition/Building Removal					
Lower Main	X				
Middle Main			X	X	
West End	X	X	X		
Lower Main Open Space					
Design	X				
Construction	X	X			
Ellicott Mills Drive					
Design	X				
Construction	X	X			
Hudson Bend					
Design	X	X			
Construction Phase I			X	X	
Construction Phase II				X	X
Frederick Road Culvert Expansions					
8600 Block					
Design/Permitting	X				
Construction	X	X			
8700/8500 Block					
Design		X			
Construction			X		
Church St/Emory Street Drainage					
Design	X				
Construction		X			
Quaker Mill Flood Control Facility					
Design/Permitting	X	X			
Construction		X			
H7 Flood Control Facility					
Design/Permitting	X	X			
Construction			X		
New Cut Road					
Design	X				
Construction		X			
Maryland Avenue Culverts					
Design		X			
Construction			X		

The retention facilities T-1 and NC-3 are still being evaluated at this time.

For Question 12, What will this plan actually address and achieve? Can we quantify the impact of executing this plan in accomplishing a specific amount of flood mitigation?

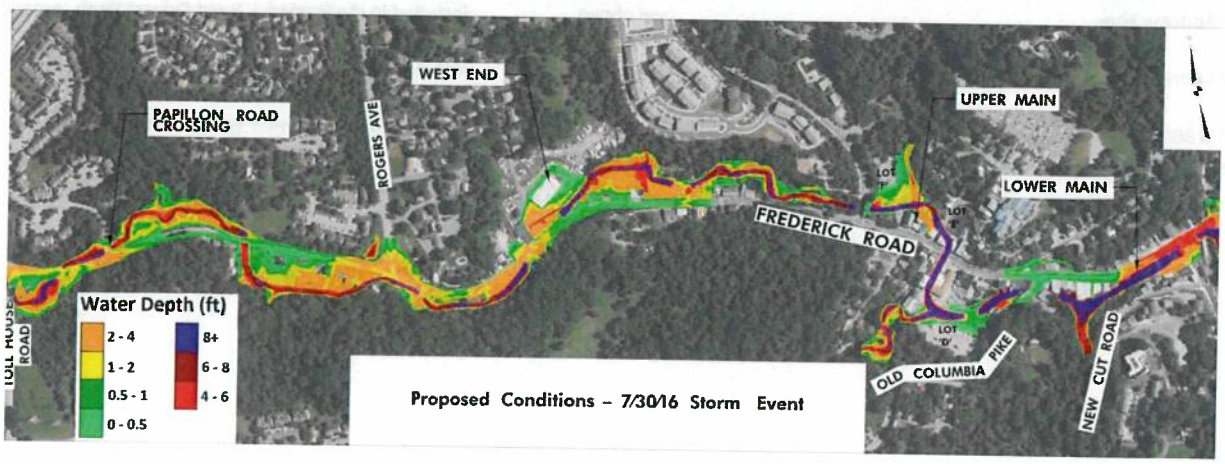
Modeling of the July 30, 2016 storm indicated 6 to more than 8 feet of water on lower Main Street. Water velocities were greater than 20 feet per second (fps) with induced shear forces greater than 15 pounds per square foot (psf). On the West Main Street, 4 to 6 feet of water was on the street, and many flooded homes were on the north side.



After completion of the 5-year plan projects, Lower Main Street water levels drop to 4 to 6 feet. This water level approaches acceptable water elevations for floodproofing. Velocities drop to 4.5 to 6.5 fps.

On West Main Street, flood waters are more easily contained in the channel. Water on the road is expected to be as low as 0.5 feet in some areas but there may be some pockets of 2 to 4 feet. Repeated damage to residences on the north side will decrease significantly.

Recommended Mitigation Improvements Model



McCormick Taylor 2011 Study

Project	Summary/Description Flood Mitigation Impact Achieved	Total Estimated Cost	Notes
Retention Facility H-7	**See attached McCormick Taylor Study dated April 3, 2014, pgs 30 thru 41**	$5.0M	Located within the 29/40 interchange
Alternate 4 Storm Drain		$2.0M	Part of the **Rogers Avenue Storm Drain Improvement Project**
Alternate 5 Storm Drain		$1.0M	Private property Not considered but now part of the 5-yr plan and acquisition and renamed **Frederick Road Culverts**
Alternate 6 Storm Drain and Alternate 7 Channel Structure Modifications		$20M	Now refered to as the **Hudson Bend**

S&S Consultants 2012 Case Study

8700 Address Zone	**See attached S&S Study dated June, 28, 2012, pgs 8 thru 16**	see above	Included in **Frederick Road Culvert Replacements** mentioned above
8600 Address Zone		see above	A portion is addressed under the **Rogers Avenue Storm Drain Improvements** and also under the **8600 Main Street Culvert Expansion**
8500 Address Zone		see above	Included in the **Frederick Road Culvert Replacements**
8300 Address Zone		see above	Improvements renamed **The Hudson Bend**
8100 & 8000 Address Zone		$4.6M	Improvements renamed **Lower Main Open Space**

McCormick Taylor 2016 Study

Project	Summary/Description Flood Mitigation Impact Achieved	Total Estimated Cost	Notes
Tiber 1 Retention Facility		$20M	**Known as T-1**, this is being evaluated as a P3
New Cut Retention Facilities NC-1 thru NC-4	**See attached McCormick Taylor Study dated June 16, 2016, pgs 24 Thru 42**	$10M	**Known as NC-3**, in preliminary design. Only NC 3 pursued as most cost effective for first round construction
Hudson Retention Facilities H-2 thru H-7		See Above	**Known as H-7**. Only H-7 pursued as most cost effective for first round construction
Underground Storage Facilities H-1 thru UG 1-3		N/A	None pursued in first round because of high rock excavation costs and an low storage capacity
Conveyance Improvements		See Above	All conveyance improvements are now included and listed as **Frederick Road Culvert Improvements**
84" to 108" Culvert Replacement		$1.6M	Listed as **8600 Main Street Culvert Expansion**
Tunnel Bore Improvements		$150M	Cost, constructabiliy and performance issues resulted in option not being considered

McCormick Taylor Modeling Post May 27th, 2018

(considers removing Lower Main properties and West End properties)

Option	Terraced Floodplain	Modified Floodplain	Quaker Mill	Lot D Expand	T-1	H-7	NC-3	MD Ave Culverts	Tailwater	West End Improve	Notes
1	*										Only removes 5 bldgs in floodplain
2	*										FP grading w/piers
3	*										FP Facades only
4	*										Includes Ellicott Mills Improve
5	*		*			*					
5A	*	*tot, gp	*			*					
6	*		*	*		*					
7	*		*	*		*	*				
8	*		*	*	*	*					
9	*		*	*	*	*	*				
10	*			*				*			Conveyance option
11	*		*	*	*	*	*	*			C+SWM option
12	*	*tot, gp		*				*			C=Mod FP
13	*	*tot, gp	*	*	*	*	*	*			C+SWM+Mod FP
14	*	*tot, gp	*	*	*	*	*	*	*		
15	*	*tot, gp	*	*		*		* 2 pipes	*	*	
16	*	*C Lab	*	*		*		* 2 pipes	*	*	
16B	*	*C Lab	*	*		*		* 2 pipes	*	*	Adjusted Terracing
16C	*	*C Lab Purp	*	*		*		* 2 pipes	*	*	Current 5-year plan option
16D	*	*C Lab Purp	*	*	*	*		* 2 pipes	*	*	

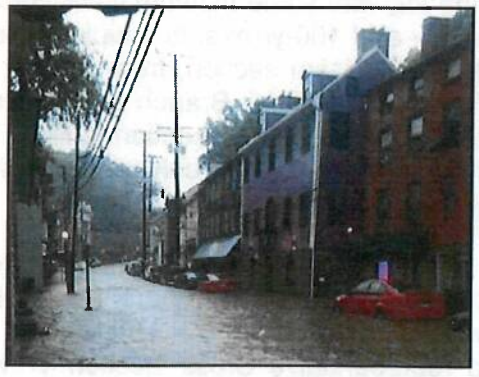
Ellicott City Flood Study
And
Concept Mitigation Report

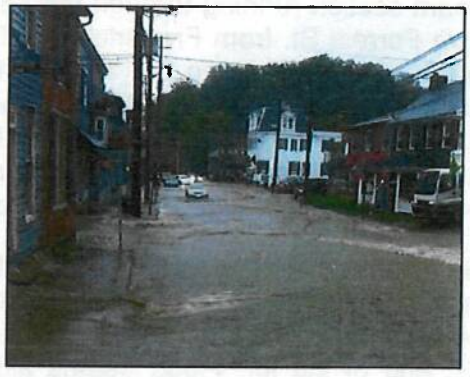
Howard County
MARYLAND

McCormick Taylor Project No. 5493-01
April 3, 2014

Prepared for:

Howard County Government
Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143





Prepared by:

McCORMICK TAYLOR

509 South Exeter Street, 4th Floor
Baltimore, Maryland 21202
(410) 662-7400

Frederick Rd. This overflow onto Frederick Rd. was simulated for all three storm events.

A lower flowrate of overflows entered Frederick Rd. from the driveway adjacent to Ellicott Mills Brewing Company. Flooding from this area originated at the open stream section at the south end of Parking Lot 'E'.

Flood waters from these areas continued down Frederick Road to the end of the modeled region. The 50- and 100-yr storms simulated significant flowrates down the roadway. The depths of flooding along Frederick Rd. was greatest between representative Cross Sections 'E' and 'F', and decreased as velocity down the roadway increased towards the intersection of Frederick Rd. and Old Columbia Pike. 100-yr roadway depth along representative Cross Section 'E' was approximately 4.1 ft and velocities between representative Cross Section 'F' and the intersection with Old Columbia Pike approached 35 ft/s; these flows were significantly less for the 10-yr storm, with a respective average roadway depth of 1.6 ft and velocities approaching 20 ft/s.

Significant flooding of Parking Lot 'D' was simulated for all three storm events. Flood waters in the parking lot had multiple origins depending on the storm event. For the 10-yr storm, flood waters originated almost entirely from the open stream section running through the parking lot, with some minimal flows coming down Forrest St. from Frederick Rd. The 50- and 100-yr events simulated flood waters entering Parking Lot 'D' from the open stream section, from Forrest St, and from overtop the culvert that confluences the Tiber Branch with Hudson Branch near the footbridge. Flooding from this open stream section is likely the result of backwatering from the footbridge and downstream culvert, as well as from the low channel depth (high bedrock depth) relative to the parking lot.

The extent of flooding in Parking Lot 'D' for the 50- and 100-yr events threatens the building at the northwest corner of the lot with a turbulent back eddy, while low velocity but high water surface elevations threaten several buildings at the east end of the lot. Flood depths along representative Cross Section 'F' vary greatly because of varying topography, significant elevation differences and differing flow paths. The most stable area for depth of flooding was in the overbank north of the open stream section, downstream from the footbridge. Flood depth in this location was 1.9 feet for the 10-yr model and 3.5 ft for the 100-yr model.

4.0 Conceptual Improvements

The study focused on two main types of conceptual improvements, stormwater quantity management to reduce the quantity of flow into the Main Street corridor, and conveyance improvements that would upgrade or supplement the storm drains and channels through the flooded area to carry more water at a lower elevation for a given event. Though there are a number of smaller stormwater improvements that could be implemented, the scope of this study was limited to

the largest feasible sites that could have the most significant impact on the quantity of flow, as well as sites within public rights-of-way. The structure of the model created for this study allows for any variation on, or combination of, improvements to be run through the model at a later date, however for the sake of keeping the large amount of data manageable, the focus of this study will include 3 improvement iterations: SWM Only, Conveyance Only, and All Improvements

4.1 DEVELOPMENT OF SWM SITES

The challenges in locating new sites to provide significant quantity management were numerous. Much of the watershed is built out with residential and commercial development, with the exception of some wooded areas on the periphery of the watershed. These areas are not suitable as they are in steep terrain, would involve significant tree loss, and most importantly do not receive much if any runoff from developed areas due to their upland location.

The most promising locations for storing and managing a significant volume of runoff were the areas within the US 40 / US 29 interchange, which are owned by Maryland State Highway Administration (MSHA). These areas are not currently utilized by MSHA for stormwater management, presumably because the interchange was built prior to the SWM era. The grading of the proposed facilities is conceptual and does not account for potential geotechnical or regulatory constraints such as the presence of bedrock and limitations imposed by MSHA (the property owner) or other regulatory agencies. Three areas were examined for their potential improvement:

SWM Area 1 – This is the northeast loop of the interchange and is online with the main channel that carries DA 1 and a portion of DA 2 under US 40 to the south. As a result, any management applied in this location will attenuate the flow from nearly the whole northern portion of the watershed (North of US 40) making it the most effective of all the sites. The storage would be created by excavating most of the area inside the loop down to near the elevation of the existing channel. Though online ponds are typically not encouraged by Maryland permitting agencies, exceptions can be made for specific circumstances such as this, particularly in light of the fact that fish passage does not currently exist at this location due to a 3' drop in a concrete structure at the entrance to the culvert under US 40. Because the pond storage created is in cut relative to surrounding areas, and outfalls into a storm drain system that does not daylight for over 900' from the pond, it would most likely not require any additional seepage control (Code 378 exempt).

SWM Area 2 – This area is in the lower half of the southeast interchange loop and collects runoff within DA 2 from a portion of US 40 and its ramps, as well as an unmanaged commercial area just to the east. The outfall spillway pipe, currently a culvert under the loop ramp to the south, would require retrofitting for seepage control in compliance with Code 378, which could be achieved for the existing ramp embankment with a clay liner on the upstream face to supplement

the pipe replacement. The stage-discharge table is based on maintaining groundwater baseflow and maximizing storage / attenuation while maintaining over 2' of freeboard for the 100-year event.

SWM Area 3 – This area is in the over-widened median of US 29 in the southern portion of the interchange and receives runoff from the eastern portion of DA 3 including the currently managed areas in Ellicott Center, as well as portions of unmanaged commercial development and US 29 ramps. The outfall spillway pipe, currently a culvert under US 29 SB, would require retrofitting for seepage control in compliance with Code 378, which could be achieved for the existing roadway with a clay liner on the upstream face to supplement the pipe replacement. Alternately, a weir structure upstream of the existing US 29 culvert may allow for the culvert to remain as a non-378 spillway pipe in lieu of a pipe replacement under the roadway. Stage-discharge was developed under same principle as above.

An additional SWM area along US 40 WB, west of US 29 was initially investigated as a location to treat runoff from some of the western portion of DA 3, however it was discovered that this area is currently under development and not publically owned, therefore it was removed from further consideration

4.1.1 Analysis of the Effects of Proposed CWP SWM Improvements

As part of the overall analysis, the County provided a map prepared by the Center for Watershed Protection of potential SWM LID retrofit site locations within the area and requested that the potential impact of these proposed facilities on flooding-related runoff be included. Without additional information regarding the specific design or drainage area of these BMPs two assumptions were made: Sites would treat the first 1" of runoff back to "woods in good condition" per Environmental Site Design (ESD) criteria. Drainage areas were based on the most likely location of the actual BMP relative to existing roads and structures in the vicinity of the point shown.

The initial consideration of these sites was to see if the impact on runoff was significant enough to include in the overall analysis relative to the precision and error inherent within the model. A Curve Number (CN) reduction to "Woods – Good" was made for the presumed drainage area to each site and that was factored into the overall weighted CN for each DA and compared to the original to determine the effect of overall peak flow quantities. If the site locations fell within an area where existing SWM existed and was being modeled by CN reduction as discussed in Section 2.3 above, then this reduction was not made, since it had already been considered in existing conditions. Since the study includes storm events above the 1" runoff event considered for ESD design, the MDE methodology for Relative Curve Number (RCN) adjustment for determining the effect of ESD on higher storm events was used. For the sites in question, the change in CN for the 2-year event becomes numerically insignificant (<1%) for 7 of the 10 sites analyzed, with the largest change of 2.3% for a facility in DA 7.

Table 4.1 – Changed Runoff Curve Numbers for Proposed CWP Facilities

Subarea	Drainage Area	Original CN	CN w/ CWP Facilities				% change**
			2-yr	10-yr	50-yr	100-yr	
1	2	80.559	80.558				-0.001%
	3	75.926	75.925				-0.001%
2	1	88.594	87.960				-0.716%
3	4	82.378	82.079	82.147	82.178	82.196	-0.363%
	7	86.132	85.339	85.433	85.485	85.549	-0.921%
4	3	79.166	78.689				-0.603%
6	2	80.006	78.695				-1.639%
	3	79.468	79.383				-0.107%
	5	66.708	65.497				-1.815%
7	4	72.091	70.444				-2.285%

**% Change between the original CN and CN w/CWP Facilities for the 2-yr storm.

Since the RCN adjustment decreases for the higher (>2-year) storm events considered in this study, and the impact for even the most significantly changed sub-areas was a matter of a few cfs for the 2-year event, it was determined that the impact of these conceptual proposed ESD sites was not significant enough to show a change in water surface elevations within the models, and was not pursued in greater detail within this study. It is noted that, despite the negligible impact on larger flooding events, these potential facilities still have value relative to their collective positive impact on water quality in the Patapsco watershed during more frequent storm events.

Table 4.2 – Peak Discharges with and without Proposed CWP Facilities

Return Period (years)	Peak Flow (cfs) Entire Drainage Area, no CWP Facilities	Peak Flow (cfs) Entire Drainage Area, w/CWP Facilites	Peak Flow (cfs) Subarea 3, no CWP Facilities	Peak Flow (cfs) Subarea 3, w/CWP Facilities
2	535	530	242	240
10	1356	--	568	567
50	2647	--	1074	1072
100	3549	--	1331	1329

4.2 Development of Additional Conveyance Sites

In addition to examining alternatives to reduce the quantity of water to the Main Street corridor, the possibility of providing increased runoff conveyance capacity, in the form of additional storm drains and channel widening where feasible, was examined. These alternatives, numbered 4-7 sequentially after the 3 SWM alternatives, and from upstream to downstream, are described below (See *Appendix C* for storm drain layout maps):

Alternate 4 Storm Drain – This alternate consists of a 48" concrete storm drain trunk line that intercepts the runoff from the Rogers Ave. storm drain (the northern, developed portion of DA 6) and conveys this flow eastward separate from the Hudson Branch flow (DAs 1-5) running roughly parallel to the channel and culvert system currently carrying Hudson Branch, and outfalling at the existing culvert outfall location at the east end of the West End property into an open channel behind the adjacent residential properties (8578, 8572 Frederick Rd). This option would also involve abandoning the existing cross culvert that connects the Rogers Ave flow to the channel in current conditions. A flow splitter was considered here to balance the flow between the two systems, but the tailwater from the culvert and channel made the new proposed system largely ineffective at its upstream point for higher flows, so the proposed model keeps the systems separate.

The sizing of the pipe is based on tying in to the existing Rogers Ave system invert with adequate pipe cover, as well as what is reasonably feasible for construction given issues like trench width and depth while maintaining traffic as well as likely utility conflicts. The intent of this alternate is to reduce the frequency at which overtopping of channel flow from the south side onto Main Street will occur just downstream of Rogers Ave.

Alternate 5 Storm Drain – The location of the upstream entrance to this system is based on supplementing conveyance where the open channel flow goes back into a closed pipe system again, in this case the culvert between the structures at 8520 Frederick Rd. The storm drain will capture a portion of this channel flow and divert it back to the roadway, running parallel with the road before outfalling back into the channel at the point where the channel curves south then east to be immediately adjacent to the road. This location was selected because it is the point where the existing condition roadway flow that escaped from the channel upstream enters back into the channel, and can be adequately conveyed by the existing channel. The concept pipe sizing is based on similar constraints as described in Alternate 4, above. There are some local storm drain tie in issues associated with this alternate as well that would be examined during the detail design phase if this alternate is pursued.

Alternate 6 Storm Drain – The location of the upstream end of this system was selected to provide additional conveyance just upstream of the constrictions associated with the flow under Court Ave, the Ellicott Mills Brewing Company and the downstream conveyance under La Palapa Restaurant. The storm drain will capture a portion of the channel flow upstream of Court Ave and carry it south, under the driveway between 8344 and 8358 Frederick Rd., briefly east along Frederick Rd., south again down Merryman St. then east just behind La Palapa where it will outfall into the existing channel, recombining with the flow from the existing system. The concept pipe sizing is based on similar constraints as described in Alternate 4, above.

Alternate 7 Channel/Structure Modifications – For the final alternate, the channel through Parking Lot 'D' which carries the flow downstream of the confluence with Tiber Branch, the dimensions of this channel were modified to

include a layback of the currently vertical slopes at a 3:1 cross slope. Also the structure that carries the flow beneath the northeast portion of the lot was raised by 2 feet to accommodate more flow. There are many permutations of widening and structure modifications, with varying impacts to the parking lot, that could be examined here; the one chosen was a typical iteration intended to examine whether or not such modifications had a significant impact on the tailwater and water surface of the upstream channel and systems along Main Street.

4.3 Modeling of Improvements

4.3.1 SWM Improvements

The SWM improvement alternates were modeled by developing a preliminary pond grading of each area, setting a weir elevation for flow above a base flow amount that would carry the 100-year storm with adequate (2'+) freeboard for overtopping at the lowest point, and calculating a stage-storage-discharge table to be inserted into the existing condition TR-20 model at the proper location. The proposed condition was modeled in TR-20 with all 3 alternates in place at once, and the resulting downstream hydrographs were used in the hydraulic model as a comparison against the baseline conditions.

4.3.2 Conveyance Improvements

The conveyance improvements were modeled differently for the HEC-RAS and TUFLOW models. For the HEC-RAS model, Concept 4 was included by reducing the inflow at cross section 37 by 60 cfs and then adding 60 cfs back into the model at the exit of culvert 4 at cross section 14. This flowrate was removed as it was calculated that 60 cfs was the approximate maximum capacity of the Concept 4 pipe given the existing constraints. A similar approach was taken for Concept 5, which diverts flow from the river at cross section 2. The flowrate removed from cross section 2 was determined by cross-referencing the water surface elevations from the existing model with the total head listed in the storm drain hydraulic design table (*Appendix C*). Following this methodology, flowrates of 100, 120, and 150 cfs were removed from cross section 2 for the 2-, 10-, and 100-yr storm events, respectively.

For the TUFLOW conveyance model, new culverts were added to the 1-D culvert network to represent concepts 5 and 6. Concept 7 was represented by generating a new topographic layer to augment the grading of the stream bank to a 3:1 slope. The culvert through Parking Lot 'E' was raised 2 ft by changing the existing culvert characteristics to reflect the new culvert dimensions. The hydrographs from the existing conditions hydrologic models were run through the proposed conditions models as a comparison against the baseline conditions.

4.3.3 Combined Improvements

For this iteration, the proposed hydrology with the 3 SWM alternatives was run through the proposed conditions hydraulic model with the 4 conveyance improvements to determine the combined effect of all concept improvements on water surface elevations

4.4 MODELING RESULTS OF PROPOSED IMPROVEMENTS

Changes to water surface elevations between the 2-, 5-, 10-, and 100-yr storm events in the 1-D modeling region are displayed on cross sections in *Appendix D.* Floodplain depth/extent and velocity maps of the existing and proposed conditions are in *Appendix E.*

4.4.1 RESULTS OF SWM IMPROVEMENTS

The proposed SWM improvements significantly reduced peak flows into the modeled watershed region (Table 4.3).

Table 4.3 – TR-20 Simulated Peak Flowrate to Watershed Outlet for Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	*Peak Flowrate (cfs)*		*Percent Change*
	Existing Conditions	*Proposed SWM Concept*	
2-yr	535	460	-14.0%
10-yr	1356	1099	-19.0%
Tropical Storm Lee	2122	1800	-15.2%
50-yr	2647	2167	-18.1%
100-yr	3549	2740	-22.8%

The reduced flowrates under the proposed scenario resulted in decreased water surface elevations, flow velocities and the extent of the floodplain; the magnitude of the changes to these variables is dependent on the unique topographic features at any specific cross section in the modeled area. *It is important to note that percent peak flowrate reductions do not necessarily represent equivalent reductions in water surface elevation, flow velocity, or flood extent.*

Another metric used to evaluate impact of the proposed improvements was the number of buildings within the floodplain (Table 4.4). All buildings within the 2-D modeling boundary (approximately 8578 Frederick Rd. to the intersection of Frederick Rd. and Old Columbia Pike) that were touched by the floodplain were quantified for existing conditions and the proposed stormwater management concept. This comparison was only conducted for storm events evaluated with the 2-dimensional model.

Table 4.4 – Number of Buildings within the Floodplain under Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	*Number of Buildings in Floodplain*		*Change*
	Existing Conditions	*Proposed SWM Concept*	
10-yr	40	39	-1
Tropical Storm Lee	47	45	-2
50-yr	58	47	-11
100-yr	66	60	-6

The HEC-RAS models of the existing 2- and 5-yr storm events simulated minimal overbank flooding; the proposed SWM model reduced these simulated water surface elevations even further, providing greater freeboard for overbank flooding.

The HEC-RAS SWM concept model of the 10-yr storm simulated reduced water surface elevations and eliminated existing overbank flooding from the upstream cross sections 40, and 28. The model of the SWM improvements still experiences significant backwatering from the 108" culvert downstream, which results in the culvert overtopping and roadway flooding for cross sections 27-24 for the 10-yr event. 10-yr HEC-RAS water surface elevations between the existing and proposed SWM models dropped by 1.0 ft or less for the 1-D section below the 108" culvert. Flood depths and overall roadway flooding is reduced through all cross sections for the 100-yr event, and simulated roadway flooding was eliminated for 2 of the 27 existing cross sections that exhibited roadway flooding in the HEC-RAS model.

TUFLOW modeling of the proposed SWM concepts simulated reduced flooding from all storm events. The changes between the existing conditions and proposed SWM models are evident in the floodplain extent shown on the maximum flood depth maps.

The SWM concepts reduced the maximum extent of flooding more for the 5-yr event than for the 10-yr storm event. The concepts reduced roadway flooding and flooding around dwellings in Area 4 and Areas 5 and 6 for the 5- yr storm event, while the 10-yr event showed the greatest reductions in the parking lot of La Palapa and County owned Parking Lots 'D', 'E', and 'F'. The SWM concept model reduced flood depths in the roadway at representative Cross Section 'E' by 0.66' and by 0.78' on the north overbank along representative Cross Section 'F'.

The Tropical Storm Lee event is included in the iterations to allow for readers of this report to see a comparison of the expected improvements against a recent memorable event. The effects of the proposed SWM improvements for the Tropical Storm Lee event are evident throughout the modeled area. Reductions in flood plain extent were fairly comparable throughout the modeled area. For this storm event, the greatest impacts resulting from the SWM improvements are largely depth of flow reductions in areas 3 and 4. This can be evidenced by the

change in inundation level in and around the dwellings in these areas. The effects of SWM improvements on the Tropical Storm Lee event most closely resembled the SWM effects for the 10-yr storm event.

The simulated floodplain extent of the 50-yr storm decreased under the SWM Concept model because flows did not overtop the culvert flowing below Ellicott Mills Dr. Without overtopping this culvert, the floodplain from the SWM model did not expand nearly as far into Parking Lot 'F' and did not escape onto Frederick Rd. until the driveway just west of Court Ave.

The SWM concepts had the greatest impact on flood depths of the 100-yr storm, however, this had a minimal effect on the overall extent of flooding because all culverts were still overtopped and road banks were flooded in the same locations. The depths, velocities, and overall extent of flooding from the 100-yr SWM Concept model closely match those simulated for the existing 50-yr model because their peak flowrates are very similar.

4.4.2 Results of Conveyance Improvements

The proposed conveyance improvements had no impact on the total inflows to the model, thus all changes to the flow patterns were a direct result of the added storm drain structures. The HEC-RAS portion of the model was not greatly affected by inclusion of conveyance Concept 4; the water surface elevations of the 2- and 10-yr storms decreased by approximately 0.2 feet for the majority of the 1-D modeling region, while the 100-yr water surface only decreased by approximately 0.1 foot. For the cross sections immediately above the second large culvert (96") (cross sections 3 and 4), the water surface of the 2-yr event dropped approximately 1.3 ft under the storm drain concept model, while the 10-year water surface dropped 0.17 ft. and the 100-yr storm was negligibly impacted.

The TUFLOW model of conveyance concepts exhibited similar, negligible impacts on flooding for this upper section. The greatest effects of the storm drain concepts were simulated for the 10-yr event and are at representative Cross Section 'B', which is located immediately upstream of Concept 5. The addition of Concept 5 appears to reduce backwatering behind the 96" culvert, and reduces the water surface elevation in the channel by 0.6 ft, which was a greater reduction than was simulated for the SWM concept model. Floodplain water surfaces at representative Cross Section 'B' are negligibly impacted, indicating that the flooding relief of Concept 5 is localized and thus water is still escaping into the floodplain further upstream. In the heavily populated area where Concept 5 has diverted flow from the stream (8516 Frederick Rd. to 8450 Frederick Rd.), the overall extent of flooding appears slightly diminished for all storm events, as evidenced by the depth of flooding maps.

The results at representative Cross Section 'C' indicate that, for the 10-yr storm, Concept 5 had negligible impacts on water surface elevations downstream from where it reintroduces flow into Hudson Branch. For the 100-yr storm, Concept 5 redirected flow into the channel at representative Cross Section 'C', which

eliminated the minimal flooding of the roadway and south overbank that had been simulated for the existing conditions model.

Concept 6, which diverted flow from west of Court Ave. to the open section in Parking Lot 'E', had conflicting effects on flooding of the downtown area between representative Cross Section 'D' and the intersection with Old Columbia Pike. The concept successfully diverted a portion of flow from the Frederick Rd. corridor, which reduced flood depths and velocities in the roadway and the flooding extent in parking lots along Frederick Rd. At representative Cross Section 'E', existing roadway flood depth was reduced by 0.5 ft by the 10-yr, storm drain model. Concept 6 also alleviated some flooding upstream of Court Ave. as evidenced at representative Cross Section 'D', where flood depth in the floodplain was decreased by 0.5 ft and 0.25 ft for the 10- and 100-yr storms, respectively.

Because Concept 6 diverted flow away from Frederick Rd. and into the stream channel in Parking Lot 'E', Parking Lot 'E' experienced increased flooding for all storm events. Concept 7 was designed to aid in the conveyance of flow through Parking Lot 'E', and it achieves this goal (see Concept Flow Comparisons, *Appendix C*), however, flood depth and flooding extent in Parking Lot 'E' still increases for the conveyance concept model. This is likely because the flow added to the stream from Concept 6 backwaters into the parking lot behind the footbridge.

Generally speaking, the reductions and effects of this concept for the Tropical Storm Lee event fall between the 10-year and 100-year events.

4.4.3 Results of Combined Improvements

The models showing the combined SWM and conveyance improvements simulated the greatest reductions in overbank flooding for all model areas except for Parking Lot 'E', where the SWM concept model simulated the least flooding.

The combined SWM and conveyance concepts HEC-RAS model simulated a cumulative effect on water surface elevations, however with only minimal reductions resulting from the conveyance improvements, the combined model water surface elevations were very similar to those of the SWM model. Compared to the existing model, the 100-yr water surface of the combined concepts model reached the roadway on 22 of 40 cross sections, which was four fewer than the existing condition model; three of the four cross sections where existing roadway flooding was eliminated were the same for both for the SWM and combined models.

Because the TUFLOW conveyance model did not greatly affect flood extents for the 50- and 100-yr storms, the TUFLOW combined model for these events is very similar to the SWM model. For the 5- and 10-yr storm events, the proportion of total flow manipulated through the storm drain concepts was substantial enough to alter overall flow patterns, thus the flooding extent of the combined model was most different from the SWM model for these storm events.

5- and 10-yr, existing water surface elevations were most substantially reduced with the combined TUFLOW model at representative Cross Sections 'D' and 'E'. At representative Cross Section 'D', the combined model reduced 10-yr, existing water surface elevations by nearly 2 ft in most areas. At representative Cross Section 'E', the 10-yr existing water surface elevations were reduced by 1.7 ft in the roadway and existing flooding of the parking lot at La Palapa was eliminated. In Parking Lot 'E', the combined model had slightly higher water surface elevations than the SWM model, however both models had similar flood extents within the Parking Lot; 10-yr existing roadway water surface elevations at representative Cross Section 'E' were 0.8 ft lower with the combined model than with the SWM model.

The greatest reductions in existing water surface elevations for the 100-yr event were simulated at representative Cross Sections 'A', 'B', and 'E'. In the south floodplain of representative Cross Section 'A' and in the channel of representative Cross Section 'B', existing water surface elevations dropped by 1.2 and 1.3 ft, respectively. At representative Cross Section 'E', existing flood elevation in Parking Lot 'E' decreased by 1.2 ft and by 1.1 ft in the roadway. Combined model flooding elevations in the channel and the immediate overbank along representative Cross Section 'F' were approximately the same as those simulated for the SWM model, while in the roadway, the combined model flood elevations were 0.2 ft lower than the SWM model (1.2 ft lower than the existing condition).

5.0 CONCLUSIONS

1-dimensional and 2-dimensional modeling of the downtown Ellicott City watershed has provided valuable insight into existing flood patterns of the region and allowed for assessment of the potential mitigation strategies to reduce future flooding from large storm events.

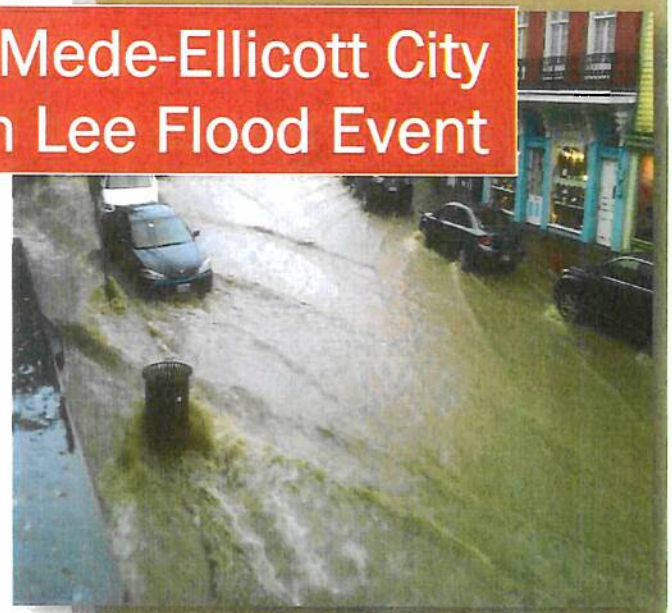
Models were calibrated with anecdotal evidence from the Tropical Storm Lee flooding event and used to simulate the existing flood conditions for large storm events (2-, 5-, 10-, 50-, and 100-yr recurrence intervals and the Tropical Storm Lee event). The results of the existing condition models were then used as baselines to evaluate three flood mitigation scenarios which included stormwater management improvements, conveyance improvements, and improvements combining stormwater management and conveyance concepts.

The results of the proposed concept modeling suggest the greatest reductions in flooding, as measured through flooding extent, flood depths, and flood velocities, would be achieved with the stormwater management pond concepts. The storm drain conveyance options offer only minor improvement in some areas relative to water surface elevations, and show increases in other areas downstream of the improvements, making the storm drain options less desirable. The proposed stormwater pond concepts will offer incremental, though not dramatic, reductions in flood elevations during a historical event like Tropical Storm Lee.

Also part of the study was an examination and assessment of the overall watershed effects of small-scale, SWM design concepts proposed by the Center for Watershed Protection (CWP). The proposed CWP facilities within the focus watershed were catalogued and applied to the existing condition TR-20 model. These facilities were found to have minimal impact on the discharge to the watershed outlet for the 2-yr storm, and thus were not considered as part of flood mitigation strategies for the large storm events targeted in this study.

2012

Case Study: Valley Mede-Ellicott City Tropical Storm Lee Flood Event



Case Study-2011 Valley Mede-Ellicott City Tropical Storm Lee Flood Event

S&S Planning and Design, LLC.

6/28/2012

3.2 Property Zones and Mapping

Information extracted from the *Description of Property Damages* from Interview Form, as well as interviewer notes acquired during property owner interviews is compiled in narrative format and mapping illustrating the flow of flood waters is presented by address zones.

8700 Address Zone

Structures within the 8700 zone were impacted by flooding from the creek and flood waters that escaped the channel and utilized Frederick Road as a flood conveyance. All of the structures within this zone are located on the south side of Frederick Road. Flood waters 'jumped' out of the channel at the Frederick Road Bridge No. 1 as indicated on the map.It is likely that a debris accumulation may have occurred at the upstream edge of the bridge, thereby resulting in or exacerbating the flood waters leaving the channel. Flood waters then flowed east along the northern side of the road, somewhat contained by the road crown and a swale feature on the northern side of the road; however, flood water was continuously cresting the road crown and flowing back toward the actual floodplain and creek channel. The majority of the flood flow then crossed to the south of Frederick Road at a low point immediately west of the Rogers Avenue intersection. The section of Hudson Branch immediately across from the Rogers Avenue intersection consists of a rectangular concrete channel. Observers noted that some flood water continued to flow down Frederick Road.

8600 Address Zone

Structures within the 8600 zone experienced flooding from the creek and what witnesses described as excessive stormwater runoff down Rogers Avenue. A concrete stormwater junction box is located to the northeast of the Rogers Avenue/Frederick Road intersection. Witnesses reported that the manhole access cover was 'blown off' the lid of the box. Additionally, they reported that the concrete top was being elevated. This observation would indicate that the junction box and the stormwater pipes leading to it were at capacity, creating sufficient hydraulic pressure to lift the top and remove the manhole cover. With the stormwater system at capacity, excess stormwater would utilize the roadways as the storm conveyance.

The combined flows from the creek channel/floodplain, Frederick Road, and Rogers Avenue, in conjunction with the low, flat topography of the area, created a large area for floodwater to accumulate. It was reported that the water was over the guardrail of the bridge leading to the small parking lot across from the intersection. Immediately downstream of the intersection, the topography constricts the valley again and the gradient gets steeper. At approximately the middle of this zone, it was reported that the flow depth over the road was estimated at 12-18 inches. The structures immediately adjacent to the creek experienced water in the basements due to the elevated creek levels. The rear of many of these structures terminate at the stacked stone flood wall along the creek, with some structures overhanging the creek, or completely bridging the creek to the far bank.

This zone extends downstream to just beyond the inlet of the large culvert that conveys flow under Frederick Road and several commercial properties. Witnesses reported that floodwaters were overtopping the culvert inlet and continuing down Frederick Road.

It is possible that debris accumulation or blockage at the culvert inlet resulted in flood waters overtopping the culvert headwall and continuing down Frederick Road.

8500 Address Zone

Flooding within the 8500 zone was the result of both flood waters from the creek and roadway. Witnesses reported significant flood flow down Frederick Road. A very large and long culvert conveys flow (9' diameter x 600' length) under Frederick Road and several commercial businesses. Observers stated that during the flood a significant amount of water was flowing down Frederick Road. Some flood flow re-entered the floodplain around property identifier 8560 on both sides of the structure. Downstream of this structure and within the floodplain, a berm had been installed within the last several years. The presence and orientation of this berm redirected flood flow from Frederick Road, thereby preventing flow from returning to the channel. This berm effectively transferred flood flow downstream into an area with additional structures.

An additional culvert is located within this zone. The channel approaching the culvert inlet is armored with gabions in a trapezoidal shape. A preponderance of Japanese Knotweed is located along both banks. An eye witness stated that an approximately 8-10" Red Maple had been leaning diagonally across the culvert inlet during the flood event. Witnesses stated that the inlet was almost completely blocked with debris. Therefore, this culvert inlet also created additional backwater and another location where flood flow 'jumped' from the channel.

Many witnesses to the flood stated that at one point, it appeared as though a 'wall of water' came down the channel. Near Property ID 8500 a small wooden footbridge existed prior to the flood event. An eye witness stated that water and debris was piling up behind this footbridge, then suddenly, one side of the bridge/abutment connection failed and the footbridge swung open like a gate, releasing the backed up water and debris. The rushing water at this location resulted in severe bank erosion, with some streambanks losing 10-12 feet of lateral material. Severe erosion and land loss occurred throughout this reach. Some sections within this zone lost 10-12 feet of streambank.

8400 Address Zone

The 8400 zone did not have any reported damages due to the flooding. One resident indicated that the flood water reached an elevation of the back steps, but did not come into the structure.

8300 Address Zone

The 8300 zone demarcates the beginning of the Downtown Ellicott City section and consists predominantly of commercial properties. At the top end of the zone, the stream outfalls from a large, approximately 400 foot long culvert. This sectionexperienced damages due to the flood event. The flooding was primarily located within the principal channel and floodway area. This stream section is nearly entirely contained within stacked stone or block flood walls. Properties located immediately adjacent to or over the channel experienced basement flooding due to the water elevation cresting over one of the channel walls.In several locations, the southern stacked stone wall and the nearby properties are at a lower elevation, thereby resulting in the reported basement flooding.

Additionally, a channel constriction, or reduction in channel cross-sectional area, within the conveyance under Main Street most likely created backwater conditions through this reach exacerbating the flood elevations.

8200 Address Zone

Only several properties within the 8200 zone reported minor damages due to the flooding.Within this zone, the stream flows between two parking lots; a footbridge connecting the two parking lots was heavily damaged by the flood. One observer stated that flood waters impacting the upstream edge of the bridge sent geysers of water upward to the approximate height of the street lights. The parking lots flooded; however, the flood waters reentered the channel prior to flooding the majority of the first floor businesses located adjacent to the parking lots. A couple of businesses did experience minor flooding that necessitated carpet cleaning and/or removal.

8100 Address Zone

The 8100 zone experienced primarily basement flooding due to the elevated water levels within the primary creek channel. More than fifty percent (50%) of the channel through this zone is bridged by buildings, with stone flood walls on each side of the channel. An unnamed tributary to Tiber Branch confluences with Tiber Branch in this zone.Several properties reported five to six feet of water within the basement. Minor damages were reported, including problems such as general clean-up and HVAC servicing. Several properties reported that water entered through the front door, the result of excess stormwater within the street system.

8000 Address Zone

The 8000 zone is the lower end of the downtown section of historic Ellicott City. This zone experienced two types of flooding. The properties on the northern side of Main Street (Frederick Road) experienced excessive stormwater runoff from the steep gradient behind the buildings. The properties on the southern side of Main Street experienced primarily basement flooding due to the elevated water levels in the channel. The majority of Tiber Branch through this zone is bridged by buildings and roadways.

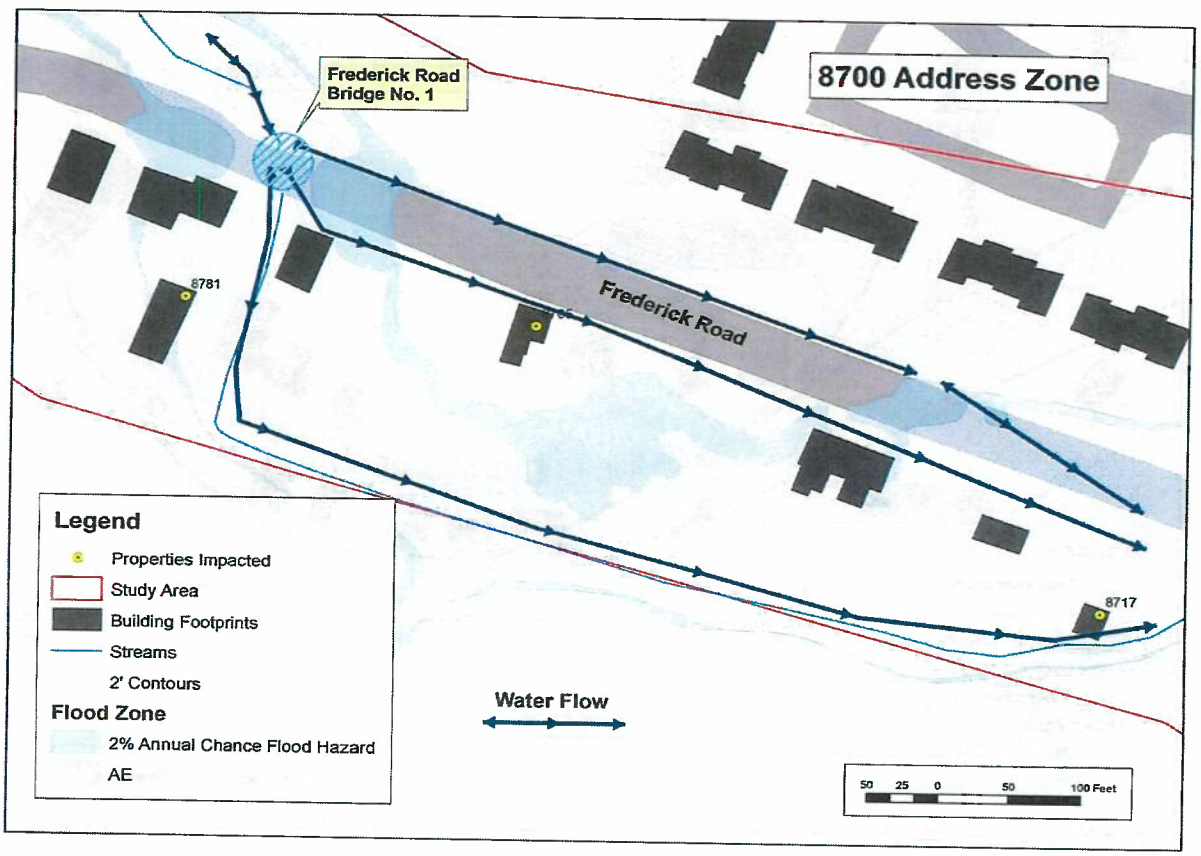
Stormwater runoff from the steep hillside behind the structures situated on the north side of Main Street resulted in flooding issues for some properties. Several properties experienced water seepage through the back wall of the structure. One property experienced a roof collapse; the roof was tied into the hillside and runoff collected on the roof causing the collapse.

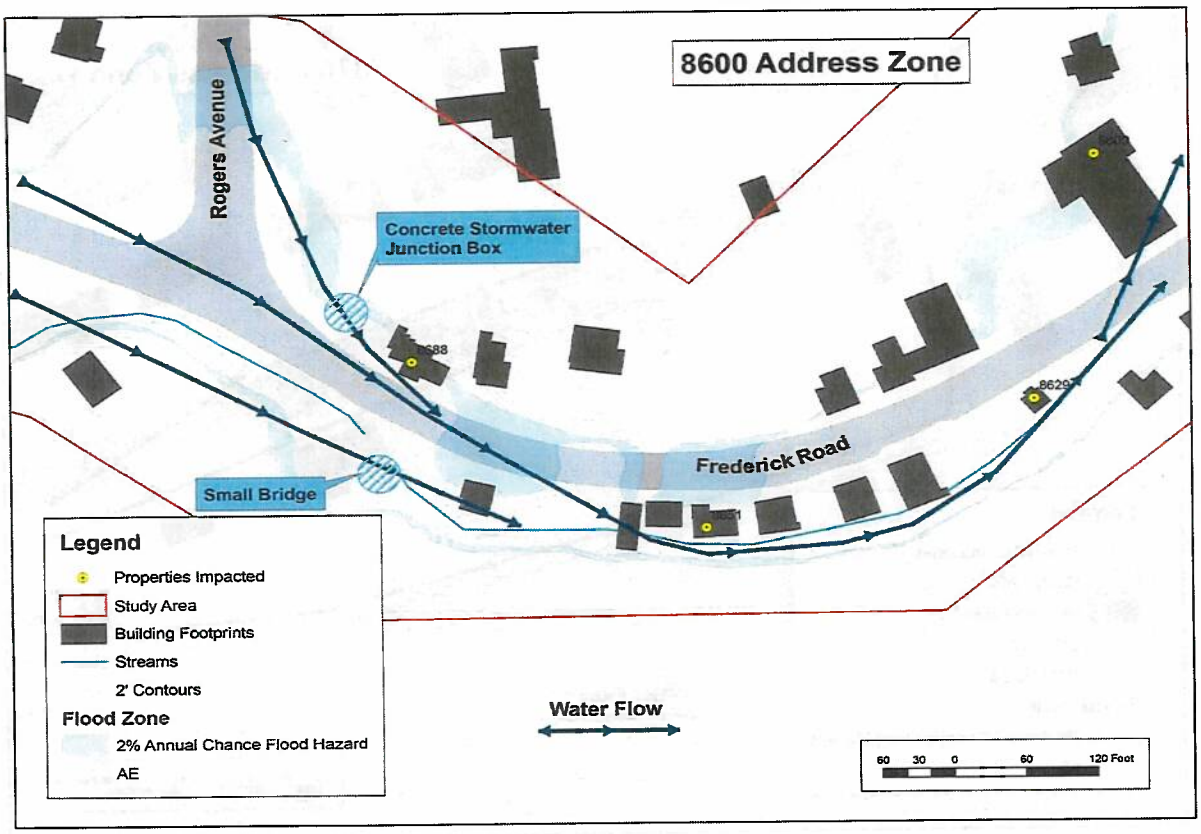
The properties on the south side of Main Street experienced basement flooding; several properties reported basement flooding with depths of four to five feet. Damages ranged from minor to extensive, depending on the location/elevation of the structure, and the contents and utilities located in the basement. One structure reported damage to a walk-in refrigerator, ice machine, hot water heater, plumbing, mortar, floor tile, and the foundation.

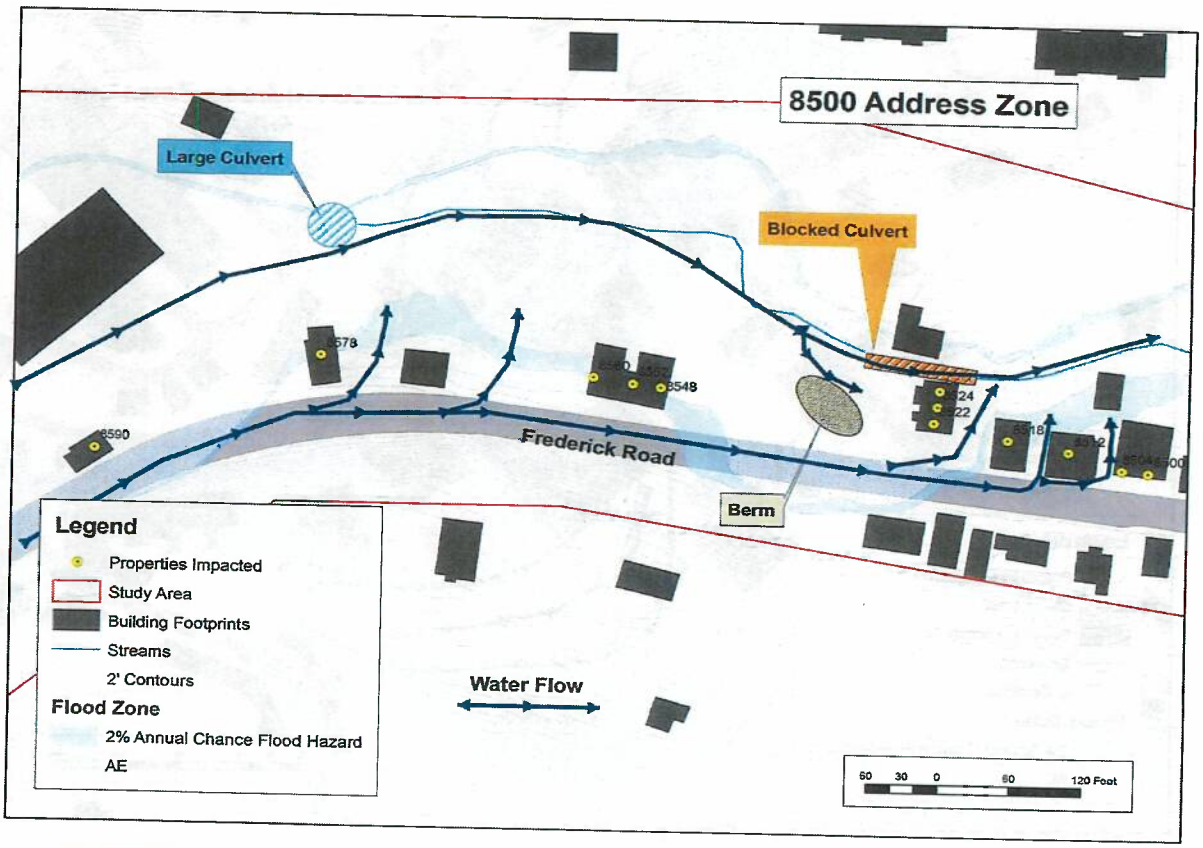
Valley Mede Zone

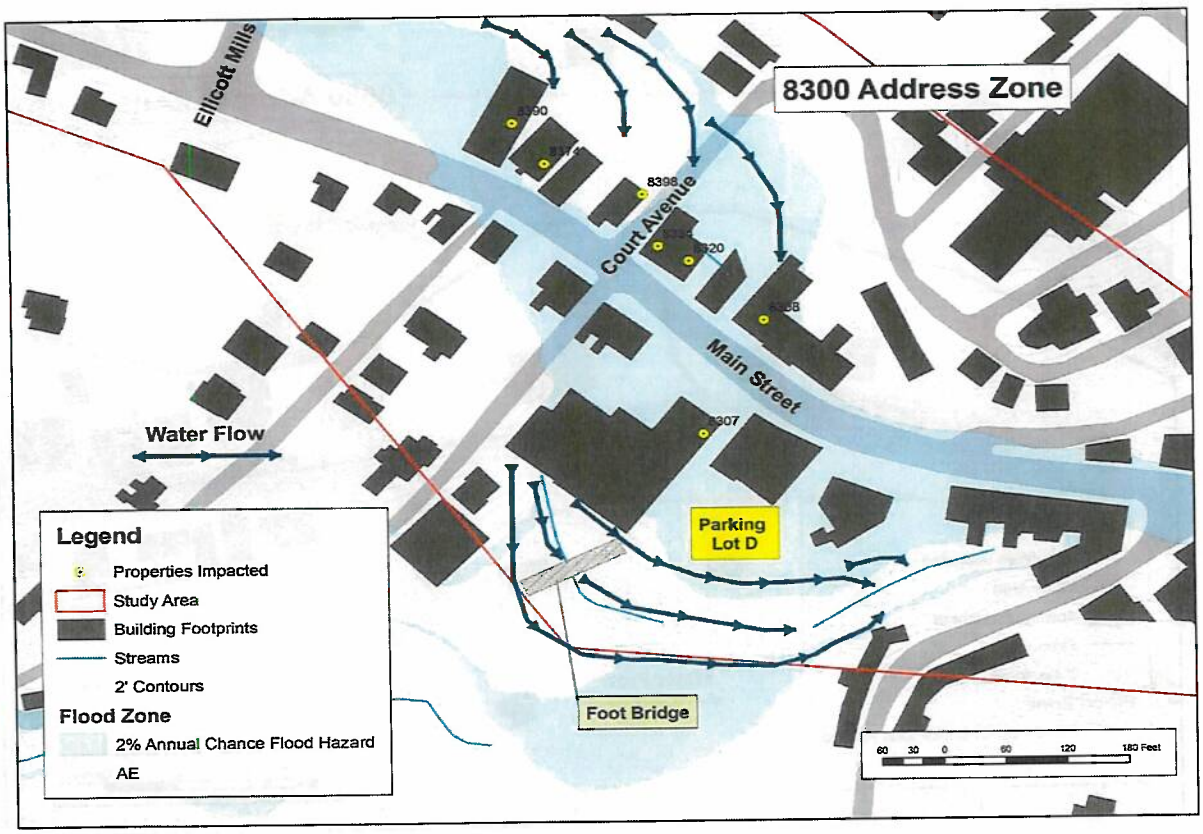
Residential properties adjacent to Plumtree Branch in the Valley Mede subdivision experienced significant flooding and damages. Flood waters rose quickly due to the heavy rainfall in a short duration of time. One resident indicated that within 45 minutes, the

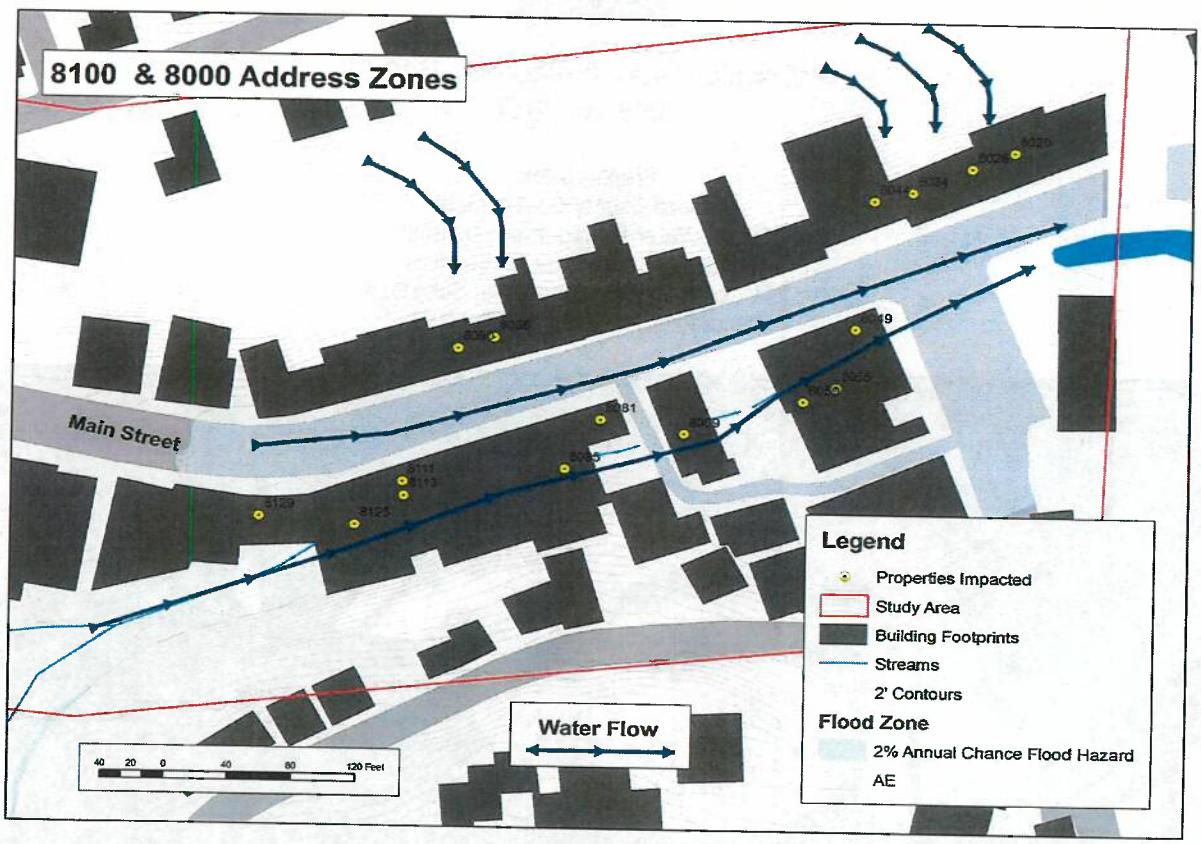
flood water increased from cresting the channel banks to being six inches deep in the finished basement. This homeowner also stated that the water did not reach the elevation of the patio during Hurricane Agnes in 1973. One structure in Valley Mede experienced approximately four feet of water in the first floor of the dwelling, rendering the entire home uninhabitable. Culverted road crossings created backwater conditions until the flood breached the road crest. Several property and road wash-outs occurred when the flood water crested the road and re-entered the channel at the downstream culvert location. At one location, the wash-out damaged the utilities for the home, creating a loss of water, electric, and gas for several days.


