



# **Ad Hoc Stormwater Utility and Flood Mitigation Advisory Group**

June 29, 2022 Meeting

# Tonight's Agenda

1. Electronic meeting notice (6:00)
2. Chair's Comments (6:05)
3. Flood Action program update (6:15)
4. Project dashboard demo (6:35)
5. Summary of CASSCA CIP analysis by John Hill (6:45)
6. Summary of draft annual report by Skip Maginniss (7:05)
7. Chair succession (7:20)
8. Approval of the February 16, 2022 and April 19, 2022 meeting minutes (7:25)
9. Public Comments (7:30)
10. Adjourn (7:40)



# Meeting Notice

AGENDA ITEM #1

## Electronic Meeting Notice

Due to the COVID-19 Pandemic emergency, this meeting is being held electronically pursuant to Virginia Code Section 2.2- 3708.2(A)(3), the Continuity of Government ordinance adopted by the City Council on June 20, 2020 or Section 4-0.01(g) in HB29 and HB30, enacted by the 2020 Virginia General Assembly (Virginia Acts of Assembly Ch. 1283 and 1289), to undertake essential business. All of the members of the Advisory Group and staff are participating from remote locations through Zoom.

Note: this meeting is being recorded.

# Chair's Comments

AGENDA ITEM #2

# Flood Action Program Update

AGENDA ITEM #3

# Flood Action Alexandria Progress Report

- Master baseline schedule:
  - All Tier 1 projects are on schedule
- Large capacity projects
  - Commonwealth/ E. Glebe & Commonwealth & Ashby (\$50M) **under procurement**
  - Hooff's Run Culvert Bypass (\$60M) **under procurement**
- Combined sewer area projects
  - Pitt & Gibbon (\$11.5M) **under procurement**
  - Nethergate (\$5M) **under procurement**

# Flood Action Alexandria Progress Report

- Neighborhood spot improvements *on schedule*
  - 32 Projects Identified (\$10.95M)
  - 16 Projects In Motion (\$4.67M)
    - 10 under planning (\$2.78M)
    - 3 under design (\$1.67M)
    - 3 under construction (\$210K)
  - 3 Projects Complete (\$265K)

# Flood Action Alexandria Progress Report

- State and federal grant funding
  - State CFPF Awards for Stormwater\* to Date: \$3.87M
  - Federal Funding for Stormwater to Date (ARPA+HUD): \$2.32M
  - April 8, 2022: CFPF Application total \$2M

\*Including \$3.2M awarded for the Waterfront
- Current Status of the City's Flood Mitigation Pilot Grant Program
  - 190 applications submitted
  - 173 have been paid out via check
  - \$558,127.17 reimbursed to date
  - Continue to refine the process and expectations, and associated materials
  - Upcoming communications push
  - \$769,000 FY 2023 approved funding
  - Multifamily participation is under investigation; expected early FY23

# Flood Action Alexandria Communications

## Highlights

- ✓ Social: Impressions and engagements increased.
- ✓ Newsletter: Audience continues to grow.
- ✓ Website Improvements: Meet Our Leaders section.
- ✓ News media request: DC News Now.

## Upcoming

- ✓ Social: Behind-the-scenes of East and West Del Ray Avenue projects.
- ✓ Newsletter: grant news, project updates.

Which sections do you like? Are there sections that aren't valuable?



**Daniel Medina**  
Program Manager,  
Flood Action Alexandria



**Jesse E. Maines**  
Chief,  
Stormwater  
Management Division



**Erin Bevis-Carver**  
Chief,  
Sanitary Infrastructure  
Division

## Let's be friends! @alexandriaVATES



Alexandria Transportation & Environmental Services · 5/26/22 ·  
When debris & vegetation fall into storm drain channels, they can cause blockages that contribute to flooding. But our crews remove the debris to keep water flowing!

Does a channel or inlet in your neighborhood need maintenance? Let us know via Alex311 [alexandriava.gov/Alex311](http://alexandriava.gov/Alex311).