Frederick Road
Bridge No. 1
8700 Address Zone
Frederick Road
8781
8717
Legend
Properties Impacted
Study Area
Building Footprints
Streams
2' Contours
Flood Zone
2% Annual Chance Flood Hazard
AE
Water Flow
50 25 0 50 100 Feet


8600 Address Zone
Rogers Avenue
Concrete Stormwater Junction Box
Small Bridge
Frederick Road
Legend
Properties Impacted
Study Area
Building Footprints
Streams
2' Contours
Flood Zone
2% Annual Chance Flood Hazard
AE
Water Flow
60 30 0 60 120 Foot


8500 Address Zone
Large Culvert
Blocked Culvert
Frederick Road
Berm
Water Flow
Legend
Properties Impacted
Study Area
Building Footprints
Streams
2' Contours
Flood Zone
2% Annual Chance Flood Hazard
AE
60 30 0 60 120 Feet


8300 Address Zone
Ellicott Mills
Court Avenue
Main Street
8398
8320
8307
Water Flow
Parking Lot D
Foot Bridge
Legend
Properties Impacted
Study Area
Building Footprints
Streams
2' Contours
Flood Zone
2% Annual Chance Flood Hazard
AE
60 30 0 60 120 180 Feet


8100 & 8000 Address Zones
Main Street
Water Flow
Legend
Properties Impacted
Study Area
Building Footprints
Streams
2' Contours
Flood Zone
2% Annual Chance Flood Hazard
AE
40 20 0 40 80 120 Feet

2016
Ellicott City Hydrology/Hydraulic Study
and Concept Mitigation Analysis

McCormick Taylor Project No. 5519-93
June 16, 2017

Prepared for:
Howard County Government
Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143

Prepared by

McCORMICK TAYLOR
509 South Exeter Street, 4th Floor
Baltimore, Maryland 21202
(410) 662-7400

buildings as noted above, results in 6'-8'+ of flooding through this stretch between Caplan's and the Phoenix Emporium (8137 to 8049). Video at the peak of the July 30, 2016 storm indicated flows nearly touching the bottom of the store awnings in this area, supporting the calculations of the model.

As the flow of the combined three subwatersheds continues in the channel beneath buildings, through Tiber Park, and under the B&O Railroad Bridge, as well as down Main St., the inundation of the two flow paths reconnects them through this last stretch prior to combining with the Patapsco River. In looking at the subsequent improvement strategies for conveyance and stormwater management, this area will prove to be the most challenging to return to a manageable depth for the 100-year and similar storm events due to the flat grade, full watershed contribution and lack of a floodplain in the confined channel under several structures.

4.0 Conceptual Improvements

This study focused on two main types of conceptual improvements, stormwater quantity management (SWM) to reduce the quantity of flow into the Frederick Rd./Main St. corridor, and conveyance improvements that would upgrade or supplement the storm drains and channels through the flooded area to carry more water at a lower elevation for a given event. The structure of the model created for this study allows for any variation on, or combination of, improvements to be run through the model as part of a larger long-term planning effort, however for the sake of keeping the large amount of data manageable, the focus of this study looks at a progressively cumulative improvement using four types of approaches in total, and subsequently examines an incremental improvement considering selected individual improvements as defined below. The alternative of retrofitting the existing SWM facilities in the watershed is also examined relative to the other options presented below.

The approach to determining how much SWM storage is necessary to effectively reduce flood elevations and the probability of damaging flooding was based on attempting to store as much of the volume as possible that makes up the difference between the 10- and 100-year events, in order to reduce the peak flow of the 100-year event down to that of the 10-year event. This required temporary storage in the form of ponds as well as underground SWM. The effectiveness of each in reducing peak flow can be seen in *Figures 4.1* through *4.3* below.

For the SWM ponds, all in-line ponds assumed allowance for the 5-year storm event to pass through before accumulating meaningful storage. This is based on the premise that the downstream channels can accommodate this storm event, and that the meaningful storage could then be reserved for the higher storm events. This is also allows for the branches to maintain their existing base flows, and not changing the appearance of the stream running through downtown. Volume was maximized based on available undeveloped area with emergency

spillways routing the higher storm events where necessary. During the large storm events, excess runoff would be temporarily stored within the facilities and let out at a controlled rate. At the time of this report, the County has initiated preliminary discussions with the Maryland Department of the Environment (MDE) regarding the in-line nature of the ponds as well as the likelihood of high hazard dams that will require Emergency Action Plans for downstream areas.

Figure 4.1: Peak Flow and Volume, 10- and 100-Year Storm.

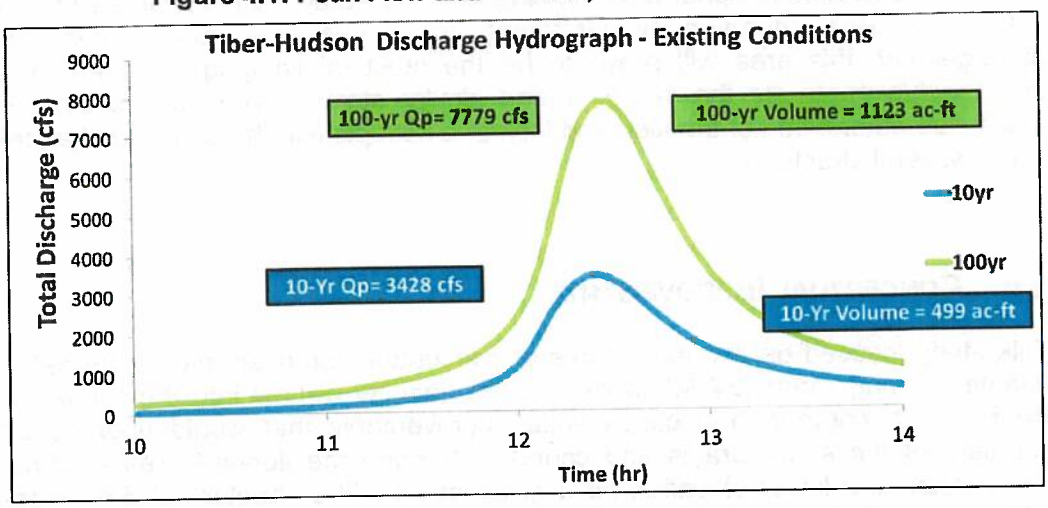


Figure 4.2: Peak Flow and Volume, 10- and 100-Year Storm.

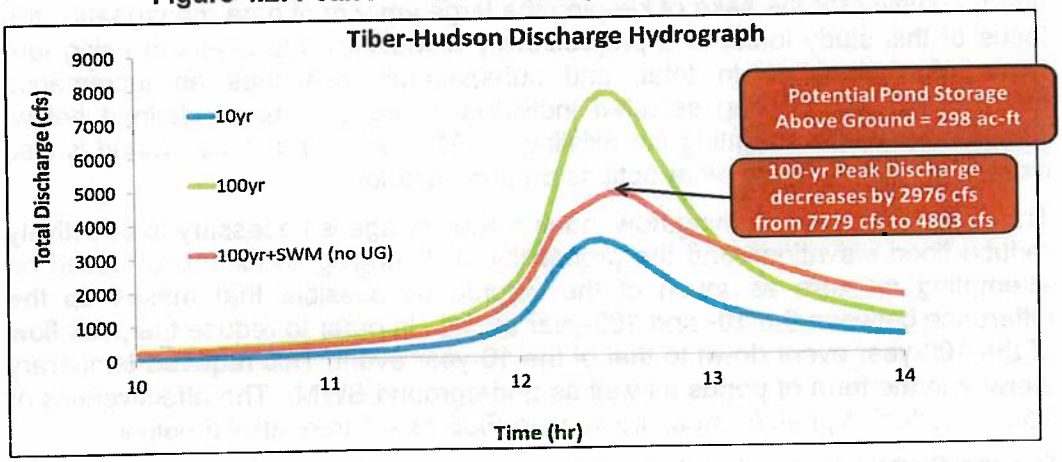
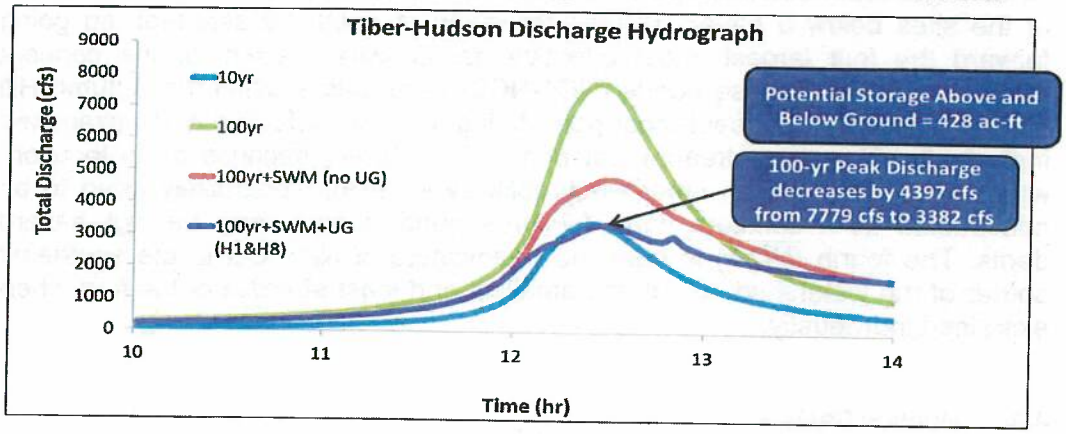


Figure 4.3: Reduction in Peak By Storage, Above and Below Ground SWM



For underground SWM areas, two approaches were considered: underground pipe storage, aka 'pipe farms' which would exist offline, storing diverted flow up to maximum capacity and outletting metered flow by gravity; and underground vaults, which are concrete storage spaces that store diverted excess flow from the channel and drain utilizing pumps over the course of 2-3 days following the storm event. All SWM facility conceptual layouts and grading maps can be found in *Appendix B.*

Capacity improvements examined include supplemental cross culverts where the Hudson Branch crosses the roadway, which are generally only effective at reducing flooding in their local vicinity; bypass culverts which supplement existing culverts carrying Hudson Branch and have effectiveness in reducing flooding in portions of the West End; and tunnels bored through existing rock under adjacent highlands and buildings to carry excess flow underground and divert it away from Lower Main St. Maps of conceptual conveyance improvements are found in *Appendix B.*

4.1 TIBER BRANCH

Improvements in the Tiber Branch focused on a single, large in-line SWM pond (T1), approximately 70 acre-feet in storage size. This was chosen as it was feasible within a wider, undeveloped area of the floodplain without excessive excavation relative to the volume of storage; and also because its size in this smaller subwatershed makes it particularly effective at reducing the peak flows out of this subwatershed. This would likely be a high-hazard dam. Additional details are noted in *Table 4.1*.

4.2 NEW CUT BRANCH

Improvements in this subwatershed included the examination of several in-line SWM ponds which attempted to maximize available undeveloped floodplain area

for storage. From that initial set, there was a notable drop off in the effectiveness of the sites below a certain volume threshold of about 12 acre-feet, so going forward the four largest, most effective ponds were chosen for the concept modeling. Three of these ponds (NC1-NC3) were in-line within the Autumn Hill tributary, with the upstream-most pond being the most effective when examined individually. The downstream-most pond of the three, because of its location, which does not have an emergency spillway location, would likely need to be constructed as a concrete dam. All three ponds would likely be high-hazard dams. The fourth (NC-4) is near the headwaters of New Cut in the southeast corner of the watershed, and is the smallest and least effective of the four when examined individually.

4.3 HUDSON BRANCH

The Hudson Branch subwatershed was the most challenging one to find locations for the large in-line SWM ponds that were so effective in reducing peaks within the other two subwatersheds, largely because of the development adjacent to the floodplain, which is denser and more commercial than the other subwatersheds, and also because this branch is very much intertwined with Frederick Rd./Main St. in its lower reaches. Because all of the meaningful flooding takes place within this branch, before and after its confluences, this is where the majority of the improvements are conceptually proposed and examined.

4.3.1 STORMWATER PONDS

Conceptual improvements include three SWM ponds in-line and off-line within the US 40 / US 29 interchange (H5-H7), which is owned by Maryland State Highway Administration (MSHA) as well as three additional ponds adjacent to or within the Hudson Branch (H2-H4), with all but one (H2) upstream of US 29 at Frederick Rd. The pond in the NW loop ramp of the interchange (H7) which is online, is the most effective in this subwatershed when examined individually; the pond in the opposite NE loop ramp (H6) which is offline, the least effective of the six.

4.3.2 UNDERGROUND SWM

Conceptual Improvements include pipe farms and vaults as defined above. The pipe farm in the old Roger Carter Center property above Lot 'F' on Ellicott Mills Dr. (H8-UG1) includes ~4600 LF of 10' diameter pipe. The additional 3 sites (H8-UG2-4) are located west of US 29 in the undeveloped strip of land currently owned by BGE for their high tension power lines. These pipe farms would comprise ~3.3 miles of 10' diameter pipe located near but not in the footprint of the current towers. The total storage of these 4 sites is approximately 40 acre-feet. At the time of this report, BGE has not been contacted by the County to discuss specific locations for use of their Right-of-Way.

There are three concrete vault locations (H1-UG1-3) along the Hudson Branch east of US 29 which combined offer up to 90 acre-feet of storage, and, when used in conjunction with the pipe farm facilities (H8) are effective in significantly reducing the peak flows in this subwatershed. The locations are at Lot 'F', the current West End Service site and the areas between residential structures at 8777-8729 Frederick Rd. These sites represent conceptual storage of volume divided up based on footprint, but in fact their relative sizes and locations could vary depending on subsurface conditions (which may allow easier, deeper excavation, at one site vs another) with their overall effectiveness varying little, so long as the quantity of storage remains the same.

Table 4.1 and 4.2 indicate the volume and reduction in flow resulting from each of the individual SWM alternatives, as well as combined for the subwatersheds.

Table 4.1: Peak Flow Reduction Per Facility and Combined, Tiber Branch and New Cut Branch Watersheds

Tiber Proposed SWM				
	Total Without Concept Management		Total With Concept Management	
	Q10	Q100	Q10	Q100
T1 (Tiber)	497	1078	168	334

Tiber Concept Ponds Treatement Summary	
	Tiber
	T1
Storage	70.0 ac-ft
Emb. Height	24 ft
Change to Q100 - Total Tiber 100YR	-69%

New Cut Proposed SWM				
	Total Without Concept Management		Total With Concept Management	
	Q10	Q100	Q10	Q100
NC1 (New Cut)	1640	3581	1630	3053
NC2 (New Cut)	1640	3581	1396	3052
NC3 (New Cut)	1640	3581	1241	2876
NC4 (New Cut)	1640	3581	1462	3420
Total Combined	**1640**	**3581**	**965**	**2464**

New Cut Concept Ponds Treatment Summary					
	New Cut				Combined New Cut Concepts
	NC1	NC2	NC3	NC4	
Storage	34.0 ac-ft	42.0 ac-ft	63.0 ac-ft	14.4 ac-ft	153.4 ac-ft
Emb. Height	28 ft	18 ft	21 ft	11 ft	
Change to Q100 - Total New Cut 100Y	-15%	-15%	-20%	-4%	-31%

Table 4.2: Peak Flow Reduction Per Facility and Combined, Hudson Branch Watershed

Hudson Proposed SWM				
	Total Without Concept Management		Total With Concept Management	
	Q10	Q100	Q10	Q100
H1 - UG (Hudson)	1203	2907	734	2613
H2 (Hudson)	1203	2907	1124	2821
H3 (Hudson)	1203	2907	1162	2864
H4 (Hudson)	1203	2907	955	2663
H5 (Hudson)	1203	2907	1128	2798
H6 (Hudson)	1203	2907	1161	2823
H7 (Hudson)	1203	2907	1129	2598
H8 (Hudson) BGE/RGR CRTR	1203	2907	903	2459
Total Combined	1203	2907	669	752

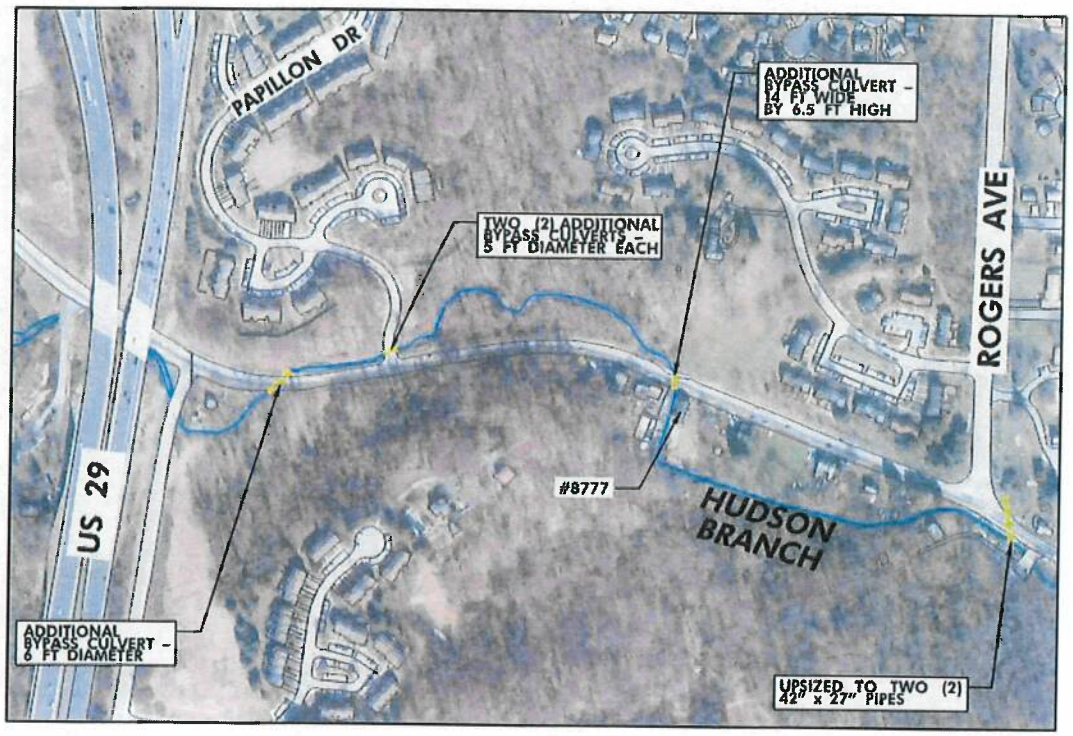
Hudson Concept Ponds Treatment Summary									
	Hudson Branch								Combined Hudson Concepts
	H1-UG 1-3	H2	H3	H4	H5	H6	H7	H8-UG 1-4	
Storage	82.4 ac-ft	15.0 ac-ft	7.7 ac-ft	15.6 ac-ft	11.5 ac-ft	12.0 ac-ft	12.8 ac-ft	40.0 ac-ft	197.0 ac-ft
Emb. Height	N/A	15 ft	11 ft	9 ft	12 ft	14 ft	12 ft		
Change to Q100 - Total Hudson 100YR	-10%	-3%	-1%	-8%	-4%	-3%	-11%	-11%	-74%

4.4 CONVEYANCE IMPROVEMENTS

Conceptual improvements to the capacity of pipe and culvert systems along Frederick Rd./Main St. include supplemental cross culverts added to the model in the following locations:

- 8800 Frederick Rd. – Additional 6' culvert
- Papillon Dr. – 2 Additional 5' culverts
- 8777 Frederick Rd. – Additional 6.5' x 14' box culvert
- 8680 Frederick Rd. @ Rogers Ave. - 2 – 42" x 27" pipes – This carries flow from Rogers Ave. across the road into channel

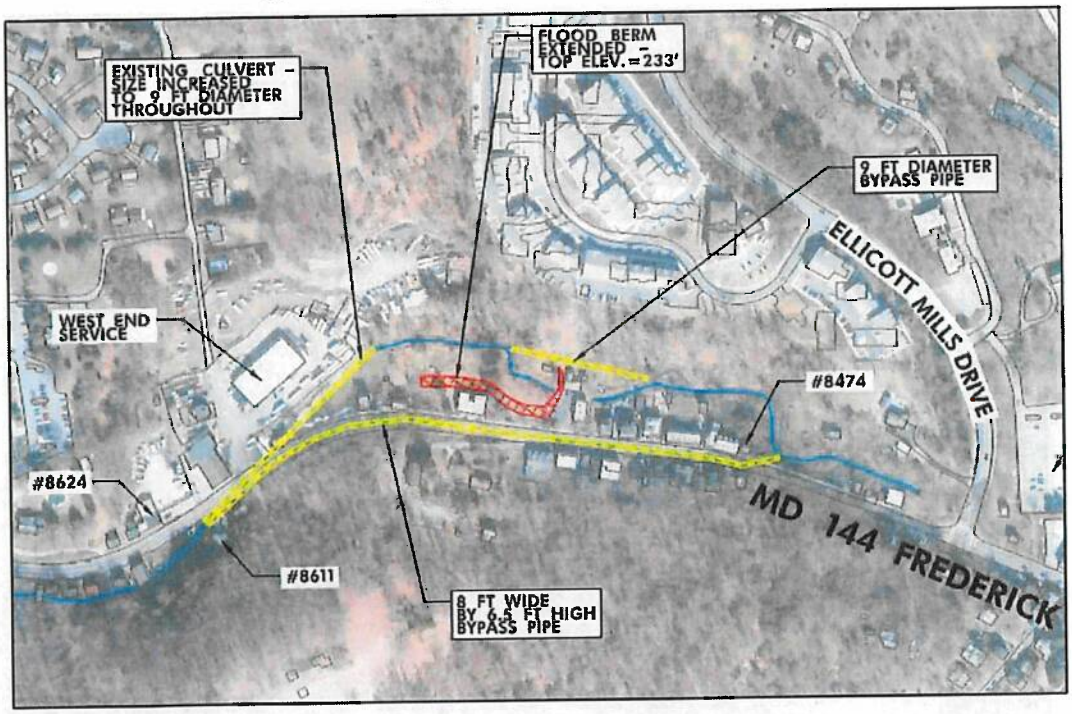
Figure 4.4: Supplemental Cross Culvert Locations



To address the capacity issue at the existing 108"/88" culvert at 8611 Frederick Rd., the model includes the following conceptual improvements:

- Restore the existing culvert to 108" diameter throughout and add a supplemental 6' x 8.5' culvert along the roadway to carry additional flow to an outfall into the channel downstream of 8470
- 8532/34 Frederick Rd.: add a 9' bypass culvert to carry flow behind the houses at 8532 where constricted by the existing culvert, and combine with a flood berm from spanning from 8572 to 8534 to protect adjacent houses from floodplain flow.

Figure 4.5: Supplemental Bypass Culvert Locations



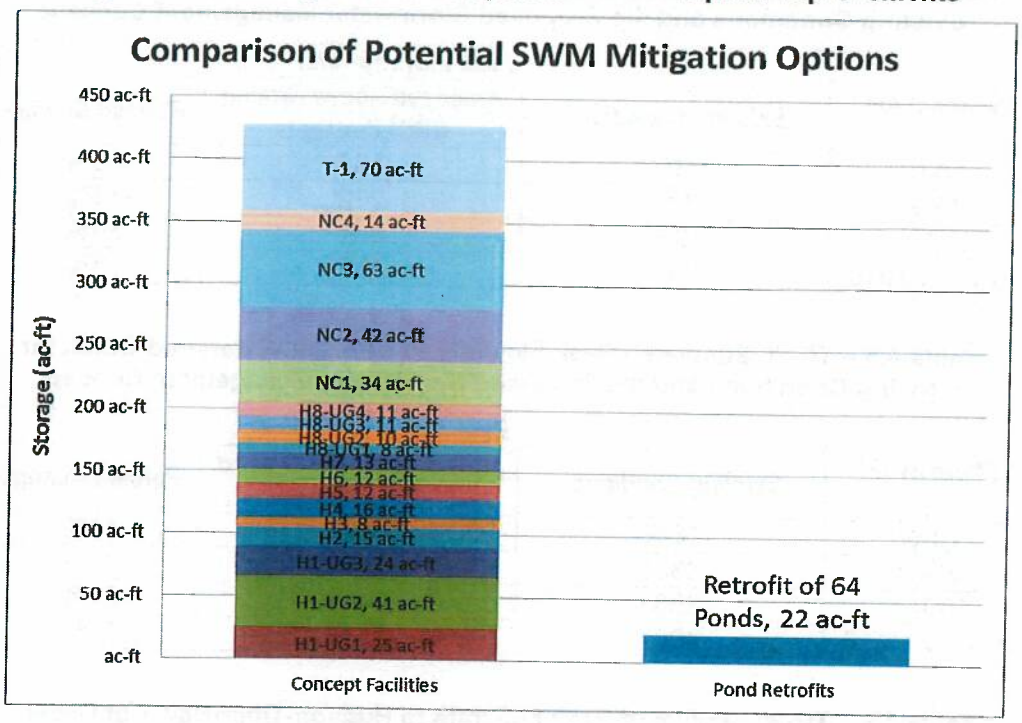
The effects of the capacity improvements on the hydraulic models are shown in more detail and discussed in Section 4.7 below. Larger maps of the options can be found in *Appendix B*; modeling in *Appendix D.*

4.5 Examination of Retrofit of Existing SWM Facilities

The analysis considered what the impacts would be on retrofitting the existing 64 SWM facilities throughout the watershed relative to the larger scale SWM improvements noted above. The existing ponds account for about 85 acre-feet of available dry storage combined. Considering a rough assumption that, based on constrictions of adjacent development, right-of-way, natural resources, etc., each facility could be increased by about 25% on average, that would yield approximately 22 additional acre-feet storage.

Relative to the changes observed from the creation of 18 new facilities for 428 acre-feet of additional storage, the approach of retrofitting all 64 existing SWM facilities did not warrant further modeling based on the effective change per each of the 64 individual projects (~1/3 acre-foot per site, on average). A relative scale of this option can be seen in *Figure 4.6*, below.

Figure 4.6: Existing Retrofit Comparison to Conceptual Improvements



4.6 Flow Reduction From SWM Improvements

As discussed, the stormwater management improvements both above and below ground, provide substantial attenuation of the peak flows, resulting in reduced peak discharges into the 2-D hydraulic model. Provided below is a summary of SWM simulated changes in peak flows from the three subwatersheds (*Tables 4.3-4.5*) as well as change in peak flow at the outlet of the 2-D hydraulic model. The discharges summarized for the three subwatersheds were pulled directly from the hydrograph output by the TR-20 hydrologic model. The peak flows in *Table 4.6* reflect the combined peak of all inflow hydrographs for the hydraulic model, assuming all conceptual improvements are constructed.

Table 4.3 – TR-20 Simulated Peak Flowrate to Hudson Branch Watershed Outlet for Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	Peak Flowrate (cfs)				
	Existing Conditions	Proposed Above Ground SWM Concepts	Percent Change	Proposed Above & Below Ground SWM Concepts	Percent Change
10-yr	1203	743	-38%	699	-42%
25-yr	1768	1116	-37%	730	-59%
100-yr	2907	2010	-31%	752	-74%
July 30, 2016	3549	2517	-29%	1396	-61%

Table 4.4 – TR-20 Simulated Peak Flowrate to Tiber Branch Watershed Outlet for Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	Peak Flowrate (cfs)		
	Existing Conditions	Proposed Above Ground SWM Concepts	Percent Change
10-yr	497	168	-66%
25-yr	734	212	-71%
100-yr	1078	334	-69%
July 30, 2016	1169	438	-63%

Table 4.5 – TR-20 Simulated Peak Flowrate to New Cut Watershed Outlet for Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	Peak Flowrate (cfs)		
	Existing Conditions	Proposed Above Ground SWM Concepts	Percent Change
10-yr	1640	965	-41%
25-yr	2330	1411	-39%
100-yr	3581	2464	-31%
July 30, 2016	3967	2519	-37%

Table 4.6 – TR-20 Simulated Peak Flowrate to Hudson-Tiber-New Cut (Tiber-Hudson Branch) Outlet for Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	Peak Flowrate (cfs)				
	Existing Conditions	Proposed Above Ground SWM Concepts	Percent Change	Proposed Above & Below Ground SWM Concepts	Percent Change
10-yr	3428	1828	-47%	1801	-47%
25-yr	4947	2716	-45%	2511	-49%
100-yr	7779	4804	-38%	3382	-57%
July 30, 2016	8669	5503	-37%	3455	-60%

The reduced flowrates under the proposed scenario resulted in decreased water surface elevations, flow velocities and the extent of the floodplain; the magnitude of the changes to these variables is dependent on the unique topographic features at any specific cross section in the modeled area. *It is important to note that percent peak flowrate reductions do not necessarily represent equivalent reductions in water surface elevation, flow velocity, or flood extent.*

4.7 Modeling Results of Proposed Improvements

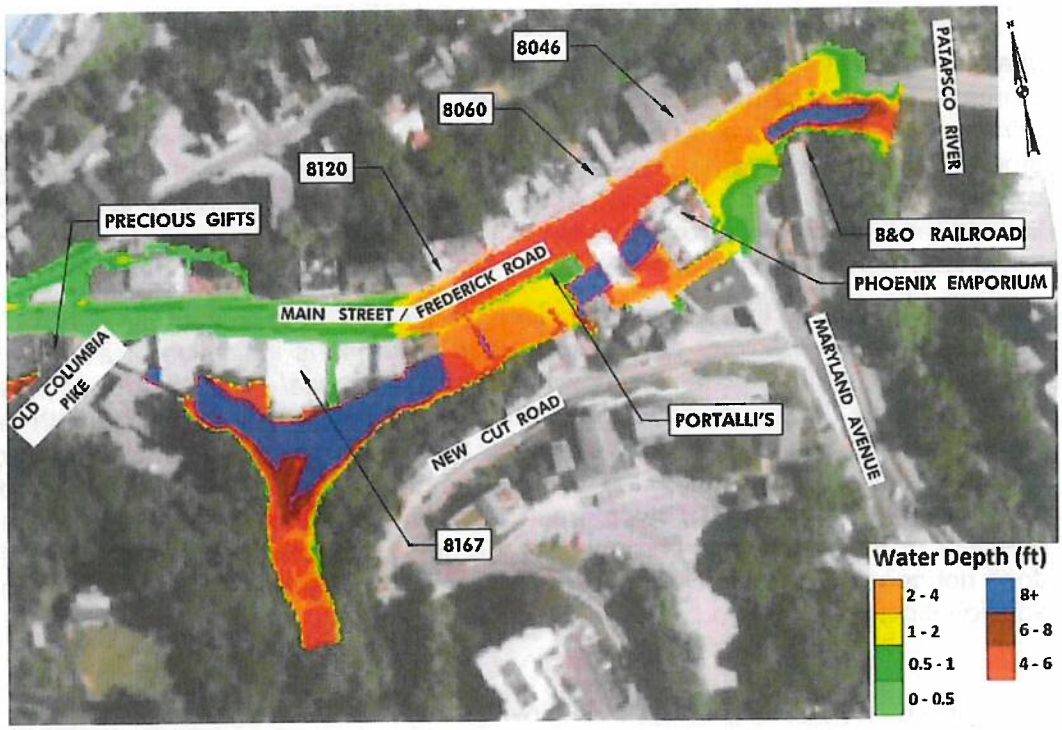
Water surface elevations, and extent of flooding, are reduced incrementally as stormwater management and conveyance improvements are progressively introduced. Below is a summary of the effect of the 428 acre-feet of SWM storage, and subsequently the addition of conveyance improvements, to the existing conditions models detailed above. Additional, larger graphics, which also include a breakdown of flood modeling results between above and below ground SWM improvements, may be found in *Appendix D*

It's important to note that where the model graphics below represent "no flooding" (no color) on the roadway or adjacent areas, that this is indicative of *a lack of flooding resulting from water overflowing out of the channel or overburdened pipe structures only*. This does NOT mean there would be no flow or water depth in the area during this storm event, but rather that the model does not account for all runoff initiated in the immediate vicinity. The model considers the flow directed to the channel from the 10 hydrograph input points within the model and the handling of the major flow 'through' the Frederick Rd./Main St. community. It does not consider the hyper-local runoff between those points that may result in additional minor, local flooding.

4.7.1 Area 1 – US 29 to Rogers Ave.

The roadway flooding at the first point the stream crosses Frederick Rd. just east of Toll House Rd. in the 8800 Block is reduced to under 1' deep, and down below 2' deep at the second crossing of the stream under Papillion Drive. This is a decrease of 1'+. The addition of the supplemental cross culverts at these first two locations further reduces the roadway flooding to about 6" deep.

At the next stream crossing, southward under Frederick Rd. near 8789-77, flooding is reduced below 1' under both scenarios. Flooding of the residential areas on the south side of the roadway is also reduced from 8777 east to the Rogers Ave. intersection, with areas of 2'-4' of flooding now reduced in extent, and in depth down to 0.5'-2', though there are some localized increases at the outlet of the supplemental culvert at 8777. At this culvert it appears either the conveyance or SWM improvement will result in these improvements, but combined they do not provide a significant additional benefit in the immediate vicinity. This is similar with the flooding of the roadway approaching Rogers Ave., which is reduced from 2'+ down to 0.5' to 1' near the roadway edges.



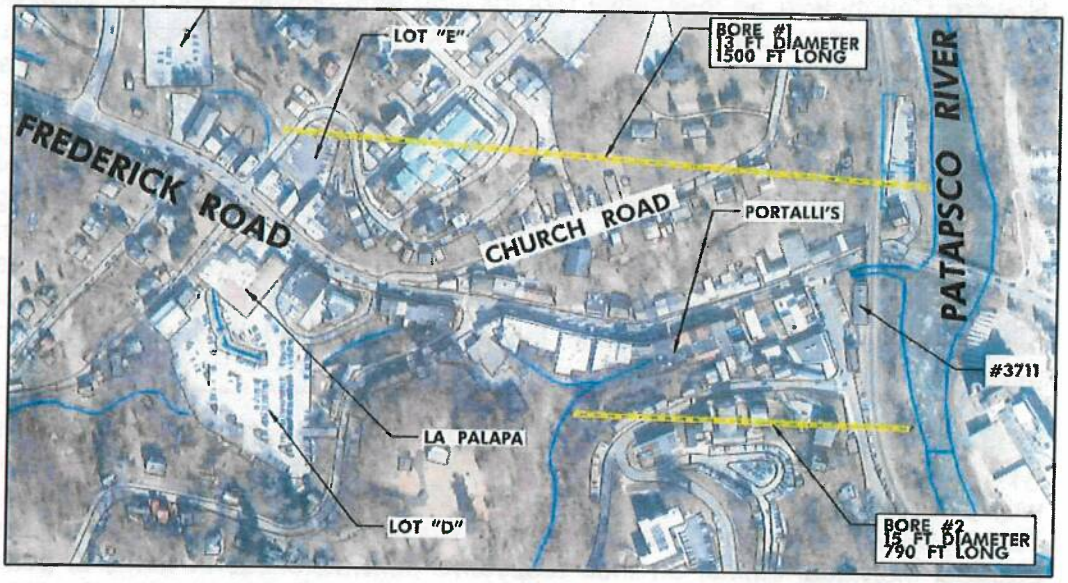
for this storm event by 2'-3'+ however, there is still a section of 4'-6' deep water that is not fully managed through this block. This area still showing over 1' of flooding also coincides with the 100-year flood backwater (elevation 133') from the Patapsco River. It is notable that this model considers flood events that generate from intense rainfall within the Tiber-Hudson watershed (3.7 mi.^{2} which is 1.3% of the 294 mi^2 Patapsco River watershed). In the event of a Patapsco River backwater flooding event (similar to T.S. Agnes in 1972) the proposed concepts will not be effective in reducing flooding from the backwater in this area, though areas upstream of the backwater will experience the reductions modeled here.

4.7.5 Tunnel Bore Improvements

In order to consider a conceptual option that would provide full flood relief for the lower Main St. section for a 100-year event with all of the other SWM conceptual improvements in place, and to address requests made at the inception of this study from the community, the hydraulic analysis examined the concept of tunnels that would bore through the bedrock of Ellicott City in two locations to divert excess flood flows around the Main St. commercial district. Both were located in areas where the terrain goes up very steeply such that the bore would go well beneath any existing structures in the community. The first tunnel would begin upstream of Lot 'E' and would divert flood flows to the Patapsco River approximately 1300' away with a 13' diameter circular bore. The second tunnel, a 15' diameter circular bore, would capture flood flows from the New Cut Branch

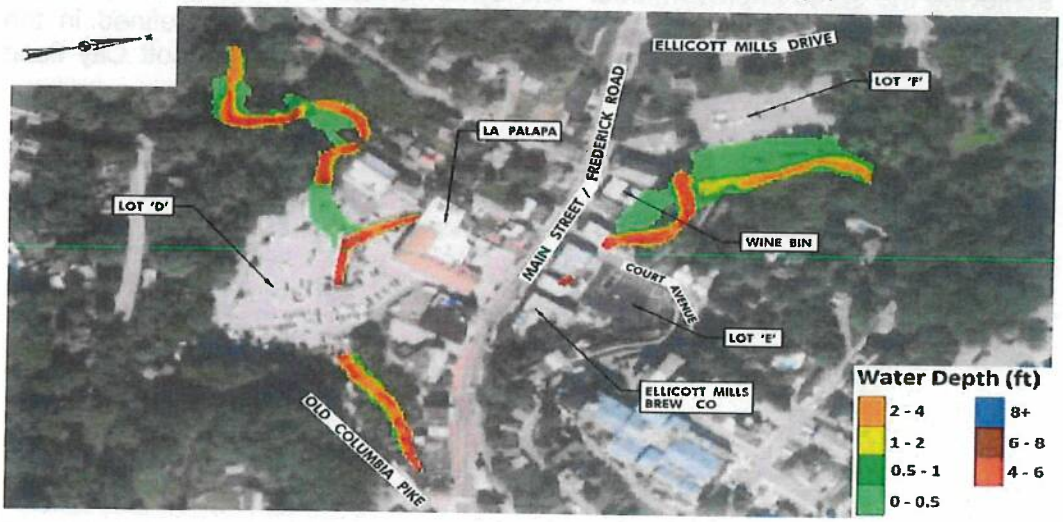
just upstream of its confluence with Tiber-Hudson and divert through the adjacent hillside to the Patapsco River approximately 790' away.

Figure 4.11: Location of Conceptual Tunnel Bores to Divert Flow around Main St.



The tunnel bores were sized to convey adequate flood flows such that the channel that runs under the buildings on the south side of Main St. would not overflow and flood the adjacent buildings and roadway. The resulting change in the 100-year flooding from channel capacity can be seen for Areas 3 and 4, in *Figure 4.12*. The implementation of such a system would have several challenges relative to the construction, permitting and funding of the tunnels.

Figure 4.12: Flood Area Maps of Area 3 (below) and 4 (next page) w/ Tunnel Bores



5.0 CONCLUSIONS AND RECOMMENDATIONS

The creation of a comprehensive hydrologic and 2-D hydraulic model of the Tiber-Hudson Branch along Frederick Rd. / Main St. east of US 29 provides Howard County with an interactive tool for long term planning and execution of strategies to reduce the probability and severity of flooding in Ellicott City. The results of this study demonstrate that construction of stormwater storage facilities throughout the watershed, combined with stormwater conveyance infrastructure improvements, can make an appreciable difference in the severity of flooding from a 100-year or other similar storm event. However, the nature and scope of such improvements is significant in scope, impact and cost. It will require a long term planning and implementation effort, supplemental to the Master Plan process, to prioritize, design and construct improvements based on the concepts represented in this report. In the shorter term, flood proofing and insurance of buildings and their contents within the floodplain should be a consideration throughout the study area.

In the interest of representing what a subset of selected improvements, of the type that would hypothetically represent the first stage of a multi-stage plan, would result in, the analysis included modeling of a subset of improvements. These SWM improvements were chosen for the subset based on their having the greatest individual impact on their respective subwatersheds in terms of peak flow reduction (see *Sections 4.1-4.3* and *Tables 4.1, 4.2*) and included T1, NC3 and H7 (ponds) and additionally H8 (Underground Pipe Farms) along with the proposed conveyance improvements (not including the tunnel bores). The mapping demonstrating the flooding reductions associated with this subset of improvements may be found in *Appendix E.*

It should be noted that these concepts, particularly those representing stormwater management and storage, are broad-brush representations of practices that can significantly vary in their final detail and location while still achieving the same improvements. The dynamic nature of the model will allow for the continued analysis of chosen alternatives as they are refined in the planning and design of future improvements associated with Ellicott City flood mitigation.

HOWARD COUNTY DEPARTMENT OF FINANCE
3430 Court House Drive Ellicott City, Maryland 21043 410-313-2195

Janet R. Irvin, Director
jairvin@howardcountymd.gov

FAX 410-313-4433
TDD 410-313-2323

August 29, 2018

To: Lonnie R. Robbins
Chief Administrative Officer

From: Janet R. Irvin JRI
Director of Finance

Re: TAO No. 1

I hereby certify that funds are unencumbered and available for transfer as follows:

FROM:

C0214 Category Contingency Fund	$984,000
C0301 Technology Infrastructure Upgrades	$1,100,000
F5975 Route One Fire Station	$10,975,000
N3973 East Columbia Library Athletic Field and Site Improvements	$3,700,000

TO:

C0337 Ellicott City Improvements and Enhancements	$15,759,000
D1175 Valley Mede/Chatham Flood Mitigation	$1,000,000

TA01-FY19

Sayers, Margery

From: Jon Schultz <wcp444@gmail.com>
Sent: Tuesday, September 18, 2018 12:16 PM
To: CouncilMail
Subject: Support for Flood Mitigation Proposal/bicycle commuting

Dear County Council,

As a resident and homeowner in the Ellicott City Historic District, I wanted to communicate my support for the Five-Year Flood Mitigation Strategy proposed by Executive Kittleman and Councilman Weinstein.

The time for action is now, and I believe the proposed plan provides the best approach for practical flood mitigation. As a Engineering Program Manager for large defense contractor, I understand no plan can be perfect and the realistic nature of implementing mitigation.

As a full-time bicycle commuter, I would like to suggest that future construction plans take into consideration the impact on bicyclists. The Ellicott City historic district is a challenging area due to limited connecting roads and hills, and closed roads can have a dramatic effect on bicycle commuters. The recent closure of Main Street and Maryland Avenue added almost 3 miles each way on my commute to Sykesville. The impact is further increased from closure of New Cut road.

thank-you,

Jon Schultz
3784 College Ave, Ellicott City

Sayers, Margery

From: Loretta Moran <lorettaharkum@yahoo.com>
Sent: Tuesday, September 18, 2018 11:19 AM
To: CouncilMail
Subject: bills taoi-fy2019 cb61-20018and cb62-20018

Good Morning,

I am in favor of the of the bills to remove buildings and widen the Tiber River. My husband and I first opened a shop after Hurricane Agnes. Several years later we purchased the property at 8016-8018 Main Street. I served on the ECBA for several years and helped to implement several projects including Midnight Madness. In the mid 80's we moved to the suburbs to raise our children with the hope of someday returning. In 2010 we returned to our beloved building on Main Street.. We had been through several floods from the Patapsco River in our early years but since the widening of the Patapsco in1977 it had only been minor flooding with ample time to prepare....Since our return in retirement we have been through a train derailment , which I knew Liz Nass as a child from our time in Mt. Hebron, and three floods...we have also shared many great times...Benjamen Moore,festivals,, and my favorite Midnight Madness... But we are starting to re-think our retirement plans..The flood of 2016 we were evacuated...I saw the young couple in the honda screaming as they were swept to their death...Our second floor flooded from the run-off from Church Road and the storefront was totaled...but we rebuilt...been their done that from our earlier years. On the May 2018 flood we were returning from our son's wedding in Deep Creek. It was a beautiful,sunny day until we reached the Ellicott City exit. Suddenly we were in torrential rain. As we continued down West End I told my husband this does not look good...we were following a raging river down Main Street. We parked our car at the B&O Museum and by the time we crossed the street we were knee deep in water...we opened our home to several merchants and neighbors to escape through our third floor to church street...they helped us..frankly we are too old to be climbing rough terrain in torrential rain...before I left our home I called my newly wedded son and told him I loved him and I wasn't sure if we were going to make it...our will was left on our bedroom bureau top...Not a great ending to what should have been a beautiful weekend...Had we made one more stop on our way home we probably would have been swept away by the flood....This is not a way to live...in constant fear of a flash flood that suddenly appears....Just as they widen the Patapsco;the Tiber must be widen....Please take this under your consideration....

Thank You,
Loretta & Tim Moran

Sayers, Margery

From: Fatima Zaryoh <fatimazaryoh@me.com>
Sent: Tuesday, September 18, 2018 10:56 AM
To: CouncilMail
Subject: Hi

I'm coming from France and old Ellicott City, was my weekly visit for the last 16 years. Why?

Just because it reminds me my country. Except the new store who has nothing to do there.

Please let me know that my dream place will not disappear.

I'm praying.

Ms. Fatima Zaryoh

My name is Dianne Paulus of 8392 Merryman Street. I am the treasurer of the Ellicott City partnership, but my testimony is as a resident and homeowner.

I am here in full support of the 5-year flood mitigation plan and funding legislation. It is a thorough and comprehensive plan that focuses on challenges from the West End to the river. I believe in the science and data models created by experts in the field, I trust the work of our government leaders, and I respect the immense work done by our friends and neighbors on the flood workgroup, community advisory groups, local storm water experts and more.

There is understandable concern about the water remaining on lower Main with this plan. Please do not lose sight of the important fact that this is a plan designed to address challenges throughout the watershed. Of course, we would all love a solution that removes all water but given our geography that is not feasible per experts in the field. The plan significantly reduces water throughout town – including the highly residential West End area while bringing down the velocity of the water by 60%. This is a strong and crucial first step in a comprehensive plan for flood mitigation for Ellicott City.

I also believe that action, not further studies, is required now.

First, please consider the economic impact of any further delay on our already struggling small businesses on Main Street. These folks are barely hanging on with reduced traffic due to fear and uncertainty regarding flooding. Without real action now, we cannot expect anyone to stay open and our vibrant Main Street will cease to exist.

Second and most importantly - safety. You have heard many heartbreaking stories from July 30 and May 27. The bravery and resilience of my friends and neighbors is awe-inspiring. But let me tell you about being a resident of EC on July 25, 2018. It had been raining for a week and we had flood warnings on a daily basis, the river was high, and the ground was saturated. We all unfortunately now know the sound of rain when it's coming down too hard and too fast, and it was doing that.

At about 7:00 the police raced up and down the street telling people to get to higher ground. If it is ok I would ask my fellow residents to raise their hands if they recall this evening. I ran to a safe spot on Merryman overlooking where the Tiber and Hudson meet at Lapalapas – a critical area addressed by the plan. I watched that channel rise and rise and rise. People were frightened and panicked. And as it continued to rise I stood in the rain crying, because I knew what it meant if it left that channel and I knew we cannot come back from another flood. That was a storm the NOAA meteorologist pointed out in the presentation two weeks ago as a near miss, one of many we've experienced just this summer.

We were lucky that day. The stream stayed in the channel. We can't count on being lucky going forward. We cannot afford further delay. We need action and brave decisions and a commitment to making this town safe. Now. Thank you.

Sayers, Margery

From: Dave F <terrapin443@yahoo.com>
Sent: Tuesday, September 18, 2018 9:01 AM
To: CouncilMail
Subject: 3910 New Cut Rd testimony

September 17, 2018 Howard County Council Testimony

My name is David Fullarton. I have lived at 3910 New Cut Road for 21 years. The bridge leading to my home was destroyed in the flooding on May 27. I watched it wash away. That entire structure, including the decking, steel support beams and two 30,000 pound concrete abutments were all washed downstream. The creek bed also laterally eroded approximately 30 feet as well. My neighbors also lost two bridges, and other neighbors experienced flooded homes and property, as well as major erosion to their property. My bridge was probably at least 25 years old when I moved in and had withstood decades of severe weather. Life was dramatically changed as my home has been drastically devalued, and my vehicles and belongings were stranded on the wrong side of the creek. I no longer have visitors to my home and simple things like grocery shopping or garbage collection have become logistical headaches. It has been a nightmare.
New Cut Creek has been noted as being the largest tributary of the Tiber river. A report by several hydrologists states that at the peak of the May 27 flooding, up to 6600 cubic feet of water PER SECOND was rushing unchecked down New Cut Creek. This comes out to 160 million gallons per hour. Add several hours of lesser flows before and after the peak and we had somewhere around a quarter to a half billion gallons of flood water coming out of New Cut Creek. Yet there is absolutely nothing in this plan to do anything to mitigate the first drop of this water. Of course, the plan contains more studies and proposals about possible actions, but studies and proposals are worthless without decisive action. When the next flood occurs, we can expect to repeat this disaster.
I understand that the goal of this plan is to "save lives". What about the lives and property of those who live on New Cut Road? There is more to Ellicott City than just Main Street. Aside from random acts of kindness by firefighters and police officers, neither myself nor my neighbors have received any assistance in any way, shape, or form from the county since this flood. We feel that we have been have been forgotten, ignored, and abandoned. We live on the 2018 version of the " wrong side of the railroad tracks" and we continue to be at risk to losing lives and property.
Also, understand that during future floods, hundreds of millions of gallons of unrestrained floodwater from New Cut Creek will again inundate the Tiber river and overwhelm lower main street. Any progress being made in furtherance of the county's plan will be destroyed and washed away, while anyone in town risks being killed. This "50 million" dollar plan will quickly escalate into a 100 million? 200 million? dollar plan with each subsequent flood. It is therefore PARAMOUNT that the floodwaters coming down new cut creek be addressed and PROPERLY mitigated in order to achieve the county's goal of saving lives.

Sayers, Margery

From: Greg Hollingsworth <greg@gregluci.com>
Sent: Tuesday, September 18, 2018 8:23 AM
To: CouncilMail
Subject: Wait... tearing down buildings in EC? I'm so very opposed to this plan.

Wait, we're going to tear down historic buildings to accommodate recent development which has been attributed to EC's flooding? I think we've got it backward, we should tear down the new/recent construction that caused the problem and should put the breaks on any future development that would impact EC.

I'm opposed to this plan and I believe that we need to take a hard look at further development along the Patapso watershed.

Sykesville, MD
--
Robert G. Hollingsworth

Sayers, Margery

From: lyn raabe <lynraabe@hotmail.com>
Sent: Tuesday, September 18, 2018 12:19 AM
To: CouncilMail
Subject: OEC

opposed

Sayers, Margery

From: Maryse Maillochon Petasis <marysemaillochon@gmail.com>
Sent: Monday, September 17, 2018 11:54 PM
To: CouncilMail
Subject: Bill # 61-2018

Dear Sir, Madam,
My name is Maryse Maillochon Petasis. I am a longtime resident of Ellicott City and I'm writing to you concerning the Allan Kittleman and Jon Weinstein's plan to demolish some selected historic buildings on Main Street in response to the second flood the historic city has experienced in May.
I strongly oppose that plan. It is hasty, ill advised and asinine. The community has not been consulted and was instead presented with the plan as a done deal. The plan does not explain how the rushing waters coming from the upper parts of the city and its surroundings will be diverted and managed in order to avoid any more loss of life and properties. Furthermore, there has been no study, not even any thought about the impact of this plan on the future economic situation of the area.
One of the big draw in Howard county is Old Ellicott City and its Main Street. I was born and raised in France and have lived in Howard county for 30 years and in Ellicott City for the last 15. Every time my friends and family visit, I take them to Old Ellicott City multiple times. We stroll down Main Street, drive through the seven hills, visit the B&O railroad station, shop at the many unique stores, explore the antique shops, have a beer, a glass of wine, coffee, a snack or a meal at the many wonderful restaurants. But mostly, we marvel at the many historic buildings; from the Thomas Isaac log cabin, to the firehouse, the Ellicott house, Tongue row and many more just as deserving. It always impresses my family and friend, so much so that my sister once told me she understood why I liked it so much here and stayed here for so long.
Europeans have a tradition of cherishing, honoring and respecting History, in memorizing its historical figures, in keeping with cultural traditions and also in maintaining and taking care of our buildings, our streets, our neighborhoods, our architecture. Occasionally, Americans do the same for big historical sites Gettysburg, Manassas, the Oklahoma City National Memorial and of course Ground Zero. Americans also preserve History as a source of pride and proof to the country's achievements, trials and tribulations such as in Annapolis, Harper's Ferry, Fells Point and Alexandria.
Old Ellicott City is such a place and deserves nothing less.
Even I f we were to focus solely on the economic aspect of the demolition plan, I believe that it is akin to killing the goose that lays the golden egg. Purposefully demolishing these buildings will wound our city, our community and our potential.
I also believe that when there's a will, there's a way. Please find a way to save Old Ellicott City.
Thank you for reading.
Maryse Maillochon Petasis

Sayers, Margery

From: Gayle Killen <killchar@gmail.com>
Sent: Monday, September 17, 2018 11:48 PM
To: CouncilMail
Subject: Testimony: TAO1-FY2019, CB61-2018, and CB62-2018

Greetings,

Other than the immediate demolition of buildings on the north side of lower Main St, I support flood mitigation efforts proposed. I have participated in meetings, workshops and hearings since 2011 with many in the community including organizations such as the Ellicott City Flood Workshop Group, the EC Watershed Masterplan Workshops & have been involved in economic and business focused groups such as Ellicott City Business Administration (ECBA) AKA ECP, and the Ellicott City Flood Solutions (ECFS) group formed by Frank Durantaye and Lori Lilly. I believe that $50 million is too much money for too little impact.

I live directly between the Hudson Branch and Main St just east of Rogers Avenue. I lost 10ft of land along the Hudson Branch in 2011. In 2016, Main St washed away from my home. I watched as runoff surrounded my home on all four sides, and continued to watch helpless as my neighbor was dragged by rapids skinning his entire body; having escorted his cookout guests to the safety of hills only to be pinned to a car by a floating tree. My neighbor's nephew braved the rapids, and they both came within seconds of becoming casualties.. I'm still rebuilding.

We can't wait. It was too late in 2016, when we knew by studies and models that the watershed could not move more than a few inches of rain without several feet on Main St.

You're now hearing a good bit from Valley Mede. You'll hear even more from New Cut Rd this time, also taking a sudden increase in runoff. I'd also point out that West End folks are significantly worn down by now, many older generations impoverished and simply too exhausted to even testify. I can't count how many in the West End community have had to move out since 2011 and 2016, and those struggling to survive are likely not intent on the details of study after study after study. If the development along Montgomery Road is permitted to continue, you can be certain you'll hear from Old Columbia Pike next.

Old Ellicott City gathers at the river, physically and holistically. If our shopping district is compromised, we all lose economically.

We cannot wait for retention solutions. And it is important to note that it was negligent to permit New Cut and College Ave to develop runoff even after 2011 called for a watershed study. Further, it is dangerous to permit further development without first accurately mapping and calculating the watershed's ability to convey rainfall (current rainfall at least with consideration for climate increases). However many feet of runoff this or any development contributes, this oversight is deadly in our town.

Recognize that this proposal omits sizable opportunities to reduce runoff on our streets far below the 4-6' that remain with this plan. Removal of lower Main St buildings does not protect communities - it is not enough to "convey" the runoff at the bottom of the hill.

West End Services Trucking company was noted for residential re-development in the most recent EC "Watershed Masterplan" - it is worth considering the number of "acre-feet" of retention available on this 5 acres. We are obligated to consider this site is exactly where the 8600 culvert work is being done, and the site itself is slowly but surely sinking into the Hudson Branch. A 10+ foot deep sinkhole has been present since the 2016 runoff event, and a fissure along the asphalt parking lot of broken leaking trucks is evident. This 5 acre site is an opportunity already situated directly in the

path of the runoff charging down Main St and has the elevation necessary to collect and slow runoff. To be clear, this site offers proactive mitigation that can protect the Main Street community from Rogers Ave all the way to the river...not just the lowest section of Main St. Retention high above also alleviates the lower Tiber-Hudson Branch, allowing it to convey runoff from New Cut. It also serves as mitigation for water quality measures, easily attained by the removal of broken trucks whose runoff enters the Huidson Branch without buffer.

Council should mandate the following requirements prior to permitting demolition on lower Main St:
Culvert maintenance (all checked, cleared and slated for upgrade if re-sizing is necessary)
Sediment removal and prevention (sediment from 2011, 2016, 2018 and all rains between have deposited sediment but no effort to remove as of yet - this is hazardous and a deadly risk in this watershed)
Stream side plantings should be mandatory throughout watershed (AKA Stream Buffers)
Street repairs (drains along curbs, slant toward drains)
Sidewalk repairs (8" curb to protect buildings from rapid surface runoff)

The 5-yr emergency plan claims "immediate life threat addressed in one year"...
The plan includes retention efforts that there is funding already available for, and no opposition for - other than the controversial demolition of lower Main St. We have bigger retention projects to fund. And 4- 6' of swift water is still deadly, so while we slow the consideration of controversial demolition, we can consider better plans (introduced in the McCormick Taylor Study) that don't require demolition and can be analyzed from a fiscal and feasibility standpoint before making an irreversible decision. There's no reason to postpone proceeding on all other mitigation projects while investigating the lower Main Street options. (Note that the 5-year plan would demolish the buildings now, but not start mitigation until FY21-23, so no time would be lost by delaying demolition until other proposed options are studied). For the same reason that a building moratorium was upheld, a moratorium on demolition should also be respected.

I've reinforced my walls and perimeter. I've replaced all utilities and moved them up a floor. I'm preserving the original Ice House for Ellicott City, built in 1809. Please make choices that protect all of us, please consider aggressively moving forward on major retention and prevention, please help us avoid band-aids that may become a never ending string of expenditures. I, like my neighbors, am nearing impoverishment. Please help develop strategies that preserve community and incentivize recovery and watershed strengthening.

$50 million is too much for too little impact. The demolition of the south side of lower Main St only brings controversy, while we must move forward retention projects today without delay.

We can not wait.

Thanks in advance for your consideration and compassion,
Gayle Killen
8572 Main Street
ECMD 21043

--
Every great advance in natural knowledge has involved the absolute rejection of authority.
~Thomas H. Huxley

Sayers, Margery

From: Tracey Davidson <thefurnituresolution@gmail.com>
Sent: Monday, September 17, 2018 11:27 PM
To: CouncilMail
Subject: Oppose demolition plan

There is no harm in putting this off.

Sent from my iPhone

Sayers, Margery

From: Pam Whelan <pammiewhelan@aol.com>
Sent: Monday, September 17, 2018 10:52 PM
To: CouncilMail
Subject: Old Ellicott City

Please do not let history be erased. If the buildings are torn down and the city has another flood and people die, then what? The plan failed and history is gone. There are better ways, let's try to find one that works to save lives and preserve history. It's what makes Historic EC so charming.

Sent from my iPhone

Sayers, Margery

From: Melissa <melissawrites4u@gmail.com>
Sent: Monday, September 17, 2018 10:49 PM
To: CouncilMail
Subject: Historic EC

Opposed. Very opposed to demolition of a major portion of the lower section of Main Street in the Ellicott City Historic District. As a former executive director of Howard County Tourism Council and having been involved with Preservation Howard County and Maryland Historic Trust, sitting on the board of Tourism Works for America Council, as well as sitting on the board of other local and national tourism, arts, and preservation organizations, I can attest to the historic and economic value of the Ellicott City Historic District. The Visitors Center in the former post office on Main Street has hosted hundreds of thousands of tourists, which represents roughly 10 percent of the overall visitors to the historic district. I personally greeted visitors from Italy, Iran, Saudi Arabia, Spain, dozens of other countries, and a group of Tibetan monks...all here to visit the unique collection of historic structures, representing in the original locations the architecture and American history spanning the 1700s, 1800s, 1900s, and 2000s all in one unique, original location. Yes, most shopped and dined, too. But it was the historic structures that drew them here. I am also keenly aware of the need to keep tourists and locals all safe, during their visits to the historic district. That cannot be denied or ignored. But the permanent, irreparable historic and economic impact demolition of such a significant portion of lower Main Street cannot be denied and should not be ignored either. Honestly, it feels like your decision has been rushed and is totally ignoring any solutions that not only keep people safe but also preserve the historic and economic impact of this section of lower Main Street. An alternative to what you have decided HAS been proposed and MUST be an option now.

Sincerely,
Melissa Arnold

Sayers, Margery

From: Wiley Purkey <wileypurkey@gmail.com>
Sent: Monday, September 17, 2018 10:06 PM
To: CouncilMail
Subject: Ellicott City

I am opposed to the proposed demolition of part of my beloved Ellicott City. I was born on Fel's Lane, and witnessed it's destruction, numerous fires, and was displaced during the flood of 1972. The town always comes back, driven by the resiliancy of it's people. The history of Ellicott City is greater than all of us, we are just temporary, however, we are the current caretakers of it's greatness, and we owe it to those that will come after us that it remane as it has been.

Please have the wisdom to turm back from the plan of destruction that will not solve the flooding problem, but WILL destroy nearly every business in town.

Find a better way, not a short-sighted one, least we all have regrets that can never be erased, and we will be known as the worst example of the destruction of a historic community that has ever been.

Wiley Purkey

--
Wiley's Art site is here: http://www.wileypurkey.com

The Art Events site: https://www.facebook.com/purkeyfinearts

Etsy shop: http://www.etsy.com/shop/wileypurkey

Facebook: https://www.facebook.com/wileypurkey

Twitter: https://twitter.com/wileypurkey

Pinterest: http://pinterest.com/wileypurkey

Sayers, Margery

From: Scott Varian <svarian@alumni.nd.edu>
Sent: Monday, September 17, 2018 9:30 PM
To: CouncilMail
Subject: Ellicott City

Dear Council Members,

My name is Scott Varian. I am a graduate of Notre Dame and currently an architect in Saint Louis. I heard the distressing news of plans to demolish a segment of historic downtown as a way of alleviating excess runoff in the area.

I unintentionally happened upon Ellicott City on a trip to Richmond several years ago. I could only describe the town as a hidden treasure. The small town charm and historic character of Main Street are very rare on this side of the Atlantic and they set the city and county apart from many others. It goes without saying that if demolished, a unique piece of history will be forever lost. I strongly ask you to consider the hands that built those structures, the souls that inhabited and toiled in them and the hearts which took pride in them for centuries.

Many cities in this country are rediscovering the immense value of traditional urbanism and architecture. They strive to emulate that which you already have in its authentic form. Please reconsider the value of your gem and give more consideration to alternative options to addressing the problem at hand. Where there's a will, there's a way, especially in America.

Most Respectfully,
Scott Varian

Sayers, Margery

From: Stephanie Waters Thompson <stephmwaters@gmail.com>
Sent: Monday, September 17, 2018 7:50 PM
To: CouncilMail
Subject: Re: SUPPORT FOR CURRENT EC FLOOD PLAN

Please confirm receipt and that this written testimony has been added to the record in support of the bills associated with the Kittleman/Weinstein flood plan.

Many thanks

Sent from my iPhone

On Sep 12, 2018, at 2:40 PM, Stephanie Waters Thompson <stephmwaters@gmail.com> wrote:

Members of the Howard County Council,

I am writing in support of Executive Kittleman and Councilman Weinstein's current flood mitigation proposal. My family bought a home in historic downtown in 2010, specifically because we could walk to Main Street to take advantage of our "small town within a big city".

I am sorry that the plan has been mired in controversy, misrepresentation, misinformation and social media gossip. Those of us who have been following the progression and details of the plan, understand that this was an incredibly tough decision to make but one that sadly needs to be made. As I hope you have seen, those who actually live and work in the historic district support the plan however painful it may be. We recognize that we have studied this ad nauseam and the time for action is now. We need to do whatever it takes to stop the problem as quickly and cost efficiently as possible, even if it means sacrificing some buildings in order to strengthen the rest of the town.

Please add this as "testimony" to any record is being kept. Unfortunately, I have three small children at home and am not always able to make it to the council meetings, however I do watch them on livestream.

Many thanks,
Stephanie Waters Thompson
3740 College Ave
Ellicott City

--
Stephanie Waters Thompson
240-463-7799 cell

Sayers, Margery

From: Erin Gillaspy <eringillaspy@gmail.com>
Sent: Monday, September 17, 2018 7:41 PM
To: CouncilMail
Subject: Ellicott City proposal

To whom it may concern,

As a resident of Maryland and a trained architect, I strongly disagree with the current flood-mitigation proposal in Ellicott City, and urge you to reconsider it. The counter-proposals from Preservation Maryland are worthy of consideration and ought to be taken into serious account when making this decision, as many American cities (such as Syracuse, New York, the city of my training) have suffered horribly from losing even portions of their historic district. Please keep your historic buildings intact, and seek an alternate method of flood prevention.

Sincerely,
Erin Gillaspy
Syracuse Architecture
B.Arch. '16

Sayers, Margery

From: Pam Long Photography <pam@pamlongphotography.com>
Sent: Monday, September 17, 2018 7:20 PM
To: HCGWebsiteMailbox; CouncilMail
Subject: Re: Testimony Signup

Thank you. I will not be able to testify live this evening, but will be submitting a written testimony. If lack of time does not allow all testimony to be heard this evening, I'd like the opportunity to be added to the next date if possible.

Thank you for all that each of you do for our incredible county!

My best, Pam

Pam Long, Cr.Photog., CPP
Certified Professional Photographer
Pam Long Photography
pamlongphotography.com
SeniorsByPamLongPhotography.com
410.988.5563
"Like" us on Facebook at: https://www.facebook.com/PamLongPhotography/

Voted BEST Photographer of Howard County

On Sep 17, 2018, at 3:28 PM, hcgwebsitemailbox@howardcountymd.gov wrote:

First Name:Pam
Last Name:Long
Address 1:8202 Main Street
Address 2:
City:Ellicott City
State:Maryland
Zipcode:21043
Phone:(410) 988-5563

Agenda: TAO1-FY19, CB61-2018, CB62-2018
Stance: For
Speaking for a group?: No
Organization Name:
Organization Street:
Organization City:
Organization State:
Organization Zip:
Comments:

Testimony is limited to three minutes for an individual or five minutes for the single representative of an organization. If you have prepared written testimony, please provide 7 copies when you testify.

Sayers, Margery

From: Ricky & Leslie Bauer <rrfarm@verizon.net>
Sent: Monday, September 17, 2018 5:40 PM
To: CouncilMail
Subject: Fwd: Correction Council Bill 63-2018

From: Ricky & Leslie Bauer <rrfarm@verizon.net>
Date: September 17, 2018 at 4:34:22 PM EDT
To: Howard County Council <councilmail@howardcountymd.gov>
Subject: Council Bill 62-2018

Honorable Council members:

My name is Ricky Bauer and I reside at 13817 Howard Rd, Dayton. I am a past member and former chair of the Howard County Agricultural Land Preservation Board. I am writing you to ask for your support of Council Bill 63-2018. During my time serving on the board I personally experienced, and witnessed many others experience, difficulties with our ever growing number of non-farm neighbors. It came to light, after many inquiries from the ag community for help that there wasn't a lot of avenues to seek help for these problems, and after reading the ALPB roles and rules, our hands were often tied to be of much assistance with these inquiries. After sharing some of these concerns with County Executive Kittleman, he appointed an Agricultural Coordinator, a great step, but we thought there should be a broader group to give the ag community a place to bring questions, problems and disputes to and a place to help find solutions. Who better than the ALPB, which is already in place, with a diverse group of ag and ag related people to accomplish this? After discussions with many council members, and especially with the help and hard work of Council Chair Ms.Sigaty, who after much discussion and research on her own came up with this bill. I think if this can pass it will go along way to try to alleviate conflicts in the county pertaining to the business of agriculture. The only change I would like to see is the role of the ALPB board expanded a little more so that when it comes to actual ALP easement business that does not involve the exchange of funds, the board would have final say to request with out involving other personnel employed by county government in the final decisions.

Thank you,

Ricky Bauer
rrfarm@verizon.net

Sayers, Margery

From: Steve Miller <steve@scottomiller.com>
Sent: Monday, September 17, 2018 4:40 PM
To: CouncilMail
Subject: TAO1-FY19

RE: TAO1FY19

My name is Steve Miller. I grew up in Ellicott City. My folks relocated here from Catonsville when I was four. That was 34 years ago. When people ask me where I'm from, I proudly tell them here- Ellicott City. My parents still live in that house in Mt Hebron in which my sisters and I grew up.

In full disclosure, I am a Maryland licensed real estate agent and have served on volunteer committees for the Ellicott City Partnership. However, this evening I speak to you as a private citizen and my views are that of my own.

Some of you may recognize me from Portalli's, where I was known as the Most Okayest Bartender on Main Street. Some of you also may have been unwittingly serenaded by me on an open mic or karaoke night in one of our Main Street establishments, and for that I am truly sorry.

I offer my testimony in support of the Ellicott City Flood Mitigation plan as proposed by County Executive Kittleman and Councilman Weinstein. I urge this Council to vote unanimously in support of these critically important measures.

Main Street has been a part of my life for over 20 years. I have worked in many of the restaurants, been a patron of the businesses, and some of the most important moments of my life have occurred in the buildings that are to be demolished. I have been and will remain a stalwart member of the Main Street community.

County Executive Kittleman told me in the shadow of the former intersection of Ellicott Mills Drive and Main Street the evening of May 28 of this year: "We thought we had more time." Each and every one of us connected to Ellicott City in every way shared that thought.

After watching our town get destroyed twice in less than two years by unpreventable flooding that we now know Ellicott City does not have the luxury of time.

We have heard from experts at the National Weather Service that not only are these types of storms becoming increasingly frequent, but that we narrowly missed another catastrophic flooding event of similar type by a handful of miles in the end of July of this year.

Important and difficult decisions must be made to not only protect the safety of residents, visitors, employees, and business owners, but to ensure the long term economic viability of the town. Those visitors, the employees, the business and property owners, and the residents comprise a strong, vibrant community.

After Tropical Storm Lee in 2011, community stake holders asked for solutions. Studies were performed, some small improvements occurred, but still the public stayed away out of fear- fear that Ellicott City would flood if it rained and they be caught in it.

I can confirm that as a former manager for years at Portalli's, every time it rained reservations would be cancelled due to concerns that it was dangerous in town when it rained.

Businesses all along Main Street, from the Patapsco River to Ellicott Mills Drive would see substantial drops in revenue every time it would rain.

After the 2016 flood, the drop off in business for all in the district was exponentially increased.

The businesses in this town are a vital part of its existence. They not only bring visitors from out of town but they contribute substantially to the economic vitality of Howard County as a whole. More importantly, they serve the very people who reside all throughout the historic district, from the West End to the Patapsco River and all points in between. They are the centers of the community, the places where we gather, shop, and create new and lasting memories.

Right now, those business owners that have chosen to return are hurting- badly. These are not faceless corporations, these are friends and neighbors who have mortgaged their homes, forgone days off, vacations, quality time with their own friends and families to not only rebuild once but now a second time. Kudos to them for believing in our town and community.

Right now, Main Street has more boarded store fronts than not. From a public relations standpoint, it is not a good look. It looks like the town is shut down. And with the threat of bad weather and repeated flash flood warnings, customers will continue to stay away.

Without those businesses, Historic Ellicott City dies.

With this in mind, we cannot blame the property owners for not wanting to rebuild again. The prospects of a return on their reinvestment are not bright.

After all, what business would willingly enter into a lease in a building straddling a trickle of a stream that can turn into a 20 foot plus wall of raging water and debris without warning?

What business would open in an area that is endlessly being pummeled by not only water but study after study with no resolution achieved?

Without those businesses, the residents who patronize them will leave. Part of the allure of living along Main Street is its vibrant street full of stores and restaurants. The same thing that attracts tourists keeps our residents here.

It is imperative that the Council approve these measures to ensure that, in part, these business and property owners have not wasted their time and effort to reopen in an ersatz ghost town.

The proposal before you has not been without its critics, some of whom are likely here this evening. Some of those critics have proposed alternatives to this current plan that are economically untenable, physically impossible, logistically unreal or outlandish beyond comprehension.

I would, however, like to commend the opposition for doing something I thought to be totally impossible: uniting the entire street- but not in alignment with them- only against their alternative plans and their tactics.

Make no mistake, I am not, as I have been characterized by the opponents of this plan "Pro-demolition." I do not like that these buildings will come down but I recognize and accept that this is the best way forward. The science and data from the H&H studies backs this, the engineering backs this, the experts in flood and storm water management in the watershed back this, and thus do I.

I do not wish to hear of another life lost or another near tragedy because Main Street flooded- again. Safety is paramount, and should always trump historic preservation. What good is historic preservation if there is nothing of the town left to preserve?

I firmly believe that the plan put forth and which I am in support of, although requiring the removal of some buildings that have framed some of the most important moments of my life is a necessary step towards ensuring that Ellicott City is here for another 250+ years.

Our lives are comprised of thoughts and memories of what we have done, places we have been, and what we have experienced. Main Street, especially the bottom of the hill has been a key component of my life and my memories. However, even with those buildings gone, the memories shall remain.

Theodore Roosevelt once said **"In any moment of decision, the best thing you can do is the right thing, the next best thing is the wrong thing and the worst thing you can do is nothing."**

With that in mind, I ask that you vote for this measure. Doing nothing is not an option. I implore you make the right decision, by voting for these measures. Not to preserve structures of Ellicott City, but to PRESERVE THE COMMUNITY of ELLICOTT CITY.

Thank you.

Steve Miller

Scott O. Miller & Associates Team of RE/MAX 100
10440 Little Patuxent Parkway, Suite 400
Columbia, MD, 21044

Check us out on Facebook
Follow us on Twitter- @MillerAssocTeam

O: 410-730-6100
M: 410-971-3050

www.scottomiller.com

SCOTT O. MILLER
& ASSOCIATES TEAM OF RE/MAX 100

September 17, 2018

Howard County Council
George Howard Building
3430 Court House Drive
Ellicott City, MD 21043

Re: Ellicott City Flood Mitigation Plan TA01-FY19, CB61-2018, CD62-2018

Dear Councilmembers:

Thank you for giving your full consideration to these comments regarding the County Executive's proposed five year flood mitigation plan. I have grave concerns about the safety and viability of Main Street in the coming years under this plan, its bottom up approach, timeline to mitigation, and irreversible impact on the lower Main streetscape, have not been fully examined or presented to the public. I strongly urge you to fully review the plan, all its details, assumptions, models and alternatives BEFORE taking action on this legislation.

This plan forever alters the Main Street streetscape, has irreversible impact on the larger National Register historic district, threatens the National Landmark B&O Railroad Depot AND does not protect residents and visitors from the 4-6 feet of floodwater still predicted by the plan. There must be a better way – other alternatives exist and should be fully considered before taking this drastic action.

You and your partners in the County Government are faced with very difficult decisions in the coming months, as all recognize that unprecedented action must be taken to protect not only the future of the entire Ellicott City Historic District but to provide true life-safety improvements for all who, live, work, and visit this community. However, the current plan proposes drastic loss to the character of the community, with purchase and demolition before design or flood mitigation occurs, but little gain in life-safety protection. What will protect the community over the next three years while design options for a new "river walk" are explored? As the current stewards of this unique and treasured valley, I ask that you not act in haste toward demolition, but call on the County Executive to develop a "model" flood mitigation plan that explores, and improves both RETENTION and conveyance throughout the watershed.

The structures to be demolished, affectionately referred to as the Tiber ten, and possible earlier buildings on shared footprints have long and varied histories, dating back to 1930, 1890, and as early as 1830. Individually, they have varying degrees of architectural, and historical significance to the local Historic District, with many noted as contributing structures. Collectively, their impact is larger and loss greater. The Tiber ten have stood along Main Street as an integral part of the developing city for multiple generations, reflective of the development, growth, and culture of both Ellicott City and the Patapsco Valley.

Significant historically, architecturally, and as part of the Main Street district these buildings are vital to Ellicott City's historic vernacular cultural landscape, unique as the intersection of not one but two of this Nation's earliest commercial transportation routes – the B&O railroad and the National Road. Main Street and railroad communities may be ubiquitous throughout the Country, but none

can rival the heritage of our own – you have the honor and distinction of protecting and preserving this heritage for all current and future residents of this valley, city, county, and our Nation.

Other feasible options to demolition do exist, and as demolition of the Tiber Ten will forever alter the streetscape along Main, I call on you to ask the tough questions, explore other alternatives, and NOT act on demolition of the Tiber Ten until alternatives for retention and conveyance have been fully vetted. Furthermore, I urge that prior to any demolition on Main Street, the Council reviews detailed plans for the future of these parcels, requires full research, historical, and architectural documentation, and a timeline for reuse of the site to avoid a vacant cavity in the heart of the Historic District.

Thank you for your time and attention to these remarks.

Nancy Pickard
1080 Copperstone Court
Rockville, MD 20852
22-year resident of Howard County
17-year resident of Ellicott City

Sayers, Margery

From: Ann jones <annholmesjones@gmail.com>
Sent: Monday, September 17, 2018 3:10 PM
To: CouncilMail
Subject: CB 62-2018 - Support

Ann H. Jones

2921 Greenway Drive

Ellicott City, MD 21042

Testimony Re: Council bill – 62-2018

Modifications to the Howard County Agricultural Land Preservation Act and

Associated Reorganization

September 17, 2018

Position: Favorable

Good Evening,

My name is Ann Jones and I live at 2921 Greenway Drive in Ellicott City and I am a member of the Howard County Agricultural Land Preservation Board. I would like to thank the administration and the County Council, especially Councilwoman Sigaty, for working with the Preservation Board to draft this proposed legislation that will make the board more responsive to the needs of the agricultural community.

The preservation board is, and will remain, an advisory board to the County. We do not have, not does this legislation seek to add, any final decision authority. Rather, it expands the list of concerns that we can address. We were surprised to find that we could not even listen to the problems encountered by members of the farming community unless there was legislation allowing the board to listen to those concerns. This legislation and the accompanying proposed reorganization gives the board that authority.

Howard County has done an amazing job of preserving agricultural land. Were it not for the efforts of the government over the years we would never have the base of agricultural land available that we have today, and I am very grateful for the Counties continued support.

However, the same development that increased the need for agricultural land preservation has also increased the conflicts between the farming community and their new neighbors. Council bill – 62-2018 seeks to make it clear that the board always has members who are full time farmers, and is able to consider a wider range of issues of importance to farmers.

I thank you for your consideration and look forward to continuing to assist the county in supporting out agricultural economy, and the farmers who improve the quality of life for all County residents.

Sayers, Margery

From: Ann jones <annholmesjones@gmail.com>
Sent: Monday, September 17, 2018 3:07 PM
To: CouncilMail
Subject: CB 61-2018

Ann H. Jones

2921 Greenway Drive

Ellicott City, MD 21042

Testimony Re: Council bill – TA01-FY2019 and 61-2018

September 17, 2018

Support – Elements of the Plan

Do Not Support – Demolition of Structures on Lower Main Street

It is difficult to say that you are against all elements of the proposed Flood Mitigation Plan. Clearly increasing the size of culverts, reducing the flood damage in the West End and adding more substantial storage facilities are important elements whether you are dealing with a 5-year storm, 10-year storm, 25-year storm or probably a 50-year storm. However, you have to acknowledge that there will always be storms that will simply overwhelm any engineered solution that you can construct.

I well remember Agnes, and Eloise that came a mere 3 years later. At that time there was significant doubt that Ellicott City would ever recover, but there were no demolition plans. I oppose the demolition of significate portions of historic Ellicott City to achieve marginal additional flood control.

The most important concern of any plan must be the protection of lives. Looking back at the history of major floods of Ellicott City the flood of 1868 killed 42 people. 7 people lost their lives in Hurricane Agnes. The most recent flood took the life of one hero. All deaths are tragic,

and I by no means intend to discount the importance of any life. If we want to save lives we must determine what is the effective means of saving lives.

What changed between the Flood of 1868 and today? Clearly it was not an engineered change, a decrease in impervious surface, or the result of an improving climate. Rather it was a change in the notice people receive of impending flood events and the training and equipping of first responders to deal with flood emergencies. Those factors have been proven to save lives, and yet the Ellicott City Flood Mitigation Plan before you tonight references up to 18 large infrastructure projects. None of these infrastructure projects address warnings, planning and equipment for first responders or requirements for flood escape routes.

The more I think about flood control in Ellicott City the more I liken it to fire protection and fire escape plans. The building we are in tonight is not 100% fire proof. Rather it is constructed with fire alarms and clearly delineated emergency escape routes.

The heart rendering video of the Joan Eve survival story is perhaps the best example of why this is necessary. In the video they state that at one point a door was bolted so they could not escape, and there was no clear route. We all know that doors are required to be equipped to be opened in a fire emergency. Those same types of emergency doors could and should be installed for flood emergencies.

One of my favorite places in Ellicott City was the Coco Lane Rooftop Deck. What if the rebuilding of Ellicott City included a series of walkways and decks that formed a connected path to safety leading to the Courthouse on the North side of the street and to St Pauls Church on the South Side. Might this become an additional tourist attraction for the town, and a way to tie the existing old town Ellicott city to the Courthouse redevelopment, and even provide access to additional parking areas.

Combining a clear escape route with an advanced warning system through alarms, sirens and cell phone notifications is the type of system that has been proven over and over to save lives. It is the basic of all fire protection strategies.

Please do not demolish significant portions of historic Ellicott City until you have examined all the options to save lives. There can always be a storm that will overwhelm the best engineering plans. This plan should concentrate on saving lives when that storm happens.

Sayers, Margery

From: Tracey Davidson <thefurnituresolution@gmail.com>
Sent: Monday, September 17, 2018 1:37 PM
To: CouncilMail
Subject: Against Ellicott City demolition

We must not rush into a poorly researched plan that will destroy our history permanently. I'm concerned that this plan was concocted behind closed doors. Please do not approve this plan, instead work with preservationists to find a plan that increases safety and protects these irreplaceable gems. Human life and history can both be saved, serving developers should not be our priority,

Tracey Davidson
West Friendship,

Sent from my iPhone

Sayers, Margery

From: galileo1@aol.com
Sent: Monday, September 17, 2018 12:20 PM
To: CouncilMail
Subject: No to the demolition of the old buildings

Dear City Council!

All around our country we rightfully cherish historical artifacts like various Native American structures.
I believe these buildings should have similar historical status. Please, let's think of the future generations who would enjoy this part of Maryland history.
Respectfully submitted,

--- Geza Binger
Hacienda Heights, California

Sayers, Margery

From: Mary Elizabeth Kaltenbach <mekaltenbach@gmail.com>
Sent: Monday, September 17, 2018 12:11 PM
To: CouncilMail
Subject: Preserve Old Ellicott City!

Dear County Council,

When you meet tonight, please act to preserve the buildings of historic Ellicott City that TAO1-FY2019 proposes to destroy.

These buildings have historical significance and are vital to the character of the town. Destroying them is akin to ripping out the heart of the city. It might only be 5%, but it is the 5% that gives the town is very life. The 5% that's charm and age draw people, both local and tourist, back again and again.

There are better options, especially since the recent floods were aggravated by massive amounts of run-off from the housing developments recently built uphill. Overhaul retention ponds in the new developments, or channel the water to the few remaining wooded areas. These beautiful, historic buildings don't deserve to go because of poor planning.

Thank you for protecting our heritage.

Mary Elizabeth Kaltenbach
443-520-5688

8307 Main Street
Ellicott City, MD. 21043
410-465-0070
lapalapagrill.com
info@lapalapagrill.com

September 17, 2018

RE: Letter to approve County Executive Kitlleman and Councilmember Weinstein's flood mitigation plan

To Whom It May Concern:

My name is Simon Cortes and my family and I own La Palapa Grill & Cantina and the building located at 8321 Main Street. We have been in business on Main Street since 1999 and currently employ over 60 people at our restaurant. I am writing because I am for the flood mitigation plan County Executive Kittleman and Councilmember Weinstein have proposed.

I was at La Palapa Grill & Cantina during both of the last major floods (July 2016 & May 2018). I saw first-hand how quickly the water rises and how scary and dangerous it is to be trapped in a situation like that. Both times the restaurant was full of families with small children and elderly people.

During the most recent flood we helped over 150+ move from the Main Street Ballroom located under La Palapa Grill & Cantina up to our space to escape the rising water. My friend Eddison Hermand was at La Palapa Grill & Cantina and lost his life while trying to help the owner from Clippers Canine (located under La Palapa Grill & Cantina) to safety. The deadly waters rise extremely fast and give little to no time for people to evacuate quickly and safely. My business and staff can no longer risk so much and request that our county take immediate action and move this plan forward.

Our business has declined because our guests do not feel safe coming to Old Ellicott City. They fear that every time it rains they would be putting themselves at risk of losing up to their lives.

Meetings regarding flood mitigation in Old Ellicott City have been going on for many years and the studies show this is the best and quickest way to make Old Ellicott City safe for our guests. If this plan does not move forward immediately we will be forced to leave this town and relocate elsewhere.

We simply do not have time to waste on more studies or the chance that someone else will lose their life.

Thank you,

Simon Cortes

Date: September 17, 2018

To: Howard County Council

From: The Rev. Anjel Scarborough, Priest in Charge
St. Peter's Church, 3695 Rogers Ave, Ellicott City MD

RE: Council bills TAO1-FY2019, CB61-2018, and CB62-2018

I am here to speak to this proposed plan again as a moral issue of lives, limbs and livelihoods. Three catastrophic top-down floods in seven years is a significant change in the rhythm of life in Old Ellicott City. H.L. Mencken said, "For every complex problem, there is a simple solution – and it will be wrong." The complexities of dangerous flooding have been studied ad nauseum since at least 1976 and one thing is clear: there is no simple solution and none without painful decisions. Studies are only helpful if they lead to action. Do not mistake doing studies for doing something. We don't have the luxury of analysis paralysis and more delays. Lives, limbs and livelihoods of the people of Old Ellicott City are on the line.

I've read a number of plans and proposed solutions over the past two months. In a perfect world, we would be able to remove all the flood waters, reroute water underground through massive pipe systems, preserve every building, and do so overnight so as not to negatively impact the economy of Old Ellicott City's businesses or inconvenience its residents. But I've just described a fantasy because we don't live in a perfect world. Perfection belongs to God alone, not to humanity. But, as our Judeo-Christian tradition teaches, we are made in the image of God – as sentient beings with intellect. As such, we are to reflect that intellect and put our minds to work using the best of science to address complex matters. To willfully ignore science, the realities of global climate change and its impact right here is to reject our God-given intellect and that is a sin against our Creator.

To paraphrase Voltaire, "the perfect is the enemy of the good." The county's proposed plan is not perfect, but it is good. It doesn't come without pain. As a priest, I love old buildings – especially churches. But my father taught me "Never love anything that can't love you back." He taught me to remember our relationships and lives are more precious in God's sight than anything made with our hands. History isn't enshrined in buildings – history is the relational memory of people and place. Buildings represent memories but they are not the same thing. History is a living, breathing matrix of memory and story. It requires people to maintain it. It is the lives of these people which need protection.

The demolition of old buildings is a painful, emotional matter. I am not pro-demolition – I'm for preserving what we can and make sure that lives, limbs and livelihoods are first priority. I've lived in Maryland for 30 years but I'm a native Californian where we have four seasons: earthquake, fire, flood and mudslide. In 1979, the Episcopal diocese of Los Angeles made the painful decision to sell St. Paul's Cathedral to Mitsui Corporation knowing full well it would be demolished. Successive earthquakes, including one in 1971 which killed 64 people, rendered the historic Spanish Revival structure unsafe. Preservationists tried to save it but both safety and lack of funding only delayed inevitable. It was emotionally painful for many who had been baptized, married and whose loved ones were buried from St. Paul's. But selling the land made way for a new cathedral complex to be built and for the safer St. James Wilshire to become the pro-cathedral for worship. The change allowed for new memories to be made while older memories of St. Paul's are preserved in pictorial and written records.

It's easy to forget that politics is the art of compromise. When a plan is good, everyone walks away with something they want but not everything they want. This plan provides for retention ponds, widening and deepening of river channels, and to accomplish this the removal of buildings which impede the completion of this work. After attending the hydrology briefing back in July, I learned how our forbearers filled in the Tiber's natural flood plain to develop Main Street – the buildings are historic but not original. It seems we've had a 135-year lease of the Tiber's flood plain and she's canceling our lease.

In closing, as a pastor, one of the hardest things I have to do is to preside over the funeral of a preventable death. Whether it's innocent victims of gun violence, someone killed by a drunk driver, or a death caused by any kind of negligence – senseless, preventable deaths are gut wrenching. I pray I don't have to preside at the funeral of someone swept away in a flash flood because our county leaders chose more studies over action. We are called to love our neighbors who can love us back and put that love into action now to protect lives, limbs and livelihoods.

Sayers, Margery

From: Meg Boyd <boydfamily11@gmail.com>
Sent: Monday, September 17, 2018 11:17 AM
To: CouncilMail
Subject: Opposition to CB 61-2018

Council Members,

I am writing in opposition to CB 61-2018. I do not believe adequate time has been spent researching alternatives to demolition, nor do I believe it is in the long term interest of Historic Ellicott City to demolish a significant portion of the historic district.

Meg Boyd

Elkridge MD

Sayers, Margery

From: Tyler Case <casetyler99@gmail.com>
Sent: Monday, September 17, 2018 10:41 AM
To: CouncilMail
Subject: Save oec

Dear Howard County Council:
Historic Ellicott City deserves a better plan to protect its citizens, visitors and businesses. Push pause on the portion of the plan that seeks to demolish buildings years before real flood mitigation is undertaken. As someone who cares deeply about saving lives and preserving the historic integrity and economic viability of Ellicott City, I urge you to fully investigate proposals that stand to take lethal waters off of lower Main Street and truly make the town as safe as it can be.

Sincerely,
Tyler Case

Sayers, Margery

From: holly Jarrell <htrevey@gmail.com>
Sent: Monday, September 17, 2018 9:34 AM
To: CouncilMail

Dear Howard County Council:
Historic Ellicott City deserves a better plan to protect its citizens, visitors and businesses. Push pause on the portion of the plan that seeks to demolish buildings years before real flood mitigation is undertaken. As someone who cares deeply about saving lives and preserving the historic integrity and economic viability of Ellicott City, I urge you to fully investigate proposals that stand to take lethal waters off of lower Main Street and truly make the town as safe as it can be.
Sincerely,
Holly Jarrell

CMBRs, JF, ms

COMMENTS ON TAO 1 AND CB 61 AND 62
PAUL FARRAGUT 3602 LIGON ROAD, ELLICOTT CITY 21042
PJFARRAGUT@AOL.COM-410-461-2569

HELLO HOWARD COUNTY COUNCIL ~~MEMBERS~~; Greg,

I AM UNABLE TO ATTEND THE PUBLIC HEARING ON THE ABOVE BECAUSE MY WIFE IS RECOVERING FROM RECENT HIP SURGERY. INSTEAD, I AM PROVIDING WRITTEN COMMENTS FOR YOUR CONSIDERATION.
AS A RESULT OF TWO 1,000 YEAR FLOODS IN ELLICOTT CITY WITHIN TWO YEARS, I'M SURE WE WOULD ALL AGREE THAT WE HAVE A SERIOUS PROBLEM AND BOLD ACTION IS NEEDED. OVER THE LAST TWO YEARS I HAVE ATTENDED SEVERAL MEETINGS ON THE ELLICOTT CITY MASTER PLAN INCLUDING DETAILED DISCUSSION ON HYDROLOGY. I HAVE ALSO CAREFULLY REVIEWED THE ELLICOTT FLOOD MITIGATION PLAN DATED 8/23/18. FOR THOSE OF YOU WHO DON'T KNOW MY BACKGROUND, I HAVE TRAINING AND EXPERIENCE IN COMMUNITY AND ENVIRONMENTAL PLANNING,ADMINISTRATION AND ECONOMICS.

MY SUPPORT FOR PRESERVING HISTORIC SITES IN HOWARD COUNTY GOES BACK MANY YEARS. WHEN I WAS ON THE COUNTY COUNCIL, I SUPPORTED PURCHASE OF THE PATAPSCO FEMALE INSTITUTE, IMPROVEMENTS TO THE ELLICOTT CITY COLORED SCHOOL AND DEVELOPMENT OF THE TIBER PARK IN DOWNTOWN ELLICOTT CITY. WHILE TRAVELING MY WIFE AND I OFTEN VISIT HISTORIC SITES. OUR INTEREST IN CONSERVING SITES OF SIGNIFICANCE IS QUITE STRONG. WE LOVE THE HISTORIC NATURE OF OEC AND OFTEN VISIT THE TOWN AND TAKE OUT OF TOWN GUESTS TO VISIT. BEFORE THE LAST FLOOD, I WAS A FREQUENT USER OF THE BEAN HOLLOW COFFEE SHOP AND ENJOYED SHOPPING AT SHOEMAKERS COUNTRY STORE ON MAIN STREET. SADLY, BOTH STORES ARE NOW PERMANENTLY CLOSED.

WE HAVE A CRITICAL SAFETY ISSUE THAT SADLY HAS RESULTED IN THE DEATHS OF SEVERAL PEOPLE, INCLUDING MOST RECENTLY A HERO- STG. EDDIE A. HERMOND- WHO LOST HIS LIFE ASSISTING SOMEONE ELSE. HIS LIFE WAS ONE OF FOUR LOST OVER THE LAST TWO YEARS. WE ALSO HAVE A PERCEPTION OF DANGER EVERY TIME IT RAINS HEAVILY AND THE COUNTY'S MOBILE, ELECTRONIC SIGNS AT EITHER END OF TOWN BEGIN SENDING A MESSAGE "FLOOD WARNING." THE BOARDED UP SHOPS ALONG LOWER MAIN STREET IS A VERY SAD SIGHT AND THIS NEGATIVELY IMPACTS BUSINESS IN THE ENTIRE TOWN.

THIS IS NOT A SUSTAINABLE SITUATION AND WITH CLIMATE CHANGE, IT IS LIKELY THAT FLOODING WILL ONLY GET WORSE AND POTENTIALLY MORE DANGEROUS. THE SITUATION WE ARE NOW IN DEMANDS IMMEDIATE ACTION BY THIS COUNTY COUNCIL. WE CANNOT POSTPONE THE DECISION ANY LONGER. THE SITUATION AT HAND REMINDS ME OF THE SURGEON WHO ADVISES THAT AN ORGAN NEEDS TO BE REMOVED FROM THE BODY IN ORDER TO SAVE THE PATIENT. I THINK THIS IS THE SITUATION WE FACE IN DECIDING WHAT TO DO IN ELLICOTT CITY. WE MUST LOSE A SMALL PART OF THE DOWNTOWN LANDSCAPE TO SAVE THE WHOLE. THIS IS NOT AN EASY DECISION BUT ONE THAT NEEDS TO BE MADE BECAUSE THE PATIENT IS ON LIFE SUPPORT AND TIME IS OF THE ESSENCE.

WE HAVE A NON-SUSTAINABLE SITUATION AT THE LOWER SOUTH SIDE OF MAIN STREET WHERE BUILDINGS WERE CONSTRUCTED OVER OR IN THE IMMEDIATE FLOOD PLAIN. THE PRESENT CHANNEL IS INADEQUATELY SIZED AND CREATES A MAJOR "CHOKE POINT." WE HAVE MANY BUSINESS OWNERS WHO ARE NOT COMING BACK AFTER TWO RECENT FLOODS AND WE HAVE BUILDING OWNERS WHO WOULD LIKE TO BE BOUGHT OUT BY THE COUNTY. NOW IS THE TIME TO ACT.

THE SOLUTION TO THE PROBLEM IS COMPLEX AND INVOLVES WIDENING THE CHANNEL AT THE LOWER END OF MAIN STREET, IMPROVING OTHER CHANNELS, CONSTRUCTING STORM WATER RETENTION PONDS UPSTREAM AND PURCHASING SOME HOUSES CLOSE TO TRIBUTARY STREAMS. THIS WILL ALLOW PEOPLE TO ESCAPE UNDESIRABLE AND SOMETIMES UNHEALTHY ENVIRONMENTS, POSSIBLY UNSAFE SITUATIONS AND ALLOW AN OPPORTUNITY FOR SOME NEEDED CHANNEL MODIFICATIONS. THERE IS ALSO A NEED FOR RETROFITTING EXISTING DEVELOPMENTS SUCH AS VALLEY MEDE. I SUPPORT THIS COURSE OF ACTION.

THE HYDROLOGIC STUDY THAT IS THE BASIS OF THE PROPOSAL BEFORE YOU INDICATES THAT ONCE IMPLEMENTED,LOWER MAIN STREET WOULD RECEIVE APPROXIMATELY 4 FEET OF WATER IN A 1,000 YEAR PROBABILITY STORM RATHER THAN MORE THAN EIGHT FEET AT PRESENT, OR A REDUCTION OF AT LEAST 50%. IMPORTANTLY, THE SPEED OF WATER WOULD ALSO BE REDUCED MAKING DROWNING FROM A FLOOD STILL POSSIBLE BUT MUCH LESS LIKELY. SUCH A REDUCTION IN THE PEAK WATER LEVEL WOULD ALSO MAKE FLOOD PROOFING PROPERTIES ON THE NORTH SIDE OF THE STREET SIGNIFICANTLY EASIER. WE SHOULD REMEMBER THAT FLOODS OF ONCE IN 100 YEARS ARE MUCH MORE PROBABLE THAN WHAT WE HAVE SEEN THE PAST TWO YEARS. THESE 100 YEAR FLOODS, I BELIEVE, WOULD BE ACCOMMODATED BY THE PROPOSED SYSTEM. PLANNING A SYSTEM FOR THE PEAK DAY IS OFTEN UNECONOMICAL.

SOME PEOPLE HAVE SUGGESTED THAT A LARGE TUNNEL UNDER OR ADJACENT TO MAIN STREET WOULD BE A BETTER SOLUTION IF IT COULD CONTAIN ALL FLOOD WATER FROM A 1,000 YEAR EVENT. IT SEEMS TO ME THIS PROJECT WOULD BE EXTREMELY COSTLY AND COULD NEVER BE JUSTIFIED. BORING EQUIPMENT WOULD HAVE TO CUT THROUGH THE VERY HARD PATAPSCO GRANITE THAT LIES BENEATH THE SURFACE, REQUIRE THE SHORING UP OF BUILDINGS CLOSE TO THE SITE, DISRUPT WATER AND SEWER LINES AND RESULT IN THE CLOSING OF MAIN STREET FOR LONG PERIODS OF TIME. PRESENT TUNNELING FOR A SUBWAY EXTENSION IN MANHATTAN IN BEDROCK IS TAKING MUCH LONGER TO COMPLETE THAN PROJECTED AND IS SIGNIFICANTLY OVER BUDGET.

I THINK YOU SHOULD APPROVE THIS LEGISLATION AND NOT PASS IT OFF TO A NEW COUNTY COUNCIL. WE CAN QUIBBLE ABOUT THE NEED FOR MORE INFORMATION OR OTHER DETAILS BUT THE DELAY WOULD FURTHER PUSH OFF DECISIONS AND FURTHER THREATEN AN ALREADY FRAGILE BUSINESS COMMUNITY. WHEN I WORKED WITH THAT COMMUNITY AT THE MARYLAND PORT ADMINISTRATION, I REALIZED THAT UNCERTAINTY IS A VERY NEGATIVE FACTOR IN MAKING ECONOMIC COMMITMENTS. AGAIN TIME IS OF THE ESSENCE.

IN REGARD TO TAO 1, I WOULD THINK THAT PROVIDING MORE FLEXIBILITY FOR THE LINE ITEMS NOTED WOULD BE DESIRABLE. FOR EXAMPLE, IF MORE MONEY WERE NEEDED FOR PARK DEVELOPMENT PERHAPS VALUE ENGINEERING WOULD PROVIDE A WAY OF REDUCING NEEDS IN ANOTHER BUDGET CATEGORY. SO ALLOWING FLEXIBILITY TO TRANSFER FUNDS BETWEEN CATEGORIES WOULD BE DESIRABLE.

I THINK THE PROPOSALS BEFORE YOU ARE COST EFFECTIVE AND CAN READILY BE IMPLEMENTED. I ASK FOR YOUR APPROVAL FOR THE THREE PIECES OF LEGISLATION. THANK YOU

MY FINAL THOUGHTS DON'T DIRECTLY RELATE TO THE LEGISLATION AND ARE AS FOLLOWS:

1. IT SEEMS TO ME THAT AFTER THE 10 BUILDINGS FROM CAPLANS DOWN TO THE TRAIN STATION ARE REMOVED THAT A NEW, EXCITING PLAZA, WATER FEATURE(THE CHANNEL) AND WALKWAY COULD BE BUILD AT THIS SITE. IT WOULD OFFER AN OPPORTUNITY FOR COMMUNITY EVENTS AND ENHANCE THE VIEW OF THE HISTORIC TRAIN STATION. HEADING EAST ON MAIN STREET-TOWARD CATONSVILLE- ONE WOULD SEE THE GRANITE TRAIN STATION. SOME IN THE HISTORIC COMMUNITY HAVE EXPRESSED CONCERN ABOUT FLOODING POTENTIAL AT THE TRAIN STATION ONCE THE BUILDINGS ARE REMOVED. IT WOULD BE POSSIBLE TO FLOOD PROOF THE STATION IF NECESSARY(IT DIDN'T FLOOD DURING THE LAST STORM).

2. THERE MAY BE AN ARGUMENT THAT BY REMOVING 10 STRUCTURES FROM MAIN STREET THERE MAY NOT BE ENOUGH "CRITICAL MASS" TO ENCOURAGE PEOPLE TO VISIT. I WOULD SUGGEST THAT A PARKING GARAGE BE BUILT AT THE LOCATION OF THE OLD ROGER CARTER CENTER AND THE BUILDING USE SOME OF THE INTERESTING FACADES OF THE BUILDINGS THAT WOULD BE REMOVED FROM MAIN STREET. BY ALLOWING SAY 10 NEW, SMALL BUILDINGS TO SURROUND THE GARAGE, THE NEW COMMERCIAL STRUCTURES COULD HELP FUND THE GARAGE, IMPROVE THE AESTHETICS OF THE STRUCTURE AND PROVIDE MORE SHOPPING OPPORTUNITIES. THE BASEMENT OF THE GARAGE COULD ALSO BE DESIGNED TO STORE STORM STORM WATER AND A GREEN ROOF COULD PROVIDE AN ENVIRONMENTALLY ATTRACTIVE AMENITY.

Paul 9/17/18

TA01 - FY19

Sayers, Margery

From: Lasser, Caryn
Sent: Tuesday, September 18, 2018 1:56 PM
To: Feldmark, Jessica
Cc: Sigaty, Mary Kay; Sager, Jennifer; CouncilMail
Subject: EC Flood Mitigation Plan - Council Requests and Responses
Attachments: Council Information Request - Memo from Mark De Luca 091718 - updated.pdf

Hi Jess,

Please find below, and attached as referenced below, responses to Council questions regarding the Ellicott City Flood Mitigation Plan. County staff are continuing to compile information to respond to the remaining questions. Additional responses will be shared as they become available. A wealth of information is available at: www.ECfloodrecovery.org.

Council Requests for Additional Information:

9. *Please provide a list of all the properties to be acquired with the owner of each property and the age of each building to be removed.*

The properties in downtown Ellicott City include the following, including owner name and approximate year structure was built:

- 8049 Main Street, owner: George C. Goeller.
  Rear was built in 1850, 1st floor in 1860s, and 2nd floor in 1920.

- 8055 Main Street, owner: Sally Tennant.
  1930s.

- 8059 Main Street, owner: American Touresorts, Inc.
  1890s w/later addition in 1930s.

- 8069 Main Street, owner: 8069 LLC.
  1880s and 1930s.

- 8081 Main Street, owner: Master's Ridge, LLC.
  1800s w/later addition

- 8085 Main Street, owner: Blues Building, Inc.
  Late 1800s, addition 1920s, fire damage 1999, rebuilt 2000, flood damage 2016, renovated 2017.

- 8095 & 8101 Main Street, owner: Historic Ellicott Properties, Inc.
  1890, fire 1999 & rebuilt 2001, renovated in 2016 after 2016 flood.

- 8109 – 8113 Main Street, owner: Charles E. & Jane Best Wehland, and Walter L. and Jennifer D. Johnson.
  1900s, but added to over the years

- 8125 Main Street, owner: Caplan Department Store. 1901

Additionally – Please find attached a revised memo responsive to Questions 5, 6, 10, and 12. The chart on page 2 has been updated.

Thanks.

Caryn D. Lasser
Deputy Chief of Staff
Howard County Executive Office
3430 Courthouse Drive
Ellicott City, Maryland 21043
410-313-4308 Direct Office
410-313-2013 Main Office
443-537-3501 Cell

Howard County
Internal Memorandum

SUBJECT: Council Information Request

TO: Caryn Lasser

FROM: Mark De Luca

DATE: September 17, 2018

In response to the Council's request for more information please find the attached.

Specifically, their request as listed:

5. Please provide a list of all the scenarios considered with the following information
   a. a summary/description
   b. the total estimated cost
   c. the flood mitigation impact achieved
   d. any road closures necessary
   e. your evaluation of the pros and cons

10. Looking at the various studies over time, please compile a list of all the recommendations from all studies and, for each recommendation, indicate whether or not it is incorporated into the proposed plan and explain why.

The attached spreadsheets and report texts are offered to answer these two questions.

For Question 6, the 5-year plan consists of:

1. Ellicott City Property Acquisition/Removal
2. Lower Main Street Open Space Construction
3. Ellicott Mill Culvert Expansion
4. The Hudson Bend
5. Frederick Road Culvert Improvements
6. Church/Emory Streets Storm Drain Improvements.
7. Quaker Mill Retention Facility at Rogers Avenue
8. Hudson 7 Retention Facility at US 29/Rt. 40 Interchange
9. New Cut Road Slope Failure
10. Maryland Avenue Culverts

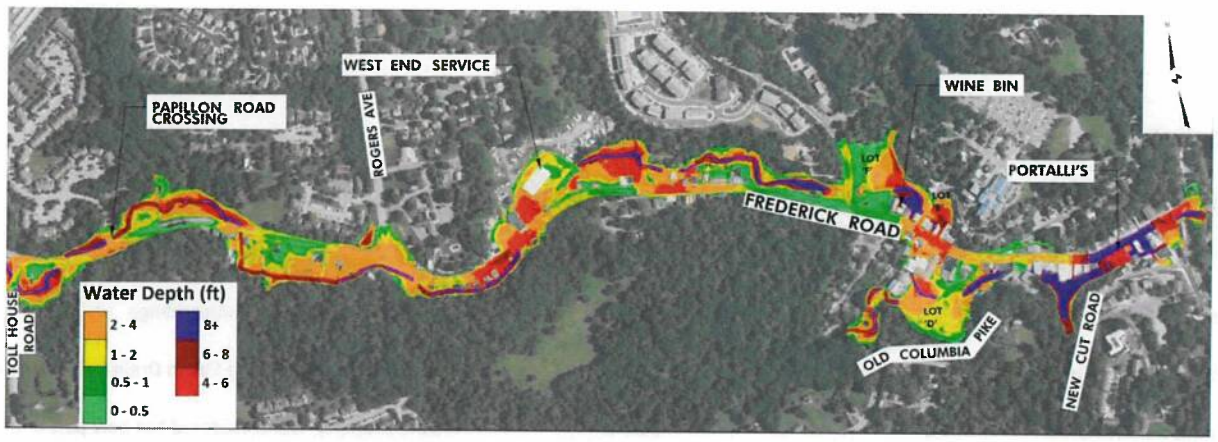
Listed below is an anticipated schedule for the work.

Projects	FY 19	FY 20	FY 21	FY 22	FY23
Acquisition/Building Removal					
Lower Main	X				
Middle Main			X	X	
West End	X	X	X		
Lower Main Open Space					
Design	X				
(Completed calendar year 2019) Construction	X	X			
Ellicott Mills Drive					
Design	X				
Construction	X	X			
Hudson Bend					
Design	X	X			
Construction Phase I			X	X	
Construction Phase II				X	X
Frederick Road Culvert Expansions					
8600 Block					
Design/Permitting	X				
Construction	X	X			
8700/8500 Block					
Design		X			
Construction			X		
Church St/Emory Street Drainage					
Design	X				
Construction		X			
Quaker Mill Flood Control Facility					
Design/Permitting	X	X			
Construction		X			
H7 Flood Control Facility					
Design/Permitting	X	X			
Construction		X	X		
New Cut Road					
Design	X				
Construction		X			
Maryland Avenue Culverts					
Design		X			
Construction			X		

The retention facilities T-1 and NC-3 are still being evaluated at this time.

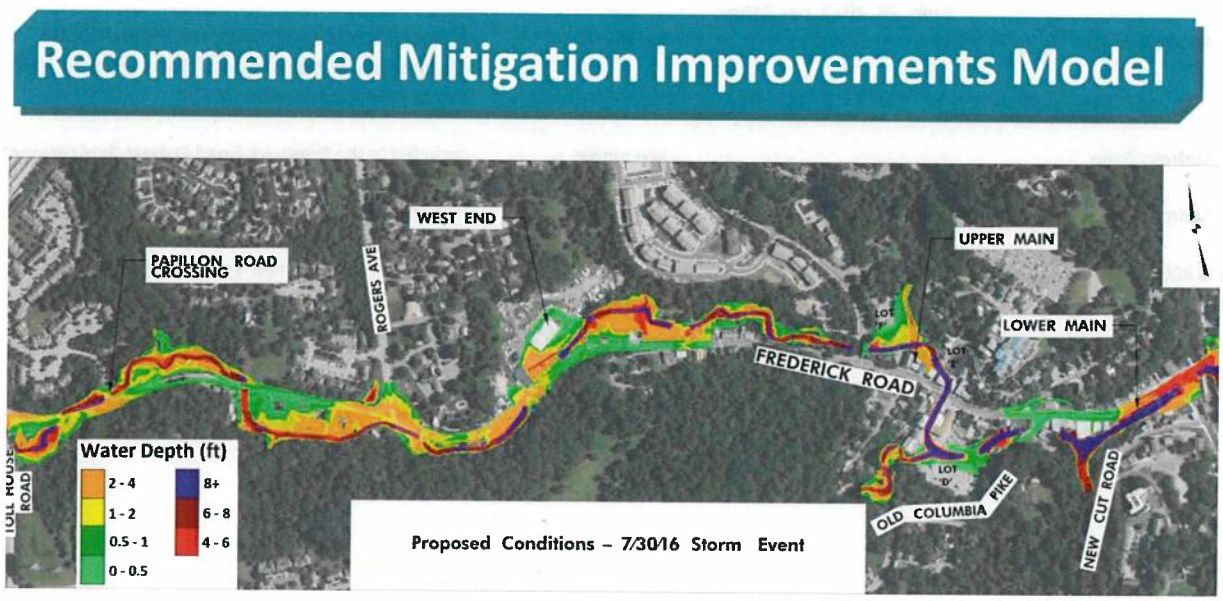
For Question 12, What will this plan actually address and achieve? Can we quantify the impact of executing this plan in accomplishing a specific amount of flood mitigation?

Modeling of the July 30, 2016 storm indicated 6 to more than 8 feet of water on lower Main Street. Water velocities were greater than 20 feet per second (fps) with induced shear forces greater than 15 pounds per square foot (psf). On the West Main Street, 4 to 6 feet of water was on the street, and many flooded homes were on the north side.



After completion of the 5-year plan projects, Lower Main Street water levels drop to 4 to 6 feet. This water level approaches acceptable water elevations for floodproofing. Velocities drop to 4.5 to 6.5 fps.

On West Main Street, flood waters are more easily contained in the channel. Water on the road is expected to be as low as 0.5 feet in some areas but there may be some pockets of 2 to 4 feet. Repeated damage to residences on the north side will decrease significantly.



McCormick Taylor 2011 Study

Project	Summary/Description Flood Mitigation Impact Achieved	Total Estimated Cost	Notes
Retention Facility H-7	**See attached McCormick Taylor Study dated April 3, 2014, pgs 30 thru 41**	$5.0M	Located within the 29/40 interchange
Alternate 4 Storm Drain		$2.0M	Part of the **Rogers Avenue Storm Drain Improvement Project**
Alternate 5 Storm Drain		$1.0M	Private property Not considered but now part of the 5-yr plan and acquisition and renamed **Frederick Road Culverts**
Alternate 6 Storm Drain and Alternate 7 Channel Structure Modifications		$20M	Now refered to as the **Hudson Bend**

S&S Consultants 2012 Case Study

8700 Address Zone	**See attached S&S Study dated June, 28, 2012, pgs 8 thru 16**	see above	Included in **Frederick Road Culvert Replacements** mentioned above
8600 Address Zone		see above	A portion is addressed under the **Rogers Avenue Storm Drain Improvements** and also under the **8600 Main Street Culvert Expansion**
8500 Address Zone		see above	Included in the **Frederick Road Culvert Replacements**
8300 Address Zone		see above	Improvements renamed **The Hudson Bend**
8100 & 8000 Address Zone		$4.6M	Improvements renamed **Lower Main Open Space**

McCormick Taylor 2016 Study

Project	Summary/Description Flood Mitigation Impact Achieved	Total Estimated Cost	Notes
Tiber 1 Retention Facility		$20M	**Known as T-1**, this is being evaluated as a P3
New Cut Retention Facilities NC-1 thru NC-4	**See attached McCormick Taylor Study dated June 16, 2016, pgs 24 Thru 42**	$10M	**Known as NC-3**, in preliminary design. Only NC 3 pursued as most cost effective for first round construction
Hudson Retention Facilities H-2 thru H-7		See Above	**Known as H-7**. Only H-7 pursued as most cost effective for first round construction
Underground Storage Facilities H-1 thru UG 1-3		N/A	None pursued in first round because of high rock excavation costs and an low storage capacity
Conveyance Improvements		See Above	All conveyance improvements are now included and listed as **Frederick Road Culvert Improvements**
84" to 108" Culvert Replacement		$1.6M	Listed as **8600 Main Street Culvert Expansion**
Tunnel Bore Improvements		$150M	Cost, constructabiliy and performance issues resulted in option not being considered

McCormick Taylor Modeling Post May 27th, 2018

(considers removing Lower Main properties and West End properties)

Option	Terraced Floodplain	Modified Floodplain	Quaker Mill	Lot D Expand	T-1	H-7	NC-3	MD Ave Culverts	Tailwater	West End Improve	Notes
1	*										Only removes 5 bldgs in floodplain
2	*										FP grading w/piers
3	*										FP Facades only
4	*										Includes Ellicott Mills Improve
5	*		*			*					
5A	*	*tot, gp	*			*					
6	*		*	*		*					
7	*		*	*		*	*				
8	*		*	*	*	*					
9	*		*	*	*	*	*				
10	*			*				*			Conveyance option
11	*		*	*	*	*	*	*			C+SWM option
12	*	*tot, gp		*				*			C=Mod FP
13	*	*tot, gp	*	*	*	*	*	*			C+SWM+Mod FP
14	*	*tot, gp	*	*	*	*	*	*	*		
15	*	*tot, gp	*	*		*		* 2 pipes	*	*	
16	*	*C Lab	*	*		*		* 2 pipes	*	*	
16B	*	*C Lab	*	*		*		* 2 pipes	*	*	Adjusted Terracing
16C	*	*C Lab Purp	*	*		*		* 2 pipes	*	*	Current 5-year plan option
16D	*	*C Lab Purp	*	*	*	*		* 2 pipes	*	*	

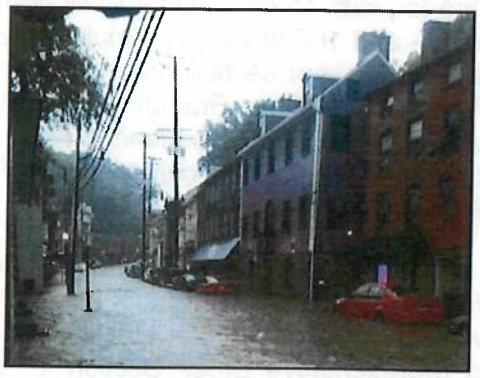
Ellicott City Flood Study
And
Concept Mitigation Report

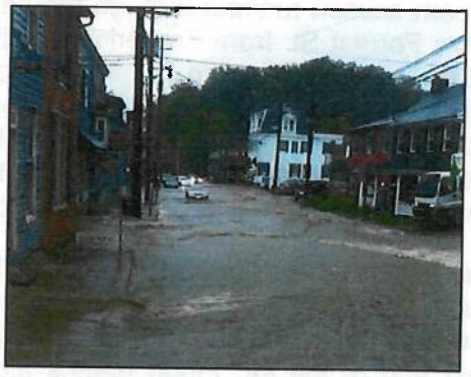
Howard County
MARYLAND

McCormick Taylor Project No. 5493-01
April 3, 2014

Prepared for:

Howard County Government
Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143





Prepared by:

McCORMICK TAYLOR

509 South Exeter Street, 4th Floor
Baltimore, Maryland 21202
(410) 662-7400

Frederick Rd. This overflow onto Frederick Rd. was simulated for all three storm events.

A lower flowrate of overflows entered Frederick Rd. from the driveway adjacent to Ellicott Mills Brewing Company. Flooding from this area originated at the open stream section at the south end of Parking Lot 'E'.

Flood waters from these areas continued down Frederick Road to the end of the modeled region. The 50- and 100-yr storms simulated significant flowrates down the roadway. The depths of flooding along Frederick Rd. was greatest between representative Cross Sections 'E' and 'F', and decreased as velocity down the roadway increased towards the intersection of Frederick Rd. and Old Columbia Pike. 100-yr roadway depth along representative Cross Section 'E' was approximately 4.1 ft and velocities between representative Cross Section 'F' and the intersection with Old Columbia Pike approached 35 ft/s; these flows were significantly less for the 10-yr storm, with a respective average roadway depth of 1.6 ft and velocities approaching 20 ft/s.

Significant flooding of Parking Lot 'D' was simulated for all three storm events. Flood waters in the parking lot had multiple origins depending on the storm event. For the 10-yr storm, flood waters originated almost entirely from the open stream section running through the parking lot, with some minimal flows coming down Forrest St. from Frederick Rd. The 50- and 100-yr events simulated flood waters entering Parking Lot 'D' from the open stream section, from Forrest St, and from overtop the culvert that confluences the Tiber Branch with Hudson Branch near the footbridge. Flooding from this open stream section is likely the result of backwatering from the footbridge and downstream culvert, as well as from the low channel depth (high bedrock depth) relative to the parking lot.

The extent of flooding in Parking Lot 'D' for the 50- and 100-yr events threatens the building at the northwest corner of the lot with a turbulent back eddy, while low velocity but high water surface elevations threaten several buildings at the east end of the lot. Flood depths along representative Cross Section 'F' vary greatly because of varying topography, significant elevation differences and differing flow paths. The most stable area for depth of flooding was in the overbank north of the open stream section, downstream from the footbridge. Flood depth in this location was 1.9 feet for the 10-yr model and 3.5 ft for the 100-yr model.

4.0 CONCEPTUAL IMPROVEMENTS

The study focused on two main types of conceptual improvements, stormwater quantity management to reduce the quantity of flow into the Main Street corridor, and conveyance improvements that would upgrade or supplement the storm drains and channels through the flooded area to carry more water at a lower elevation for a given event. Though there are a number of smaller stormwater improvements that could be implemented, the scope of this study was limited to

the largest feasible sites that could have the most significant impact on the quantity of flow, as well as sites within public rights-of-way. The structure of the model created for this study allows for any variation on, or combination of, improvements to be run through the model at a later date, however for the sake of keeping the large amount of data manageable, the focus of this study will include 3 improvement iterations: SWM Only, Conveyance Only, and All Improvements

4.1 DEVELOPMENT OF SWM SITES

The challenges in locating new sites to provide significant quantity management were numerous. Much of the watershed is built out with residential and commercial development, with the exception of some wooded areas on the periphery of the watershed. These areas are not suitable as they are in steep terrain, would involve significant tree loss, and most importantly do not receive much if any runoff from developed areas due to their upland location.

The most promising locations for storing and managing a significant volume of runoff were the areas within the US 40 / US 29 interchange, which are owned by Maryland State Highway Administration (MSHA). These areas are not currently utilized by MSHA for stormwater management, presumably because the interchange was built prior to the SWM era. The grading of the proposed facilities is conceptual and does not account for potential geotechnical or regulatory constraints such as the presence of bedrock and limitations imposed by MSHA (the property owner) or other regulatory agencies. Three areas were examined for their potential improvement:

SWM Area 1 – This is the northeast loop of the interchange and is online with the main channel that carries DA 1 and a portion of DA 2 under US 40 to the south. As a result, any management applied in this location will attenuate the flow from nearly the whole northern portion of the watershed (North of US 40) making it the most effective of all the sites. The storage would be created by excavating most of the area inside the loop down to near the elevation of the existing channel. Though online ponds are typically not encouraged by Maryland permitting agencies, exceptions can be made for specific circumstances such as this, particularly in light of the fact that fish passage does not currently exist at this location due to a 3' drop in a concrete structure at the entrance to the culvert under US 40. Because the pond storage created is in cut relative to surrounding areas, and outfalls into a storm drain system that does not daylight for over 900' from the pond, it would most likely not require any additional seepage control (Code 378 exempt).

SWM Area 2 – This area is in the lower half of the southeast interchange loop and collects runoff within DA 2 from a portion of US 40 and its ramps, as well as an unmanaged commercial area just to the east. The outfall spillway pipe, currently a culvert under the loop ramp to the south, would require retrofitting for seepage control in compliance with Code 378, which could be achieved for the existing ramp embankment with a clay liner on the upstream face to supplement

the pipe replacement. The stage-discharge table is based on maintaining groundwater baseflow and maximizing storage / attenuation while maintaining over 2' of freeboard for the 100-year event.

SWM Area 3 – This area is in the over-widened median of US 29 in the southern portion of the interchange and receives runoff from the eastern portion of DA 3 including the currently managed areas in Ellicott Center, as well as portions of unmanaged commercial development and US 29 ramps. The outfall spillway pipe, currently a culvert under US 29 SB, would require retrofitting for seepage control in compliance with Code 378, which could be achieved for the existing roadway with a clay liner on the upstream face to supplement the pipe replacement. Alternately, a weir structure upstream of the existing US 29 culvert may allow for the culvert to remain as a non-378 spillway pipe in lieu of a pipe replacement under the roadway. Stage-discharge was developed under same principle as above.

An additional SWM area along US 40 WB, west of US 29 was initially investigated as a location to treat runoff from some of the western portion of DA 3, however it was discovered that this area is currently under development and not publically owned, therefore it was removed from further consideration

4.1.1 Analysis of the Effects of Proposed CWP SWM Improvements

As part of the overall analysis, the County provided a map prepared by the Center for Watershed Protection of potential SWM LID retrofit site locations within the area and requested that the potential impact of these proposed facilities on flooding-related runoff be included. Without additional information regarding the specific design or drainage area of these BMPs two assumptions were made: Sites would treat the first 1" of runoff back to "woods in good condition" per Environmental Site Design (ESD) criteria. Drainage areas were based on the most likely location of the actual BMP relative to existing roads and structures in the vicinity of the point shown.

The initial consideration of these sites was to see if the impact on runoff was significant enough to include in the overall analysis relative to the precision and error inherent within the model. A Curve Number (CN) reduction to "Woods – Good" was made for the presumed drainage area to each site and that was factored into the overall weighted CN for each DA and compared to the original to determine the effect of overall peak flow quantities. If the site locations fell within an area where existing SWM existed and was being modeled by CN reduction as discussed in Section 2.3 above, then this reduction was not made, since it had already been considered in existing conditions. Since the study includes storm events above the 1" runoff event considered for ESD design, the MDE methodology for Relative Curve Number (RCN) adjustment for determining the effect of ESD on higher storm events was used. For the sites in question, the change in CN for the 2-year event becomes numerically insignificant (<1%) for 7 of the 10 sites analyzed, with the largest change of 2.3% for a facility in DA 7.

Table 4.1 – Changed Runoff Curve Numbers for Proposed CWP Facilities

Subarea	Drainage Area	Original CN	CN w/ CWP Facilities				% change**
			2-yr	10-yr	50-yr	100-yr	
1	2	80.559	80.558				-0.001%
	3	75.926	75.925				-0.001%
2	1	88.594	87.960				-0.716%
3	4	82.378	82.079	82.147	82.178	82.196	-0.363%
	7	86.132	85.339	85.433	85.485	85.549	-0.921%
4	3	79.166	78.689				-0.603%
6	2	80.006	78.695				-1.639%
	3	79.468	79.383				-0.107%
	5	66.708	65.497				-1.815%
7	4	72.091	70.444				-2.285%

**% Change between the original CN and CN w/CWP Facilities for the 2-yr storm.

Since the RCN adjustment decreases for the higher (>2-year) storm events considered in this study, and the impact for even the most significantly changed sub-areas was a matter of a few cfs for the 2-year event, it was determined that the impact of these conceptual proposed ESD sites was not significant enough to show a change in water surface elevations within the models, and was not pursued in greater detail within this study. It is noted that, despite the negligible impact on larger flooding events, these potential facilities still have value relative to their collective positive impact on water quality in the Patapsco watershed during more frequent storm events.

Table 4.2 – Peak Discharges with and without Proposed CWP Facilities

Return Period (years)	Peak Flow (cfs) Entire Drainage Area, no CWP Facilities	Peak Flow (cfs) Entire Drainage Area, w/CWP Facilites	Peak Flow (cfs) Subarea 3, no CWP Facilities	Peak Flow (cfs) Subarea 3, w/CWP Facilities
2	535	530	242	240
10	1356	--	568	567
50	2647	--	1074	1072
100	3549	--	1331	1329

4.2 Development of Additional Conveyance Sites

In addition to examining alternatives to reduce the quantity of water to the Main Street corridor, the possibility of providing increased runoff conveyance capacity, in the form of additional storm drains and channel widening where feasible, was examined. These alternatives, numbered 4-7 sequentially after the 3 SWM alternatives, and from upstream to downstream, are described below (See *Appendix C* for storm drain layout maps):

Alternate 4 Storm Drain – This alternate consists of a 48" concrete storm drain trunk line that intercepts the runoff from the Rogers Ave. storm drain (the northern, developed portion of DA 6) and conveys this flow eastward separate from the Hudson Branch flow (DAs 1-5) running roughly parallel to the channel and culvert system currently carrying Hudson Branch, and outfalling at the existing culvert outfall location at the east end of the West End property into an open channel behind the adjacent residential properties (8578, 8572 Frederick Rd). This option would also involve abandoning the existing cross culvert that connects the Rogers Ave flow to the channel in current conditions. A flow splitter was considered here to balance the flow between the two systems, but the tailwater from the culvert and channel made the new proposed system largely ineffective at its upstream point for higher flows, so the proposed model keeps the systems separate.

The sizing of the pipe is based on tying in to the existing Rogers Ave system invert with adequate pipe cover, as well as what is reasonably feasible for construction given issues like trench width and depth while maintaining traffic as well as likely utility conflicts. The intent of this alternate is to reduce the frequency at which overtopping of channel flow from the south side onto Main Street will occur just downstream of Rogers Ave.

Alternate 5 Storm Drain – The location of the upstream entrance to this system is based on supplementing conveyance where the open channel flow goes back into a closed pipe system again, in this case the culvert between the structures at 8520 Frederick Rd. The storm drain will capture a portion of this channel flow and divert it back to the roadway, running parallel with the road before outfalling back into the channel at the point where the channel curves south then east to be immediately adjacent to the road. This location was selected because it is the point where the existing condition roadway flow that escaped from the channel upstream enters back into the channel, and can be adequately conveyed by the existing channel. The concept pipe sizing is based on similar constraints as described in Alternate 4, above. There are some local storm drain tie in issues associated with this alternate as well that would be examined during the detail design phase if this alternate is pursued.

Alternate 6 Storm Drain – The location of the upstream end of this system was selected to provide additional conveyance just upstream of the constrictions associated with the flow under Court Ave, the Ellicott Mills Brewing Company and the downstream conveyance under La Palapa Restaurant. The storm drain will capture a portion of the channel flow upstream of Court Ave and carry it south, under the driveway between 8344 and 8358 Frederick Rd., briefly east along Frederick Rd., south again down Merryman St. then east just behind La Palapa where it will outfall into the existing channel, recombining with the flow from the existing system. The concept pipe sizing is based on similar constraints as described in Alternate 4, above.

Alternate 7 Channel/Structure Modifications – For the final alternate, the channel through Parking Lot 'D' which carries the flow downstream of the confluence with Tiber Branch, the dimensions of this channel were modified to

include a layback of the currently vertical slopes at a 3:1 cross slope. Also the structure that carries the flow beneath the northeast portion of the lot was raised by 2 feet to accommodate more flow. There are many permutations of widening and structure modifications, with varying impacts to the parking lot, that could be examined here; the one chosen was a typical iteration intended to examine whether or not such modifications had a significant impact on the tailwater and water surface of the upstream channel and systems along Main Street.

4.3 Modeling of Improvements

4.3.1 SWM Improvements

The SWM improvement alternates were modeled by developing a preliminary pond grading of each area, setting a weir elevation for flow above a base flow amount that would carry the 100-year storm with adequate (2'+) freeboard for overtopping at the lowest point, and calculating a stage-storage-discharge table to be inserted into the existing condition TR-20 model at the proper location. The proposed condition was modeled in TR-20 with all 3 alternates in place at once, and the resulting downstream hydrographs were used in the hydraulic model as a comparison against the baseline conditions.

4.3.2 Conveyance Improvements

The conveyance improvements were modeled differently for the HEC-RAS and TUFLOW models. For the HEC-RAS model, Concept 4 was included by reducing the inflow at cross section 37 by 60 cfs and then adding 60 cfs back into the model at the exit of culvert 4 at cross section 14. This flowrate was removed as it was calculated that 60 cfs was the approximate maximum capacity of the Concept 4 pipe given the existing constraints. A similar approach was taken for Concept 5, which diverts flow from the river at cross section 2. The flowrate removed from cross section 2 was determined by cross-referencing the water surface elevations from the existing model with the total head listed in the storm drain hydraulic design table (*Appendix C*). Following this methodology, flowrates of 100, 120, and 150 cfs were removed from cross section 2 for the 2-, 10-, and 100-yr storm events, respectively.

For the TUFLOW conveyance model, new culverts were added to the 1-D culvert network to represent concepts 5 and 6. Concept 7 was represented by generating a new topographic layer to augment the grading of the stream bank to a 3:1 slope. The culvert through Parking Lot 'E' was raised 2 ft by changing the existing culvert characteristics to reflect the new culvert dimensions. The hydrographs from the existing conditions hydrologic models were run through the proposed conditions models as a comparison against the baseline conditions.

4.3.3 Combined Improvements

For this iteration, the proposed hydrology with the 3 SWM alternatives was run through the proposed conditions hydraulic model with the 4 conveyance improvements to determine the combined effect of all concept improvements on water surface elevations

4.4 Modeling Results of Proposed Improvements

Changes to water surface elevations between the 2-, 5-, 10-, and 100-yr storm events in the 1-D modeling region are displayed on cross sections in *Appendix D.* Floodplain depth/extent and velocity maps of the existing and proposed conditions are in *Appendix E.*

4.4.1 Results of SWM Improvements

The proposed SWM improvements significantly reduced peak flows into the modeled watershed region (Table 4.3).

Table 4.3 – TR-20 Simulated Peak Flowrate to Watershed Outlet for Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	*Peak Flowrate (cfs)*		*Percent Change*
	Existing Conditions	*Proposed SWM Concept*	
2-yr	535	460	-14.0%
10-yr	1356	1099	-19.0%
Tropical Storm Lee	2122	1800	-15.2%
50-yr	2647	2167	-18.1%
100-yr	3549	2740	-22.8%

The reduced flowrates under the proposed scenario resulted in decreased water surface elevations, flow velocities and the extent of the floodplain; the magnitude of the changes to these variables is dependent on the unique topographic features at any specific cross section in the modeled area. *It is important to note that percent peak flowrate reductions do not necessarily represent equivalent reductions in water surface elevation, flow velocity, or flood extent.*

Another metric used to evaluate impact of the proposed improvements was the number of buildings within the floodplain (Table 4.4). All buildings within the 2-D modeling boundary (approximately 8578 Frederick Rd. to the intersection of Frederick Rd. and Old Columbia Pike) that were touched by the floodplain were quantified for existing conditions and the proposed stormwater management concept. This comparison was only conducted for storm events evaluated with the 2-dimensional model.

Table 4.4 – Number of Buildings within the Floodplain under Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	*Number of Buildings in Floodplain*		*Change*
	Existing Conditions	*Proposed SWM Concept*	
10-yr	40	39	-1
Tropical Storm Lee	47	45	-2
50-yr	58	47	-11
100-yr	66	60	-6

The HEC-RAS models of the existing 2- and 5-yr storm events simulated minimal overbank flooding; the proposed SWM model reduced these simulated water surface elevations even further, providing greater freeboard for overbank flooding.

The HEC-RAS SWM concept model of the 10-yr storm simulated reduced water surface elevations and eliminated existing overbank flooding from the upstream cross sections 40, and 28. The model of the SWM improvements still experiences significant backwatering from the 108" culvert downstream, which results in the culvert overtopping and roadway flooding for cross sections 27-24 for the 10-yr event. 10-yr HEC-RAS water surface elevations between the existing and proposed SWM models dropped by 1.0 ft or less for the 1-D section below the 108" culvert. Flood depths and overall roadway flooding is reduced through all cross sections for the 100-yr event, and simulated roadway flooding was eliminated for 2 of the 27 existing cross sections that exhibited roadway flooding in the HEC-RAS model.

TUFLOW modeling of the proposed SWM concepts simulated reduced flooding from all storm events. The changes between the existing conditions and proposed SWM models are evident in the floodplain extent shown on the maximum flood depth maps.

The SWM concepts reduced the maximum extent of flooding more for the 5-yr event than for the 10-yr storm event. The concepts reduced roadway flooding and flooding around dwellings in Area 4 and Areas 5 and 6 for the 5- yr storm event, while the 10-yr event showed the greatest reductions in the parking lot of La Palapa and County owned Parking Lots 'D', 'E', and 'F'. The SWM concept model reduced flood depths in the roadway at representative Cross Section 'E' by 0.66' and by 0.78' on the north overbank along representative Cross Section 'F'.

The Tropical Storm Lee event is included in the iterations to allow for readers of this report to see a comparison of the expected improvements against a recent memorable event. The effects of the proposed SWM improvements for the Tropical Storm Lee event are evident throughout the modeled area. Reductions in flood plain extent were fairly comparable throughout the modeled area. For this storm event, the greatest impacts resulting from the SWM improvements are largely depth of flow reductions in areas 3 and 4. This can be evidenced by the

change in inundation level in and around the dwellings in these areas. The effects of SWM improvements on the Tropical Storm Lee event most closely resembled the SWM effects for the 10-yr storm event.

The simulated floodplain extent of the 50-yr storm decreased under the SWM Concept model because flows did not overtop the culvert flowing below Ellicott Mills Dr. Without overtopping this culvert, the floodplain from the SWM model did not expand nearly as far into Parking Lot 'F' and did not escape onto Frederick Rd. until the driveway just west of Court Ave.

The SWM concepts had the greatest impact on flood depths of the 100-yr storm, however, this had a minimal effect on the overall extent of flooding because all culverts were still overtopped and road banks were flooded in the same locations. The depths, velocities, and overall extent of flooding from the 100-yr SWM Concept model closely match those simulated for the existing 50-yr model because their peak flowrates are very similar.

4.4.2 Results of Conveyance Improvements

The proposed conveyance improvements had no impact on the total inflows to the model, thus all changes to the flow patterns were a direct result of the added storm drain structures. The HEC-RAS portion of the model was not greatly affected by inclusion of conveyance Concept 4; the water surface elevations of the 2- and 10-yr storms decreased by approximately 0.2 feet for the majority of the 1-D modeling region, while the 100-yr water surface only decreased by approximately 0.1 foot. For the cross sections immediately above the second large culvert (96") (cross sections 3 and 4), the water surface of the 2-yr event dropped approximately 1.3 ft under the storm drain concept model, while the 10-year water surface dropped 0.17 ft. and the 100-yr storm was negligibly impacted.

The TUFLOW model of conveyance concepts exhibited similar, negligible impacts on flooding for this upper section. The greatest effects of the storm drain concepts were simulated for the 10-yr event and are at representative Cross Section 'B', which is located immediately upstream of Concept 5. The addition of Concept 5 appears to reduce backwatering behind the 96" culvert, and reduces the water surface elevation in the channel by 0.6 ft, which was a greater reduction than was simulated for the SWM concept model. Floodplain water surfaces at representative Cross Section 'B' are negligibly impacted, indicating that the flooding relief of Concept 5 is localized and thus water is still escaping into the floodplain further upstream. In the heavily populated area where Concept 5 has diverted flow from the stream (8516 Frederick Rd. to 8450 Frederick Rd.), the overall extent of flooding appears slightly diminished for all storm events, as evidenced by the depth of flooding maps.

The results at representative Cross Section 'C' indicate that, for the 10-yr storm, Concept 5 had negligible impacts on water surface elevations downstream from where it reintroduces flow into Hudson Branch. For the 100-yr storm, Concept 5 redirected flow into the channel at representative Cross Section 'C', which

eliminated the minimal flooding of the roadway and south overbank that had been simulated for the existing conditions model.

Concept 6, which diverted flow from west of Court Ave. to the open section in Parking Lot 'E', had conflicting effects on flooding of the downtown area between representative Cross Section 'D' and the intersection with Old Columbia Pike. The concept successfully diverted a portion of flow from the Frederick Rd. corridor, which reduced flood depths and velocities in the roadway and the flooding extent in parking lots along Frederick Rd. At representative Cross Section 'E', existing roadway flood depth was reduced by 0.5 ft by the 10-yr, storm drain model. Concept 6 also alleviated some flooding upstream of Court Ave. as evidenced at representative Cross Section 'D', where flood depth in the floodplain was decreased by 0.5 ft and 0.25 ft for the 10- and 100-yr storms, respectively.

Because Concept 6 diverted flow away from Frederick Rd. and into the stream channel in Parking Lot 'E', Parking Lot 'E' experienced increased flooding for all storm events. Concept 7 was designed to aid in the conveyance of flow through Parking Lot 'E', and it achieves this goal (see Concept Flow Comparisons, *Appendix C*), however, flood depth and flooding extent in Parking Lot 'E' still increases for the conveyance concept model. This is likely because the flow added to the stream from Concept 6 backwaters into the parking lot behind the footbridge.

Generally speaking, the reductions and effects of this concept for the Tropical Storm Lee event fall between the 10-year and 100-year events.

4.4.3 Results of Combined Improvements

The models showing the combined SWM and conveyance improvements simulated the greatest reductions in overbank flooding for all model areas except for Parking Lot 'E', where the SWM concept model simulated the least flooding.

The combined SWM and conveyance concepts HEC-RAS model simulated a cumulative effect on water surface elevations, however with only minimal reductions resulting from the conveyance improvements, the combined model water surface elevations were very similar to those of the SWM model. Compared to the existing model, the 100-yr water surface of the combined concepts model reached the roadway on 22 of 40 cross sections, which was four fewer than the existing condition model; three of the four cross sections where existing roadway flooding was eliminated were the same for both for the SWM and combined models.

Because the TUFLOW conveyance model did not greatly affect flood extents for the 50- and 100-yr storms, the TUFLOW combined model for these events is very similar to the SWM model. For the 5- and 10-yr storm events, the proportion of total flow manipulated through the storm drain concepts was substantial enough to alter overall flow patterns, thus the flooding extent of the combined model was most different from the SWM model for these storm events.

5- and 10-yr, existing water surface elevations were most substantially reduced with the combined TUFLOW model at representative Cross Sections 'D' and 'E'. At representative Cross Section 'D', the combined model reduced 10-yr, existing water surface elevations by nearly 2 ft in most areas. At representative Cross Section 'E', the 10-yr existing water surface elevations were reduced by 1.7 ft in the roadway and existing flooding of the parking lot at La Palapa was eliminated. In Parking Lot 'E', the combined model had slightly higher water surface elevations than the SWM model, however both models had similar flood extents within the Parking Lot; 10-yr existing roadway water surface elevations at representative Cross Section 'E' were 0.8 ft lower with the combined model than with the SWM model.

The greatest reductions in existing water surface elevations for the 100-yr event were simulated at representative Cross Sections 'A', 'B', and 'E'. In the south floodplain of representative Cross Section 'A' and in the channel of representative Cross Section 'B', existing water surface elevations dropped by 1.2 and 1.3 ft, respectively. At representative Cross Section 'E', existing flood elevation in Parking Lot 'E' decreased by 1.2 ft and by 1.1 ft in the roadway. Combined model flooding elevations in the channel and the immediate overbank along representative Cross Section 'F' were approximately the same as those simulated for the SWM model, while in the roadway, the combined model flood elevations were 0.2 ft lower than the SWM model (1.2 ft lower than the existing condition).

5.0 CONCLUSIONS

1-dimensional and 2-dimensional modeling of the downtown Ellicott City watershed has provided valuable insight into existing flood patterns of the region and allowed for assessment of the potential mitigation strategies to reduce future flooding from large storm events.

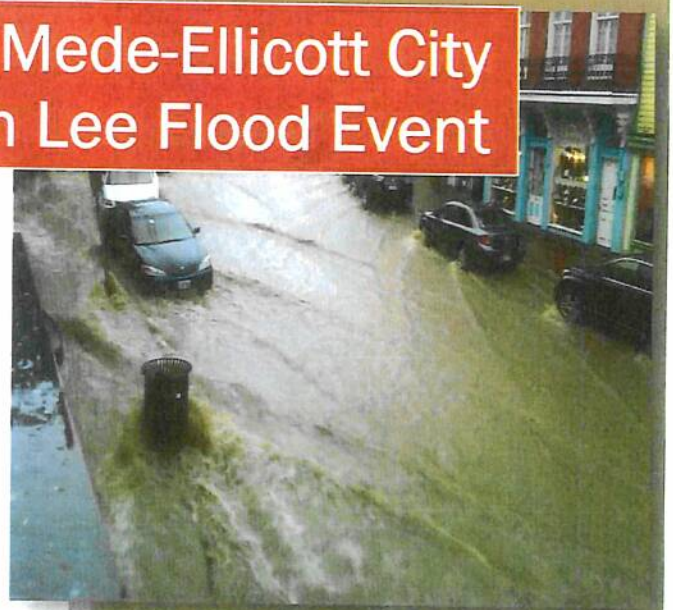
Models were calibrated with anecdotal evidence from the Tropical Storm Lee flooding event and used to simulate the existing flood conditions for large storm events (2-, 5-, 10-, 50-, and 100-yr recurrence intervals and the Tropical Storm Lee event). The results of the existing condition models were then used as baselines to evaluate three flood mitigation scenarios which included stormwater management improvements, conveyance improvements, and improvements combining stormwater management and conveyance concepts.

The results of the proposed concept modeling suggest the greatest reductions in flooding, as measured through flooding extent, flood depths, and flood velocities, would be achieved with the stormwater management pond concepts. The storm drain conveyance options offer only minor improvement in some areas relative to water surface elevations, and show increases in other areas downstream of the improvements, making the storm drain options less desirable. The proposed stormwater pond concepts will offer incremental, though not dramatic, reductions in flood elevations during a historical event like Tropical Storm Lee.

Also part of the study was an examination and assessment of the overall watershed effects of small-scale, SWM design concepts proposed by the Center for Watershed Protection (CWP). The proposed CWP facilities within the focus watershed were catalogued and applied to the existing condition TR-20 model. These facilities were found to have minimal impact on the discharge to the watershed outlet for the 2-yr storm, and thus were not considered as part of flood mitigation strategies for the large storm events targeted in this study.

2012

Case Study: Valley Mede-Ellicott City Tropical Storm Lee Flood Event



Case Study-2011 Valley Mede-Ellicott City Tropical Storm Lee Flood Event

S&S Planning and Design, LLC.

6/28/2012

3.2 Property Zones and Mapping

Information extracted from the *Description of Property Damages* from Interview Form, as well as interviewer notes acquired during property owner interviews is compiled in narrative format and mapping illustrating the flow of flood waters is presented by address zones.

8700 Address Zone

Structures within the 8700 zone were impacted by flooding from the creek and flood waters that escaped the channel and utilized Frederick Road as a flood conveyance. All of the structures within this zone are located on the south side of Frederick Road. Flood waters 'jumped' out of the channel at the Frederick Road Bridge No. 1 as indicated on the map.It is likely that a debris accumulation may have occurred at the upstream edge of the bridge, thereby resulting in or exacerbating the flood waters leaving the channel. Flood waters then flowed east along the northern side of the road, somewhat contained by the road crown and a swale feature on the northern side of the road; however, flood water was continuously cresting the road crown and flowing back toward the actual floodplain and creek channel. The majority of the flood flow then crossed to the south of Frederick Road at a low point immediately west of the Rogers Avenue intersection. The section of Hudson Branch immediately across from the Rogers Avenue intersection consists of a rectangular concrete channel. Observers noted that some flood water continued to flow down Frederick Road.

8600 Address Zone

Structures within the 8600 zone experienced flooding from the creek and what witnesses described as excessive stormwater runoff down Rogers Avenue. A concrete stormwater junction box is located to the northeast of the Rogers Avenue/Frederick Road intersection. Witnesses reported that the manhole access cover was 'blown off' the lid of the box. Additionally, they reported that the concrete top was being elevated. This observation would indicate that the junction box and the stormwater pipes leading to it were at capacity, creating sufficient hydraulic pressure to lift the top and remove the manhole cover. With the stormwater system at capacity, excess stormwater would utilize the roadways as the storm conveyance.

The combined flows from the creek channel/floodplain, Frederick Road, and Rogers Avenue, in conjunction with the low, flat topography of the area, created a large area for floodwater to accumulate. It was reported that the water was over the guardrail of the bridge leading to the small parking lot across from the intersection. Immediately downstream of the intersection, the topography constricts the valley again and the gradient gets steeper. At approximately the middle of this zone, it was reported that the flow depth over the road was estimated at 12-18 inches. The structures immediately adjacent to the creek experienced water in the basements due to the elevated creek levels. The rear of many of these structures terminate at the stacked stone flood wall along the creek, with some structures overhanging the creek, or completely bridging the creek to the far bank.

This zone extends downstream to just beyond the inlet of the large culvert that conveys flow under Frederick Road and several commercial properties. Witnesses reported that floodwaters were overtopping the culvert inlet and continuing down Frederick Road.

It is possible that debris accumulation or blockage at the culvert inlet resulted in flood waters overtopping the culvert headwall and continuing down Frederick Road.

8500 Address Zone

Flooding within the 8500 zone was the result of both flood waters from the creek and roadway. Witnesses reported significant flood flow down Frederick Road. A very large and long culvert conveys flow (9' diameter x 600' length) under Frederick Road and several commercial businesses. Observers stated that during the flood a significant amount of water was flowing down Frederick Road. Some flood flow re-entered the floodplain around property identifier 8560 on both sides of the structure. Downstream of this structure and within the floodplain, a berm had been installed within the last several years. The presence and orientation of this berm redirected flood flow from Frederick Road, thereby preventing flow from returning to the channel. This berm effectively transferred flood flow downstream into an area with additional structures.

An additional culvert is located within this zone. The channel approaching the culvert inlet is armored with gabions in a trapezoidal shape. A preponderance of Japanese Knotweed is located along both banks. An eye witness stated that an approximately 8-10" Red Maple had been leaning diagonally across the culvert inlet during the flood event. Witnesses stated that the inlet was almost completely blocked with debris. Therefore, this culvert inlet also created additional backwater and another location where flood flow 'jumped' from the channel.

Many witnesses to the flood stated that at one point, it appeared as though a 'wall of water' came down the channel. Near Property ID 8500 a small wooden footbridge existed prior to the flood event. An eye witness stated that water and debris was piling up behind this footbridge, then suddenly, one side of the bridge/abutment connection failed and the footbridge swung open like a gate, releasing the backed up water and debris. The rushing water at this location resulted in severe bank erosion, with some streambanks losing 10-12 feet of lateral material. Severe erosion and land loss occurred throughout this reach. Some sections within this zone lost 10-12 feet of streambank.

8400 Address Zone

The 8400 zone did not have any reported damages due to the flooding. One resident indicated that the flood water reached an elevation of the back steps, but did not come into the structure.

8300 Address Zone

The 8300 zone demarcates the beginning of the Downtown Ellicott City section and consists predominantly of commercial properties. At the top end of the zone, the stream outfalls from a large, approximately 400 foot long culvert. This sectionexperienced damages due to the flood event. The flooding was primarily located within the principal channel and floodway area. This stream section is nearly entirely contained within stacked stone or block flood walls. Properties located immediately adjacent to or over the channel experienced basement flooding due to the water elevation cresting over one of the channel walls.In several locations, the southern stacked stone wall and the nearby properties are at a lower elevation, thereby resulting in the reported basement flooding.

Additionally, a channel constriction, or reduction in channel cross-sectional area, within the conveyance under Main Street most likely created backwater conditions through this reach exacerbating the flood elevations.

8200 Address Zone

Only several properties within the 8200 zone reported minor damages due to the flooding.Within this zone, the stream flows between two parking lots; a footbridge connecting the two parking lots was heavily damaged by the flood. One observer stated that flood waters impacting the upstream edge of the bridge sent geysers of water upward to the approximate height of the street lights. The parking lots flooded; however, the flood waters reentered the channel prior to flooding the majority of the first floor businesses located adjacent to the parking lots. A couple of businesses did experience minor flooding that necessitated carpet cleaning and/or removal.

8100 Address Zone

The 8100 zone experienced primarily basement flooding due to the elevated water levels within the primary creek channel. More than fifty percent (50%) of the channel through this zone is bridged by buildings, with stone flood walls on each side of the channel. An unnamed tributary to Tiber Branch confluences with Tiber Branch in this zone.Several properties reported five to six feet of water within the basement. Minor damages were reported, including problems such as general clean-up and HVAC servicing. Several properties reported that water entered through the front door, the result of excess stormwater within the street system.

8000 Address Zone

The 8000 zone is the lower end of the downtown section of historic Ellicott City. This zone experienced two types of flooding. The properties on the northern side of Main Street (Frederick Road) experienced excessive stormwater runoff from the steep gradient behind the buildings. The properties on the southern side of Main Street experienced primarily basement flooding due to the elevated water levels in the channel. The majority of Tiber Branch through this zone is bridged by buildings and roadways.

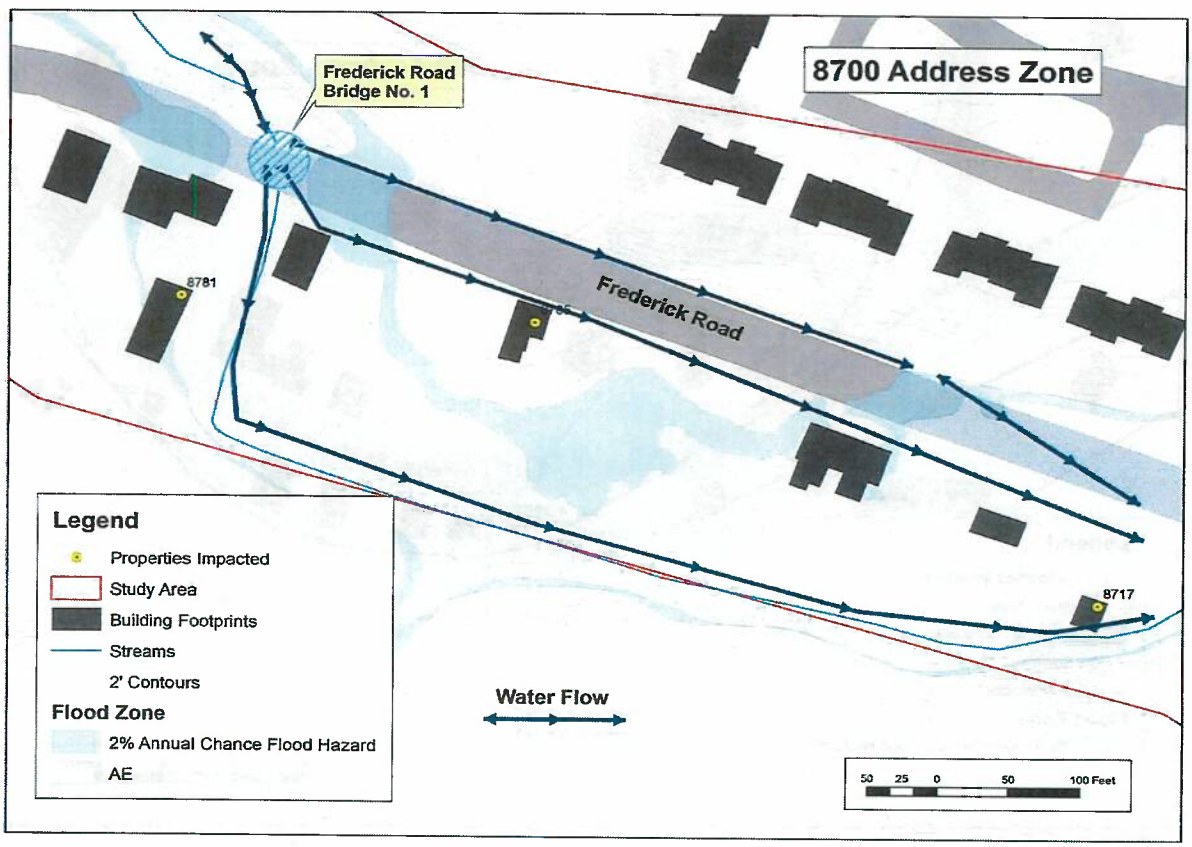
Stormwater runoff from the steep hillside behind the structures situated on the north side of Main Street resulted in flooding issues for some properties. Several properties experienced water seepage through the back wall of the structure. One property experienced a roof collapse; the roof was tied into the hillside and runoff collected on the roof causing the collapse.

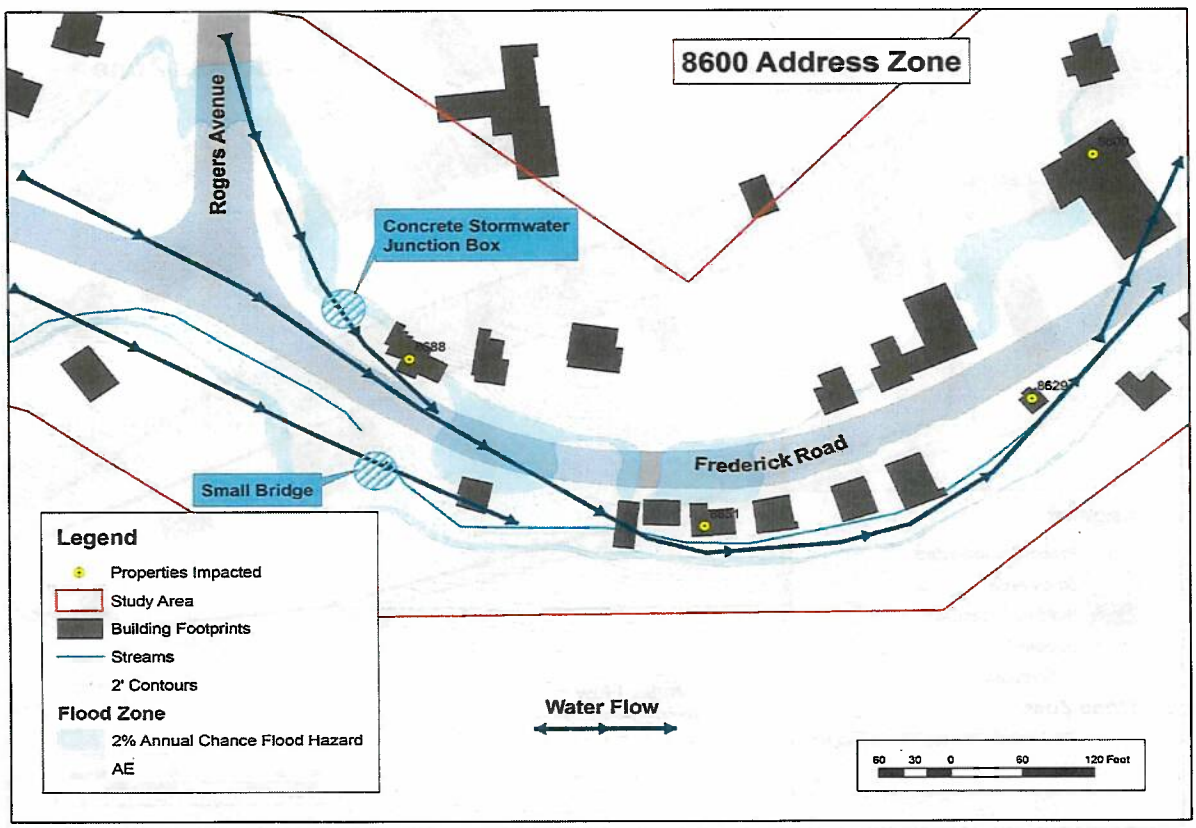
The properties on the south side of Main Street experienced basement flooding; several properties reported basement flooding with depths of four to five feet. Damages ranged from minor to extensive, depending on the location/elevation of the structure, and the contents and utilities located in the basement. One structure reported damage to a walk-in refrigerator, ice machine, hot water heater, plumbing, mortar, floor tile, and the foundation.

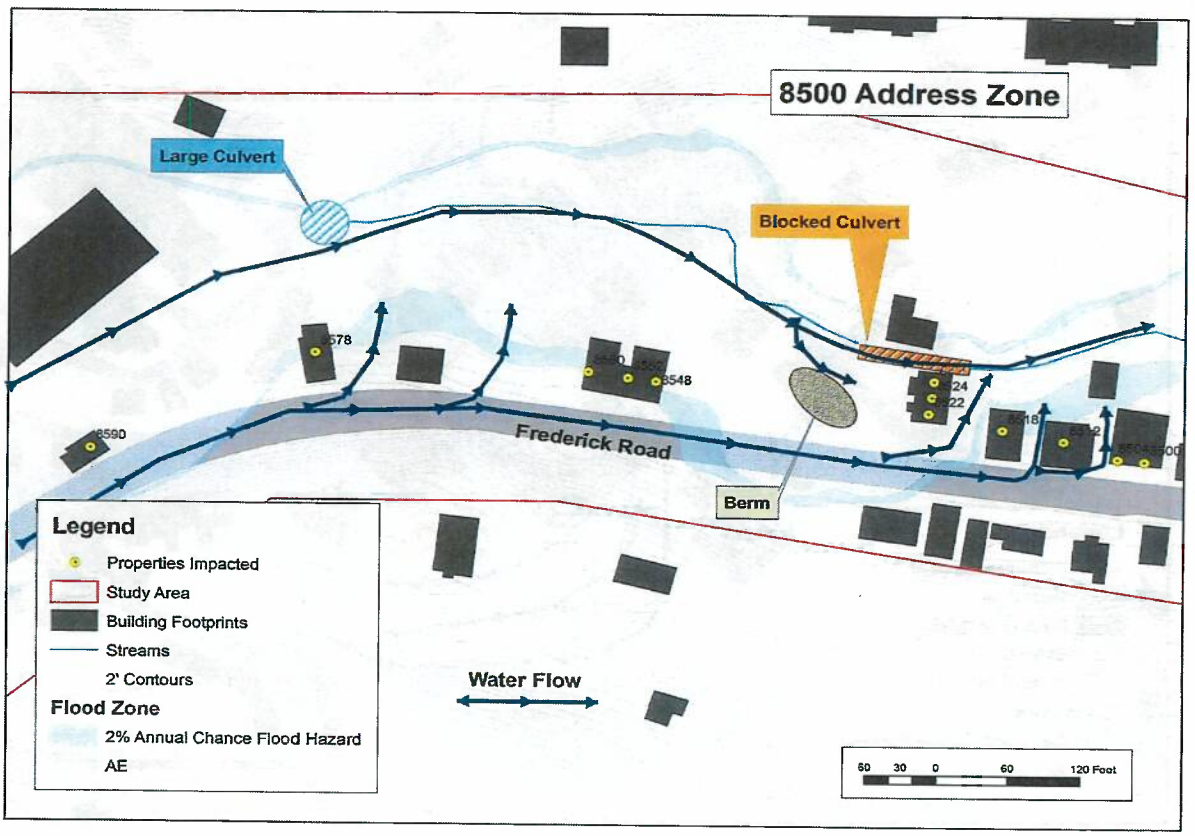
Valley Mede Zone

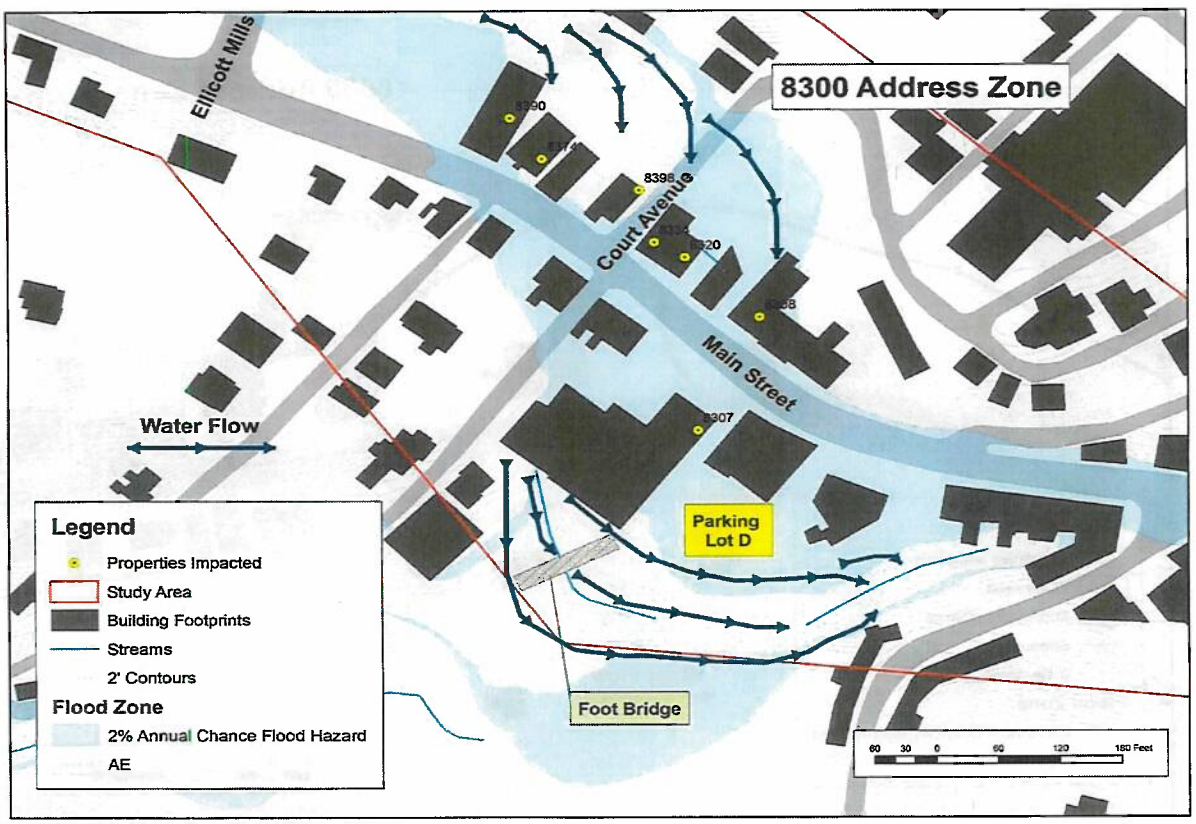
Residential properties adjacent to Plumtree Branch in the Valley Mede subdivision experienced significant flooding and damages. Flood waters rose quickly due to the heavy rainfall in a short duration of time. One resident indicated that within 45 minutes, the

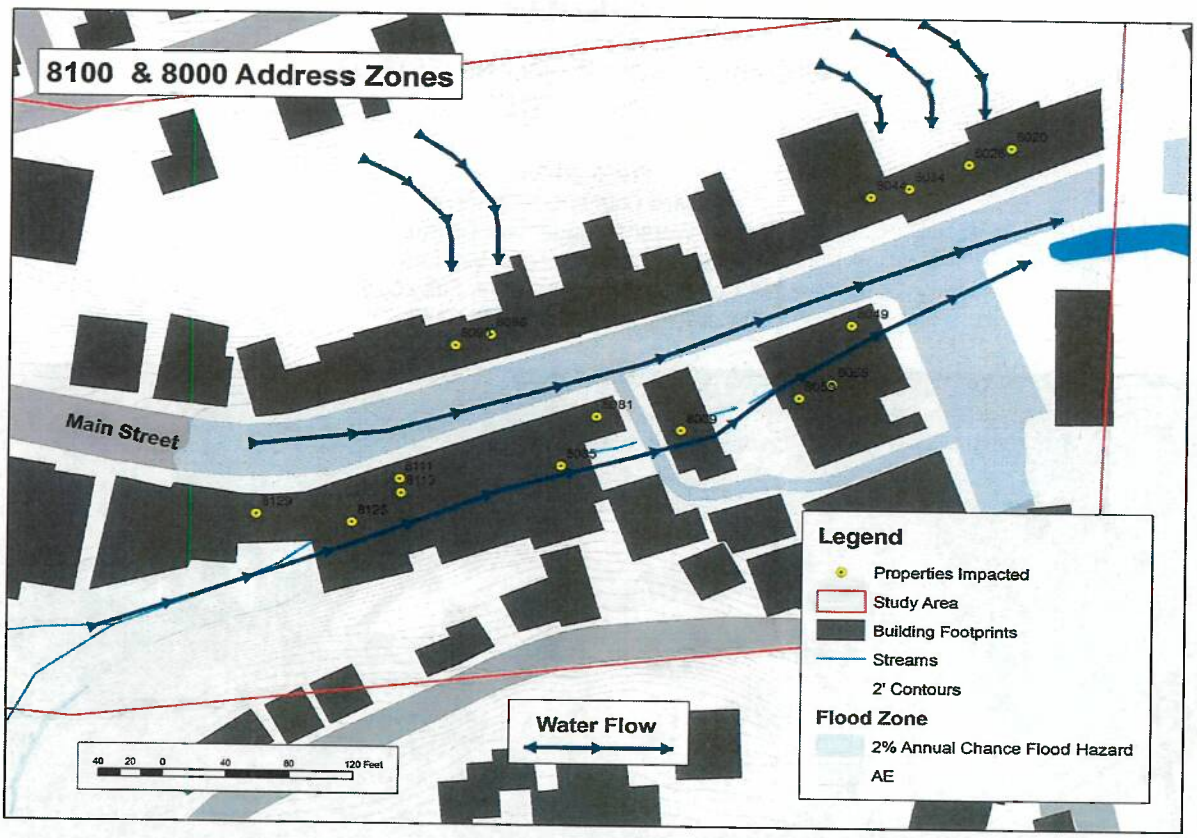
flood water increased from cresting the channel banks to being six inches deep in the finished basement. This homeowner also stated that the water did not reach the elevation of the patio during Hurricane Agnes in 1973. One structure in Valley Mede experienced approximately four feet of water in the first floor of the dwelling, rendering the entire home uninhabitable. Culverted road crossings created backwater conditions until the flood breached the road crest. Several property and road wash-outs occurred when the flood water crested the road and re-entered the channel at the downstream culvert location. At one location, the wash-out damaged the utilities for the home, creating a loss of water, electric, and gas for several days.


Frederick Road
Bridge No. 1
8700 Address Zone
8781
Frederick Road
8717
Legend
Properties Impacted
Study Area
Building Footprints
Streams
2' Contours
Flood Zone
2% Annual Chance Flood Hazard
AE
Water Flow
50 25 0 50 100 Feet


8600 Address Zone
Rogers Avenue
Concrete Stormwater Junction Box
Small Bridge
Frederick Road
Legend
Properties Impacted
Study Area
Building Footprints
Streams
2' Contours
Flood Zone
2% Annual Chance Flood Hazard
AE
Water Flow
60 30 0 60 120 Feet


8500 Address Zone
Large Culvert
Blocked Culvert
Frederick Road
Berm
Water Flow
Legend
Properties Impacted
Study Area
Building Footprints
Streams
2' Contours
Flood Zone
2% Annual Chance Flood Hazard
AE
60 30 0 60 120 Feet


8300 Address Zone
Ellicott Mills
Court Avenue
Main Street
Water Flow
Parking Lot D
Foot Bridge
Legend
Properties Impacted
Study Area
Building Footprints
Streams
2' Contours
Flood Zone
2% Annual Chance Flood Hazard
AE
60 30 0 60 120 180 Feet


8100 & 8000 Address Zones
Main Street
Legend
Properties Impacted
Study Area
Building Footprints
Streams
2' Contours
Flood Zone
2% Annual Chance Flood Hazard
AE
Water Flow
40 20 0 40 80 120 Feet

2016
Ellicott City Hydrology/Hydraulic Study
and Concept Mitigation Analysis

McCormick Taylor Project No. 5519-93
June 16, 2017

Prepared for:
Howard County Government
Storm Water Management Division
Bureau of Environmental Services
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046-3143

Prepared by

McCORMICK TAYLOR
509 South Exeter Street, 4th Floor
Baltimore, Maryland 21202
(410) 662-7400

buildings as noted above, results in 6'-8'+ of flooding through this stretch between Caplan's and the Phoenix Emporium (8137 to 8049). Video at the peak of the July 30, 2016 storm indicated flows nearly touching the bottom of the store awnings in this area, supporting the calculations of the model.

As the flow of the combined three subwatersheds continues in the channel beneath buildings, through Tiber Park, and under the B&O Railroad Bridge, as well as down Main St., the inundation of the two flow paths reconnects them through this last stretch prior to combining with the Patapsco River. In looking at the subsequent improvement strategies for conveyance and stormwater management, this area will prove to be the most challenging to return to a manageable depth for the 100-year and similar storm events due to the flat grade, full watershed contribution and lack of a floodplain in the confined channel under several structures.

4.0 Conceptual Improvements

This study focused on two main types of conceptual improvements, stormwater quantity management (SWM) to reduce the quantity of flow into the Frederick Rd./Main St. corridor, and conveyance improvements that would upgrade or supplement the storm drains and channels through the flooded area to carry more water at a lower elevation for a given event. The structure of the model created for this study allows for any variation on, or combination of, improvements to be run through the model as part of a larger long-term planning effort, however for the sake of keeping the large amount of data manageable, the focus of this study looks at a progressively cumulative improvement using four types of approaches in total, and subsequently examines an incremental improvement considering selected individual improvements as defined below. The alternative of retrofitting the existing SWM facilities in the watershed is also examined relative to the other options presented below.

The approach to determining how much SWM storage is necessary to effectively reduce flood elevations and the probability of damaging flooding was based on attempting to store as much of the volume as possible that makes up the difference between the 10- and 100-year events, in order to reduce the peak flow of the 100-year event down to that of the 10-year event. This required temporary storage in the form of ponds as well as underground SWM. The effectiveness of each in reducing peak flow can be seen in *Figures 4.1* through *4.3* below.

For the SWM ponds, all in-line ponds assumed allowance for the 5-year storm event to pass through before accumulating meaningful storage. This is based on the premise that the downstream channels can accommodate this storm event, and that the meaningful storage could then be reserved for the higher storm events. This is also allows for the branches to maintain their existing base flows, and not changing the appearance of the stream running through downtown. Volume was maximized based on available undeveloped area with emergency

spillways routing the higher storm events where necessary. During the large storm events, excess runoff would be temporarily stored within the facilities and let out at a controlled rate. At the time of this report, the County has initiated preliminary discussions with the Maryland Department of the Environment (MDE) regarding the in-line nature of the ponds as well as the likelihood of high hazard dams that will require Emergency Action Plans for downstream areas.

Figure 4.1: Peak Flow and Volume, 10- and 100-Year Storm.

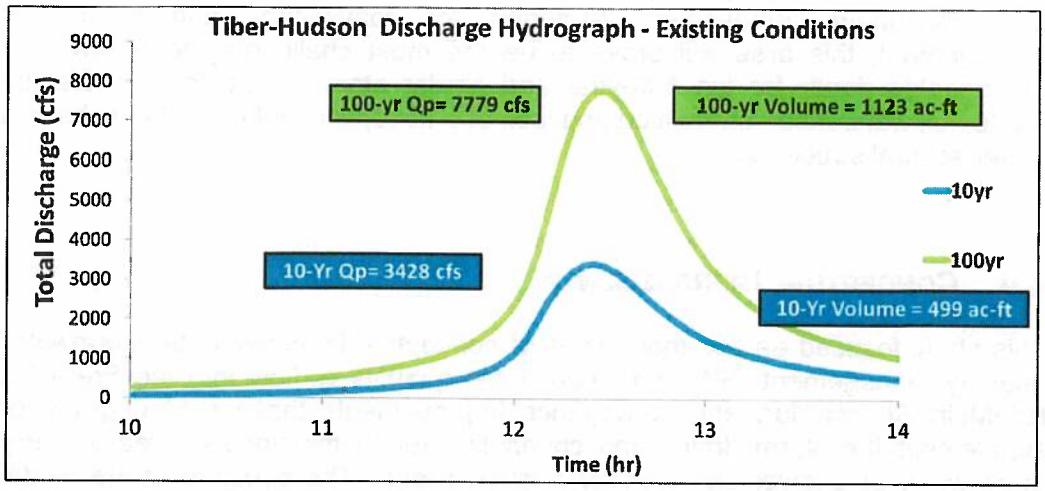


Figure 4.2: Peak Flow and Volume, 10- and 100-Year Storm.

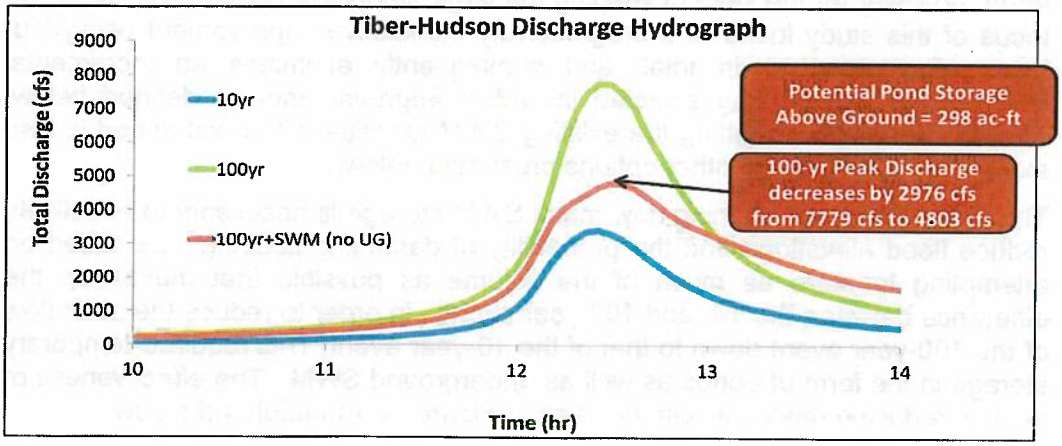
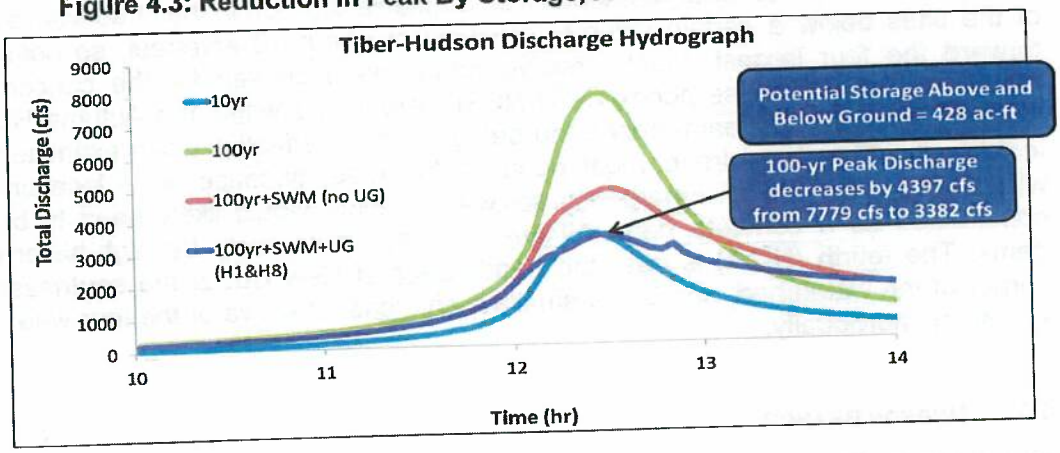


Figure 4.3: Reduction in Peak By Storage, Above and Below Ground SWM



For underground SWM areas, two approaches were considered: underground pipe storage, aka 'pipe farms' which would exist offline, storing diverted flow up to maximum capacity and outletting metered flow by gravity; and underground vaults, which are concrete storage spaces that store diverted excess flow from the channel and drain utilizing pumps over the course of 2-3 days following the storm event. All SWM facility conceptual layouts and grading maps can be found in *Appendix B.*

Capacity improvements examined include supplemental cross culverts where the Hudson Branch crosses the roadway, which are generally only effective at reducing flooding in their local vicinity; bypass culverts which supplement existing culverts carrying Hudson Branch and have effectiveness in reducing flooding in portions of the West End; and tunnels bored through existing rock under adjacent highlands and buildings to carry excess flow underground and divert it away from Lower Main St. Maps of conceptual conveyance improvements are found in *Appendix B.*

4.1 TIBER BRANCH

Improvements in the Tiber Branch focused on a single, large in-line SWM pond (T1), approximately 70 acre-feet in storage size. This was chosen as it was feasible within a wider, undeveloped area of the floodplain without excessive excavation relative to the volume of storage; and also because its size in this smaller subwatershed makes it particularly effective at reducing the peak flows out of this subwatershed. This would likely be a high-hazard dam. Additional details are noted in *Table 4.1.*

4.2 NEW CUT BRANCH

Improvements in this subwatershed included the examination of several in-line SWM ponds which attempted to maximize available undeveloped floodplain area

for storage. From that initial set, there was a notable drop off in the effectiveness of the sites below a certain volume threshold of about 12 acre-feet, so going forward the four largest, most effective ponds were chosen for the concept modeling. Three of these ponds (NC1-NC3) were in-line within the Autumn Hill tributary, with the upstream-most pond being the most effective when examined individually. The downstream-most pond of the three, because of its location, which does not have an emergency spillway location, would likely need to be constructed as a concrete dam. All three ponds would likely be high-hazard dams. The fourth (NC-4) is near the headwaters of New Cut in the southeast corner of the watershed, and is the smallest and least effective of the four when examined individually.

4.3 Hudson Branch

The Hudson Branch subwatershed was the most challenging one to find locations for the large in-line SWM ponds that were so effective in reducing peaks within the other two subwatersheds, largely because of the development adjacent to the floodplain, which is denser and more commercial than the other subwatersheds, and also because this branch is very much intertwined with Frederick Rd./Main St. in its lower reaches. Because all of the meaningful flooding takes place within this branch, before and after its confluences, this is where the majority of the improvements are conceptually proposed and examined.

4.3.1 Stormwater Ponds

Conceptual improvements include three SWM ponds in-line and off-line within the US 40 / US 29 interchange (H5-H7), which is owned by Maryland State Highway Administration (MSHA) as well as three additional ponds adjacent to or within the Hudson Branch (H2-H4), with all but one (H2) upstream of US 29 at Frederick Rd. The pond in the NW loop ramp of the interchange (H7) which is online, is the most effective in this subwatershed when examined individually; the pond in the opposite NE loop ramp (H6) which is offline, the least effective of the six.

4.3.2 Underground SWM

Conceptual Improvements include pipe farms and vaults as defined above. The pipe farm in the old Roger Carter Center property above Lot 'F' on Ellicott Mills Dr. (H8-UG1) includes ~4600 LF of 10' diameter pipe. The additional 3 sites (H8-UG2-4) are located west of US 29 in the undeveloped strip of land currently owned by BGE for their high tension power lines. These pipe farms would comprise ~3.3 miles of 10' diameter pipe located near but not in the footprint of the current towers. The total storage of these 4 sites is approximately 40 acre-feet. At the time of this report, BGE has not been contacted by the County to discuss specific locations for use of their Right-of-Way.

There are three concrete vault locations (H1-UG1-3) along the Hudson Branch east of US 29 which combined offer up to 90 acre-feet of storage, and, when used in conjunction with the pipe farm facilities (H8) are effective in significantly reducing the peak flows in this subwatershed. The locations are at Lot 'F', the current West End Service site and the areas between residential structures at 8777-8729 Frederick Rd. These sites represent conceptual storage of volume divided up based on footprint, but in fact their relative sizes and locations could vary depending on subsurface conditions (which may allow easier, deeper excavation, at one site vs another) with their overall effectiveness varying little, so long as the quantity of storage remains the same.

Table 4.1 and 4.2 indicate the volume and reduction in flow resulting from each of the individual SWM alternatives, as well as combined for the subwatersheds.

Table 4.1: Peak Flow Reduction Per Facility and Combined, Tiber Branch and New Cut Branch Watersheds

Tiber Proposed SWM				
	Total Without Concept Management		Total With Concept Management	
	Q10	Q100	Q10	Q100
T1 (Tiber)	497	1078	168	334

Tiber Concept Ponds Treatement Summary	
	Tiber
	T1
Storage	70.0 ac-ft
Emb. Height	24 ft
Change to Q100 - Total Tiber 100YR	-69%

New Cut Proposed SWM				
	Total Without Concept Management		Total With Concept Management	
	Q10	Q100	Q10	Q100
NC1 (New Cut)	1640	3581	1630	3053
NC2 (New Cut)	1640	3581	1396	3052
NC3 (New Cut)	1640	3581	1241	2876
NC4 (New Cut)	1640	3581	1462	3420
Total Combined	1640	3581	965	2464

New Cut Concept Ponds Treatment Summary					
	New Cut				Combined New Cut Concepts
	NC1	NC2	NC3	NC4	
Storage	34.0 ac-ft	42.0 ac-ft	63.0 ac-ft	14.4 ac-ft	153.4 ac-ft
Emb. Height	28 ft	18 ft	21 ft	11 ft	
Change to Q100 - Total New Cut 100Y	-15%	-15%	-20%	-4%	-31%

Table 4.2: Peak Flow Reduction Per Facility and Combined, Hudson Branch Watershed

Hudson Proposed SWM				
	Total Without Concept Management		Total With Concept Management	
	Q10	Q100	Q10	Q100
H1 - UG (Hudson)	1203	2907	734	2613
H2 (Hudson)	1203	2907	1124	2821
H3 (Hudson)	1203	2907	1162	2864
H4 (Hudson)	1203	2907	955	2663
H5 (Hudson)	1203	2907	1128	2798
H6 (Hudson)	1203	2907	1161	2823
H7 (Hudson)	1203	2907	1129	2598
H8 (Hudson) BGE/RGR CRTR	1203	2907	903	2459
Total Combined	1203	2907	669	752

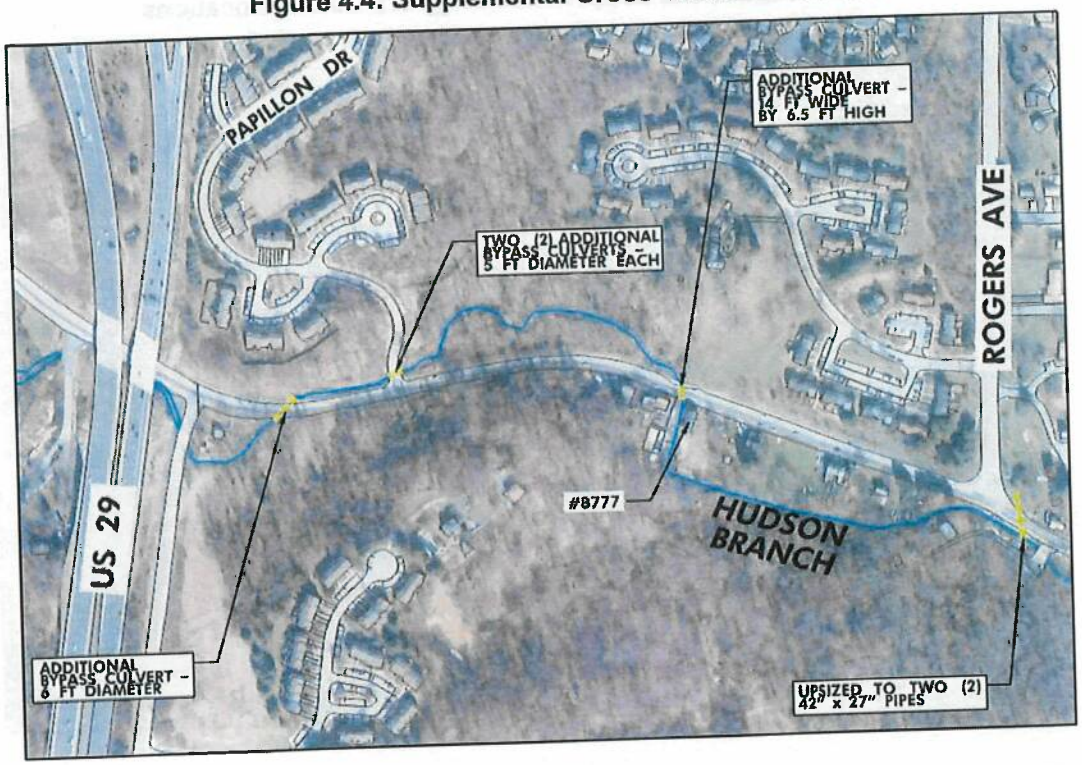
Hudson Concept Ponds Treatment Summary									
	Hudson Branch								Combined Hudson Concepts
	H1-UG 1-3	H2	H3	H4	H5	H6	H7	H8-UG 1-4	
Storage	82.4 ac-ft	15.0 ac-ft	7.7 ac-ft	15.6 ac-ft	11.5 ac-ft	12.0 ac-ft	12.8 ac-ft	40.0 ac-ft	197.0 ac-ft
Emb. Height	N/A	15 ft	11 ft	9 ft	12 ft	14 ft	12 ft		
Change to Q100 - Total Hudson 100YR	-10%	-3%	-1%	-8%	-4%	-3%	-11%	-11%	-74%

4.4 CONVEYANCE IMPROVEMENTS

Conceptual improvements to the capacity of pipe and culvert systems along Frederick Rd./Main St. include supplemental cross culverts added to the model in the following locations:

- 8800 Frederick Rd. – Additional 6' culvert
- Papillon Dr. – 2 Additional 5' culverts
- 8777 Frederick Rd. – Additional 6.5' x 14' box culvert
- 8680 Frederick Rd. @ Rogers Ave. - 2 – 42" x 27" pipes – This carries flow from Rogers Ave. across the road into channel

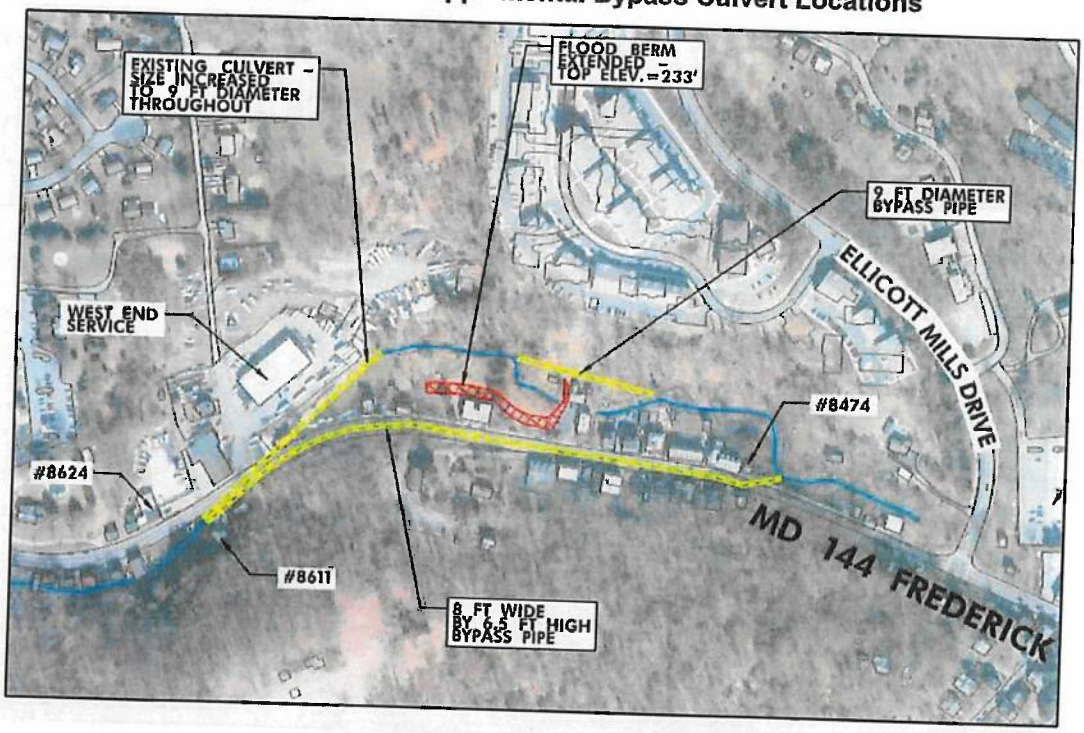
Figure 4.4: Supplemental Cross Culvert Locations



To address the capacity issue at the existing 108"/88" culvert at 8611 Frederick Rd., the model includes the following conceptual improvements:

- Restore the existing culvert to 108" diameter throughout and add a supplemental 6' x 8.5' culvert along the roadway to carry additional flow to an outfall into the channel downstream of 8470
- 8532/34 Frederick Rd.: add a 9' bypass culvert to carry flow behind the houses at 8532 where constricted by the existing culvert, and combine with a flood berm from spanning from 8572 to 8534 to protect adjacent houses from floodplain flow.

Figure 4.5: Supplemental Bypass Culvert Locations



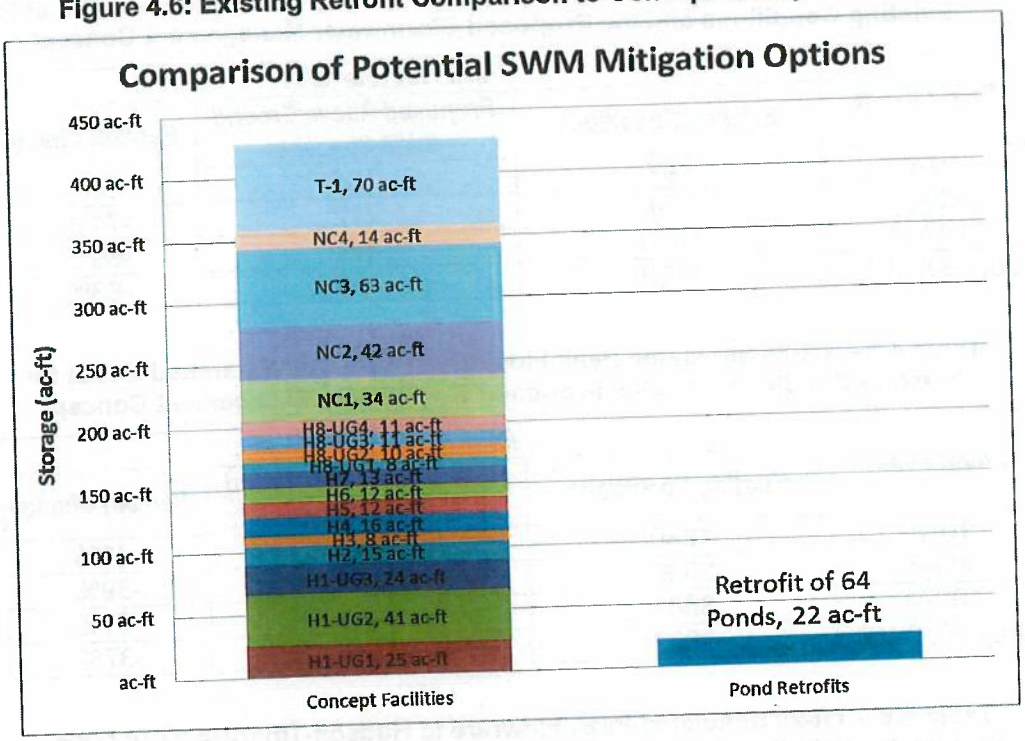
The effects of the capacity improvements on the hydraulic models are shown in more detail and discussed in Section 4.7 below. Larger maps of the options can be found in *Appendix B*; modeling in *Appendix D*.

4.5 Examination of Retrofit of Existing SWM Facilities

The analysis considered what the impacts would be on retrofitting the existing 64 SWM facilities throughout the watershed relative to the larger scale SWM improvements noted above. The existing ponds account for about 85 acre-feet of available dry storage combined. Considering a rough assumption that, based on constrictions of adjacent development, right-of-way, natural resources, etc., each facility could be increased by about 25% on average, that would yield approximately 22 additional acre-feet storage.

Relative to the changes observed from the creation of 18 new facilities for 428 acre-feet of additional storage, the approach of retrofitting all 64 existing SWM facilities did not warrant further modeling based on the effective change per each of the 64 individual projects (~1/3 acre-foot per site, on average). A relative scale of this option can be seen in *Figure 4.6*, below.

Figure 4.6: Existing Retrofit Comparison to Conceptual Improvements



4.6 FLOW REDUCTION FROM SWM IMPROVEMENTS

As discussed, the stormwater management improvements both above and below ground, provide substantial attenuation of the peak flows, resulting in reduced peak discharges into the 2-D hydraulic model. Provided below is a summary of SWM simulated changes in peak flows from the three subwatersheds (*Tables 4.3-4.5*) as well as change in peak flow at the outlet of the 2-D hydraulic model. The discharges summarized for the three subwatersheds were pulled directly from the hydrograph output by the TR-20 hydrologic model. The peak flows in *Table 4.6* reflect the combined peak of all inflow hydrographs for the hydraulic model, assuming all conceptual improvements are constructed.

Table 4.3 – TR-20 Simulated Peak Flowrate to Hudson Branch Watershed Outlet for Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	Peak Flowrate (cfs)				
	Existing Conditions	Proposed Above Ground SWM Concepts	Percent Change	Proposed Above & Below Ground SWM Concepts	Percent Change
10-yr	1203	743	-38%	699	-42%
25-yr	1768	1116	-37%	730	-59%
100-yr	2907	2010	-31%	752	-74%
July 30, 2016	3549	2517	-29%	1396	-61%

Table 4.4 – TR-20 Simulated Peak Flowrate to Tiber Branch Watershed Outlet for Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	Peak Flowrate (cfs)		
	Existing Conditions	Proposed Above Ground SWM Concepts	Percent Change
10-yr	497	168	-66%
25-yr	734	212	-71%
100-yr	1078	334	-69%
July 30, 2016	1169	438	-63%

Table 4.5 – TR-20 Simulated Peak Flowrate to New Cut Watershed Outlet for Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	Peak Flowrate (cfs)		
	Existing Conditions	Proposed Above Ground SWM Concepts	Percent Change
10-yr	1640	965	-41%
25-yr	2330	1411	-39%
100-yr	3581	2464	-31%
July 30, 2016	3967	2519	-37%

Table 4.6 – TR-20 Simulated Peak Flowrate to Hudson-Tiber-New Cut (Tiber-Hudson Branch) Outlet for Existing Conditions and the Proposed Stormwater Management Concept

Storm Event	Peak Flowrate (cfs)				
	Existing Conditions	Proposed Above Ground SWM Concepts	Percent Change	Proposed Above & Below Ground SWM Concepts	Percent Change
10-yr	3428	1828	-47%	1801	-47%
25-yr	4947	2716	-45%	2511	-49%
100-yr	7779	4804	-38%	3382	-57%
July 30, 2016	8669	5503	-37%	3455	-60%

The reduced flowrates under the proposed scenario resulted in decreased water surface elevations, flow velocities and the extent of the floodplain; the magnitude of the changes to these variables is dependent on the unique topographic features at any specific cross section in the modeled area. *It is important to note that percent peak flowrate reductions do not necessarily represent equivalent reductions in water surface elevation, flow velocity, or flood extent.*

4.7 Modeling Results of Proposed Improvements

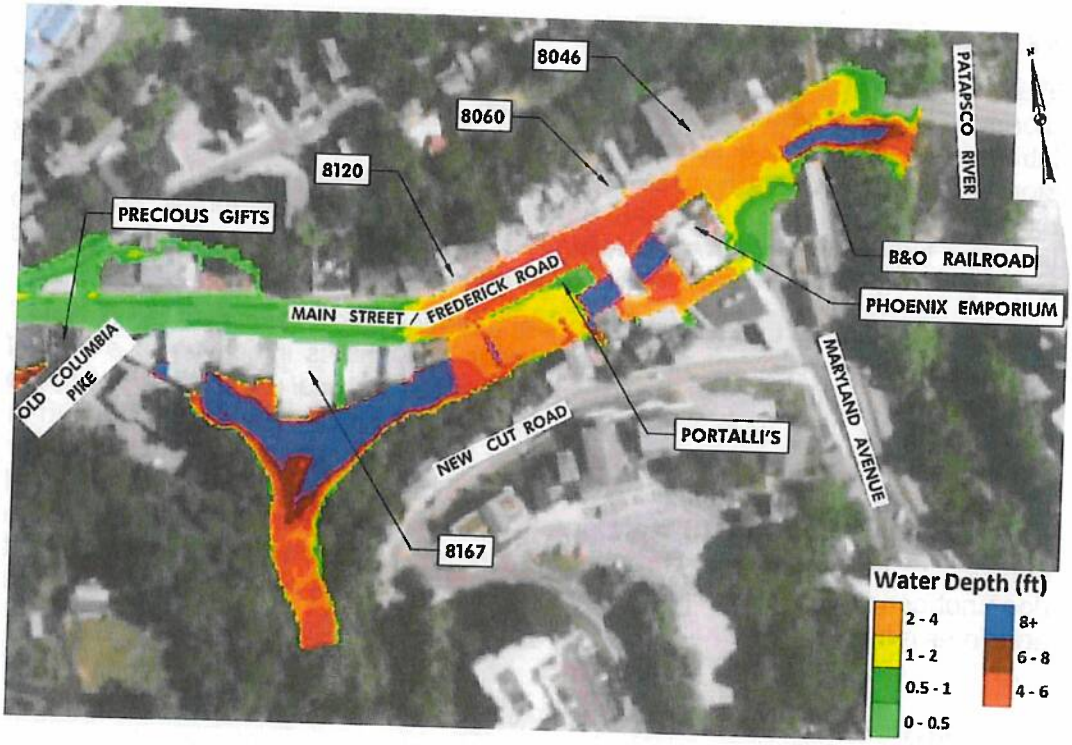
Water surface elevations, and extent of flooding, are reduced incrementally as stormwater management and conveyance improvements are progressively introduced. Below is a summary of the effect of the 428 acre-feet of SWM storage, and subsequently the addition of conveyance improvements, to the existing conditions models detailed above. Additional, larger graphics, which also include a breakdown of flood modeling results between above and below ground SWM improvements, may be found in *Appendix D*

It's important to note that where the model graphics below represent "no flooding" (no color) on the roadway or adjacent areas, that this is indicative of *a lack of flooding resulting from water overflowing out of the channel or overburdened pipe structures only*. This does NOT mean there would be no flow or water depth in the area during this storm event, but rather that the model does not account for all runoff initiated in the immediate vicinity. The model considers the flow directed to the channel from the 10 hydrograph input points within the model and the handling of the major flow 'through' the Frederick Rd./Main St. community. It does not consider the hyper-local runoff between those points that may result in additional minor, local flooding.

4.7.1 Area 1 – US 29 to Rogers Ave.

The roadway flooding at the first point the stream crosses Frederick Rd. just east of Toll House Rd. in the 8800 Block is reduced to under 1' deep, and down below 2' deep at the second crossing of the stream under Papillion Drive. This is a decrease of 1'+. The addition of the supplemental cross culverts at these first two locations further reduces the roadway flooding to about 6" deep.

At the next stream crossing, southward under Frederick Rd. near 8789-77, flooding is reduced below 1' under both scenarios. Flooding of the residential areas on the south side of the roadway is also reduced from 8777 east to the Rogers Ave. intersection, with areas of 2'-4' of flooding now reduced in extent, and in depth down to 0.5'-2', though there are some localized increases at the outlet of the supplemental culvert at 8777. At this culvert it appears either the conveyance or SWM improvement will result in these improvements, but combined they do not provide a significant additional benefit in the immediate vicinity. This is similar with the flooding of the roadway approaching Rogers Ave., which is reduced from 2'+ down to 0.5' to 1' near the roadway edges.



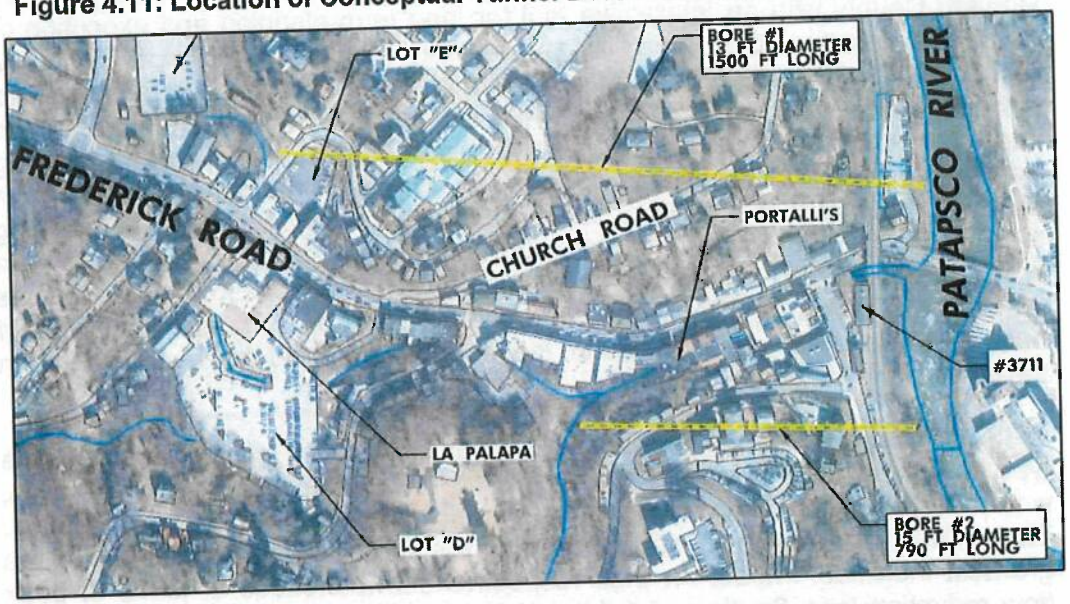
for this storm event by 2'-3'+ however, there is still a section of 4'-6' deep water that is not fully managed through this block. This area still showing over 1' of flooding also coincides with the 100-year flood backwater (elevation 133') from the Patapsco River. It is notable that this model considers flood events that generate from intense rainfall within the Tiber-Hudson watershed (3.7 mi.^{2} which is 1.3% of the 294 mi^2 Patapsco River watershed). In the event of a Patapsco River backwater flooding event (similar to T.S. Agnes in 1972) the proposed concepts will not be effective in reducing flooding from the backwater in this area, though areas upstream of the backwater will experience the reductions modeled here.

4.7.5 Tunnel Bore Improvements

In order to consider a conceptual option that would provide full flood relief for the lower Main St. section for a 100-year event with all of the other SWM conceptual improvements in place, and to address requests made at the inception of this study from the community, the hydraulic analysis examined the concept of tunnels that would bore through the bedrock of Ellicott City in two locations to divert excess flood flows around the Main St. commercial district. Both were located in areas where the terrain goes up very steeply such that the bore would go well beneath any existing structures in the community. The first tunnel would begin upstream of Lot 'E' and would divert flood flows to the Patapsco River approximately 1300' away with a 13' diameter circular bore. The second tunnel, a 15' diameter circular bore, would capture flood flows from the New Cut Branch

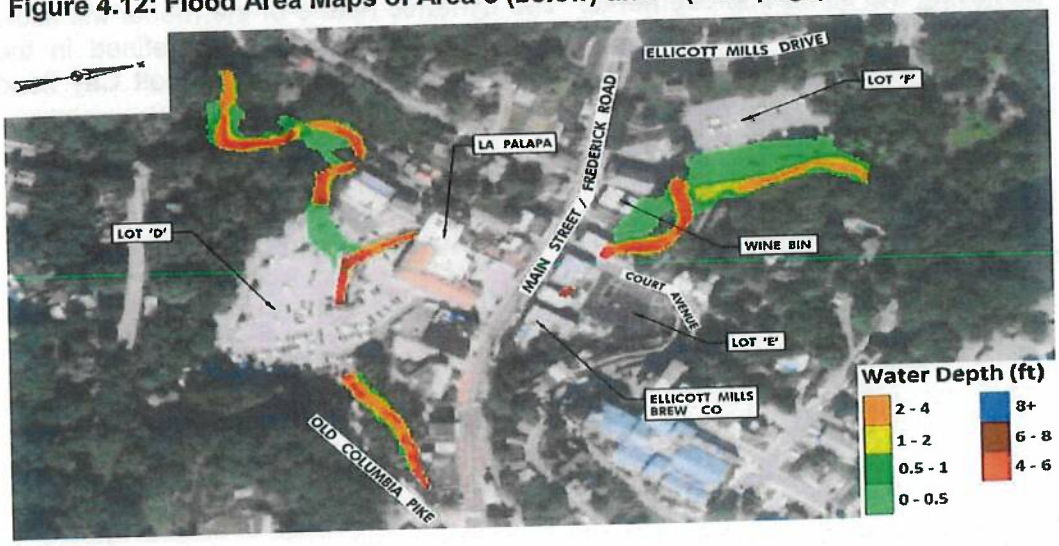
just upstream of its confluence with Tiber-Hudson and divert through the adjacent hillside to the Patapsco River approximately 790' away.

Figure 4.11: Location of Conceptual Tunnel Bores to Divert Flow around Main St.



The tunnel bores were sized to convey adequate flood flows such that the channel that runs under the buildings on the south side of Main St. would not overflow and flood the adjacent buildings and roadway. The resulting change in the 100-year flooding from channel capacity can be seen for Areas 3 and 4, in *Figure 4.12*. The implementation of such a system would have several challenges relative to the construction, permitting and funding of the tunnels.

Figure 4.12: Flood Area Maps of Area 3 (below) and 4 (next page) w/ Tunnel Bores



5.0 CONCLUSIONS AND RECOMMENDATIONS

The creation of a comprehensive hydrologic and 2-D hydraulic model of the Tiber-Hudson Branch along Frederick Rd. / Main St. east of US 29 provides Howard County with an interactive tool for long term planning and execution of strategies to reduce the probability and severity of flooding in Ellicott City. The results of this study demonstrate that construction of stormwater storage facilities throughout the watershed, combined with stormwater conveyance infrastructure improvements, can make an appreciable difference in the severity of flooding from a 100-year or other similar storm event. However, the nature and scope of such improvements is significant in scope, impact and cost. It will require a long term planning and implementation effort, supplemental to the Master Plan process, to prioritize, design and construct improvements based on the concepts represented in this report. In the shorter term, flood proofing and insurance of buildings and their contents within the floodplain should be a consideration throughout the study area.

In the interest of representing what a subset of selected improvements, of the type that would hypothetically represent the first stage of a multi-stage plan, would result in, the analysis included modeling of a subset of improvements. These SWM improvements were chosen for the subset based on their having the greatest individual impact on their respective subwatersheds in terms of peak flow reduction (see *Sections 4.1-4.3* and *Tables 4.1, 4.2*) and included T1, NC3 and H7 (ponds) and additionally H8 (Underground Pipe Farms) along with the proposed conveyance improvements (not including the tunnel bores). The mapping demonstrating the flooding reductions associated with this subset of improvements may be found in *Appendix E.*

It should be noted that these concepts, particularly those representing stormwater management and storage, are broad-brush representations of practices that can significantly vary in their final detail and location while still achieving the same improvements. The dynamic nature of the model will allow for the continued analysis of chosen alternatives as they are refined in the planning and design of future improvements associated with Ellicott City flood mitigation.

TA01 - FY19

Sayers, Margery

From: R. Michael Anson <ranson1@alumni.jh.edu>
Sent: Sunday, September 09, 2018 10:28 AM
To: CouncilMail
Subject: The Feds WANT to help ....

Good morning,

Quoting one of our founding members: "At the Thursday <Sep 6> Historic Preservation Commission a local engineer stepped forward to say that he had approached the County to offer a no-cost consultation and proposal on implementing a tunnel bore solution to divert flash flood waters completely away from down town Ellicott City -- and his offer of help was declined. His name is John Harmon, and he works for FHWA." (I recall it a bit differently: I think he said that the offer went unanswered.)

The Feds can't help unless the county council invites them. To paraphrase his testimony: "We're assistants, not enforcers. We want to help, but we can't unless we're asked by the county."

PLEASE ask!

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/change2.cfm

Best regards,

R. Michael Anson, Ph.D.

Associate Professor
The Community College of Baltimore County | School of Mathematics and Science
Associate Editor
The Journals of Gerontology | Biological Sciences
(Published by the Gerontological Society of America)
Editorial Board Member
GeroScience (formerly "The Journal of the American Aging Association")
Association Fellow, Board Member (elected for 2018-2021), and Trainee Advocate
The American Aging Association

Primary Email: ranson1@alumni.jh.edu

Sayers, Margery

From: C.A. Page <sihaya09@gmail.com>
Sent: Friday, September 07, 2018 10:26 AM
To: CouncilMail
Subject: Re: Written Testimony for September 17th hearing

The previous was in reference to TAO1-FY2019, CB61-2018, and CB62-2018!

Warmly,
Christina

Sihaya Designs Jewelry - www.SihayaDesigns.com
Sihaya & Company - www.SihayaAndCompany.com

On Fri, Sep 7, 2018 at 10:25 AM, C.A. Page <sihaya09@gmail.com> wrote:

My name is Christina Allen Page and I live at 8552 Main Street. My home was built in 1890, and was purchased during the last flood. My husband and I proceeded with the sale in part because we believed the narrative that the 1,000 year storm was unlikely to reoccur so soon, and also because of the way we saw the community that we already had loved for nearly 10 years pull together in the days and months after it occurred. We moved to Main, and I felt the draw to become active within this community of neighbors and business owners, because they were, and remain, incredibly inspiring to me. It is with pride that I call myself an Ellicott City Main Street resident.

What I have heard since the May 2018 flood amounts to a very distinct divide in opinion. A large number of us who are directly in harm's way on Main Street support the County plan. Those who oppose it largely live either outside of the watershed in areas like Columbia or Frederick, or high enough above Main that they are not in harm's way whenever we get a strong storm system coming through town.

To those people, I have questions.

-- How do you think it feels to have your livelihood taken from you twice in two years? To incur monumental debt? To be out of business for months or years? To have to tell your staff they cannot rely on you for income?

-- How do you think it feels when customers tell you that they will not return to your business, which is built directly over the river, as the risk is too great to their lives when the river rises? How do you think it feels knowing you and your staff are directly in harm's way during these stronger, more frequent storms? When your business revenue is down 30% because people are scared to return? How do you think it feels when some of those who purport to be "saving" Ellicott City have spread some of the most vicious and unfounded rumors about your fellow business owners because they cannot return and/or they support the County Proposal?

-- How do you think it feels to incur tens of thousands of dollars of damage to your home twice in two years? And to have that compounded by the need to take weeks of unpaid leave from work to do necessary repair work? To have to rush home from work to sandbag when a storm appears on the radar? How do you think it feels to have to excavate your life from mud and sewage and broken shards twice in two years?

-- How do you think it feels to lose a car, multiple cars, or a beloved pet to flooding?

-- How do you think it feels to have to scramble for emergency childcare whenever we expect a storm because your children are too fearful to stay in your home?

-- How do you think it feels to have to evacuate during flash flood warnings all summer long, and spend long sleepless nights watching the stream cams?

-- How do you think it feels to walk down your street and it looks like the set of a disaster movie, months after the event?

-- How do you think it feels to experience anything from anxiety to full-blown PTSD when you look at the weather forecast and see rain?

-- How do you think it feels to think to yourself "thank GOD more people did not die" knowing that four already have?

Not all of those have happened to me, thankfully. But those examples are drawn directly from my neighbors on Main. Please understand that these people have lived a nightmare twice, and it is still happening and will happen again.

I have heard over and over again how insulting the perception is that opponents to the County proposal value buildings over lives. Please understand that the flip side of that is that we who are ACTUALLY in harm's way have been told that our well-being and safety should continue to be put at risk while we delay again and again until we find solutions more palatable to those who are not directly impacted, many of whom did not so much as pick up a shovel. We cannot stay in an unending cycle of trauma. We must act.

If my time as an EC resident has taught me anything, it is this: yes, our history is important. But Ellicott City is more than just its buildings. The people who live and work on Main are the beating heart of this town. Our quality of life-- and indeed, our overall life safety-- is the priority. None of us WANTS to take down historic buildings, but we realize that it is a sad necessity that the stream channel be widened and the most at-risk buildings need to be moved or taken down.

In conclusion, I join many of my fellow Main St residents & business owners in supporting the County Proposal. Thank you for your time.

Sayers, Margery

From: C.A. Page <sihaya09@gmail.com>
Sent: Friday, September 07, 2018 10:25 AM
To: CouncilMail
Subject: Written Testimony for September 17th hearing

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In conclusion, I join many of my fellow Main St residents & business owners in supporting the County Proposal. Thank you for your time.

Sayers, Margery

From: Sam McClung <twintwix1978@gmail.com>
Sent: Thursday, September 06, 2018 9:22 PM
To: CouncilMail; Kittleman, Allan
Subject: Flood Mitigation on Merryman Street

Hi Mr. Kittleman and Mr. Weinstein,

I'm emailing you on behalf of my father, Samuel McClung of 8411 Merryman Street in Ellicott City. He does not have a computer, and I, and my brother, maintain this email account for him, the accout that we created for him after July 2016 flood.

I've been going through the Flood Mitigation Plan and looking over the maps that are included in it. I see Merryman Street on the maps on page 11 however, my dad's property on Merryman St is hidden behind the legend on the maps on page 16. These are the maps that show how flood mitigation will improve the situation and my dad's property does not seem to be included. Do I assume that there is no flood mitigation for Merryman Street? Is there someone who I can talk to that can point me to a place that explains flood mitigation for Merryman Street, in particular to 8411 Merryman St, that I may be missing?

Please help so I can get my dad, Sam, the information he needs about how his property is included in the flood mitigation plan.

Thank you so much!

Cheers,
Heather McClung, daughter of Sam McClung

Sayers, Margery

From: Bruce Taylor <btaylor@taylorservice.com>
Sent: Thursday, September 06, 2018 6:54 PM
To: Holmes, Samantha; CouncilMail
Cc: Kittleman, Allan; Burgess, Beth; Ball, Calvin B; Weinstein, Jon; Terrasa, Jen; Sigaty, Mary Kay; Fox, Greg
Subject: Support letter for Ho Co Flood Mitigation Plan of Aug. 2018
Attachments: HEP support of HoCO FLood Plan 090618.pdf

Attached please find our letter of support for the County plan before the Historic Preservation Commission.
Please also consider this as testimony in support of and Testimony for TAO1-FY2019

Thanks,

Bruce T. Taylor, M.D.

Office: 410-465-3674
Cell: 410-868-9871

Historic Ellicott Properties, Inc.

8 Park Center Court
Suite 200
Owings Mills, MD
21117-5616

Bruce T. Taylor, MD
President

Direct Number
410/465-3674

Ross I. Taylor
Secretary

btaylor@taylorservice.com

410/465-3500

Fax: 410/461-7074

September 6, 2018

Letter in support of Howard County's Ellicott City Flood Mitigation Plan of August 23,2018
Before the Historic Preservation Commission And Testimony for TAO1-FY2019

Dear County Executive Kittleman, County Council Members, Members of the Historic Preservation Commission and staff,

The Caplan/Taylor family has played a role in Ellicott City since the 1890's, starting with my great grandparents and Caplan's store. With my son Ross now involved in the business, we have had five generations working to improve Ellicott City.

It is with sadness but also a sense of great hopefulness that we endorse and support the plan to remove ten buildings from Caplan's to the Phoenix, as these structures restrict the flow of water in the Tiber River, contributing significantly to the flooding and tragic loss of life in the last two years. We have presented a similar concept plan to re-vitalize the city, including the opening up, widening and dredging of the Tiber to allow it to convey more water without overflowing its banks.

As many of you know, we own 8125 Main Street (Caplan's, with others) and 8095 Main Street (Shoemaker's), yet we support this visionary plan because it is the best solution to achieve the most result in the shortest time to make Ellicott City safer for us all. It is a sacrifice to be sure, and it is not the complete solution to the problem, but it is an excellent start. These two buildings have been rebuilt after each of the prior floods. The structure at 8095 was engineered in its 1999 rebuild to withstand four feet of water in the street, yet it's first floor is damaged beyond use this time due to the intense upward forces of water from underneath the building many times exceeding the design characteristics. Sadly, we have been forced to decide not to rebuild these buildings as to do so would be economically and emotionally unsound. We must face the unfortunate fact that in just the past 46 years we have seen three major flood events, in 1972, 2016 and again this year. To rebuild again now, thinking that we will not flood again soon, would deny the reality of being destroyed yet again as a result of increasingly harsh and severe weather patterns due to climate change.

We are grateful for the hydrology studies by McCormick Taylor commissioned by the County which point out that development, especially substantial development in the watershed without modern stormwater management, has contributed only 20% to the flooding, as indicated by the model showing that if the entire watershed were forested, we would still have had 80% of the water on Main Street that we experienced in these last two devastating floods. The 2016-2017 study went on to note that even if the entire remaining properties of the watershed were developed, it would not make matters significantly worse. What the study did not point out, is that modern development with flood management retaining 8.5 inches of water in 24 hours on site, is part of the solution to reducing water flows to Ellicott City. Thus, private development and re-development particularly of sites without water retention currently, can play an important part in helping to prevent flooding in Ellicott City.

We all need to work together to return Ellicott City to being a safe and secure place where residents, businesses, visitors and workers can thrive, enjoy and build on the history and strong sense of community which we have built over the years. Removing these 10 buildings that are all severely damaged, and which otherwise would be boarded up for the foreseeable future, will help to create a vibrant parklike setting for lower Main Street to help the town to move forward safely.

As building owners, we will be pleased to cooperate with the County and preservation groups to document the history and artifacts of the properties and to assist in any way we reasonably can with the salvaging or even relocation of some or all of the significant history of these sites.

We urge you to approve the acquisition, salvaging what can be saved, and demolition of these ten structures, along with the subsequent widening and deepening of the Tiber channel, to improve the flood mitigation and safety of Ellicott City along with other warning measures and infrastructure improvements.

Sincerely,

Bruce T. Taylor, M.D.

Bruce T. Taylor, M.D. Ross I. Taylor

Sayers, Margery

From: R. Michael Anson <ranson1@alumni.jh.edu>
Sent: Wednesday, September 05, 2018 11:38 AM
To: CouncilMail
Subject: Old Town Ellicott City -- questions that must be asked

First, thank you for hosting an informative meeting last night (September 4). In response to the request for questions related to the plan for Old Town Ellicott City which was put forth:

First, to avoid misrepresentation due to heated emotions: our group, now over 1000 strong, has the following priorities:

1. Safety (Most important. Those for and against the proposed plan agree on this, if little else.)
2. Indemnification for business and property owners, including purchase and recompense.
3. Flood alleviation.
4. AVOID DESTRUCTION OF THE CITY'S HEART.

It was stated in the Sep 4 meeting that the culvert along Main Street was unworkable, since it would mean "no automobile traffic" to Main Street for a year or more and would negatively impact business there.

Related questions:

- Has the financial impact of a culvert and street closure been compared to the loss of historic authenticity (the major attraction to Old Town EC) which will result from the removal of so many buildings?
- Could the loss of automobile traffic be compensated with pedestrian access? (Removing buildings has a much greater impact on many business owners than a year of road closure.) Couldn't construction be planned so that distant parking with pedestrian access from both sides of the closure, similar to a pedestrian mall, remain feasible?
- 50 years from now, will "historic" Ellicott City still be historic? Lives are precious and must take first priority, but destroying a large section of a National Landmark should not be driven by financial expediency. If the risk to life is high in the short term, buying the buildings and treating them as "unsafe, do-not-enter" even for years would be an action that future generations would appreciate.

A touching video of Joan Eve and Gary (my wife and I have been frequent customer of theirs, and value them as individuals!) was shown in order to support the proposed plan, but several of us in the audience noted that they had no emergency egress available and that cars floated by. We were horrified. The 2016 flood should have taught us one thing, if nothing else: no one should be trapped, and cars should not be allowed in the flood zone.

That leads to the following questions.

- Why were cars there, to float by and create hazards?
- Why were Joan and Gary locked into a room with only one available exit? (The buildings are close. Egress via rooftop to higher ground would seem to me to be almost an overnight addition that could save human lives.)?

Speaking of Joan Eve and the other merchants: this town is a historic treasure. Expecting individuals to bear the brunt of its upkeep is shirking national responsibility. The town predated the U.S. by 4 years! It is ESSENTIAL that we indemnify those who risked all to build and buy in a known flood zone so integral to our history.

With best regards,

R. Michael Anson, Ph.D.

Associate Professor
The Community College of Baltimore County | School of Mathematics and Science
Associate Editor
The Journals of Gerontology | Biological Sciences
(Published by the Gerontological Society of America)
Editorial Board Member
GeroScience (formerly "The Journal of the American Aging Association")
Association Fellow, Board Member (elected for 2018-2021), and Trainee Advocate
The American Aging Association

Primary Email: ranson1@alumni.jh.edu

Sayers, Margery

From: craig stewart <craig_stewart@verizon.net>
Sent: Tuesday, September 04, 2018 10:37 PM
To: CouncilMail
Subject: Council Bill 61-2018

Members of the Council,

I attended the hearing this evening of the proposed alterations to Historic Ellicott City to mitigate flooding. I think that tearing down 10 buildings along the southeastern side of town is an insensitive and simplistic solution to the problem and shows no regard to the historic character of our town. I believe that it is important to learn how McCormick Taylor defined the remaining storefronts along Main Street to do their analysis in Model 4 in their report. We need to know the following:

1. Leaving only storefronts not structures that are about 20 feet deep along Main Street would enable an expanded stream channel . How would this change the analysis?
2. Did the report assume that all the storefronts would remain?
3. Did the report assume the remaining storefronts would have doors and windows as they do now or did they assume that all openings were left open?
4. Did McCormick Taylor study the effect of some of the storefronts left in place? 50%? 25%. In each case, what changes in the flood analysis result from these changes?

I am an architect and do not believe that there would be any difficulty safely structuring the remaining storefronts to withstand the effects of flooding; however, I am concerned about the height, scale and character of the Shoemaker building and personally feel that it should be removed due to the fact that it was only built 18 years ago. It is my expectation that the refinements of McCormick Taylor's model #4 as I outlined above will result in a flood impact nearly identical to model #5 (removing all of the buildings) resulting in a design solution that is sensitive to historic preservation and flood mitigation.

Yours truly,
Craig Stewart
410-375-7866

Sayers, Margery

From: George <ggvgoeller@aol.com>
Sent: Tuesday, September 04, 2018 3:38 PM
To: CouncilMail
Subject: TA01-FY2019 CB61-2018

Please vote for the 5 year plan.I am the property owner of 8049 Main St, the Phoenix Emporium since1978 also the original business owner. I have lived in Ellicott City for 40 yrs.

George Goeller
8378 Court Ave
Ellicott City

Sayers, Margery

From: Stephanie Hopkins <shopki20@jhmi.edu>
Sent: Tuesday, September 04, 2018 2:46 PM
To: CouncilMail
Subject: TAO 1-FY2019 and CB 61-2018 Testimony

Good afternoon:

I am writing this letter in support of Transfer of Appropriation Ordinance 1-2018 and Council Bill 61-2018, i.e. the 5-Year Plan introduced by County Executive Allan Kittleman and Councilperson Jonathan Weinstein.

I currently reside as a resident of the Burgess Mill Community in Ellicott City. I was not living here during the first two "major" floods, but my son and I were during the 2018 flood. I moved here two months prior and I thought some measures had been taken to help prevent future floods. I know that I was not the only who thought that, due to conversations I had with those stuck in the flood with me. I did not think EC would flood again—at least not 22 months later. I was wrong.

On May 27, 2018 my 11 year old son and I were on River Road making our way home when I drove up Main Street. It was pouring horribly, but I still didn't think it would flood. We ended up stopping at the Phoenix Emporium to eat dinner, not knowing that my jeep would end up getting totaled and my son would be traumatized by seeing a body floating past us in the road.

By the time I finally parked at the Phoenix, I literally had a couple minutes to make a decision to leave or stay. I was standing at the side door taking some video of the water splashing up the curb. That was at 4:18pm. The rain worsened. My son wanted to leave and even ran and got into my Jeep (which I made him get out of). There was a police car under the bridge and I was told he had the road blocked off. I figured they were taking precautions and due to this, we stayed and went inside to get a table. We didn't even sit down for 10 seconds when the owner told everyone to go to the second floor. Less than three minutes from when I took my last video of the curbs, cars starting to washing down Main Street in 2-3 feet of water that was rising rapidly (at 4:22pm). THAT quick. I don't even want to think what could have happened if I listened to my son and attempted to drive up that hill to get home.

There were 22 of us stuck in the Phoenix. At 4:34pm while recording, I saw a person being carried in the water from the alley behind the Phoenix onto Maryland Ave but it didn't register at first because I was in such shock. I heard my son screaming "Mom,Mom,Mom there's a body". Others saw and started screaming too. Right away I took him inside where he was crying and upset. Shortly afterwards, a small part of the brick on the side wall deteriorated from the force of the water underneath the window. Thank goodness it was not a major supporting structure of the building. But what if it was? What could have happened to those of us on the second floor that were standing in the front part of the building if more destruction occurred from the strength of that water? Not always waiting out a flood on a second floor is safe.

It was very traumatizing to both of us because now when it rains, our anxiety is over the top--even with my home being on high ground. I panic, and feel like there is a loss of control. I hate it. But we still ***won't*** move from the area.

Please don't hold up this plan, and separate out what you need to, so we can make this town a safer place for all. We have run out of time and fixing this needs to happen NOW. I am currently renting my apartment, and I still plan on buying a home in this area next year, even after all this. And for me, that's an even bigger part of why something needs to be done NOW --to prevent the further destruction of the town that I love so much. Also to prevent the loss of life like in the past floods. It **will** flood again. We don't have time. I don't want to see anyone loose another family member, friend, or for a child, like mine, to have to witness what he did that day. The studies have been done and we know what needs to happen. History will always be there. It

cannot be erased, even with the removal of buildings. Not everyone is in agreeance to this, however, it's the right choice for Main Street.

Thank you for your time in reading this letter.

Sincerely,
Stephanie Hopkins

Sayers, Margery

From: Kimberly K ATT <kkimberly@att.net>
Sent: Tuesday, September 04, 2018 12:50 PM
To: CouncilMail
Cc: Kittleman, Allan
Subject: Letter of Conditional Support 1-2018 & 61-2018
Attachments: County Council Conditional Support Kepnes.docx

September 4, 2018

Howard County Council
3430 Court House Drive
Ellicott City, MD 21043

Reference: Council Bills 1-2018 and 61-2018

Via Email: CouncilMail@howardcountymd.gov

Dear Howard County Council Members,

I am writing this letter as a Howard County citizen and Historic Ellicott City resident, property and business owner.

I understand there is legislation coming before the Council this evening on the funding of certain projects in Ellicott City which contain provisions to fund the purchase and removal of buildings along Main Street in the commercial district.

I understand the council has the authority to approve, disallow or make contingency recommendations to legislation.

I understand most of the buildings targeted for removal are with owners who are in favor of selling their buildings rather than invest in their restoration.

I understand leaving buildings in a state of deterioration is a safety hazard and will not contribute positively to a thriving economic district.

I understand there are various studies and plans containing solutions and actions to attempt to slow, capture and reduce the flow of water through Main Street in the name of flood mitigation and safety.

I understand some studies contain recommendations for the removal of the buildings which are targeted for purchase along Main Street in the commercial district in the name of flood mitigation and safety.

I understand there are studies containing recommendations in the name of flood mitigation and safety which do not include the removal of the target buildings along Main Street in the commercial district.

I understand there are outside organizations who are interested to invest in Main Street restoration and redevelopment.

I understand the removal of the targeted buildings along Main Street in the commercial district will represent cultural and economic loss.

I understand the purchase of the targeted properties along Main Street in the commercial district by Howard County Government will provide a unique, single-owner, opportunity for a portfolio of properties for commercial restoration and redevelopment strategic planning.

I understand there is a value to public-private enterprise where commercial requests for proposal can bring forward private organizations and funding for comprehensive planning, restoration and redevelopment for sites such as the one targeted on Main Street in the commercial district and could serve to restore County acquisition costs and fund mitigation measures.

Considering these understandings:

It seems sensible for the County Council to consider a contingency for any approval to fund the purchase of targeted buildings along Main Street in the commercial district by Howard County Government to stay and disallow the demolition of any of those buildings until it has had opportunity to evaluate proposals by outside organizations to repurchase, restore and revitalize the properties from Howard County Government. This process could allow private organizations to fund restoration and redevelopment while funding storm water retention and flood mitigation efforts at the same time.

This contingency approval would effectively address the economic concerns of targeted building owners along Main Street's commercial district, the interests Howard County Government and allow a resale reinvestment to fund mitigation measures.

Respectfully submitted,

Kimberly Kepnes,
Resident, Building, Property & Business Owner,
Historic Ellicott City,
3585 Church Road,
Ellicott City, MD 21043
443-250-4241
kimberly@kimberlykhomes.com

Kimberly Kepnes,
Regional Vice President, Development
Monument Sotheby's International Realty
Headquartered at the Ritz Carleton
410.525.5435 Office
443.250.4241 Direct/Text
kimberly.kepnes@monumentsothebysrealty.com
Online at www.KimberlyKhomes.com
Facebook.com/Kimberly.Kepnes

Sent from my iPad

September 4, 2018

Howard County Council
3430 Court House Drive
Ellicott City, MD 21043

Reference: Council Bills 1-2018 and 61-2018

Via Email: CouncilMail@howardcountymd.gov,

Dear Howard County Council Members,

I am writing this letter as a Howard County citizen and Historic Ellicott City resident, property and business owner.

I understand there is legislation coming before the Council this evening on the funding of certain projects in Ellicott City which contain provisions to fund the purchase and removal of buildings along Main Street in the commercial district.

I understand the council has the authority to approve, disallow or make contingency recommendations to legislation.

I understand most of the buildings targeted for removal are with owners who are in favor of selling their buildings rather than invest in their restoration.

I understand leaving buildings in a state of deterioration is a safety hazard and will not contribute positively to a thriving economic district.

I understand there are various studies and plans containing solutions and actions to attempt to slow, capture and reduce the flow of water through Main Street in the name of flood mitigation and safety.

I understand some studies contain recommendations for the removal of the buildings which are targeted for purchase along Main Street in the commercial district in the name of flood mitigation and safety.

I understand there are studies containing recommendations in the name of flood mitigation and safety which do not include the removal of the target buildings along Main Street in the commercial district.

I understand there are outside organizations who are interested to invest in Main Street restoration and redevelopment.

I understand the removal of the targeted buildings along Main Street in the commercial district will represent cultural and economic loss.

I understand the purchase of the targeted properties along Main Street in the commercial district by Howard County Government will provide a unique, single-owner, opportunity for a portfolio of properties for commercial restoration and redevelopment strategic planning.

I understand there is a value to public-private enterprise where commercial requests for proposal can bring forward private organizations and funding for comprehensive planning, restoration and redevelopment for sites such as the one targeted on Main Street in the commercial district and could serve to restore County acquisition costs and fund mitigation measures.

Considering these understandings:

It seems sensible for the County Council to consider a contingency for any approval to fund the purchase of targeted buildings along Main Street in the commercial district by Howard County Government to stay and disallow the demolition of any of those buildings until it has had opportunity to evaluate proposals by outside organizations to repurchase, restore and revitalize the properties from Howard County Government. This process could allow private organizations to fund restoration and redevelopment while funding storm water retention and flood mitigation efforts at the same time.

This contingency approval would effectively address the economic concerns of targeted building owners along Main Street's commercial district, the interests Howard County Government and allow a resale reinvestment to fund

mitigation measures.

Respectfully submitted,

Kimberly Kepnes,
Resident, Building, Property & Business Owner,
Historic Ellicott City,
3585 Church Road,
Ellicott City, MD 21043
443-250-4241
kimberly@kimberlykhomes.com

From: Randy Marriner <Randy@victoriarestaurantgroup.com>
Sent: Tuesday, September 4, 2018 3:15 PM
To: Weinstein, Jon <jweinstein@howardcountymd.gov>
Subject: TAO 1-FY2018, CB 61-21-018

Jon,

I am writing to share my thoughts on, and support of the Transfer of Appropriation Ordinance 1-FY2019 and Council Bill 61-2018, otherwise known as the Kittleman/Weinstein 5-Year Plan.

As you know, we purchased 3733 Old Columbia Pike (formerly The Diamondback Tavern) on July 1, 2016. The cobbling of those five buildings together, were known as Taylor's Row, and date back to 1830. Thirty days later came the 2016 flood.

While the flooded Tiber River did not reach our front door, the 6-1/2" of rain came down the hill behind us, and much of it went through the back walls. Likewise, some of the water coming down Old Columbia Pike, went through the kitchen.

Suffice it to say, rather than an initial deep clean and paint, we had to do extensive reconstruction. We created our own SWM system across the whole back of the building, by raising the foundation walls with 18" of reinforced concrete which diverted the water away and keep it from coming through the building yet again.

Manor Hill Tavern finally opened in February 2017. By May 15, 2018, MHT was known for our Smokier Burger with Bacon Fries, our Bird's the Word Chicken Sandwich, Holy Smoke Pizza, and Cobbecue Salad. But more importantly, it had become home to seventy-five amazing employees, making us the largest private employer in Old Ellicott City.

That all stopped on May 27th when we lost our Eddison Hermond. Eddie was 'our guy' and one of the original VGP employees before helping us open MHT. He lived to serve and died serving.

Fortunately, at Manor Hill Tavern the storm water control system we created worked and we had no flood damage. Unfortunately, we lost power for three days, had to dump unrefrigerated food and beer, and needed a Health Department reinspection to open. We received our Reopened Permit on June 1st, but Old Ellicott City was closed.

On June 2nd, in order to put some of our employees back to work, we decided to 'open' to the First Responders, Public Works crews, business owners or anyone else that was credentialed to be in the Flood Zone, providing clean bathrooms, air conditioning, free food, etc.

On June 17, with the opening of Lot D, we reopened to the public. Twelve weeks later, we are not back to our former employment levels by at least 33% and our sales volume is still off by 50%. The recurring theme we hear from our guests is "We are afraid to come back to OEC", "when are 'they' going to fix it?', or 'how many more will have to die before they fix it?'.

We have now invested over two million dollars in MHT and my financial advisors are pushing me to consider cutting our losses and moving out of OEC entirely. The immediate implementation of this Kittleman/Weinstein 5-Year Plan, will allow us to safely remain.

I urge you to approve these two, much needed pieces of legislation.

Best Regards,

Randy

E. Randolph Marriner
President & CEO
Victoria Restaurant Group
4411 Manor Lane
Ellicott City, MD 21042

410-215-4001 (cell)

TAO1-FY19

Sayers, Margery

From: Peter Edelen <peter.edelen@peteredelen.com>
Sent: Monday, September 03, 2018 3:32 PM
To: CouncilMail
Cc: Kittleman, Allan
Subject: In Support of TAO 1-FY2019 and CB 61-2018 Testimony

Please retract previously testimony as it had incorrect name for TAO 1 -FY2019 and another typo. Below is corrected testimony. Thank you.

Dear Council Members,
I am Peter Edelen and live at 8380 Main Street. I am a volunteer for the Ellicott City Partnership but am testifying as a Resident in support of Transfer of Appropriation Ordinance 1-FY2019 and Council Bill 61-2018, i.e. the 5-Year Plan introduced by County Executive Allan Kittleman and Councilperson Jonathan Weinstein.
I have been a Howard County resident for 16 years (except Balt Co March 2005-Dec 2006) after falling in love with this town and have lived on Main Street for a better part of the last 11 years. This is my town and my home. I have been home for 2 of the 3 'major' floods since 2011. In 2011, I was at work in Annapolis and my landlord called me to make sure I was not home because the water running under Tiber Park was hitting the side of my building at 8059 Main Street where Bean Hollow is located. As I recall, he said the building was shaking. I rushed home to find no damage but to find my friends that lived in the basement apartment of the building I live in now at 8372-8380 were homeless. They lost everything. They were not home and their pets survived so they were at least spared that. That night I shoveled out mud and water in the basement of the Ellicott Mills Brewing Company while the media shined bright lights in my face.

Fast forward to 2016 in my new home since 2014, my 3 neighbors and close friends in the same basement apartment in 8372-8380 lost everything. One of them was home and swam out as the water was reaching the ceiling with his cat on his shoulder, his phone in his mouth, and his fiancé's engagement ring on his pinky finger. His fiancé frantically called me to go help him before this. I ran outside, and the water was almost up to the sidewalk on the pathway down to the backyard. I started to run into it but I felt debris when I was waist high in water and backed out. I ran back inside and broke into the dentist office to go down the stairs to the basement in case he tried to come up that way. I kicked open the door and the stairs to the back of basement were submerged in 8+ feet of water. I thought he was dead. When I came back outside, my friends that were at my front door said he swam out. I found him standing in the Wine Bin and had never been so relieved in my life. This is at the top of Main Street. It pales in comparison to the horror at the bottom of the street. I had no idea what had happened at the bottom of the street before we evacuated that night. I watched one video that night and could not watch any more videos for weeks. I went to live with a friend for a month and my dog had to stay with my family 30 miles away.

In 2018 on May 16th, I was sitting in Portalli's on the 1st floor with friends and a thunderstorm rolled in. Buckets of water rained down on Main Street. We had already had flood warnings recently and some businesses were moving inventory upstairs before the weekend. This was 11 days before May 27th. As the rain came down this evening, I went numb and felt claustrophobic and my only thought was "I don't want to die here." It was just pouring rain. This is how we think now. I left abruptly and walked up in the pouring rain and lightning to my home at the top of the street. My dog was in a panic when I got home. Thunder never bothered him before. This was new. I sat down with him on the floor to calm him down. I sat there for 30 minutes and held him and realized he was the one calming me down. The next 11 days were filled with complacency after multiple false alarms. Eleven days later, my sister is visiting me on May 27th. We had no idea what was coming. Shortly after her arrival, we were sitting in the Judges Bench and the rain started. We hadn't gotten any alerts. I never did that night. It wasn't until I started seeing water on the curbs that I knew something was wrong. I went over in to my backyard across the street and started taking video of the water coming into the backyard from the Lot F culvert and Lot F. I did a couple other stupid things to get more video, but I felt I had to document this. People had to see how dangerous it was at the top of the street. The basement apartment had not been occupied since 2016 but it was newly renovated and listed for rent on Craigslist. It was submerged in 8 feet of water again for the THIRD TIME in 7 years. No one's lives were destroyed this time. My sister's car was parked in Lot F. When all was said and done, her car was in my backyard submerged in mud. Thankfully she was not in it. I lived with my sister for the next month.

Now we live day to day worrying whenever it rains and how unsafe it is from Valley Mede to River Road and beyond. We could abandon our town, but we choose not to. This is our home and our community. A week after the May flood, I was driving from my neighbor's mother's house where she had relocated to a flood benefit at Black Flag in Columbia in pouring rain on I-95. My knuckles were white as I clenched the steering wheel. It was the longest 8 miles of my life as I drove through low visibility downpours. As I was about to turn into the parking lot off Snowden River Parkway, I started thinking about when we breached the berm from Saudi Arabia into Kuwait when I was a Marine in Desert Storm and we had random artillery coming down half a kilometer from us. That is a sound you never want to hear. It shakes you down to your bones. I asked myself which was worse? I realized the floods were and broke down for the first time since the 2016, not 2018, flood. I burst out in tears and sat in my truck for a while. I went inside and was welcomed with hugs. That is our loving community but also the horror we face.

Old Ellicott City needs to evolve and be stronger. Please don't hold this up this plan. I support and understand this plan, all of it, from 29 to the Patapsco. I understand the historical implications and their importance, but people also make the history. We are history too. These buildings will not be forgotten just like we won't forget the people we've lost. I lived in one of those buildings for 6 years above Bean Hollow and the memories are countless, but I don't want people to die down there. We are all emotionally attached to these buildings. You will find no one happy to tear them down but that is just a part of a bigger plan. The other parts are critical as well. The upstream work and the culvert work at Court Ave could potentially save lives if my landlord chooses to renovate and rent that

basement again. If the one part of this plan needs to be separated to complete these other parts immediately, please do so. I also want additional mitigation to keep going parallel to and beyond this 5-year plan. It should not just be a check box. There are many other credible ideas from knowledgeable well-informed people and experts out there. It's all in the studies.

Please keep mitigating after this and coming up with new complimentary solutions and stop delaying them with studies and special interests before more people die or livelihoods are destroyed. Don't let the decision about these buildings delay what else needs to be done. Altogether, I think it is a smart and necessary plan that needs to happen as a whole and quickly. I plan on dying in Old Ellicott City but it will be of old age. Thank you for your time in reading this.

Sincerely,
Peter A. Edelen
8380 Main Street
443-605-3119

Sayers, Margery

From: craig stewart <craig_stewart@verizon.net>
Sent: Sunday, September 02, 2018 4:30 PM
To: CouncilMail
Subject: Council Bill 61-2018

Members of the Council,

The proposed designation of an emergency act in the rush to tear down 10 buildings in Historic Ellicott City at the East end of town is unjustified and does warrant emergency status. The Ellicott City Hydrology/Hydraulic Study issued by McCormick and Taylor on June 16, 2017 proposed upstream and downstream improvements to protect Ellicott City from severe flooding and did not require the demolition or alteration of historic structures to create a safe environment. What is needed is more money and time to fulfill the vision of that report. We need to stay focused on the best solution not a quick ill-advised effort. An appropriate effort at this time to protect life, health and property, the area in the south east would be to barricade the area to prohibit the use of the buildings or sidewalks by the general public until restorations of the buildings is completed while allowing repairs and reinforcement of the buildings to continue. We need to be patient and persistent in enabling a sustainable future for Ellicott City. Tearing down damaged historic buildings would do nothing to reduce the current risk of flooding nor the risk to people in that area. However, tearing down historic buildings would forever destroy our irreplaceable cultural heritage and our unique cultural asset.

Yours truly,
Craig Stewart
Architect
3820 Old Columbia Pike, Ellicott City, MD 21043
Cell: 410-375-7866

Sayers, Margery

From: Sayers, Margery
Sent: Saturday, September 01, 2018 9:35 PM
To: Sally Tennant; CouncilMail
Subject: Re: testify sign up not working for 9-4

Ms. Tennant-

September 4 is a Legislative Session which is when the legislation is introduced. The meeting is open to public to attend; however testimony is not hear at this meeting.
The Public Hearing is scheduled for September 17. Sign-ups will be open at 12pm on Wednesday, September 5.

Sincerely,

Margery Sayers
Executive Assistant
Howard County Council
410-313-0832

From: Sally Tennant <sallyfoxt@gmail.com>
Sent: Saturday, September 1, 2018 8:51 AM
To: CouncilMail
Subject: testify sign up not working for 9-4

Dear Council,
I am trying to sign up to testify in regards to the emergency designation on the EC flood mitigation on 9-4 and it will not proceed past "pick a session". I am a property owner of one of the 10 Lower Main buildings proposed for demolition, a business owner and resident of the same address. My testimony as a significant stakeholder is important to be heard. Please sign me up and reply to this e mail with confirmation.
Thanks,
Sally Fox Tennant
8055 Main St
Ellicott City, Md 21043
410 404 3487

Sayers, Margery

From: Marjorie Valin <mvalin@frankbiz.com>
Sent: Saturday, September 01, 2018 4:39 PM
To: CouncilMail
Cc: Frank Gerry
Subject: What else - the Historic District

Dear Council members:

If any of you have seen the emotional outpouring on Facebook this past week, you know the fierce attachment people have to the historic significance, importance and unique character of the Main Street commercial core.

Everyone agrees that urgent action is needed to mitigate the impact of another flood like the one we just went through. It's the nature of that action that deserves careful consideration, especially at a time when the national mood is so politically charged.

Unfortunately, people feel blindsided by the County Executive's proposal. There were no indications in advance that a radical approach was under consideration. This lack of transparency has fueled suspicion of ulterior motives and led to the current backlash on Facebook.

To prevent emotions from reaching a flashpoint will require active listening and open minds to alternative plans, and there are a number of them proposed—by engineers, geologists, experts in flood management, and well informed constituents all seeking to avoid a contentious, all or nothing outcome.

I ask that you give due consideration to an approach that would separate the demolishment of the "Tiber 10" as the buildings are being called, from other flood mitigation measures that could and need to be taken immediately. Delaying a decision on demolition would avoid a rush to judgment on a decision of this magnitude. At the same time, urgent flood mitigation could move forward on an emergency basis.

My husband and I had a marketing firm on Main Street and across the river in Oella for most of the agency's life. We want to preserve the heritage and character that attracted us there in the first place. Let's not save Historic Ellicott City from flooding only to destroy it in the process.

Thank you,

Marjorie Valin and Gerry Frank

5367 Five Fingers Way
Columbia, MD 21045
443.691.0289
mvalin@frankbiz.com

Sayers, Margery

From: no-reply@howardcountymd.gov
Sent: Friday, August 31, 2018 12:21 PM
To: Vickgi12@comcast.net
Subject: Please

First Name:	Vick
Last Name:	G
Email:	Vickgi12@comcast.net
Street Address:	Rowanberry Drive
City:	Elkridge
Subject:	Please
Message:	Thank you for your hard work and expediency in dealing with the challenges that Ellicott City faces Please continue to move forward with emergency measures Thank you Sincerely Vick

Sayers, Margery

From: Peter Edelen <peter.edelen@peteredelen.com>
Sent: Thursday, August 30, 2018 10:27 PM
To: CouncilMail
Cc: Kittleman, Allan
Subject: In Support of TAO 1-2018 and CB 61-2018 Testimony

Dear Council Members,

I am Peter Edelen and live at 8380 Main Street. I am a volunteer for the Ellicott City Partnership but am testifying as a Resident in support of Transfer of Appropriation Ordinance 1-2018 and Council Bill 61-2018, i.e. the 5-Year Plan introduced by County Executive Allan Kittleman and Councilperson Jonathan Weinstein.

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Fast forward to 2016 in my new home since 2014, my 3 neighbors and close friends in the same basement apartment in 8372-3880 lost everything. One of them was home and swam out as the water was reaching the ceiling with his cat on his shoulder, his phone in his mouth, and his fiancé's engagement ring on his pinky finger. His fiancé frantically called me to go help him before this. I ran outside, and the water was almost up to the sidewalk on the pathway down to the backyard. I started to run into it but I felt debris when I was waist high in water and backed out. I ran back inside and broke into the dentist office to go down the stairs to the basement in case he tried to come up that

way. I kicked open the door and the stairs to the back of basement were submerged in 8+ feet of water. I thought he was dead. When I came back outside, my friends that were at my front door said he swam out. I found him standing in the Wine Bin and had never been so relieved in my life. This is at the top of Main Street. It pales in comparison to the horror at the bottom of the street. I had no idea what had happened at the bottom of the street before we evacuated that night. I watched one video that night and could not watch any more videos for weeks. I went to live with a friend for a month and my dog had to stay with my family 30 miles away.

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Please keep mitigating after this and coming up with new complimentary solutions and stop delaying them with studies and special interests before more people die or livelihoods are destroyed. Don't let the decision about these buildings delay what else needs to be done. Altogether, I think it is a smart

and necessary plan that needs to happen as a whole and quickly. I plan on dying in Old Ellicott City but it will be of old age. Thank you for your time in reading this.

Sincerely,

Peter A. Edelen

8380 Main Street

443-605-3119

Sayers, Margery

From: Tammy Bean <saveoldec@aol.com>
Sent: Tuesday, August 28, 2018 4:12 PM
To: CouncilMail
Subject: Main Street

Hello,

As a lifelong resident of Main Street, as is my family going back 100+ years. I am sickened by this latest proposal to remove our history due to poor planning and greed. This is taken from an earlier report (1976)

"The portion of a parcel which could be covered by impervious surfaces would be limited to 20% . On flood prone portions of a parcel/ Sand coverage would be zero: i.e. no development. On portions having slopes of 25% or more, land coverage should be 10% or less. The term "land coverage" here refers to any impervious surfaces introduced as a result of development, and includes streets, sidewalks, driveways, patios/ and accessory structures, as well as the residences themselves"

How many times has that been amended for the sake of greed, development, & tax dollars?
My family has helped rebuild that town after floods and fires during our long history on Main Street & West End. I will tell each one of you to go out and talk to anyone that has been on at that little stretch of ground for longer then 40 years and they will all tell you this; we have had rains like that, harder rains, for longer....yet never have we seen this " Top Down" damage before. 1952 was related to the tail end of a hurricane, not a heavy summer storm. You have paid for many studies, none of which recommend the ripping (I use that word because that is exactly what this is) down of our history. You instead have chosen to toss those studies aside in favor of a cowards was to save face. This proposal comes with ZERO assurances that it will mitigate **any** of the water that rushes down from above, ZERO assurances that it will not cause unforeseen issues that may indeed be worse, ZERO assurances that it will save lives. The only assurance that you can give is that you cannot flood what is not there, also that Ellicott City will be torn from the Historic Registry.

We down here where it matters know that you on the hill have nothing to lose, no skin in this game, while we stand to lose everything. You will all be long gone when the consequences of your actions play out. We were born there, raised there, loved, bled, and died there. We deserve a voice in this. If you listen to the past you will know that faced with this in the past, they refused to tear down anything, refused to take the cheap easy way out.
This is also from that same report:

The first and last sentences are the most important

The acquisition policy is probably the most "cost-effective" flood prevention measure. That is, it would prevent future flooding/ even by the largest storm on record, at a cost to county taxpayers considerably less than that of engineering works providing comparable flood prevention effectiveness, On the other hand, it is clear that the objective of flood prevention cannot be pursued in isoiation from all other values: e.g,
the historic value of a mill town established on the banks of the Patapsco before the American Revolution, whose present physical fabric reflects its evolution over two centuries;
the value of the cultural and leisure opportunities of the old mill community for residents of an expanding metropolitan region;
the town's value as an environment for special commercial residential and educational activities which could not be duplicated elsewhere;
its value to county government as part of a setting evoking the traditions of local government in Howard County.
The existence of these values make if impossible to consider implementation of the most "cost-effective" means of flood

prevention. The town cannot be removed from the historic setting that shaped it, just to meet flood prevention objectives.

Buy those buildings as planned, but do not be the cowards and tear them down, mitigate the flooding from ABOVE, repair those buildings, sell them, rent them....that is how you win this. Anything else is cowardly.

Sayers, Margery

From: Shelley Wygant <wdgdirect@me.com>
Sent: Friday, August 24, 2018 8:17 AM
To: CouncilMail
Subject: Opposition to the Bulldozing of Historic Ellicott City

Dear Howard County Council Members --

Yesterday I was on hand at the B&O Train Station plaza to listen to the announcement of plans to demolish 1/2 of lower Main Street as well as other historic properties in our town -- including possibly two then unnamed properties -- La Palapa and the Brew Pub at the top of the hill.

I listened as our County executive assured us that this plan was extremely well thought out and considered. That the best and brightest minds they could find had weighed in and had agreed that this plan was the "best" solution -- which we had to take his word for since the public has been largely kept in the dark.

Considering the statement put out by Preservation Maryland later in the day, obviously that is not true.

According to Preservation Maryland:

Demolition of historic buildings, is not, however, a proven strategy nor has it been adequately studied in Ellicott City to understand its hydrological impact. Furthermore, this plan, developed without substantive public input, could result in the de-listing of Ellicott City from the National Register of Historic Places which would curtail certain incentives and tax credits available for the historic community.

Perhaps most concerning is that this $50 million demolition plan does not appear to substantively mitigate or resolve flood risks. At the same time, by removing large portions of the built environment, new flood patterns could arise and potentially cause extensive damage to the National Historic Landmark B&O Railroad station which would sit in an even more vulnerable location. Additionally, Preservation Maryland is interested to learn more about the county's decision making process in this planning effort and the extent to which other resources and structures were reviewed for demolition — and whether impervious surfaces, undeveloped land and existing structures above the historic town were considered as a part of the county's review.

I am EXTREMELY disappointed that our county government didn't consult with preservation experts in our state before proposing wide scale demolition of one of Maryland's most beautiful and important jewels.

I respectfully urge you to halt any plans to send the bulldozers in until the public can review all the options, preservation experts can be brought in, and a thoughtful discussion of what is actually the plan for preserving Ellicott City as a historical site and a safe place to do business.

Destroying historic Ellicott City is a bell that can't be un-rung.

Sincerely,

Shelley Davies Wygant
3920 College Avenue

Ellicott City, MD 21043

TA01 - FY19

Sigaty, Mary Kay

From: Christopher Schisler <metalmanec@gmail.com>
Sent: Friday, August 31, 2018 9:20 AM
To: Sigaty, Mary Kay; Clay, Mary
Subject: Ellicott City Flood Mitigation Plans

Dear Ms. Sigaty:

I am writing in reference to County Executive Kittleman's plan for flood mitigation in Historic Ellicott City. As a resident within the historic district I understand the need to both prevent future flooding and prevent further loss of life. What I don't understand is how this plan accomplishes those goals. Further, I don't feel the plan does enough to preserve historic structures. Instead of reaching the conclusion that these goals can only be accomplished via decimation of the historic structures in our town after exploring all other viable options, the plan jumps to that conclusion without adequate study and public engagement.

As a resident of the historic district I have been to at least three storm water management meetings, the last at Saint John's School. I sat through meetings while presentations were made by consultants and county officials on possible ways to slow storm water run off, and prevent flooding. In none of these meetings was demolition of this scale ever presented as an option. I understand these options were presented privately to property owners after the flood of 2018. I also understand they were also presented privately to the Ellicott City Partnership weeks or months before finally being presented to the public last week. The need to negotiate with property owners over purchase in private is logical, but presenting this plan as a forgone conclusion to residents WITHIN the historic district, and rushing this plan to vote with a stated goal of beginning emergency demolitions as soon as possible is unfair to residents. This approach has also set up an "us against them" mentality between property owners who are being bought out and happy with their agreement and therefore feel a need to aggressively defend the plan and residents/property owners who did not have the advantage of early and inside information. I am of the opinion this was deliberate strategy to suppress other voices and alternatives.

I am not an uninformed citizen, I did attend meetings, my property which sits high on a hill was impacted during the storm this spring as a result of a new up-hill development that was not there in 2016. Yet, every time I bring up the fact that I was blindsided by this proposal revealed only a week ago, I have been attacked by property owners that stand to benefit from this plan yelling "you should have come to meetings" or "this has been the plan for two years", this is simply not factual.

As a resident within the historic district any alteration to my home has required approval of the Historic Preservation Commission. I have been forced by this commission to make modifications to my home using options that are often more expensive than commonly available alternatives. I've never once complained about this burden, because I feel preserving the district and what makes it special is a big part of why I chose to live here. The County's Historic Preservation Commission's guidelines clearly state that demolition should only be allowed after all other alternatives have been considered. I am asking that the county follow its own rules that are so stringently applied to others, especially when the proposed demolition is in the core of the area the historic district was created to protect.

I also think the county owes it to current and future generations to do the best job possible in making an informed non-rushed decision on bulldozing our history. I ask this process be slowed down to allow time to review options proposed by Preservation Maryland and those recommended in the 2016 H&H Study in combination with recommendations from the Army Corps of Engineers. Further, I think public engagement on why those alternatives were discounted is important.

Finally, I ask that regardless of what decision you come to, that you take into account the impact any of these options will have on residents as they are implemented. During past events the county has bent over backwards for businesses while ignoring residents. Many of the business owners affected reside elsewhere, while I understand the major impact on their livelihoods following these events, they were able to leave the district to go home at night--we live here, there is no escape. We deserve(d) at minimum the same level of consideration. My home sits on a small lane with only two residences right above the area where much of this work will occur. We are often overlooked and have suffered as a result. We have been blocked from accessing our unaffected home, accessing our unaffected road, blocked from receiving our mail and deliveries, unable to have family members, workers or guests visit our home, blocked from taking advantage of county services such as trash removal or road cleaning, left to worry about the accessibility of our homes to emergency fire and EMS services, etc. We've had to argue with county officials regarding our existence, "there are no homes up there". Unlike multiple floods, a train derailment, or collapsed retention walls, any actions for this mitigation will be a planned and known event. I expect the county to do its due diligence in informing affected residents and insuring their access to their property and services.

Thank you for your consideration. I know in the end we all want the same thing--confidence that collectively the best decision was reached that takes into account the voices of all stakeholders and best preserves what has accurately been described as a "Crown Jewel" of Maryland.

Regards,
Christopher Schisler
3819 Mulligans Hill Lane
Ellicott City, MD 21043

metalmanec@gmail.com
410-350-4142

Sigaty, Mary Kay

From: Julianne Danna <juliannedanna@gmail.com>
Sent: Friday, August 31, 2018 12:57 PM
To: Sigaty, Mary Kay
Subject: Preservation from the Trenches

Ms. Sigaty,

I could send the form letter that was provided for the residents working to preserve Ellicott City. But my passion is deeper than that.

I am new to the area. I grew up in Baltimore and lived in Delaware, Massachusetts, and Virginia. I am an archaeologist with a Masters degree. My career has been spent preserving the items that were recovered after sites were demolished. And while I can appreciate that major roadways, dams, even government buildings need to happen, I am a caretaker of the remains.

But these remains have no home. They are drifting, unattached, and speak of a place that once was. And so it is from this background that I strongly encourage you to vote against authorizing emergency appropriation to implement the building demolition/flood mitigation bill. Preservation Maryland, along with many other agencies, have presented several other plans that could be incorporated in Historic Ellicott City.

I am highly concerned with the lack of transparency that has been present throughout this entire situation. While action needs to be taken sooner than later, I strongly encourage you to consider all options being presented by those invested in the city, including Preservation Maryland.

Please do not pass this bill as emergency legislation.

Lastly, I'd like to remind you of the history of Fells Point and Harper's Ferry. Fells Point almost became a highway in the 1960s, and today it is one of the main attractions in Baltimore City, bringing millions of dollars to the economy. It was through activism that this was achieved. And Harper's Ferry. The site of many a school field trip to learn of the Civil War, which floods on a regular basis. Installation and use of flood-friendly measures keep this a major hub of history and 4th graders.

I hope that revisions will be made in the future to these plans and that a compromise will be sought.

Respectfully,

Julianne Danna

8114 Brightlink Court

Ellicott City, MD

Sigaty, Mary Kay

From: Tara Simpson <thsimpson@gmail.com>
Sent: Friday, August 31, 2018 1:41 PM
To: Sigaty, Mary Kay
Subject: Vote against the demo part of the plan- Please.

Dear Ms Sigaty:

I am writing to you as someone who is deeply concerned about the lack of transparency and the needless rush to pass a plan that would destroy nearly 20% of Historic Ellicott City's Main Street -- a measure that does nothing to mitigate flooding in it's entirety (or very much at all).

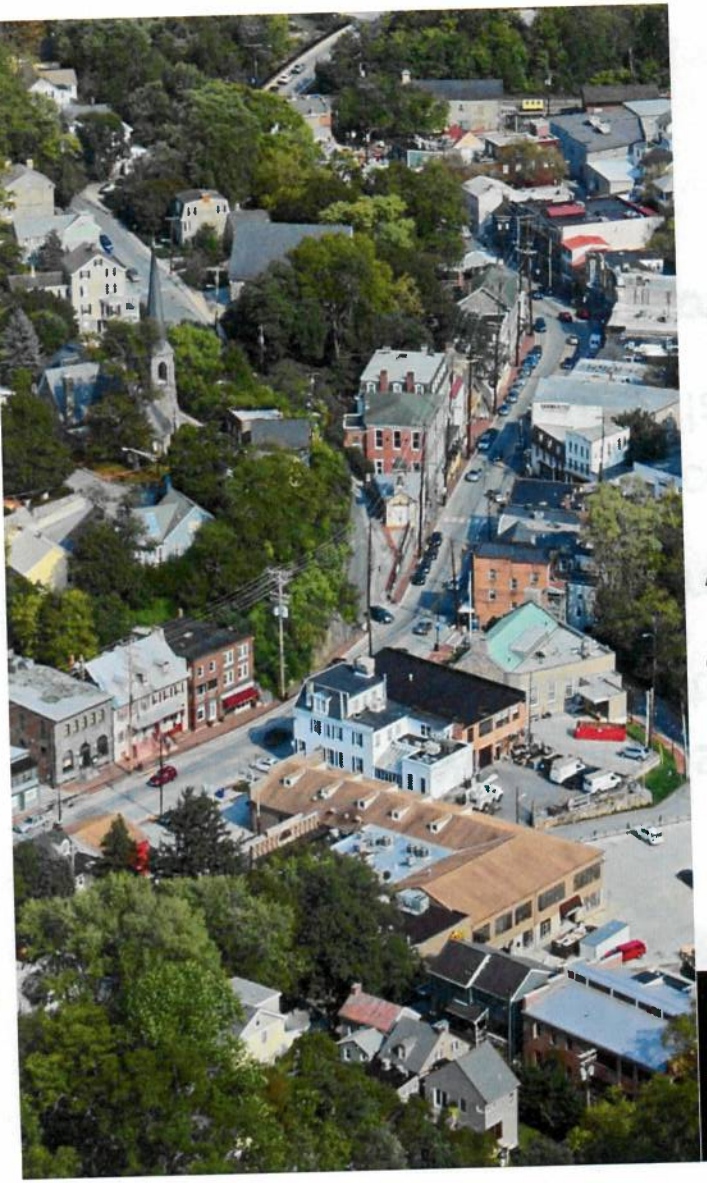
I urge you to vote AGAINST authorizing emergency appropriation to implement the building demolition/flood mitigation bill so that the community and other experts have enough time to both understand and comment on this drastic action. I have read your plan and think you can start with several of the other components since there is an urgency to do something.

My basement has flooded twice. I know this urgency but I cannot conceptualize the demolition of Main Street more than it has been. You will be cutting off your nose to spite your face.

I share your desire to protect the lives of residents and visitors, but I do not believe that destroying Historic Ellicott City is absolutely necessary to accomplishing that goal. We can have safety and historic preservation together- they are not mutually exclusive.

Regards,

Tara H. Simpson
Historic Ellicott City resident



The Ellicott City Flood Mitigation Plan

Allan H. Kittleman, County Executive

Jon Weinstein, Councilmember District 1

County Council Presentation

September 4, 2018

Protecting Lives

- **Four lives have been lost** as a result of two significant floods in Historic Ellicott City in the last two years.
- Each flood was considered a "1-in-a-1000 event."
- National Weather Service says storms capable of producing devastating flash floods will be more frequent.
- We **must act now to protect lives**!

Ellicott City is Worth Saving!

Ellicott City is:

- **Economically important**
- A Maryland-designated **sustainable community**
- A "**Maryland Main Street**" community
- A nationally-recognized **historic treasure**:
  - Local County District, and
  - National Register District

Ellicott City is 246 years old.
We want Ellicott City to reach its 500th year.

Flood Mitigation Plan Guiding Principles

Protect Lives

Too many lives have already been lost. Mitigating the life safety risk for residents, business and property owners, as well as visitors to the town, must be the top priority.

Continue to Engage the Community

The Ellicott City Master Plan and Hydrologic and Hydraulic Analysis included substantial community input. We will continue collaborative, open and transparent community engagement.

Make Economically Sound Investments

Investments made in Ellicott City must yield the largest impact per dollar.

Safeguard the Environment

The important visual and natural environment must be protected.

Preserve Historic Character

The town of Ellicott City and its character must be preserved for generations to come. Changes must be made now to learn from the past and adapt to the weather patterns and reality of our future.

Protecting Lives – Saving Our Town

Summary of the 5-Year Flood Mitigation Plan Improvements:

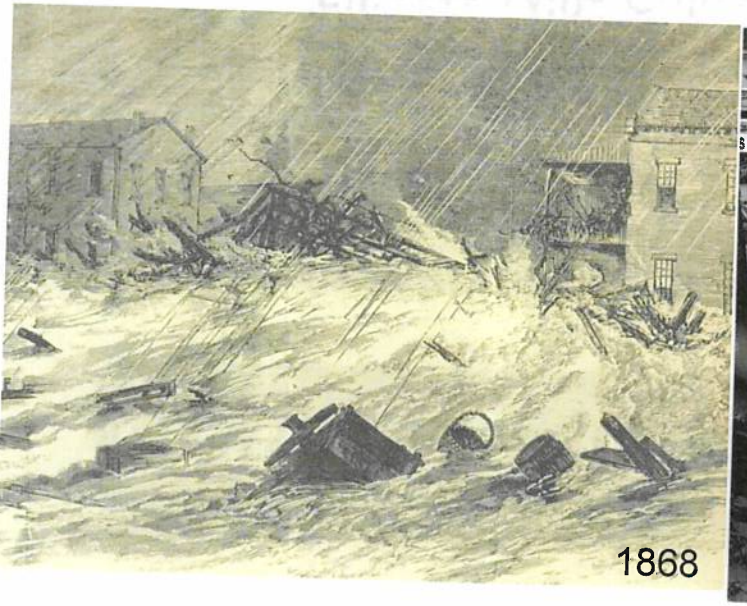
- Ellicott City and Valley Mede Property Acquisition/Removal
- Lower Main Open Space Construction
- Ellicott Mills Culvert Expansion
- Hudson 7 Retention Facility at US 29/Rt 40 Interchange
- Quaker Mill Retention Facility on Rogers Ave
- 8600 Main Street Culvert Expansion
- Two 10' Culverts from Maryland Ave to Patapsco River

A History of Floods

"The occupants were frequently warned of the dangerous appearance of the freshet, but, trusting to their former experience, they chose to remain yet a little longer, thinking there would be time to escape when the worst came." --- Harpers Weekly, August 8, 1868


TIBER OVERFLOWS, WRECKS LOWER MAIN STREET

FLOOD SIDELIGHTS


1868

1952

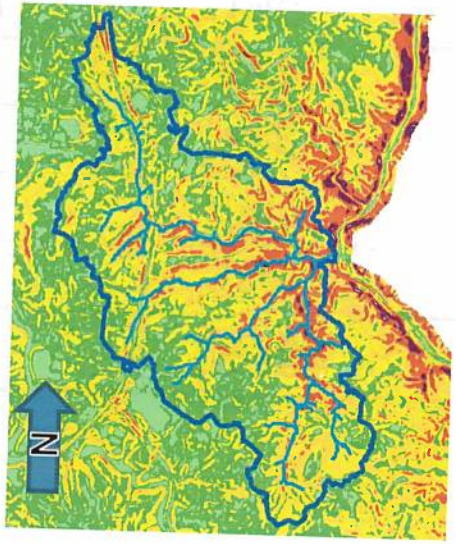
A History of Floods

1700s	1800s	1900s	2000s
1768	1817	1901	2006
	1837	1917	**2011 - tributary-based**
	1855 – tributary-based	1923	**2016 - tributary-based**
	1858 - tributary-based	1933	**2018 - tributary-based**
	1868 - Great Flood of Maryland	1942	
	1894	**1952 - tributary-based**	
		1972 - Hurricane Agnes	
		1975	
		1989	
		1998	

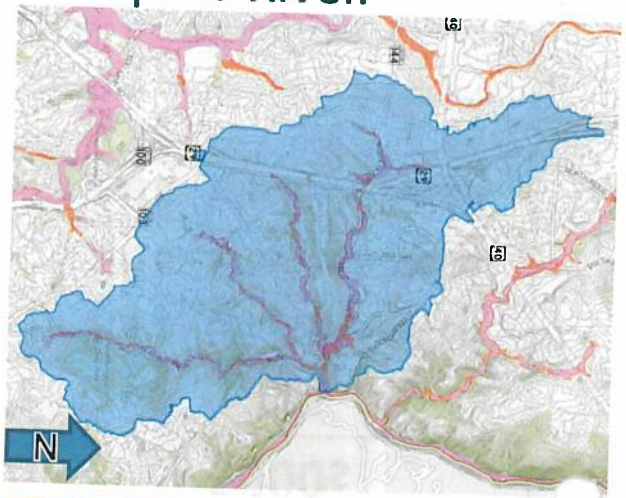
Note the town was founded in 1772; Ellicott City will celebrate 250 years in 2022
Tributary-based: flooding from the top down; Otherwise, flooding from the river rising, or unknown type.

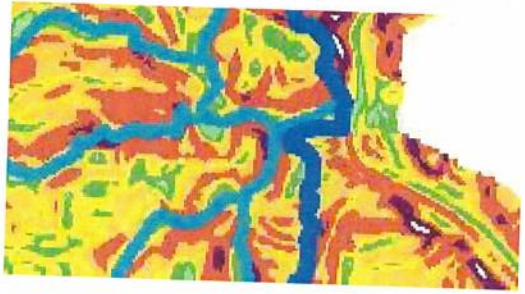
Why is Ellicott City Vulnerable to Flooding?

- Ellicott City sits at the bottom of a granite funnel in the steep Tiber-Hudson Watershed where four tributary streams empty into the Patapsco River.
- Shallow bedrock and steep slopes minimize the effect of land use on runoff, particularly during heavy storms.

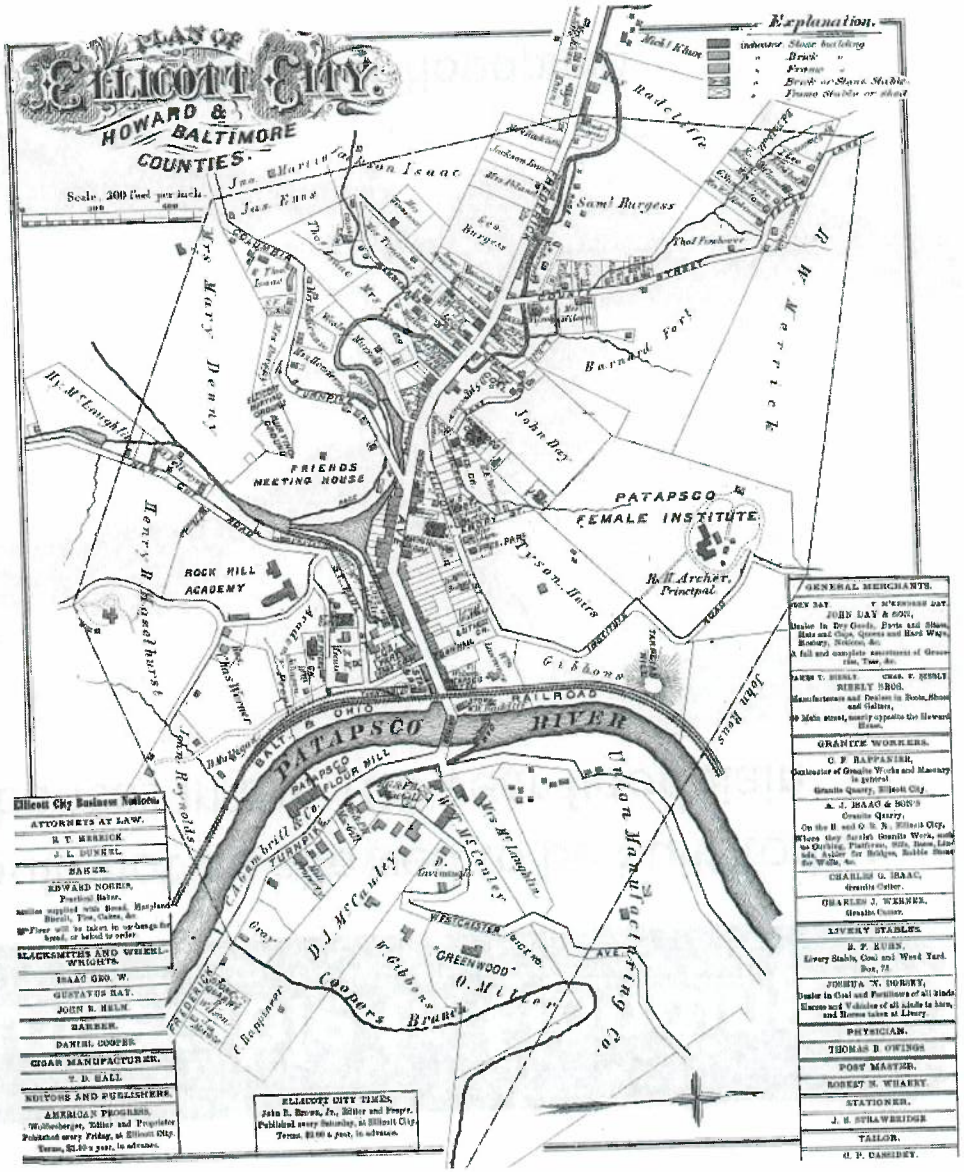


Red = slopes 25-45%
Purple = slopes >45%



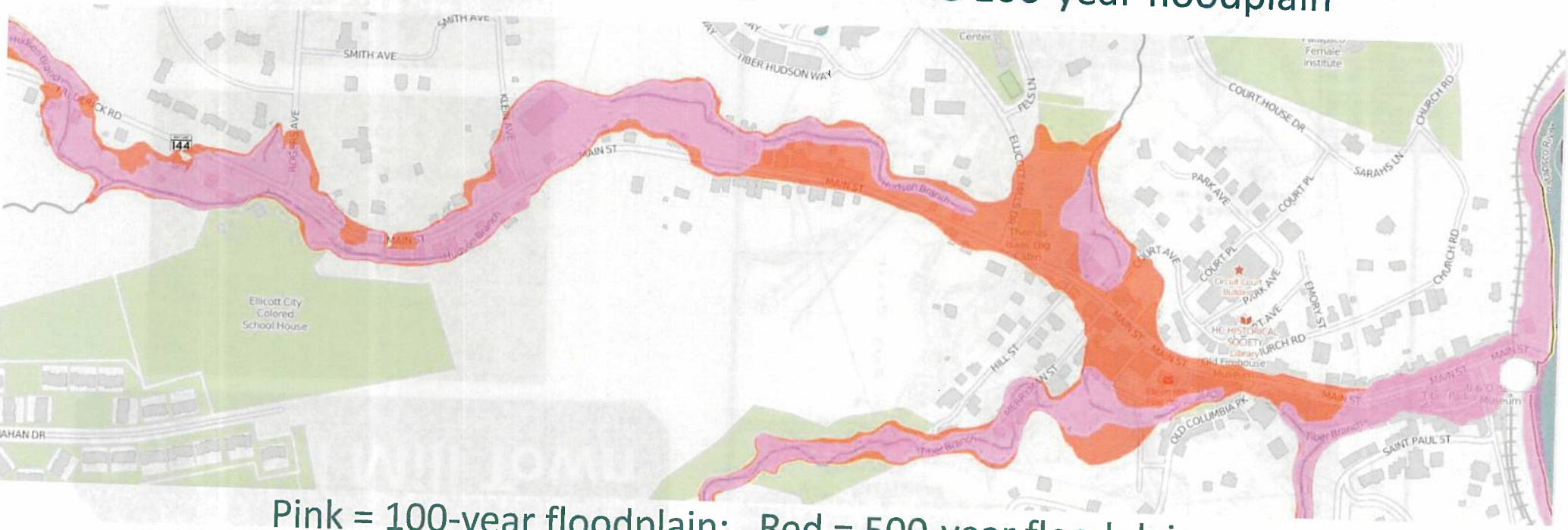


An Ideal Mill Town



Why is Ellicott City Vulnerable to Flooding?

- Much of Historic Ellicott City would not be allowed to be built today
- Howard County prohibits disturbances in the 100-year floodplain



Pink = 100-year floodplain; Red = 500-year floodplain

Why is Ellicott City Vulnerable to Flooding?

- Ellicott City lacks a natural floodplain, so streams were channelized
- Over time, buildings expanded over channels; stream sections were buried
- Channel turns 90 degrees in several places
- The existing stream channel network cannot handle a 1-in-a-1000 event; not a 1-in-a-100 event; not even a 1-in-a-10 event.
- Existing conditions and pinch points cause water to jump the channel and flow down Main Street during flash flood events.

8600 Main St. Culvert; 84 inch diameter

Why is Ellicott City Vulnerable to Flooding?

For Lower Main Street specifically:

- Three tributary streams converge behind the Caplan's building.
- The damage from the stream flooding from underneath is extensive.

Why is Ellicott City Vulnerable to Flooding?

For Lower Main Street specifically:

- Converged streams then go under buildings.
- Flood water flows through a single point under the railroad bridge to reach the Patapsco River.

2011 Storm and Aftermath

- 8.11 inches of rain fell over a 24-hour period September 2011
- Engaged McCormick Taylor in 2012 to perform a Hydrologic and Hydraulic study of the Hudson Branch in the Tiber-Hudson Watershed
- Engaged Smith & Smith to perform Stream Corridor Assessment
- Charette held in 2012
- All studies available at ECfloodrecovery.org

2011 Storm and Aftermath

- In the Spring of 2015, we **created the Historic Ellicott City Flood Work Group** to engage the community.
- The **stream channel walls** were inspected and replacements were being designed.
- In addition, work was being done to better maintain the channels through **READY**.

"Acquiring buildings and removing them from the floodplain is not only the most effective flood protection measure available, it is also a method to convert a problem area into a community asset and obtain environmental benefits."

-- 2010 Flood Mitigation Plan by Vision Planning and Consulting, LLC, and Eastern Shore Regional GIS Cooperative

July 30, 2016 Storm

6 inches of rain fell in 2 hours

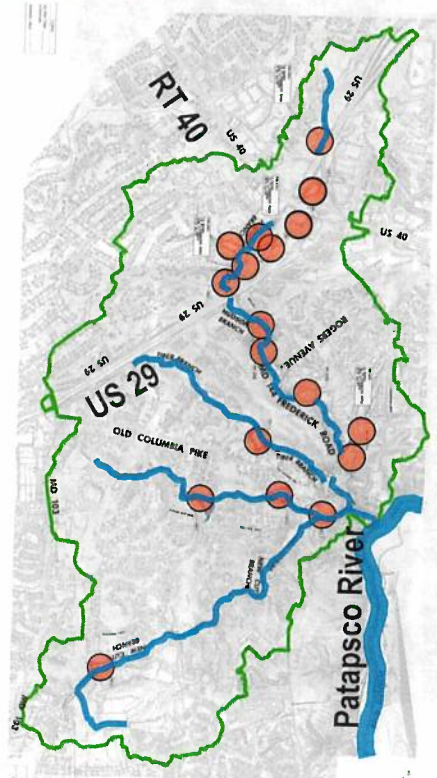
After the 2016 Storm

- Re-engaged McCormick Taylor for most comprehensive analysis ever conducted
- Mapped entire watershed
  - Identify how to slow the flow of water
  - 18 infrastructure improvements identified
- Established the **Community Advisory Group**
- Launched the **Ellicott City Master Plan Process**

Infrastructure Improvements in Process

Floodwater Retention/Conveyance Improvements in process after 2016 storm include:

- **Hudson 7 Retention Facility**
  13 acre-ft of storage at US 29/40 Interchange
- **8600 Main Street Culvert Expansion**
  Significantly increasing the capacity of culvert
- **Tiber 1 (T1) Stormwater Retention Facility**
  70 acre-ft of storage in open space adjacent to Old Columbia Pike
- **Quaker Mill Retention Facility**
  10 acre-ft of storage along Rogers Avenue



= H+H Recommendation

Engaging the Community

- The **Community Advisory Group** included representatives of local organizations, businesses, residents and the faith-based community.
- Held **19 meetings** between August 2016 and January 2017.
- **Community input** on thoughts for the future provided online and at four large public forums.
- Public submitted **315 project ideas** that were prioritized by the Community Advisory Group and also considered during the Master Plan process.

Completing the Ellicott City Master Plan

EC Flood Mitigation Plan - Incorporated into the Ellicott City Watershed Master Plan

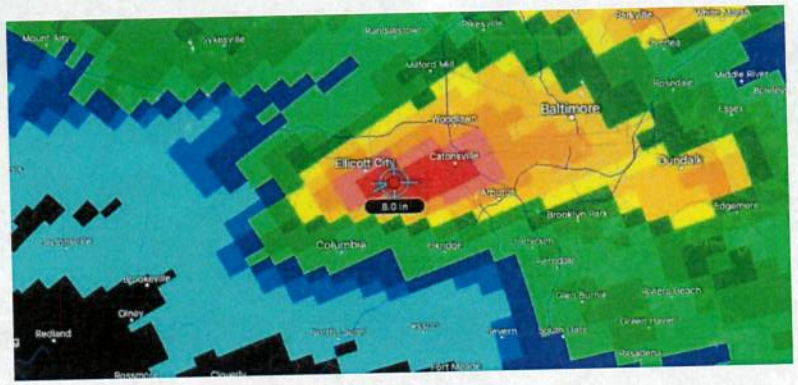
Master Plan Will:

- Define a comprehensive community-driven vision for rebuilding a stronger and more resilient Ellicott City.
- Provide more holistic recommendations in the Tiber-Hudson Watershed to address transportation, community and economic development.
- Continue community engagement in improving the watershed and identifying stormwater improvements.

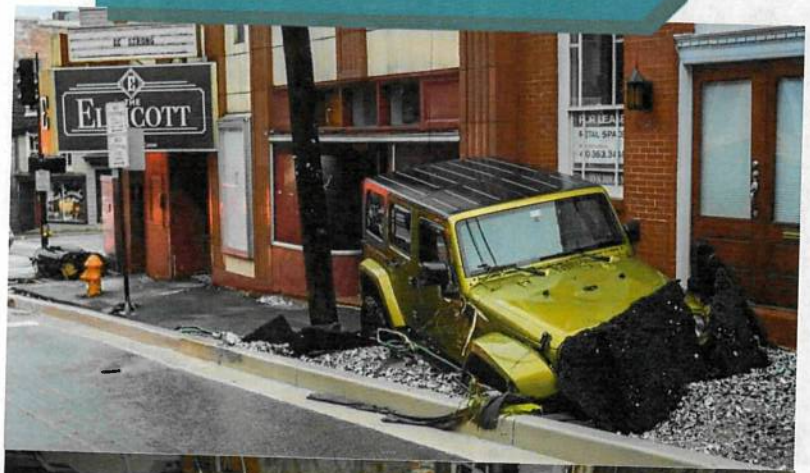
The Master Planning Process –
Continuing on **September 12, 2018.**

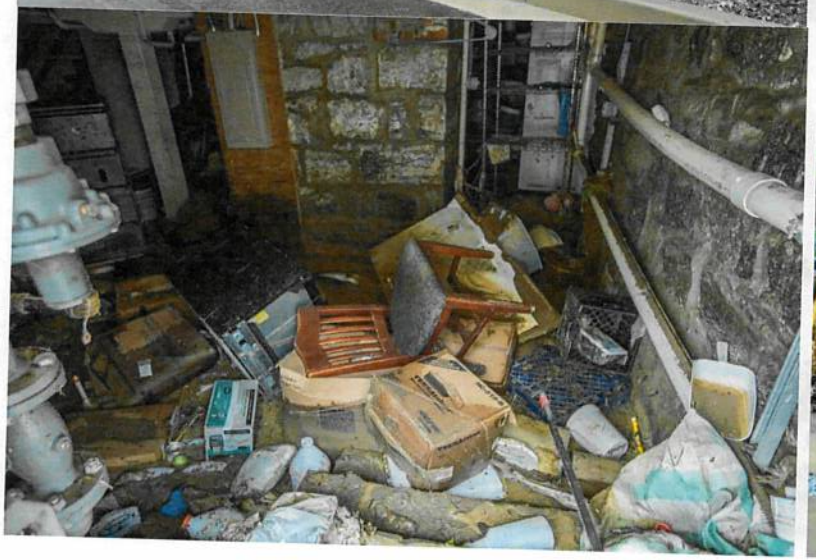
May 27, 2018 Storm

7.5 inches of rain in 5 hours
Majority fell in 3 hours



May 27, 2018

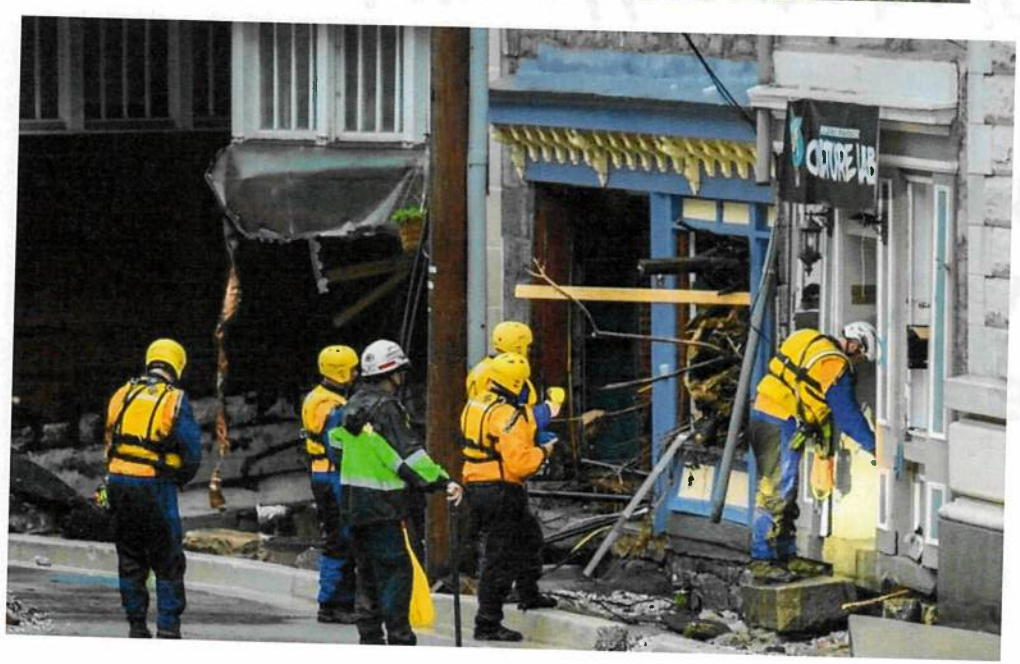


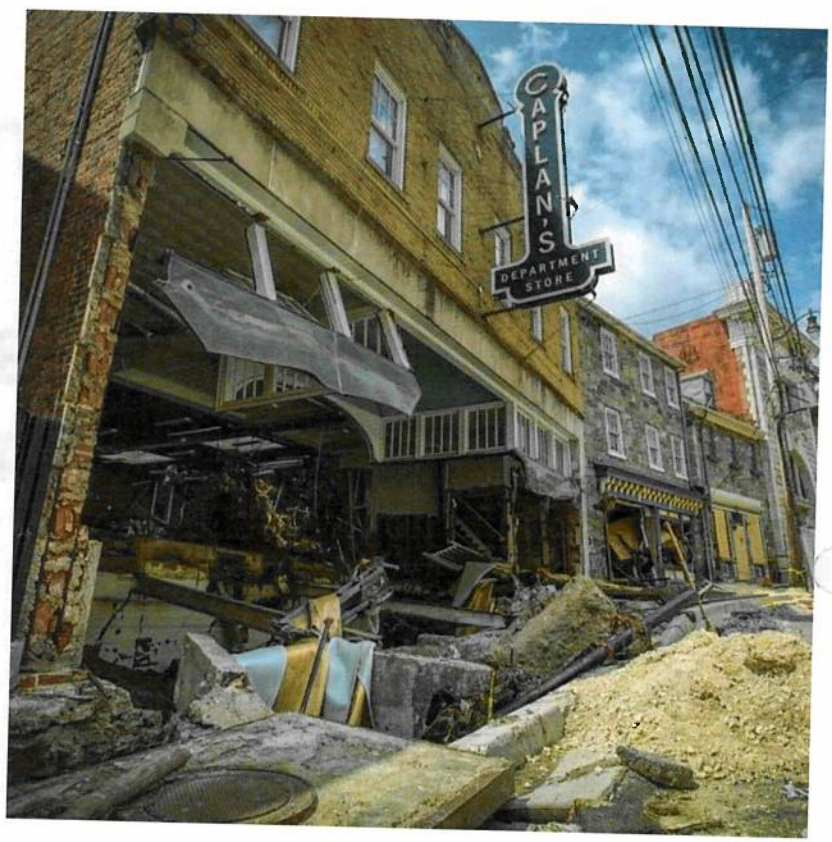


Montage of video cameras located along Main Street showing how the May 27, 2018 flood evolved throughout Ellicott City.

https://youtu.be/GUqhTv3fQM0

May 27, 2018





May 27, 2018

Bean Hollow

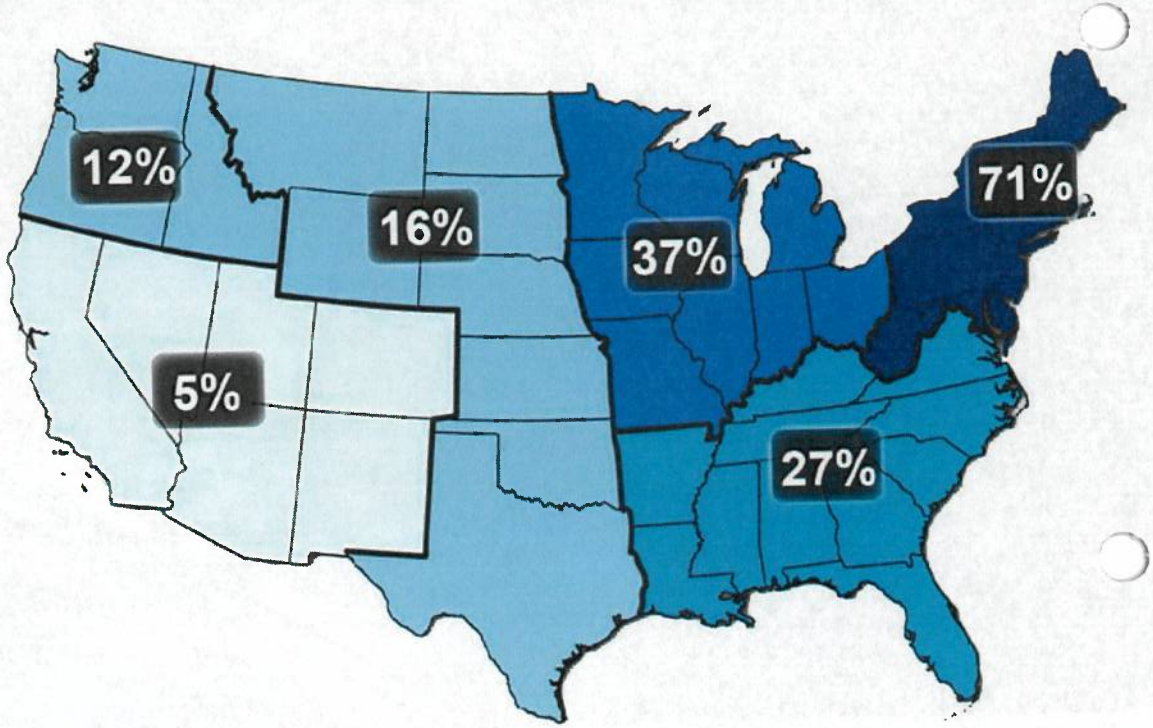
May 27, 2018

Caplan's Interior
MissFIT

Nationwide Trend

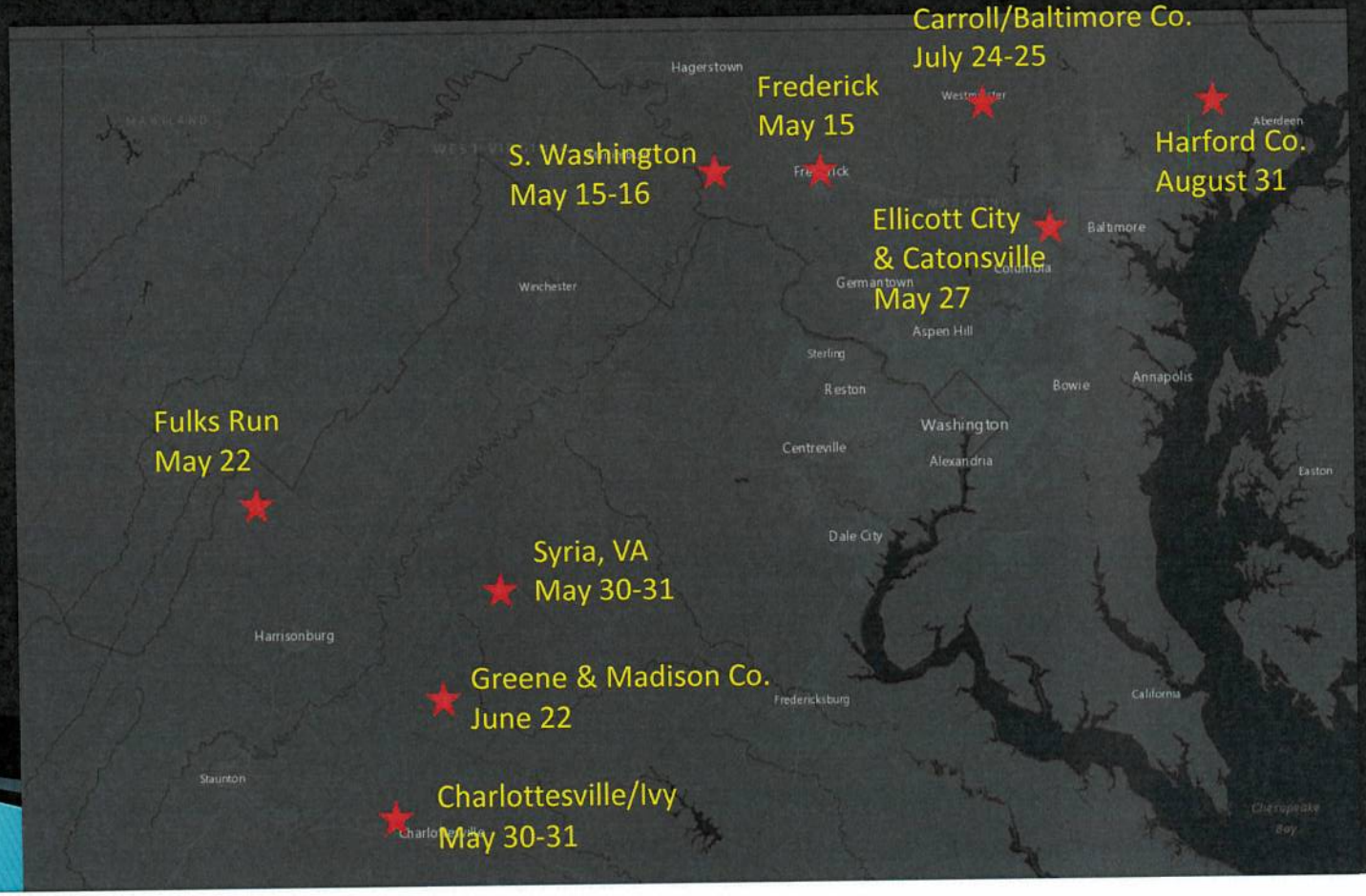
"The frequency and intensity of severe storms has increased…The amount of precipitation falling in the heaviest 1% of storms increased by 37% in the Midwest and 71% in the Northeast from 1958 to 2012."

- NOAA



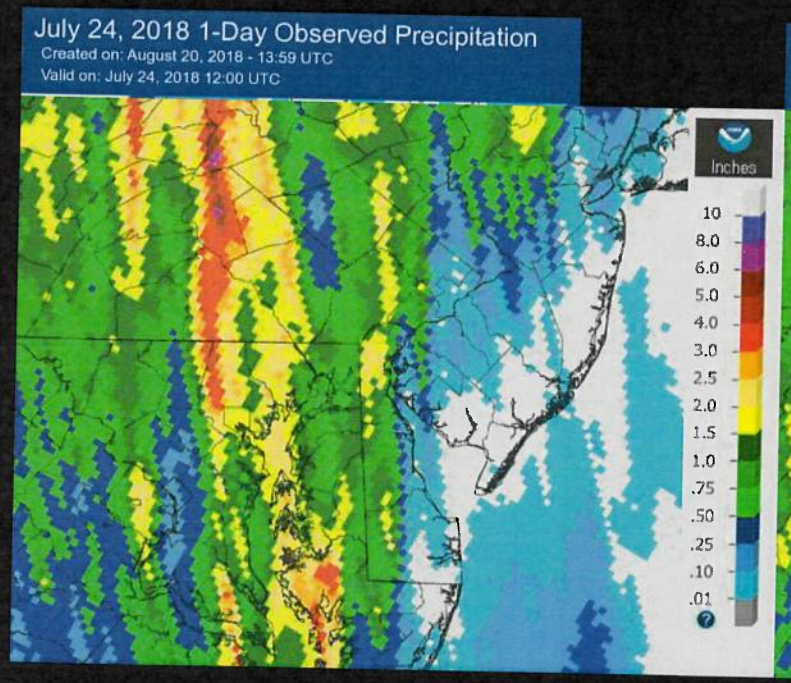
Ellicott City & Mid-Atlantic Flash Floods

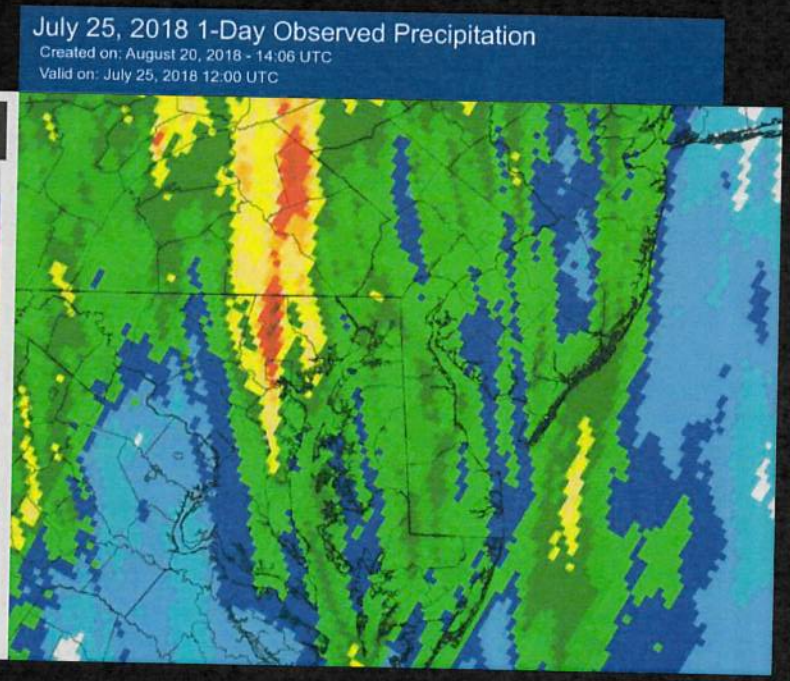
Significant Flash Floods of 2018



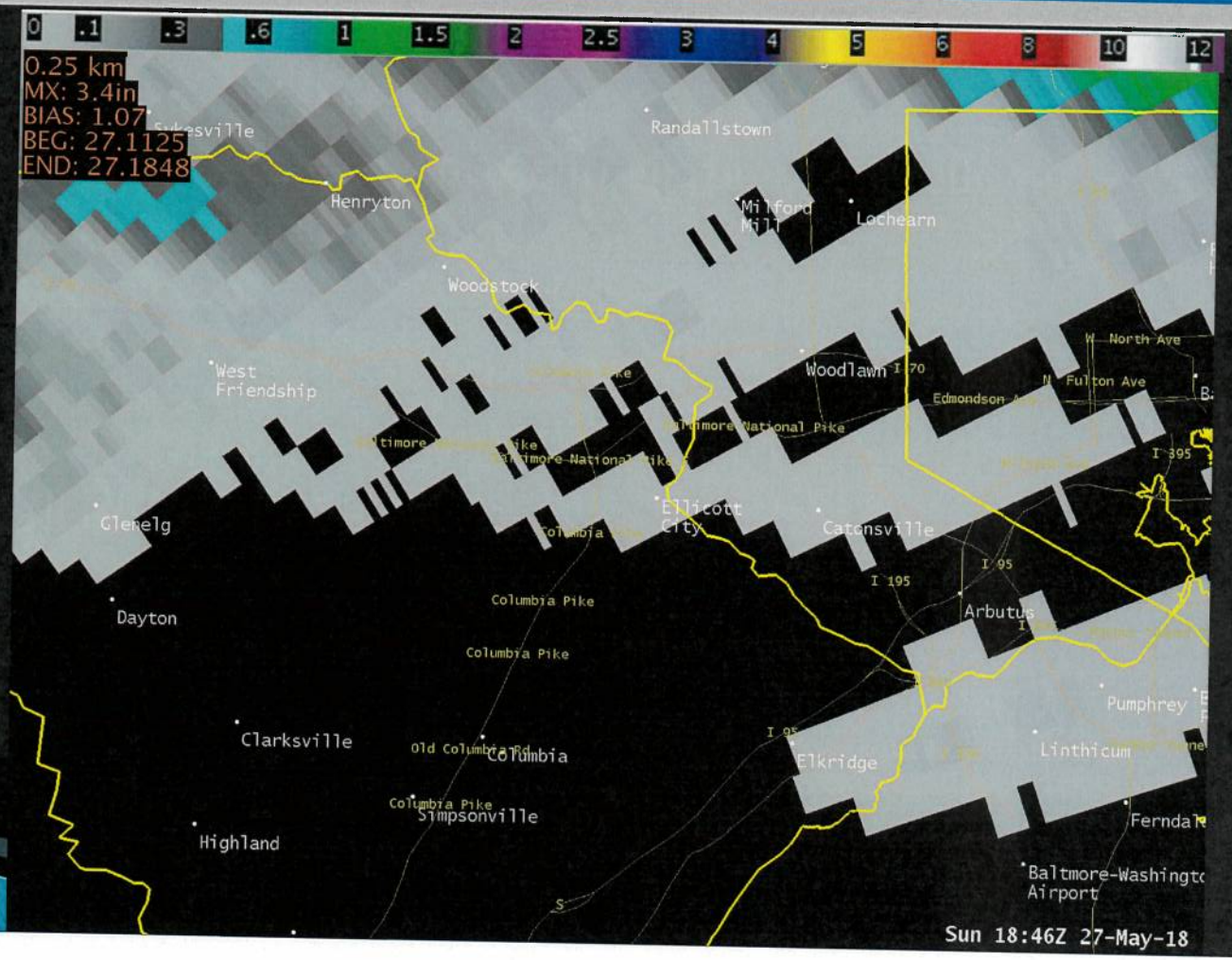
How Close to Another One in Ellicott City?

- July 24-25





Even May 27th could have been worse…



"1000-Year Flood"?

- Short answer: No!
- Image from 4:35pm →

- Rainfall through 4:25pm:
  - 30 minute rain: 1.1" – 1.7"
  - 60 minute rain: 2.1" – 3.2"
    (amounts from radar estimates & gauges)
- Rain of this intensity is <u>not uncommon</u> and occurred in all the places shown on the previous map *this year!*

Developing the Flood Mitigation Plan

McCormick Taylor continued to perform Hydrologic & Hydraulic Analyses

Multiple Options Studied:

- Open First Floor
- Culvert in Lower Main Street
- No Structures over the River
- Expanded Stream Channel

Protect the lives of residents, business and property owners, and visitors to Ellicott City.

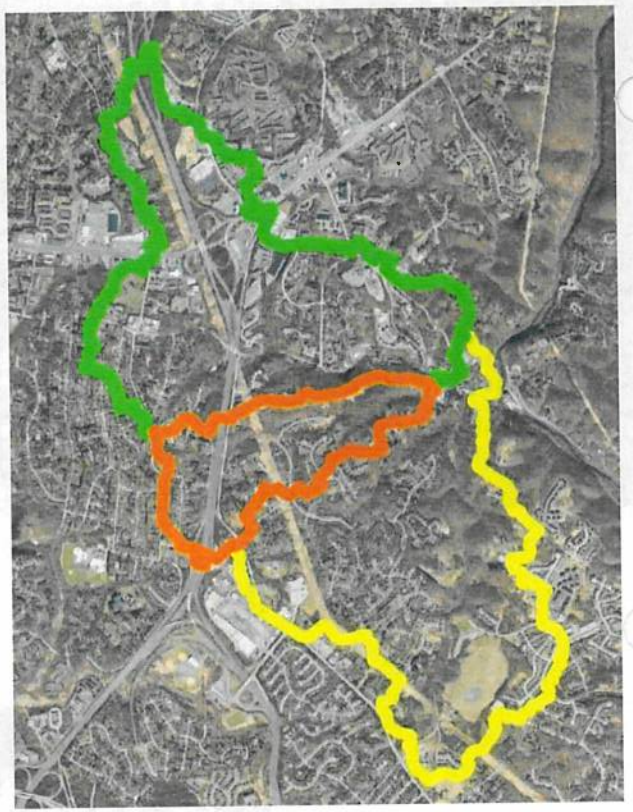
Hydrology & Hydraulic Analysis

McCormick Taylor Studied Entire Tiber-Hudson Watershed – 3.7 sq. mi.

- Hudson Branch – 1.55 sq. mi.
- Tiber Branch – 0.54 sq. mi.
- New Cut Branch (includes Autumn Hill) – 1.55 sq. mi.

Modeled Multiple Storm Scenarios

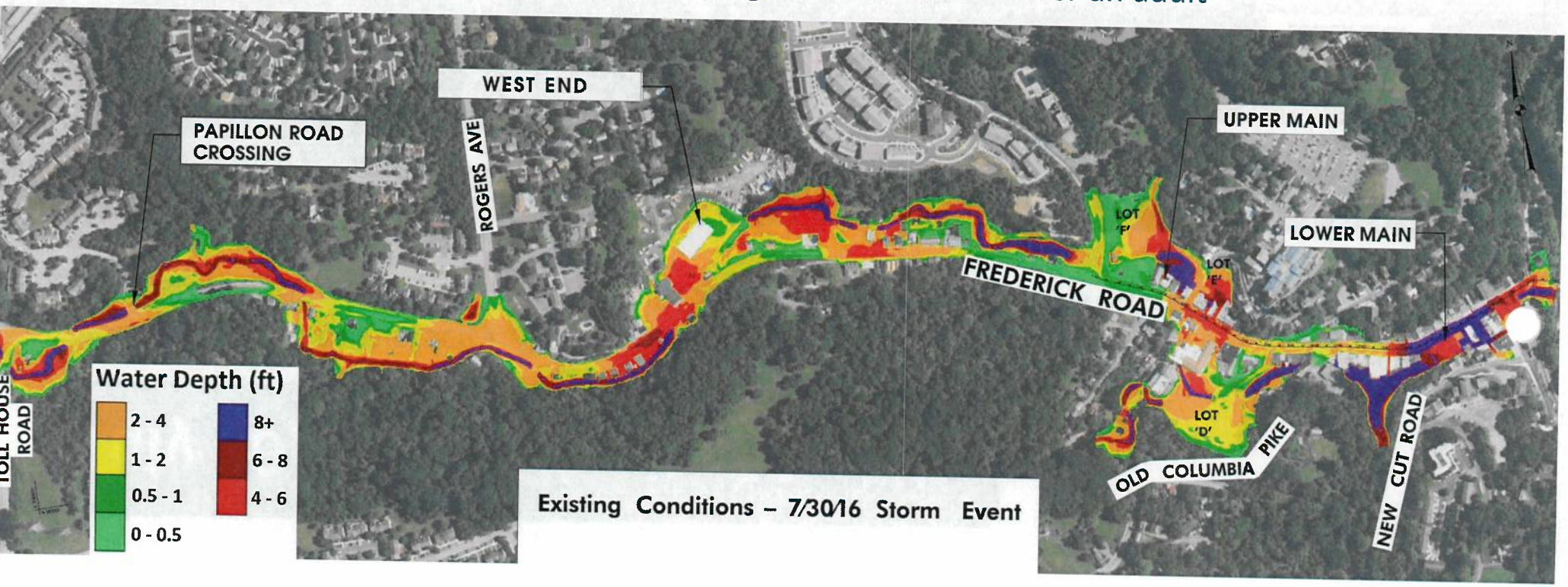
- 100-year (1%) 24-hour baseline
- 10-year
- Recreated July 30, 2016 event
  (using NWS data, USGS channel measurements, storm reports and YouTube videos)



Watersheds Areas:
Green-Hudson; Red-Tiber; Yellow-New Cut

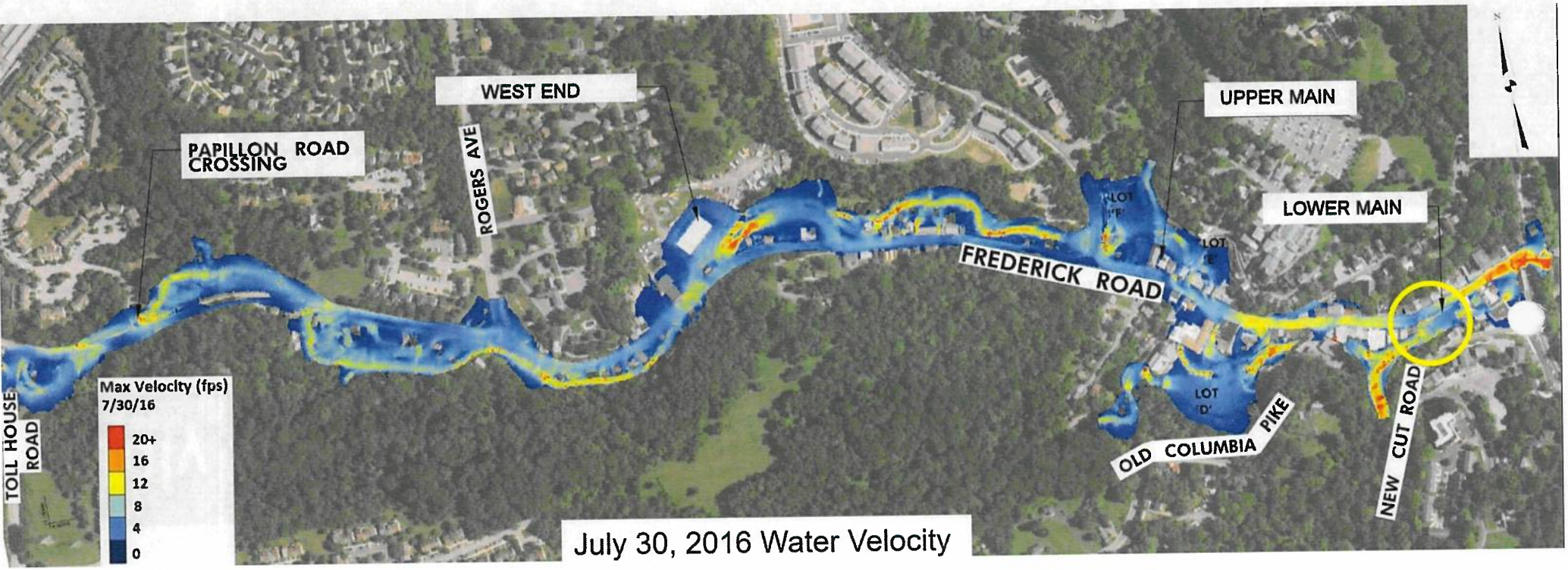
July 30, 2016 Water Depth Model

- Purple = 8+ feet (could be higher than 8')
- Yellow = 1-2'; 1' of rushing water can float a small car, 2' can carry away most vehicles
- Darker green = 0.5-1'; 6 inches of rushing water can knock over an adult



July 30, 2016 Velocity Model

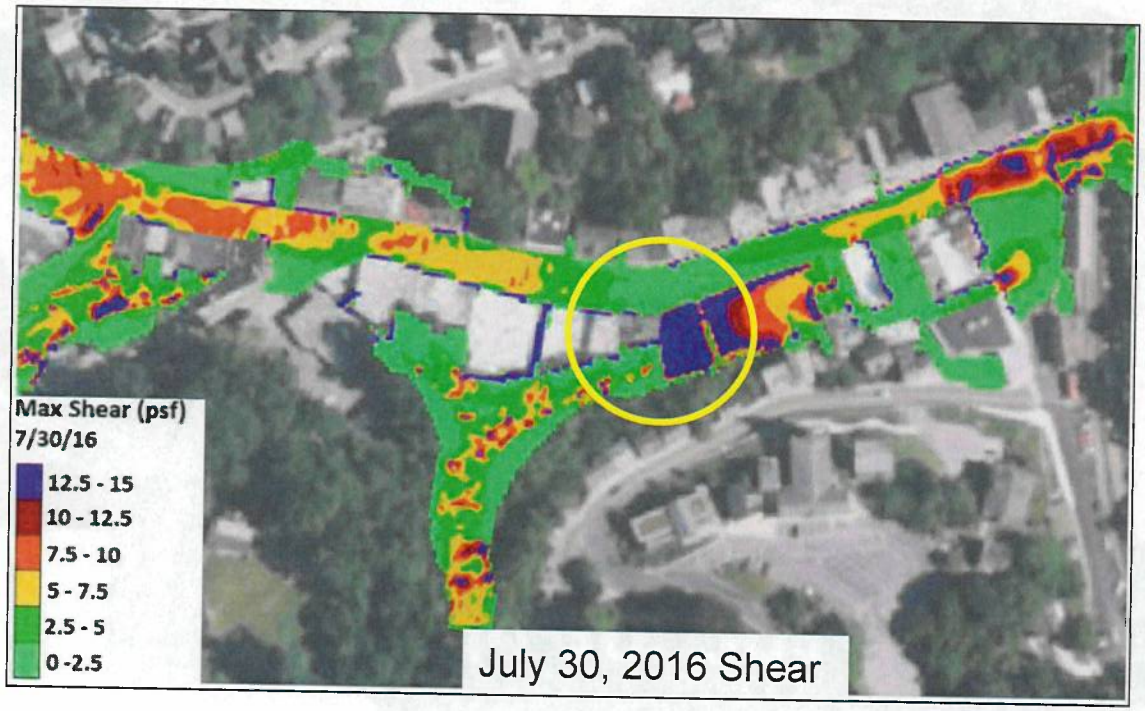
- Maximum flow velocity: Red = 20+ feet per second
- Note: High Velocity on mid-Main St and lower Main St, and from New Cut Rd



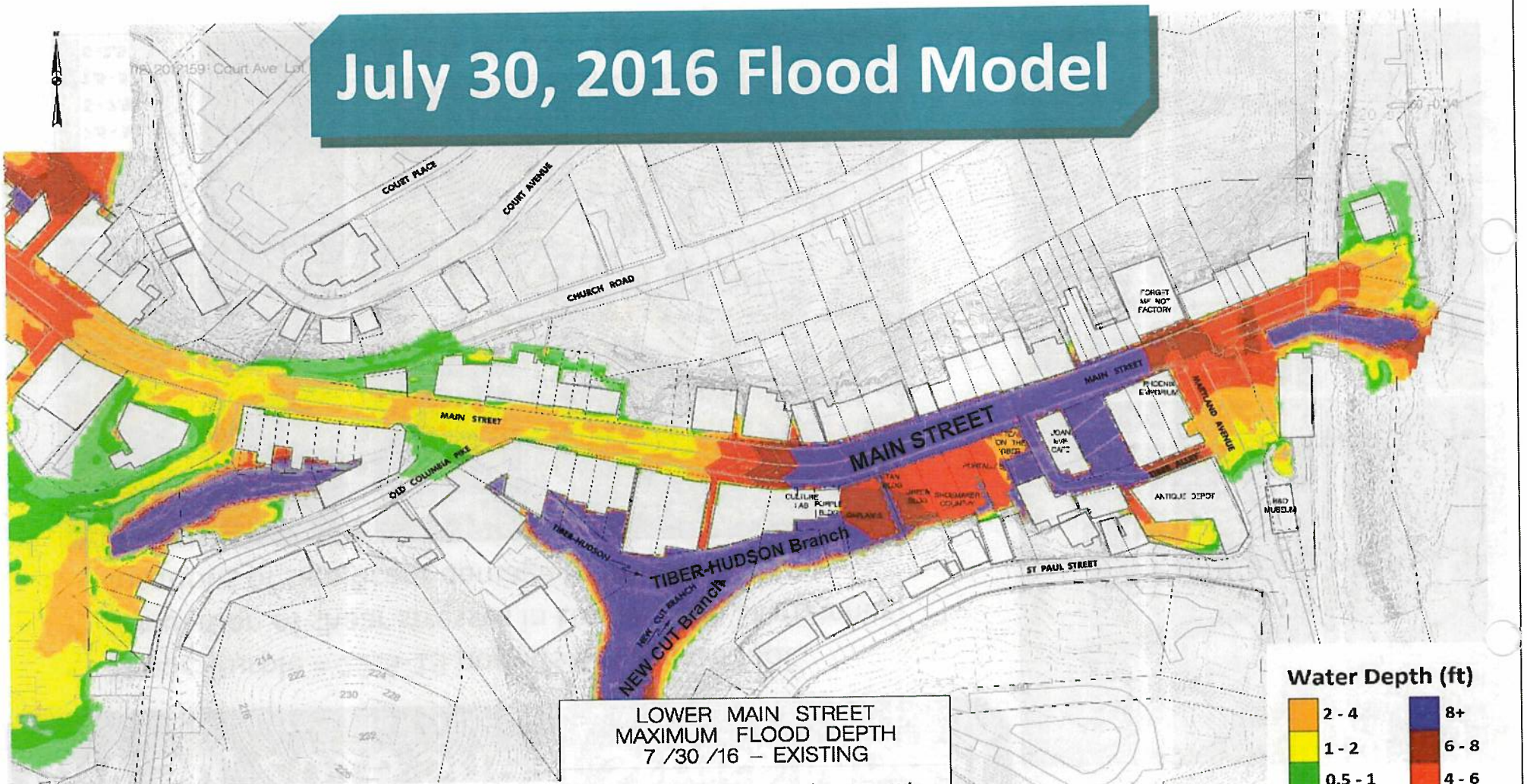
July 30, 2016 Water Velocity

July 30, 2016 Shear Stress Model

- Shear: Purple = 12.5-15 pounds per square foot
- Simulation of shear stresses in Lower Main St matches locations of significant damage to buildings



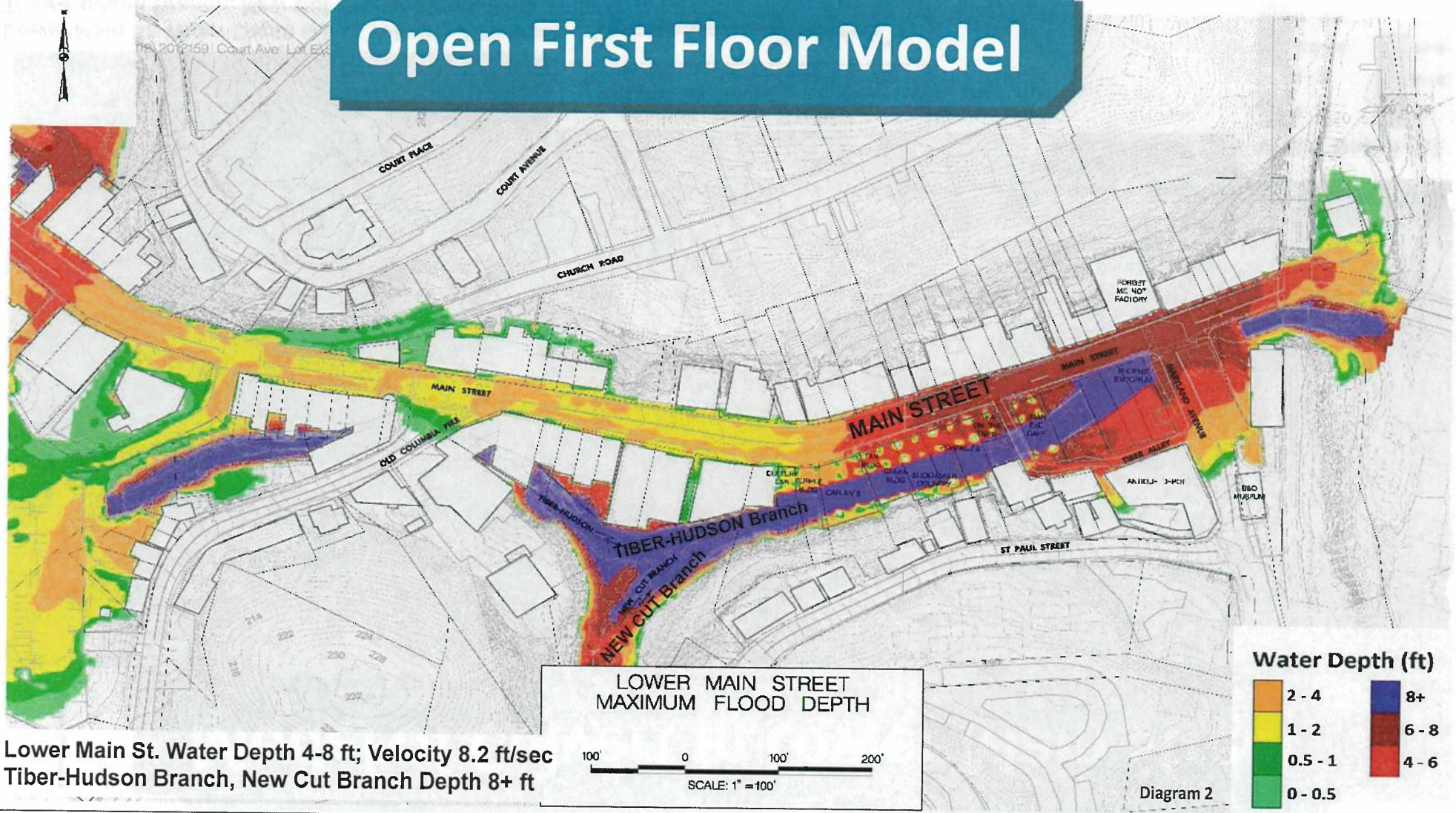
July 30, 2016 Flood Model



Lower Main St. Water Depth 8+ ft; Avg Velocity 11.1 ft/sec
Tiber-Hudson Branch, New Cut Branch Depth 8+ ft

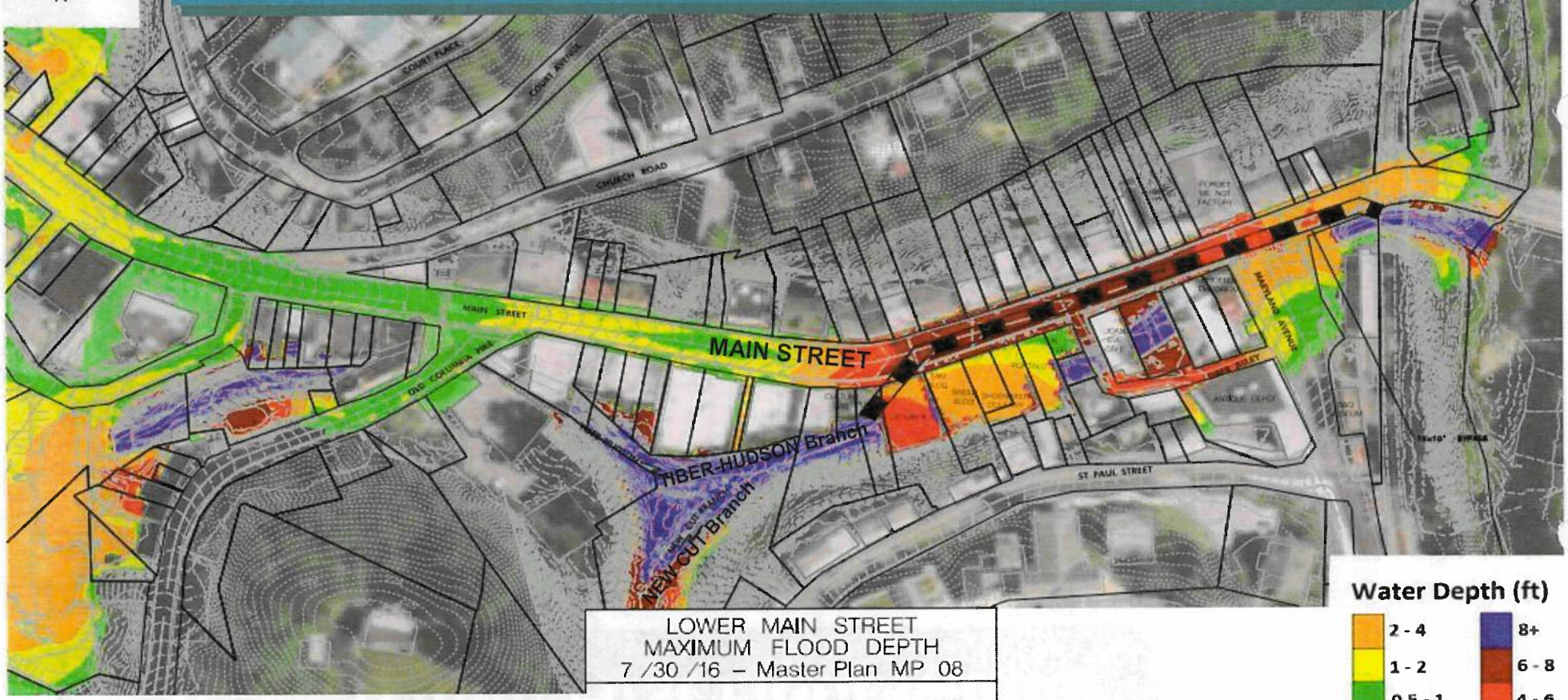
Diagram-1

Open First Floor Model



Lower Main St. Water Depth 4-8 ft; Velocity 8.2 ft/sec
Tiber-Hudson Branch, New Cut Branch Depth 8+ ft

Model of Culvert in Lower Main Street



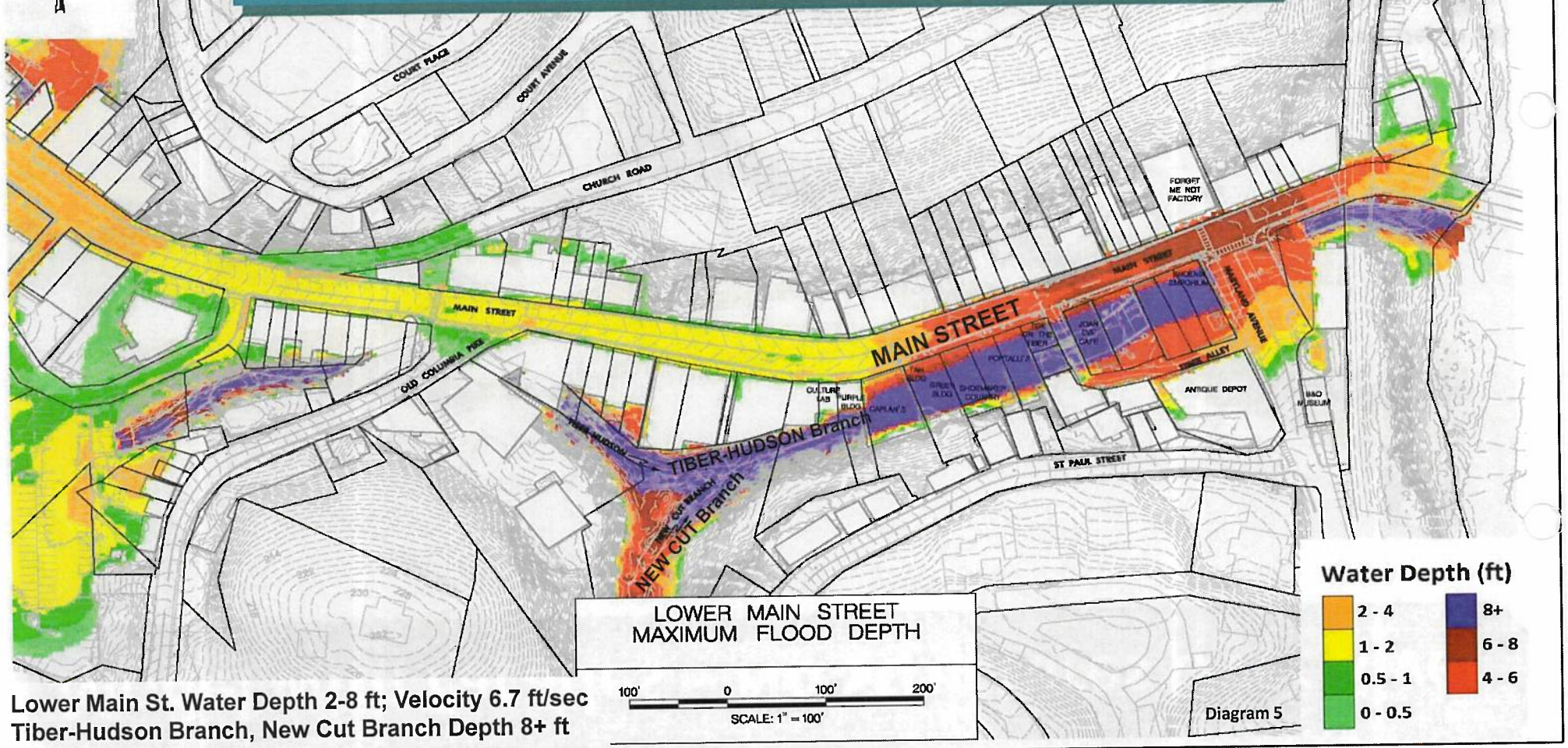
Lower Main St. Water Depth 6-8 ft; Velocity 7.75 ft/sec
Tiber-Hudson Branch, New Cut Branch Depth 8+ ft

Model with Facades – No Structures Over River

Lower Main St. Water Depth 4-8+ ft; Velocity 8.3 ft/sec
Tiber-Hudson Branch, New Cut Branch Depth 8+ ft

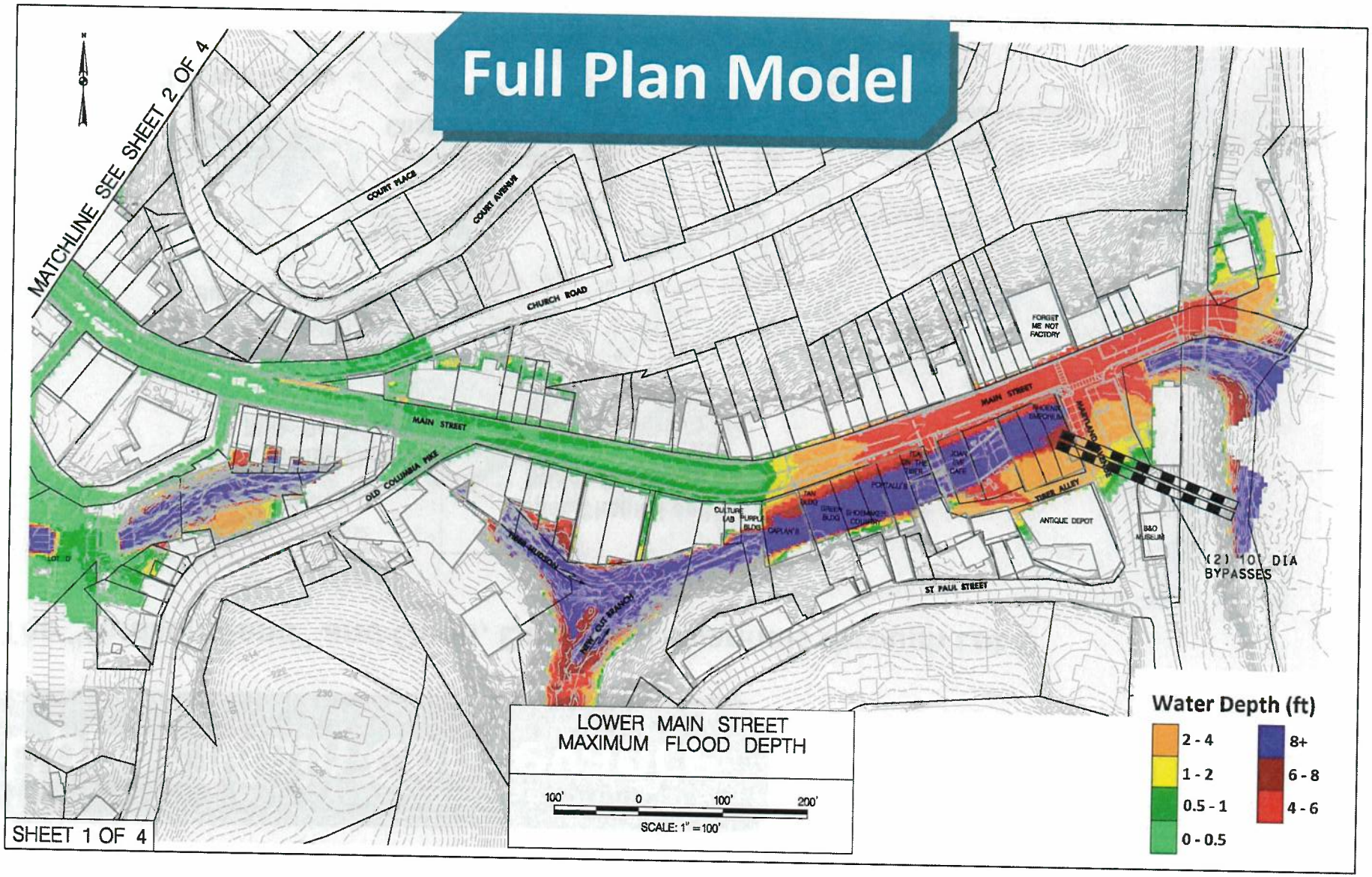
Diagram 4

Expanded Stream Channel Model



Lower Main St. Water Depth 2-8 ft; Velocity 6.7 ft/sec
Tiber-Hudson Branch, New Cut Branch Depth 8+ ft

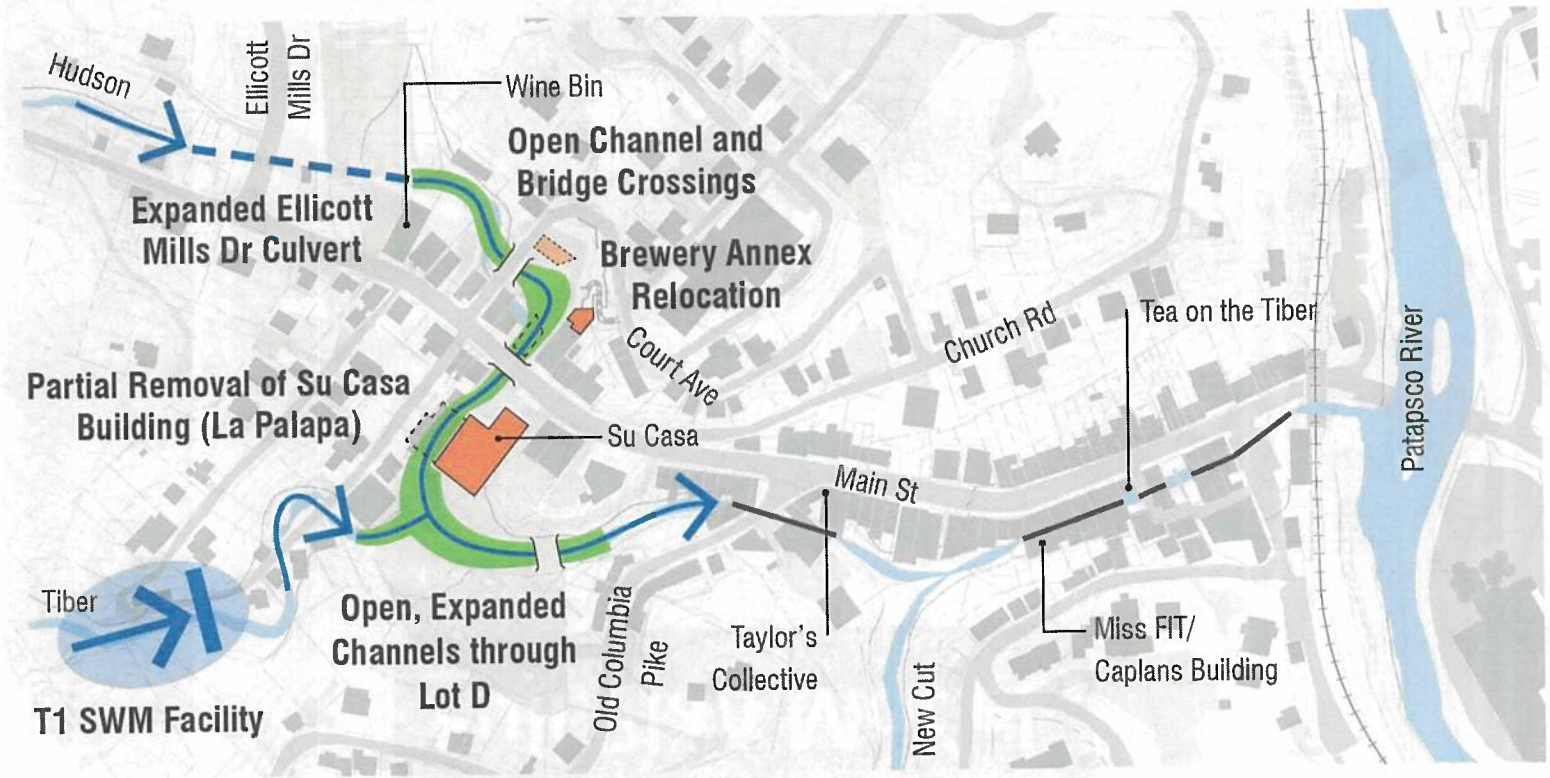
Full Plan Model



SHEET 1 OF 4

Upper Main Conveyance

The "Hudson Bend" and Open, Expanded Channels through Lot D



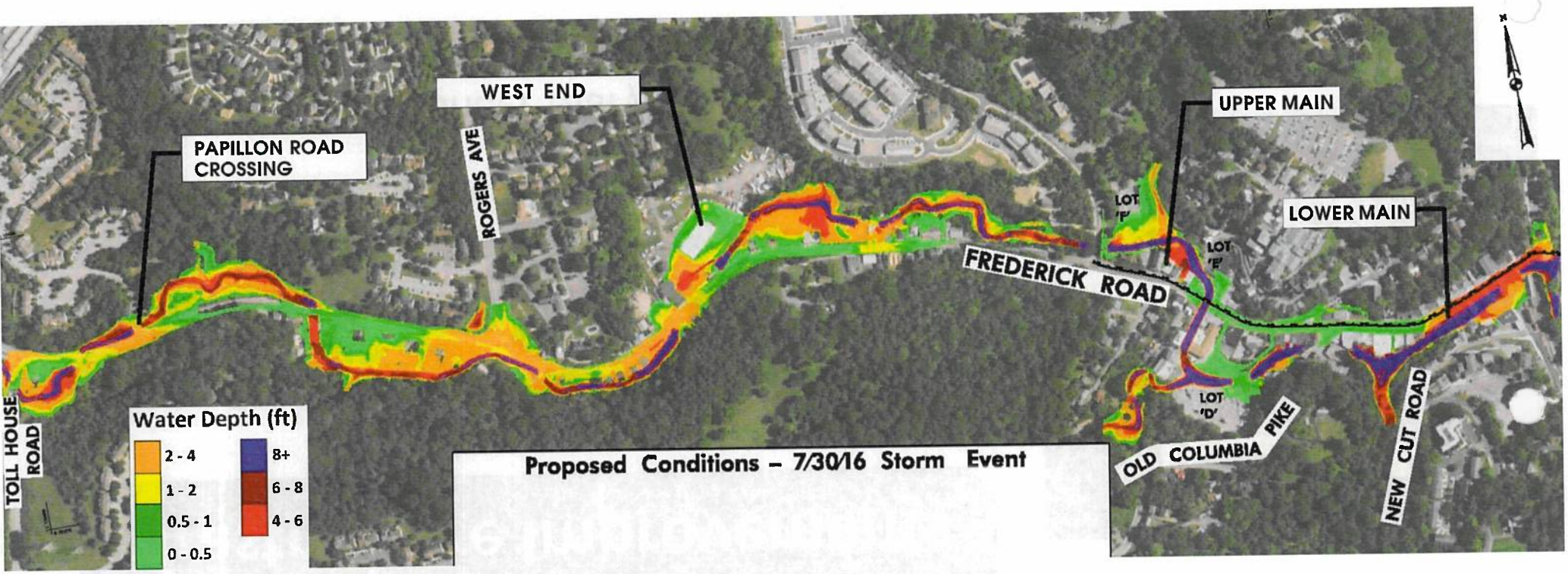
Source: Ellicott City Master Plan Workshop March 22, 2018

Infrastructure Improvements

Elements to Improve Conveyance of Water:

- **Expanding the channel** under Parking Lot E to Parking Lot D. Tie into the expansion of the Ellicott Mills Drive culvert.
- **Adding culverts** under Maryland Avenue. Connect the Tiber-Hudson with Patapsco River further downstream.
- Continue evaluation of **retention facilities** described as T1 and NC3.

Recommended Mitigation Improvements Model



Comprehensive Approach

- **Channel/floodplain expansion**
  (acquisition and removal)
  - Public open space expansion
  - Pedestrian network enhancement
- **Stormwater retention** facilities/improved wetlands
- **New and expanded culverts**
- **Encourage floodproofing**
  (as result Feb. 2018 of Army Corps of Engineers study)
- **Community partnerships**
  - Howard EcoWorks Soak it Up Campaign

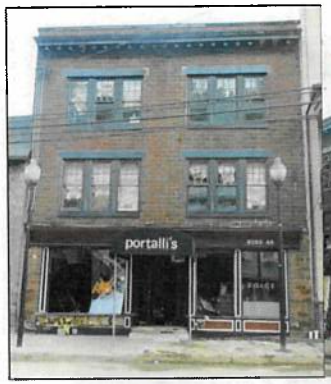
Phoenix Emporium
8049 Main St.
Brick: c. 1851 Frame: c. 1870s

Discoveries
8055 Main St.
Block: c. 1920s-30s

Bean Hollow
8059 Main St.
Stone & Frame: c. 1930s

Great Panes
8069 Main St.
Brick & Stone: c. 1841

Tea on the Tiber
8081 Main St.
Stone: c. 1834



Portalli's
8085 Main St.
Brick: c. 1920s, c. 2000

Shoemaker's
8095 Main St.
Block: c. 2000

Johnson's Buildings
8109 Main St. 8113 Main St.
Frame: c. 1859 Frame: c. 1830s

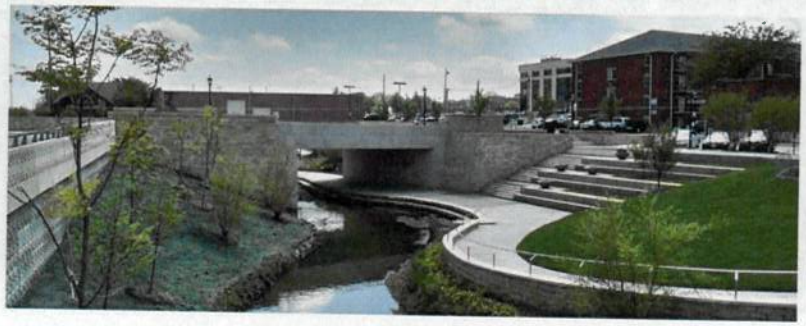
Caplan's
8125 Main St.
Brick: 1926

Lower Main St.

Gathering Space at Expanded Stream Channel





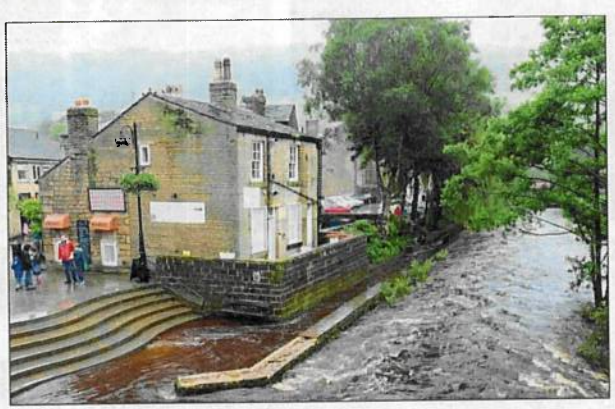







Gathering Space at Expanded Stream Channel

Hebden Bridge



Continuing Community Engagement

Master Plan Process – Continuing **September 12, 2018**

Ellicott City **Historic Structures Review Committee**

- Key historical elements to preserve and re-use

Historic Preservation Commission

- Certificate of Approval

Projects with federal or state permitting or funding must include a **Section 106 Review**

- Identify any impact or adverse effects of historic resources
- Work with state agencies, including Maryland Historic Trust

County Council Public Hearing – September 17, 2018

Protecting Lives – Saving Our Town

Summary of the 5-Year Flood Mitigation Plan Capital Improvements:

- Ellicott City and Valley Mede Property Acquisition/Removal
- Lower Main Open Space Construction
- Ellicott Mills Culvert Expansion
- Hudson 7 Retention Facility at US29/Rt40 Interchange
- Quaker Mill Retention Facility at Rogers Ave
- 8600 Main Street Culvert Expansion
- Two 10' Culverts from Maryland Ave to Patapsco River

Funding the Plan to Protect Lives

Legislation for FY 2019 Funding to begin implementation of the Ellicott City Flood Mitigation Plan

$16,759,000	**TAO 1-2019**
$ 2,000,000	**CB 61-2018**
$18,759,000	**Total**

Funding the Plan to Protect Lives

TAO 1-2019 Implementation of Ellicott City Flood Mitigation Plan

Amount	From
$ 984,000	Contingency Fund
$ 1,100,000	Technology Infrastructure Upgrades
$10,975,000	Route One Fire Station*
$ 3,700,000	East Columbia Library Athletic Field & Site Improvement*
$16,759,000	Total

(**site acquisition pending*)

Amount	To
$15,759,000	Ellicott City Improvements and Enhancements
$ 1,000,000	Valley Mede/Chatham Flood Mitigation
$16,759,000	Total

Funding the Plan to Protect Lives

Council Bills 61-2018 and 62-2018 –

Implementation of Ellicott City Flood Mitigation Plan

CB 61-2018

Emergency Appropriation

$2,000,000 from General Fund Contingency

CB 62-2018

Authority to Borrow

Full Faith and Credit

Funding the Plan to Protect Lives

Projects		Est Costs ($-Millions)
FY2019		**$18.8**
Property Acquisition/Removal		
Lower Main Street Acquisition	C0337	9.5
Lower Main Street Removal	C0337	1.1
Valley Mede Acquisition	D1175	1.0
Lower Main Open Space	C0337	0.6
Ellicott Mills Drive Culvert	C0337	3.0
Hudson Bend (Lot D)	C0337	0.6
Rogers Ave Storm Drainage	C0337	0.2
Highways Projects	C0337	2.8

Protecting Lives – The Time is Now

- Too many lives have been lost.
- Protecting lives must be our highest priority.
- We cannot wait to act. When will the next catastrophic storm hit?

Video of Joan-Eve Shea Cohen, owner of Joan Eve Classics and Collectibles, and her employee and friend, Gary Weltner.

They recount their escape from the store during the May 27, 2018 flood.

https://youtu.be/TYs5lizBpLE

NOW is the Time - Protecting Lives

"The nightmares I had right after the flood and still do will haunt me forever. It makes me sick to my stomach to think of what could've happened."

-- Shelley Sharkey, *MissFIT*

"It only took a matter of a few minutes for the water to get neck high..."

-- Paula Dwyer, *Georgia Grace Cafe*

"Several friends could have drowned in the basement of Portalli's in 2016 if it wasn't for miraculous circumstances...the kitchen guys were barely able to escape the giant hole blown through the wall. I have no interest in returning to that building, ever."

-- Steve Miller, worked at *Portalli's*

NOW is the Time - Protecting Lives

"No matter what option we choose for Ellicott City, the absolute #1 priority must be personal safety."

-- Amy Lynne

"Acquisition of property in floodprone areas is a mitigation strategy that should be on the table…the upstream strategies alone will not be enough…"

-- Lori Lilly, *Howard EcoWorks*

"If it happened twice it's going to happen again. The last few weeks of flash floods have caused much anxiety and fear. Something has to be done in OEC not over 10 years, but immediately! My kids who feel so emotional about Caplan's, each will tell you it's not worth the risk of people's lives."

-- Tammy Beideman, *Sweet Elizabeth Jane*

NOW is the Time - Protecting Lives

"The buildings have to come down to not only open the channel but to remove citizens from the area that floods the heaviest."

-- Ron Peters, Main Street property owner

"I will never forget the feeling of evacuating that night. I will never forget the look on my child's face when I screamed 'get your shoes and get in the car, we have to leave right this minute.' And I won't forget my child seeing our home and our neighborhood for the first time afterwards. These are terrible memories and anyone with similar ones likely understands why it's time for immediate action."

-- Beth Woodruff, *West End resident*

NOW is the Time - Protecting Lives

"My family owned one of those buildings and I have a ton of history and memories, but it all pales when I think of the people I know who've had to suffer through this, and who face future suffering or worse if we don't get this right."

-- Monica Fabbri

"It's really frustrates me that they value buildings over lives. And I know those buildings are important to people, but at this point they're dangerous..."

-- Christina Allen Page

"The studies have been done and we know what needs to happen. History will always be there. It cannot be erased, even with the removal of buildings. Not everyone is in agreeance to this, however it's the right choice for Main Street."

-- Stephanie Hopkins, *Ellicott City resident*

NOW is the Time - Protecting Lives

"I think most anyone who knows me knows how much I love EC and what a big part of my life it's been. I'm torn up over the buildings but when I really stop to think about EC, it's the people. Without the people what is the building? Brick or stone do not come alive without the people and if we can't keep the people safe, what are we as a community?

Each business owner and resident is the true foundation of the town and they deserve to be in a safer place without fear at the crack of thunder or flash of lightning. Ellicott City will be changed once more as it has been before. And it will be stronger not for its buildings or lack thereof, but because of its people.

We will grieve for the buildings and the memories but I'd rather do that than grieve for the people."

-- Rachel MacNeill Rawlings, *Salon Marielle*

NOW is the Time - Protecting Lives

Today, Ellicott City is not a safe place and I don't want the town and the businesses within it to die as we wait endlessly.

EC is out of time and I have zero confidence that EC will survive as a vibrant town if another flood hit before some major steps are taken.

This administration has the unfortunate task of fixing this mess and is forced to remedy problems that were decades in the making...

-- Sally Fox Tennant, *Discoveries*

More Information:

ECfloodrecovery.org

TA01-FY19

The Ellicott City Flood Mitigation Plan

Allan H. Kittleman, Howard County Executive

Jonathan Weinstein, Howard County Council, District 1

August 23, 2018

The Ellicott City Flood Mitigation Plan

August 23, 2018

I. Introduction

In the aftermath of the unprecedented flooding in Ellicott City, Maryland on July 30, 2016, Howard County launched a detailed engineering analysis of the Tiber-Hudson watershed, known as the Hydrologic and Hydraulic Analysis (H&H). Led by McCormick Taylor, Inc., the analysis examined projects suggested by the community, as well as by other engineers, so that all flood mitigation options would receive careful and deliberate review and consideration. The information collected from this analysis was used to inform how the Ellicott City Master Plan addresses flood mitigation. Keeping the community informed about the flood recovery efforts and outreach has been a priority for the County. Information is available at ECfloodrecovery.org including the H&H analysis and the Master Plan.

The H&H analysis identified 18 large infrastructure projects which could mitigate the impact of flooding in the Tiber-Hudson Watershed with a cost estimate of $84 million. While those projects collectively would significantly reduce the amount of flooding, they still would not eliminate it entirely. County Executive Allan H. Kittleman and Councilmember Jon Weinstein announced shortly after the completion of the analysis, the pursuit of four of these identified projects that had the greatest immediate and significant impact in mitigating future flood damage.

The County was in process of the design and engineering of these large infrastructure improvements and the Ellicott City Master Plan was ninety percent complete when another devastating flood occurred on May 27, 2018. The frequency of these high-intensity, short-duration storms has presented Ellicott City with an immediate threat to life safety that must be addressed. While other communities, such as Frederick, MD, were able to build large infrastructure improvements to mitigate flooding over several decades, Ellicott City does not have that time.

The recent flooding in May 2018, has shifted the conversation in dealing with this issue due to the increased threat to life safety it presents. Ellicott City must adapt to a new future.

II. Guiding Principles of the Plan

The guiding principles for this flood mitigation plan were articulated by County Executive Allan Kittleman and Councilmember Jon Weinstein at the Town Hall on June 28, 2018. They are as follows:

- ***Protect Lives*** - Too many lives have already been lost due to the recent devastating flooding in Ellicott City. Mitigating the life safety risk for residents, business and property owners, as well as visitors to the town, must be the top priority.
- ***Continue to Engage the Community*** - Efforts to date, including the Ellicott City Master Plan and the Hydrologic and Hydraulic Analysis, have received substantial community input and feedback, and any efforts moving forward will seek to continue to engage the community in a collaborative, open and transparent fashion.
- ***Make Economically Sound Investments*** - Investments made in Ellicott City must yield the largest impact per dollar.
- ***Safeguard the Environment*** - The environment that serves as such an important visual and natural asset to Ellicott City must be protected.
- ***Preserve Historic Character*** - The town of Ellicott City and its character must be preserved for generations to come, and changes will have to be made to adapt to the changing weather patterns that contribute to the new future now faced.

III. Components of the Plan

A. Background

Extensive rainfall on May 27, 2018 caused catastrophic flooding throughout Howard County which resulted in the loss of life. The most significant flooding occurred in Ellicott City, with dangerous flash flooding in the Main Street area that necessitated numerous swift water rescues. Approximately 7.5 inches of rain fell in 5 hours, the majority of which fell in a 3-hour period. In a 6-hour period from 4:00pm, the 911 Center received over 1100 calls. The Emergency Operations Center opened to a Level 1 at 4:40pm. Multiple roads were completely washed away, the Old Courthouse near Ellicott Mills Drive was demolished, and there was massive damage to streets, sidewalks, and buildings. Additionally, there were two fires caused by lightning strikes, one of which was a two alarm fire.

Howard County Executive Allan H. Kittleman signed an executive order declaring a local disaster for Howard County at 6:45pm and Governor Larry Hogan declared a State of Emergency shortly thereafter. The Governor toured the affected area and held a joint press conference with County Executive Kittleman.

This is the second significant flooding of Historic Ellicott City in two years, and each time the flooding was considered a 1000-year event. Four lives have been lost due to these two floods. Experienced forecasters from the National Weather Service have told the County that storms capable of producing devastating flash floods are becoming more likely in the entire mid-Atlantic region. The County must adapt to this likelihood, with the protection of life safety driving the changes necessary.

B. Considerations

Many options for reducing the impact of flooding in Ellicott City, particularly the significant damage to the lower end of Main Street, were considered and modeled. On lower Main Street, the ability to open the first floor of the buildings to allow floodwaters to enter the roadway was examined so that the existing buildings could remain. The results showed that the stream channel remained constricted. Additionally, the models identified the continued possibility of debris catching on the supporting structures, forcing the floodwaters back into the roadway. Thus, the ability to mitigate the impact of flooding on Main Street is limited.

Another option was explored to remove the backs of buildings that spanned over the channel and were often built years after the original building. By removing the additions, the channel would not have constraints of a building blocking the flow of water to a specific height. Although this option would preserve the facades, the result showed that the water depth on lower Main Street did not decrease significantly.

Expanding the stream channels and floodplain in strategic locations was explored. The reduction in floodwater resulting from expanding the stream channel and floodplain resulted in the best plan to mitigate the life safety risk of flooding in Ellicott City, particularly on the lower end of Main Street.

These considerations are demonstrated in the Hydrologic and Hydraulic analysis models that follow.

The Ellicott City flood mitigation plan focuses on a multi-faceted strategy to resolve the complex challenge faced by this historic town. The two essential elements of this plan include increasing the retention of water higher up in the watershed, and, simultaneously, increasing the floodplain throughout the town so that the force of the water is contained in the stream channel to the highest level possible. Many ideas were explored, and as explained below, the recommended plan will provide the most immediate impact in addressing the significant life safety threat in Ellicott City.

C. Hydrologic and Hydraulic Analysis Models

1. July 30, 2016 Flood Model

The hydrologic and hydraulic analysis model in Diagram 1 below shows the amount of water on Main Street under the conditions experienced during the Ellicott City flooding on July 30, 2016. The model depicts the water depth in the channel as well as on the street and around the buildings. The stream channel is typically defined with over 8 feet of water, and as shown in the map below, that same amount of water is also seen on Main Street during the July 30, 2016 event. This event is used as the baseline for the modeling purposes.

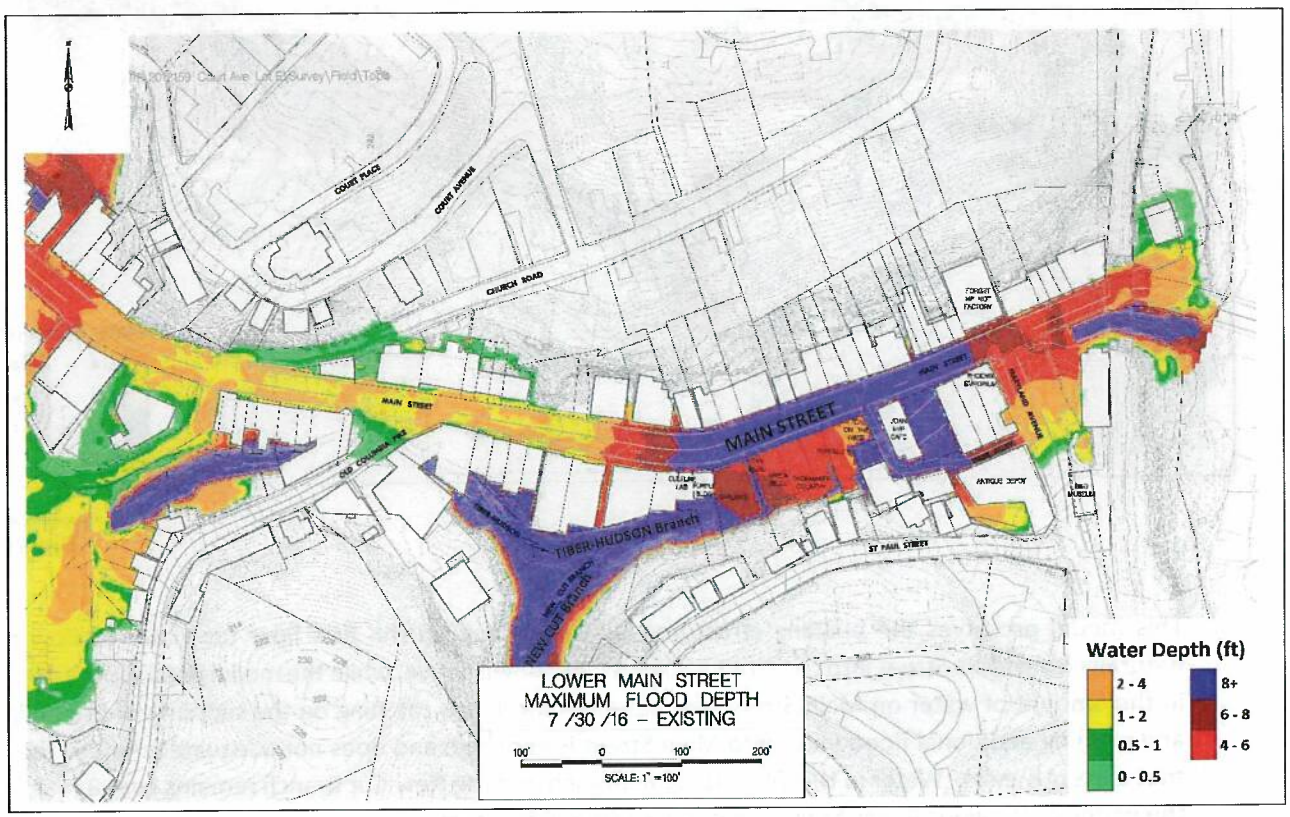


Diagram 1

During the July 30, 2016 flooding event, not only were water levels in the Tiber-Hudson Branch, New Cut Branch, and on Main Street over 8 feet in depth, the rushing water's velocity of approximately 11.1 feet per second created a significant risk for life safety and major destructive damage to buildings, particularly on lower Main Street.

2. Open First Floor Model

The model in the figure below shows flooding conditions if there was a 10-foot clearance underneath the buildings on the south side of Main Street from the Caplan's Building to Maryland Avenue:

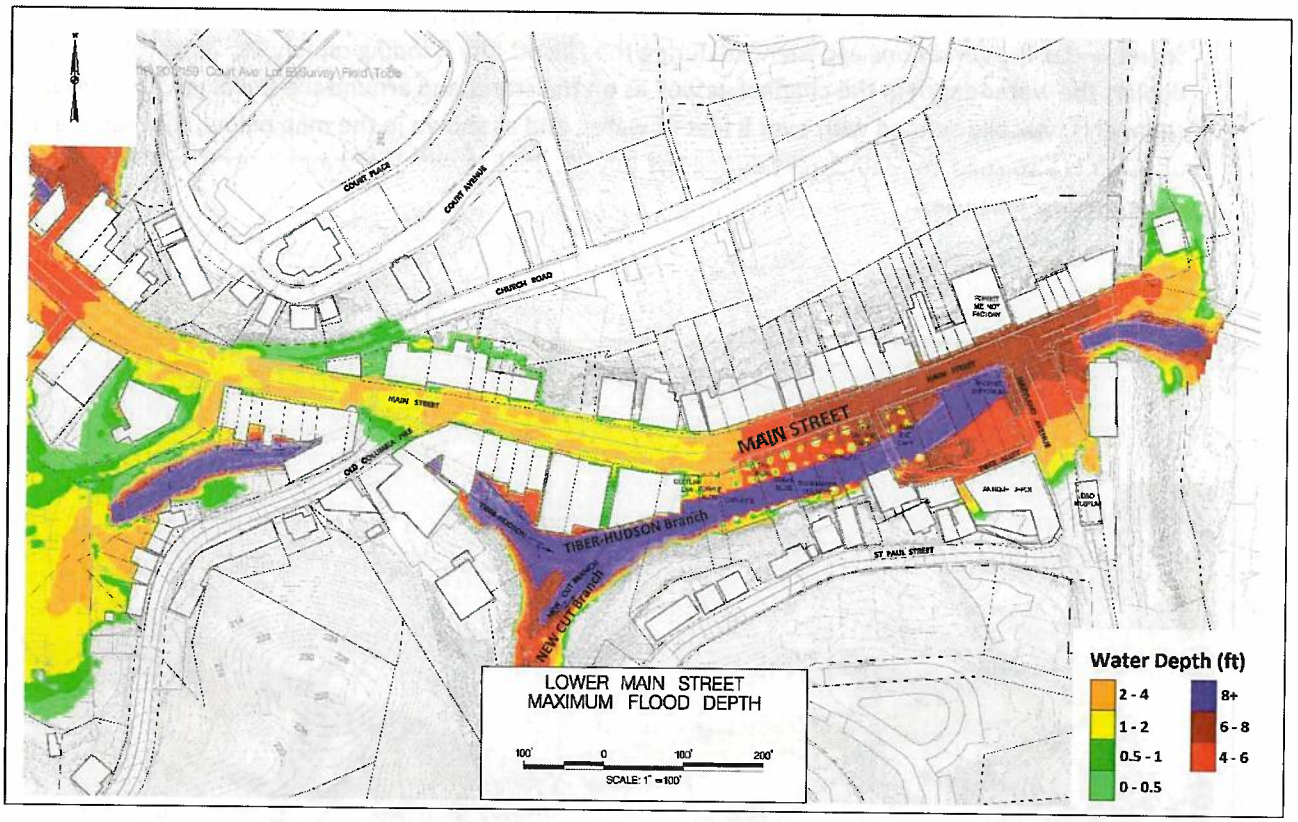


Diagram 2

This model preserves the building structures, while opening up the first floor for water to flow more naturally from Main Street into the stream channel. As shown above, while the model does show a decrease in the amount of water on Main Street, the potential for debris catching on the supports of the buildings and pushing additional floodwater into Main Street is very high and does not adequately reduce the risks that currently exist. Water in the Tiber-Hudson Branch and the New Cut Branch remains over 8 feet, while the water depth along lower Main Street ranges from 4 to 8 feet.

3. Model of Culvert in Lower Main Street

Consideration was also given to the potential of keeping the existing buildings and building a culvert down the middle of Lower Main Street. There were significant concerns associated with constructing such an infrastructure improvement, and even so, the result provides limited reductions in floodwaters on Main Street, as seen below:

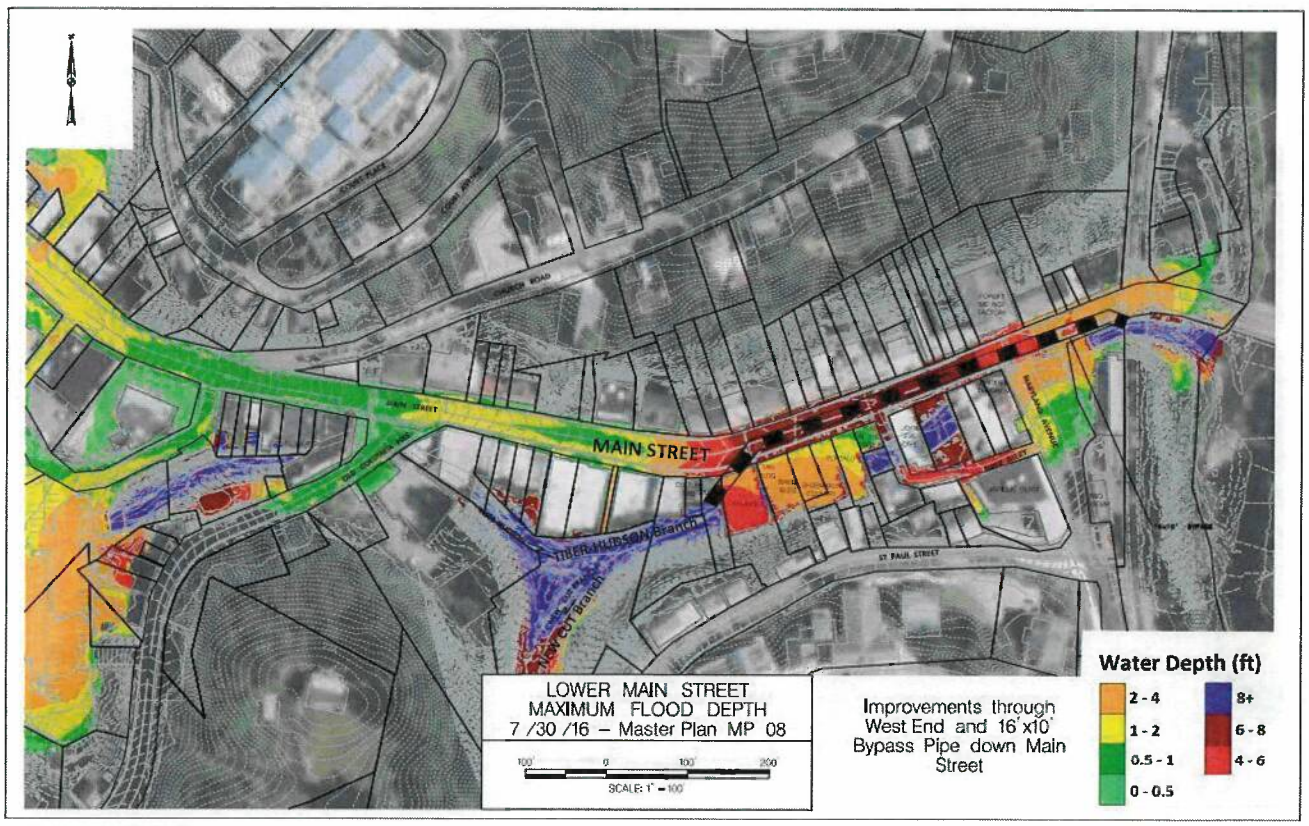


Diagram 3

As this model shows, water depths in the Tiber-Hudson Branch and the New Cut Branch still exceed 8 feet, and the majority of water on lower Main Street remains at 6 to 8 feet.

4. Model with No Structures Over the River

Another scenario the County explored was keeping the fronts of the structures facing Main Street in place in order to preserve the existing viewshed (the existing view from the street). The results of this iteration of modeling shown in Diagram 4 below demonstrate limited reductions in the water on Main Street.

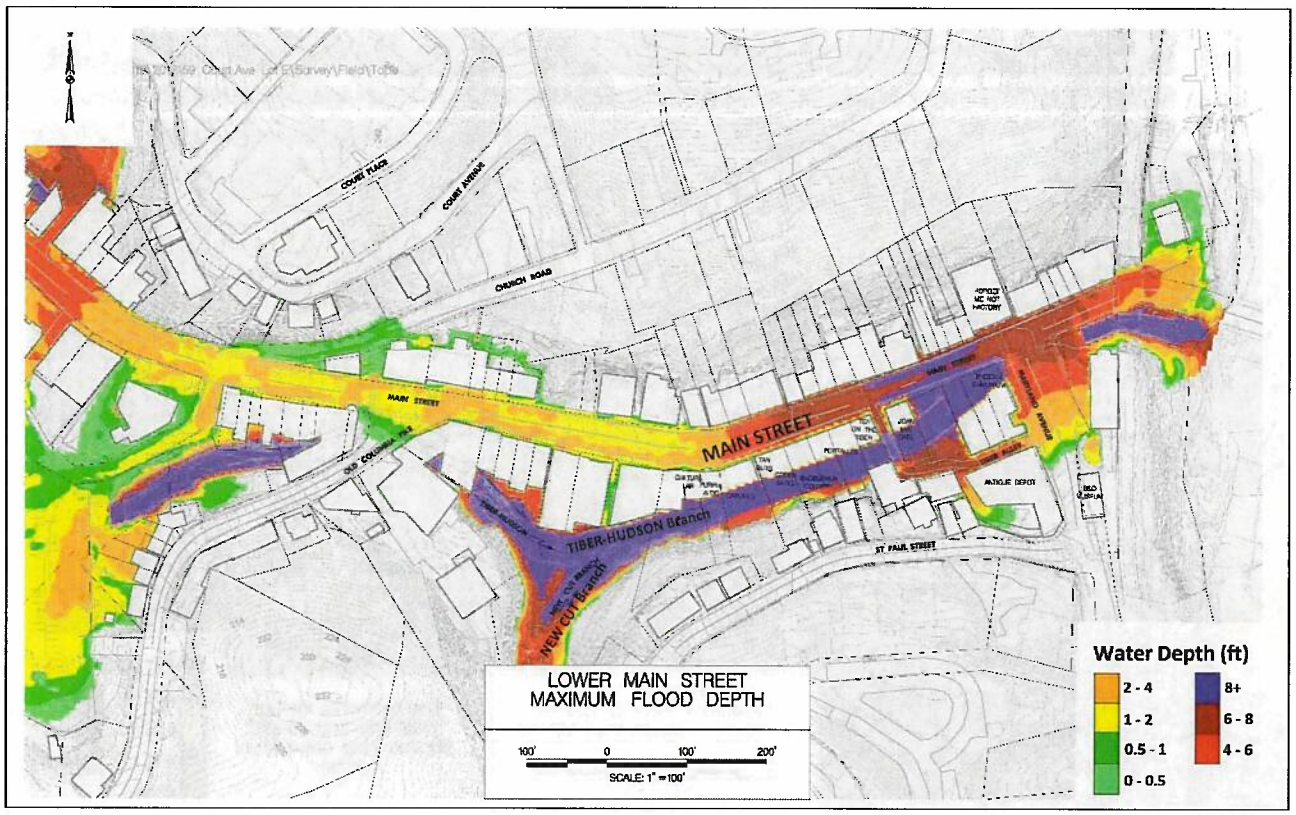


Diagram 4

As shown in this model, the water level in the Tiber-Hudson Branch and the New Cut Branch remains over 8 feet, and the majority of water on lower Main Street ranges from 4 to over 8 feet. Again, the life safety risks remain with these water depths.

5. Expanded Stream Channel Model

The model in Diagram 5 below demonstrates the effect of an expanded stream channel in the area on lower Main Street between the Caplan's Building and Maryland Avenue with the buildings having been removed.

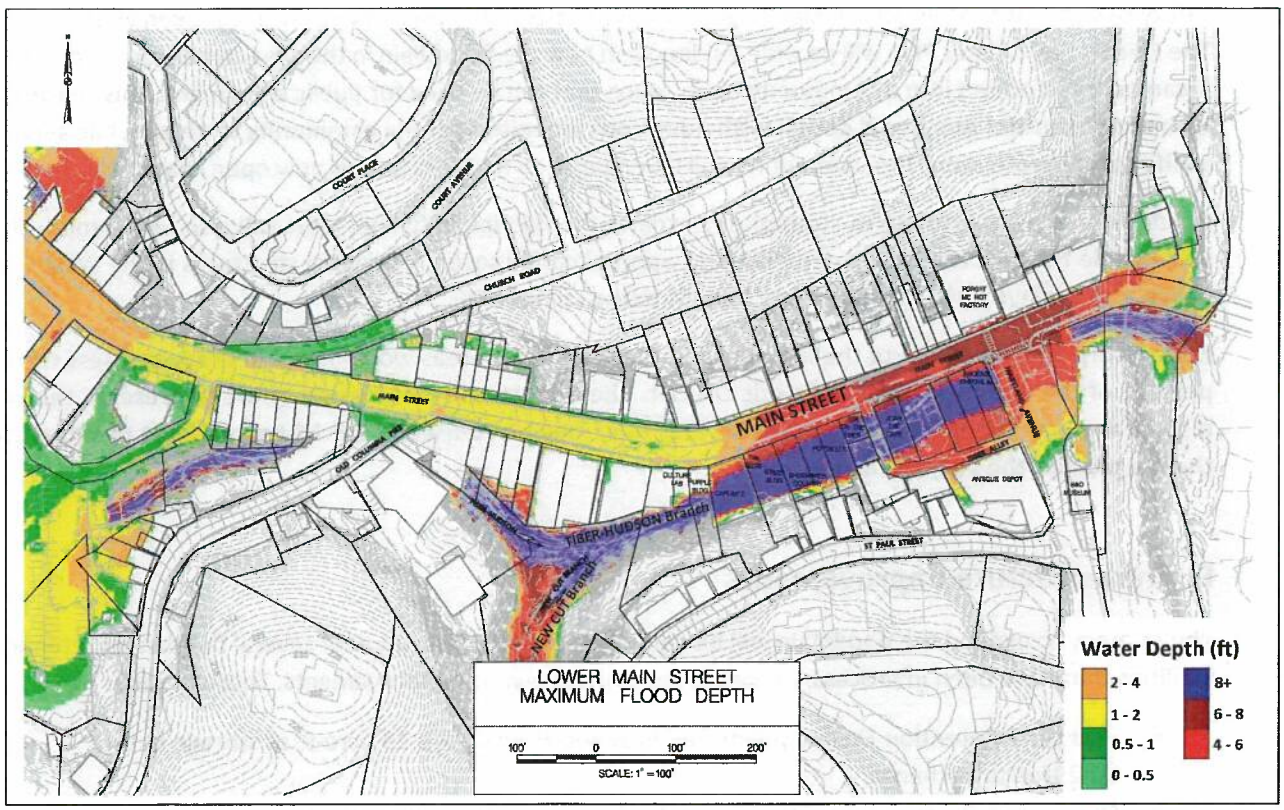


Diagram 5

This model shows a significant reduction in the floodwaters compared to existing conditions, and **demonstrates the most improvements in water depth, water velocity and the risk to life safety.** With the expanded stream channel and the removal of buildings along lower Main Street, the water velocity is approximately 4.5 feet per second – a significant reduction from the conditions that existed during the July 30, 2016 flood with water velocity around 11.1 feet per second.

Expanding the stream channels and floodplain in strategic locations is a central and necessary component of this model. This will require the acquisition of several properties and the demolition, or relocation of several buildings that constrain the stream channel and have significant life safety risks for occupants. Key locations include critical chokepoints in the West End, as well as the area just east of the confluence of the New Cut Branch with the Tiber-Hudson Branches on the lower end of Main Street down to the Patapsco River.

D. Recommendations

As the models demonstrate, the acquisition and relocation/demolition of 10 buildings that currently constrict the stream channel will provide the most immediate and impactful benefit in reducing the life safety risk on Lower Main Street. Significant improvements to realize this vision can be taken within a year. The Ellicott City Master Plan will provide guidance on how the floodplain in this area can be terraced so that it can be transformed into a community open space that can be used for public enjoyment. **This space can be one of beautiful functional design with numerous amenities for the community to enjoy while serving as life safety protection.** The community will be engaged to help design this new open space.

In addition, the opportunity to strategically expand the floodplain further west will also be pursued. This will include the acquisition and demolition of approximately seven residential structures in the West End, which also achieve a similar immediate benefit to the community.

Collectively, the expansion of the floodplain in these strategic areas would result in the loss of less than 5 percent of the structures in the Historic District. **The County will make every effort to preserve the key historical elements of these structures so that they may be re-used in the Historic District to safeguard their legacy for the years to come.**

E. Infrastructure Improvements

The strategy to expand the floodplain will be combined with the execution of several floodwater retention facilities that have been in process, as well as several conveyance improvements. These include:

- Hudson 7 Retention Facility (identified in H and H Analysis): 13 acre-ft of storage in the US 29/40 Interchange
- Quaker Mill Retention Facility: 10 acre-ft of storage along Rogers Avenue
- 8600 Main Street Culvert Expansion (identified in the H and H Analysis): Significantly increasing the capacity of the culvert.

In addition to these projects, the County is continuing to evaluate the potential to construct the retention facilities described as T1 and NC3 in the H and H Analysis.

These projects will now be coupled with two new elements to drastically improve conveyance of water through the town.

The first is the expansion of the channel that runs under Parking Lot E to Parking Lot D. This idea was explored through the Master Plan concepts, and it will tie into the expansion of the Ellicott Mills Drive culvert as that is rebuilt. This will require the relocation or removal of two additional structures.

The other project will be the addition of culverts under Maryland Avenue that will connect the Tiber-Hudson with the Patapsco River further downstream. The constriction at the B & O Railroad Bridge proves to be a continuing challenge, so the addition of an outlet further downstream will reduce the backwatering caused at that constriction. The County will need to work with its partners at CSX to perform this work, and the goal is to construct at least two 10' diameter culverts as shown in the Appendix.

F. Community Outreach

The County has been working continuously with its partners in the community to expand stormwater management on residential and commercial properties, not only in the Tiber-Hudson Watershed, but across the entire County. In the Watershed, we have been supportive of the efforts of Howard EcoWorks and its SoakItUp campaign. The Office of Community Sustainability has also been working to continue to increase the number of bio-retention facilities, rain barrels, and other projects in this watershed and throughout the county. They have also been working to improve the capacity of our existing stormwater management ponds. With the utilization of new technology such as Opti, the County is improving the retention capacity of the existing stormwater management ponds, and will continue to look for areas to improve in the watershed. The County will continue to support these efforts and encourage property owners to do what they can to manage their stormwater as well.

As part of this new approach, Howard EcoWorks has been working with Baltimore Gas and Electric to immediately include better natural vegetative management within its Right of Way. This practice is another effort worth exploring to more immediately reduce the amount of stormwater reaching the town. Every bit helps, and the County will continue to be supportive and encourage these practices.

The Flood Work Group, established by County Executive Allan Kittleman and Councilmember Jon Weinstein in the spring of 2015, has also been a critical component in the County's flood mitigation efforts. The workgroup's participation in the recovery efforts and their recommendations have been utilized to improve the County's response, while also serving as a direct conduit to the community. Their assistance has been invaluable and the County will continue to work with the members of this group in the implementation of this plan.

The County recognizes the keen community interest in staying abreast of plans and projects focused on flood mitigation in the Tiber Watershed. To that end, we will continue to be transparent on all aspects of our work. **The flood recovery website (ECfloodrecovery.org) will continue to be our primary conduit for information. This site will be kept up to date with all upcoming meetings, project status and related community activities.**

G. Overall Plan

This multi-faceted strategy is tailored to adapt to the urgent nature of the threat we now face. It provides the most benefit to the community in the shortest duration. The overall cost of the proposed flood mitigation described in this plan is approximately $40 to $50 million, close to half of the estimate for all the projects identified in the Hydrologic and Hydraulic Analysis. With financial and technical assistance from our State and Federal partners, the County believes this plan could be implemented in a five-year timeframe. **The most immediate life safety threat in Lower Main could be addressed within a year.**

The models below demonstrate the tremendous benefit that would be realized from this multi-faceted approach. The first model run in Diagram 6 shows the impact of the July 30, 2016 storm on the town during current conditions:

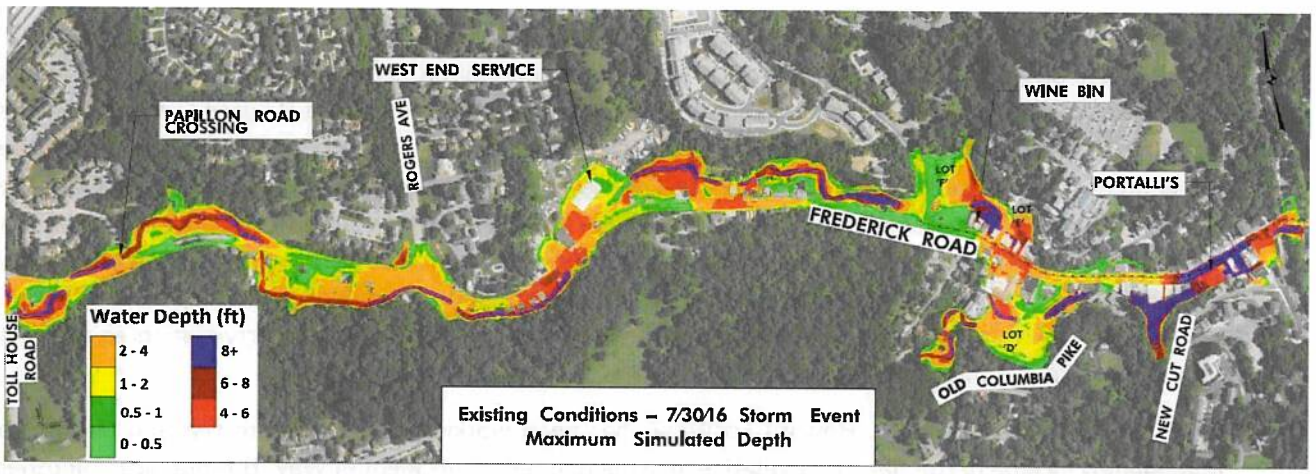


Diagram 6

The model run below in Diagram 7 shows the impact of the same July 30, 2016 storm with the recommended mitigation improvements described in this plan in place:

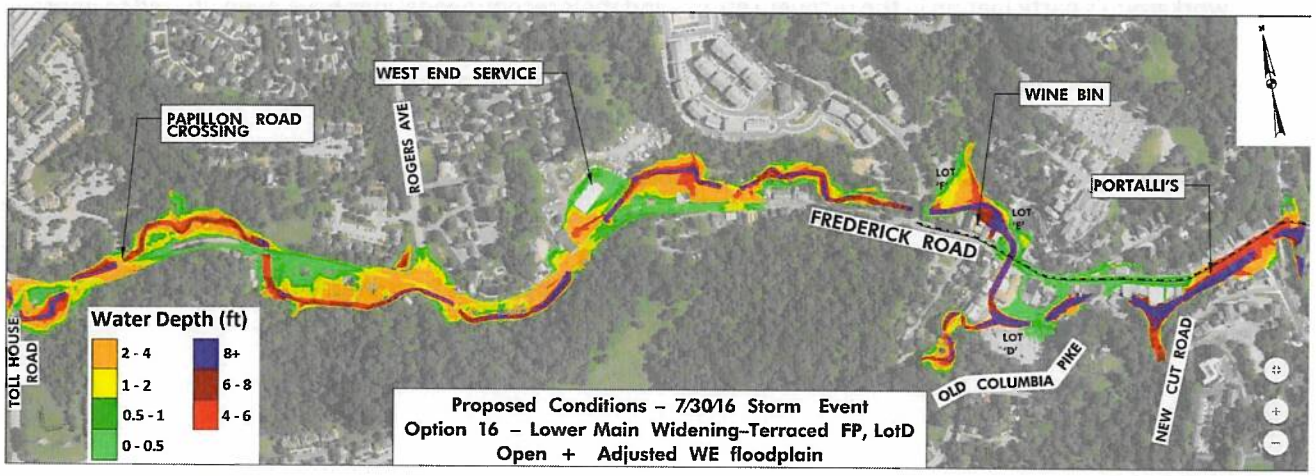


Diagram 7

These model runs show unequivocally that there is a significant decrease in roadway flooding with the expanded stream channels and infrastructure improvements. In addition, the velocity of the water on the road has also decreased dramatically. For instance, in the lower end of Main Street, the water was travelling at approximately **11.1 feet per second** in the street during the July 30, 2016 storm, but that will now be closer to **4.5 feet per second** after the identified improvements are made. **Reducing the velocity of the water by 60 percent** will significantly decrease the destructive force the water has had on the structures. Even so, property owners will continue to be strongly encouraged to floodproof their buildings.

IV. Next Steps for the Master Plan

This flood mitigation plan is meant to serve as a short-term strategy to direct County efforts in reducing the immediate life safety risk in Ellicott City. With the assistance of our State and Federal partners, this plan could be accomplished in a 5-year timeframe. This flood mitigation plan will be incorporated into the Ellicott City Watershed Master Plan (Master Plan).

The County launched the Ellicott City Master Plan as the Hydrologic and Hydraulic (H&H) analysis was completed. The Master Plan incorporated the results of the H&H analysis, integrating these with economic, historic, community design and environmental considerations. The master plan process has been crafted to define a comprehensive community-driven vision for rebuilding a stronger and more resilient Ellicott City. The plan was developed with a high level of engagement, being based on the 2016 flood recovery meetings and a series of public workshops and outreach. The master planning process resulted in a new vision and a series of strategies for the Main Street core area, the West End and the larger watershed.

The Master Planning process is to be restarted this September 2018. It is important to note that this 5-year plan is meant to solely address the flood mitigation, while the Master Plan will provide more holistic recommendations in the Tiber-Hudson Watershed to address transportation, community and economic development.

V. Summary

The transformative vision outlined in this document will ensure Ellicott City immediately becomes more resilient to future flooding. Since its inception, Ellicott City was built to control the water. As we adapt to changing weather patterns, we must embrace the natural environment that surrounds our community and coexist with it. These are the actionable steps that must be taken to preserve Ellicott City so that future generations will have the opportunity to enjoy all that it has to offer.

This bold five-year strategy to mitigate flooding in Ellicott City, includes a core component that would address the most immediate life safety threat on the town's lower Main Street within one year. The strategy includes the acquisition and removal of 10 buildings on the south side of Main Street within the next year and the creation of a public open space with a wider, deeper river channel in their place. The community will be engaged through the Master Plan process to provide input into the design and use of this new open space. Community input will also be important to identify key historic features that can be preserved and re-used when the buildings are removed to widen the channel.

In addition to community input, the Master Plan itself and specifically any proposed removal of structures within the Historic District require the Historic Preservation Commission (HPC) to review. A Certificate of Approval will need to be obtained from the HPC before the County can proceed with these plans. Projects that have any federal/state permitting or funding must include a Section 106 Review where the County will identify and determine the impact and any adverse effects of the historic resources within the identified area. The County will work with state agencies such as Maryland Historic Trust in this review process.

As part of this five-year strategy, at least two additional culverts, each 10 feet in diameter, will be installed beneath Maryland Avenue to carry water from the Tiber-Hudson branches further downstream in the Patapsco River. The Hudson branch channel under Main Street near Court Avenue will be widened to

eliminate a significant pinch point that causes the water to rush out onto upper Main Street during heavy rainfalls.

The most experienced forecasters have told the County that storms capable of producing devastating flash floods are becoming more likely in the entire mid-Atlantic region. The County must adapt to this likelihood, with the protection of life safety driving the changes necessary.

The strategy to expand the stream channels will be combined with the construction of three upstream floodwater retention facilities and conveyance improvements:

- A 13-acre-foot retention pond in the US 29/40 interchange.
- A 10-acre-foot retention pond along Rogers Avenue.
- Significant expansion of the culvert in the 8600 block of Main Street to increase capacity.

It is important to note, even with these improvements, storms like the ones experienced in 2016 and 2018 could still cause some flooding, and this strategy will substantially reduce the height of the floodwaters. Perhaps more importantly, it will decrease the velocity of the water and its destructive force by 60 percent, improving the current risks faced to life safety and property damage. This will make a substantial difference for residents, business and property owners, and visitors to our community.

The County is also planning to acquire and remove approximately seven residential properties in the town's West End between Ellicott Mills Drive and Rogers Avenue to achieve a similar benefit for that part of the community. The number of structures that are planned for acquisition and removal comprise just 5 percent of the entire Historic District. The Howard County Economic Development Authority will continue to assist those impacted businesses find alternate locations.

In the Valley Mede community north of U.S. Route 40 in Ellicott City, the County is engaged in ongoing discussions with several residents who have been most impacted by recent flooding. The County is evaluating the purchase of these homes as well, in addition to stormwater improvements.

The recommended five-year plan is estimated to cost about $40 to $50 million. The County is seeking financial and technical assistance from the state and federal governments to implement the recommended plan and provide the most immediate impact in addressing the significant life safety threat in Ellicott City.

Appendix: Detailed Modeling of the Recommended Improvements

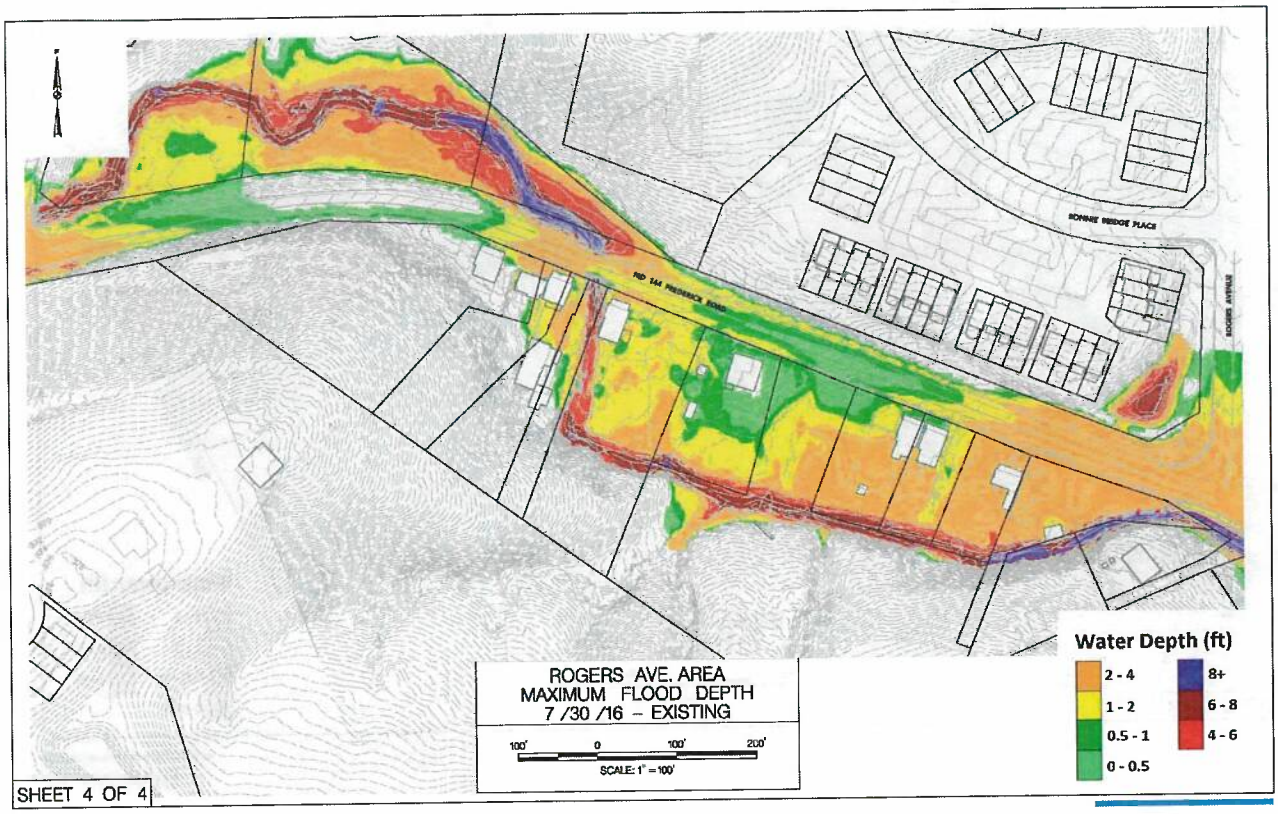


Diagram 8

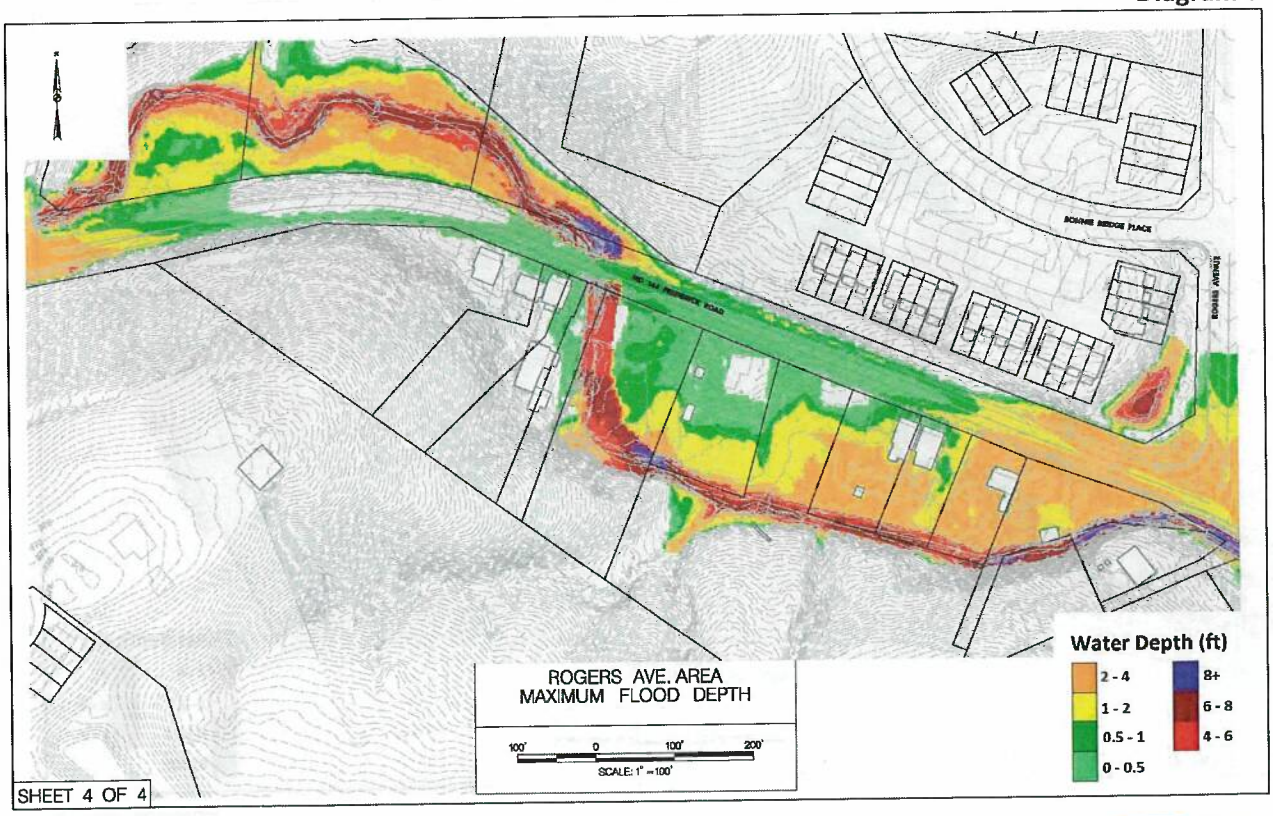


Diagram 9

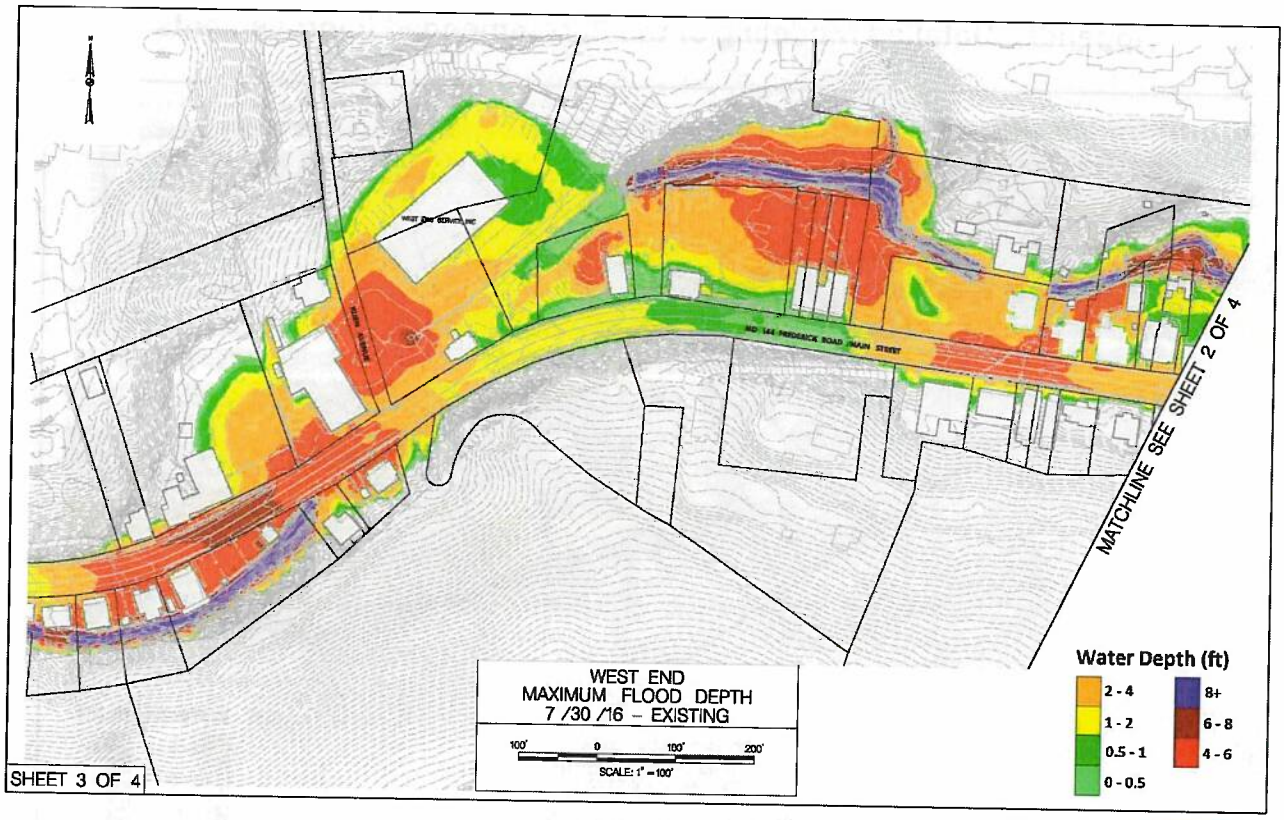


Diagram 10

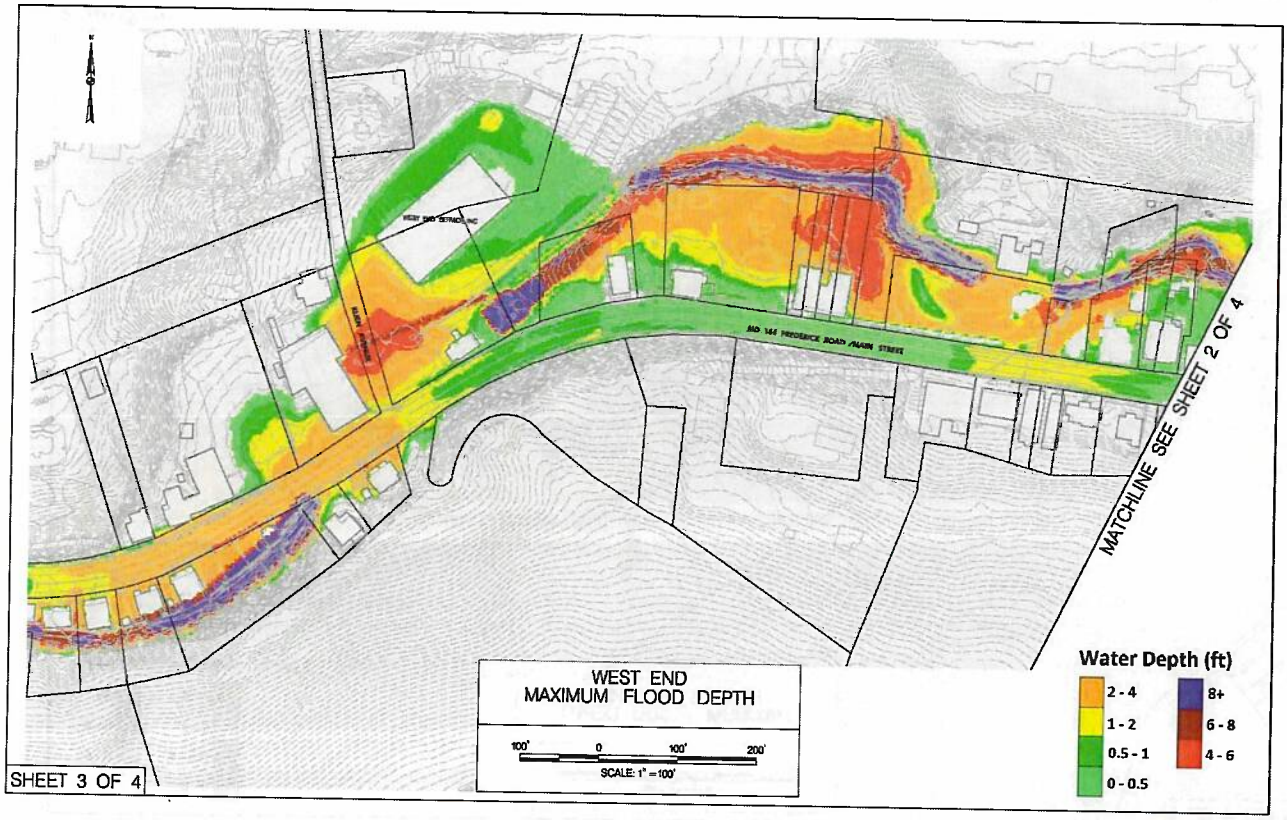
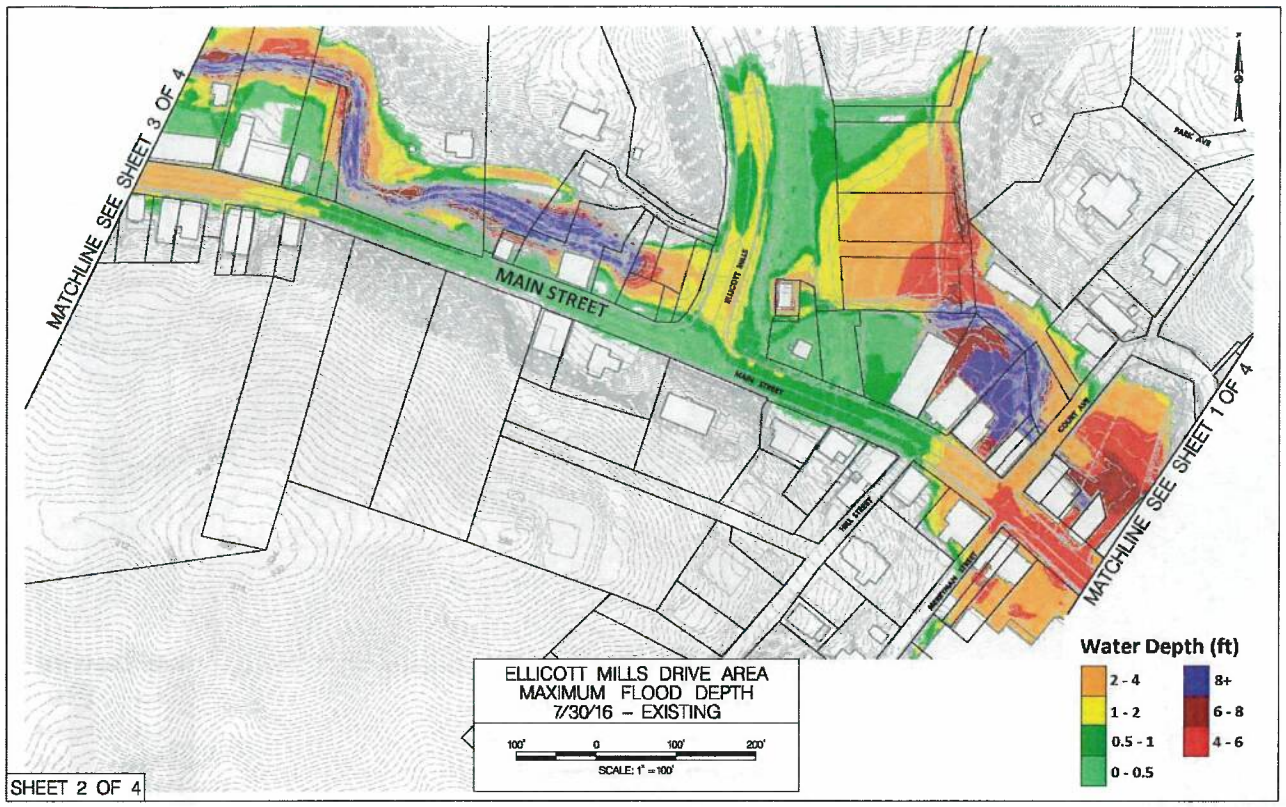


Diagram 11



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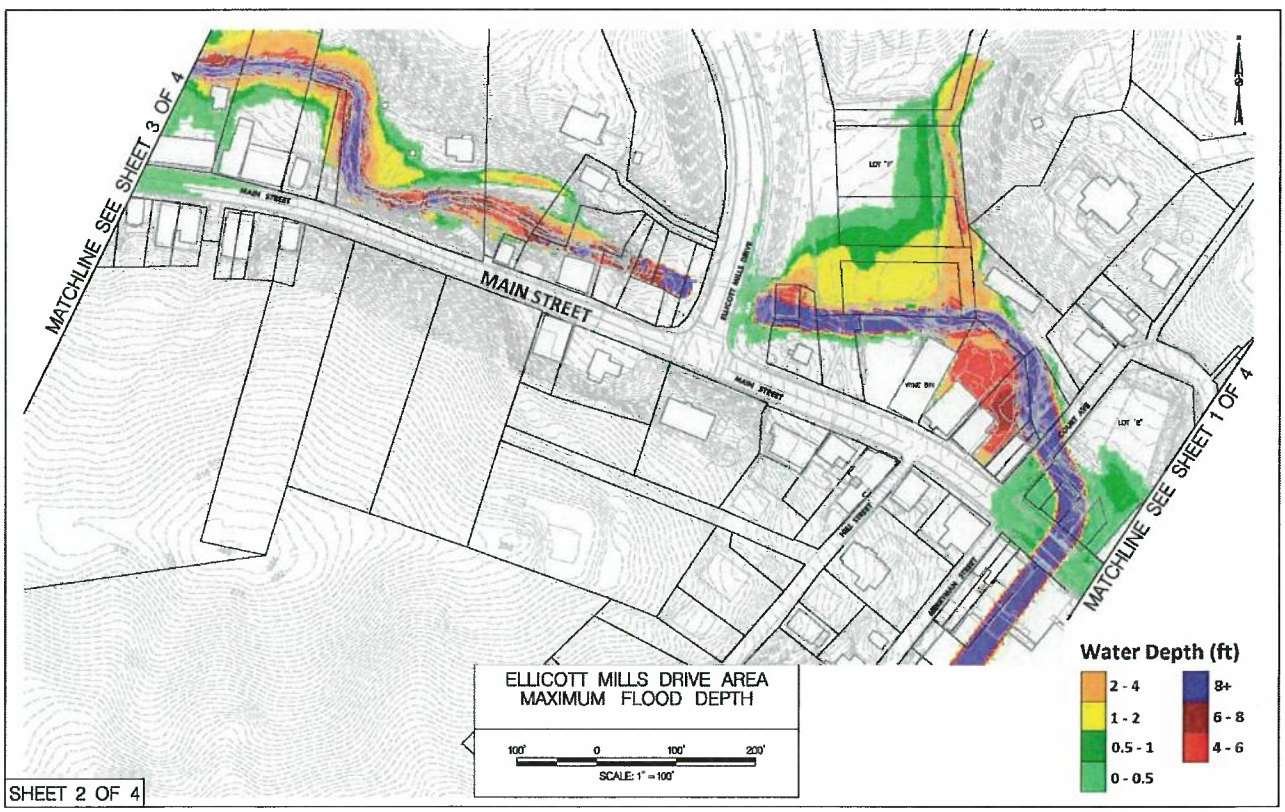

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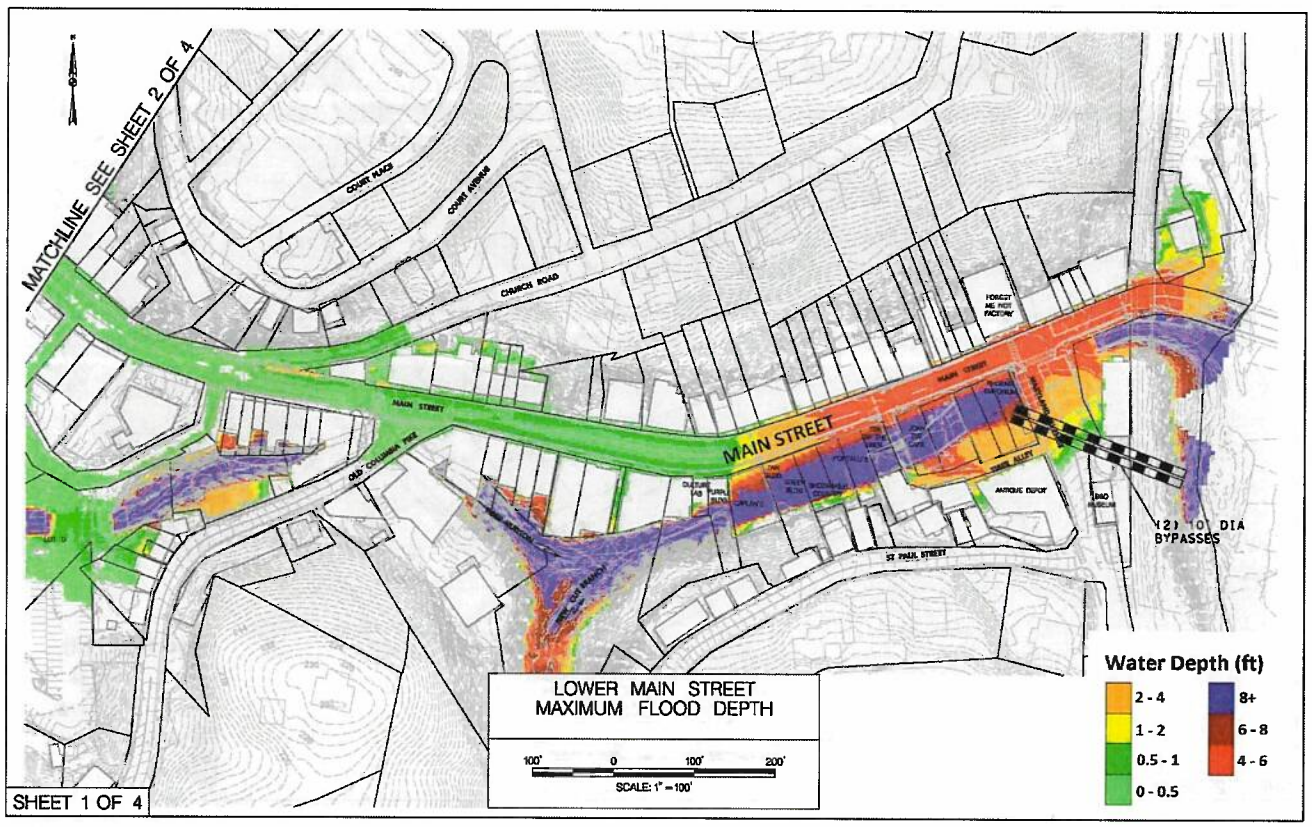
MATCHLINE SEE SHEET 2 OF 4
COURT PLACE
COURT AVENUE
CHURCH ROAD
MAIN STREET
OLD COLUMBIA PIKE
ANTIQUE DEPOT
ST PAUL STREET
(2) 10 DIA BYPASSES
LOWER MAIN STREET
MAXIMUM FLOOD DEPTH
100' 0 100' 200'
SCALE: 1" = 100'
Water Depth (ft)
2 - 4
1 - 2
0.5 - 1
0 - 0.5
8+
6 - 8
4 - 6
SHEET 1 OF 4

Diagram 14