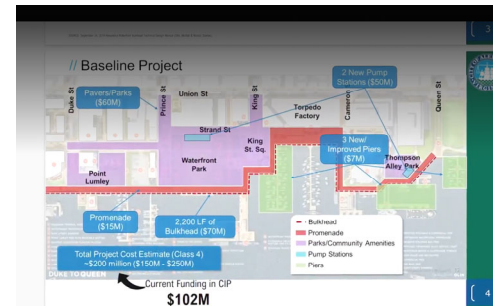
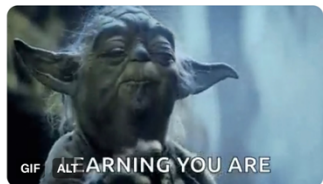
Drains carry water. Clean you must. May the 4th be with you.

Happy #StarWarsDay from the Stormwater Management Division!

#DYK you can track rainfall levels near your neighborhood?

Our rain gauges & stream gauges measure rainfall and stormwater runoff in real-time and are located within the City's major watersheds. Track rainfall levels using the portal here >>>

[a1xfloodwatch.onerain.com](http://a1xfloodwatch.onerain.com).



Terry Suehr, director of DPI, spoke with reporter Christy Matino about the city's flood mitigation work on the waterfront. Participating in interviews with reporters helps us share our message with a larger audience.

## Slide 10

---

**DM0**      [@Amanda Dolasinski] Please update  
Daniel Medina, 2022-06-17T16:10:16.829

**ADO 0**    Apologies for the delay - ready for your review!  
Amanda Dolasinski, 2022-06-22T13:08:47.659

# Project Dashboard Demo

AGENDA ITEM # 4

# Summary of CASSCA CIP analysis

by John Hill

AGENDA ITEM # 5

## A Call to Action



### **Multiple Flooding Events Every Year**

July 8<sup>th</sup>, 2019

July 23<sup>rd</sup>, 2020

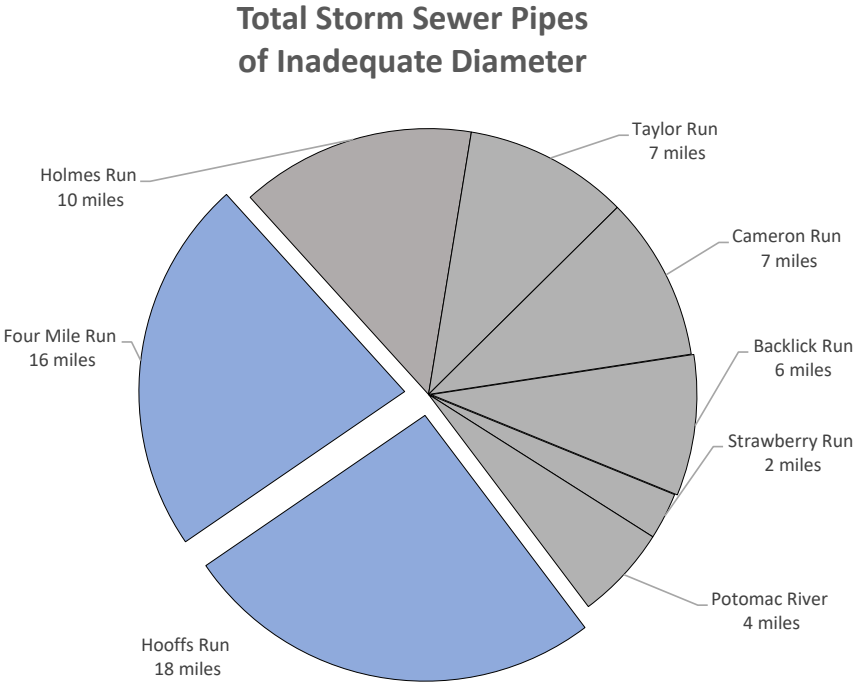
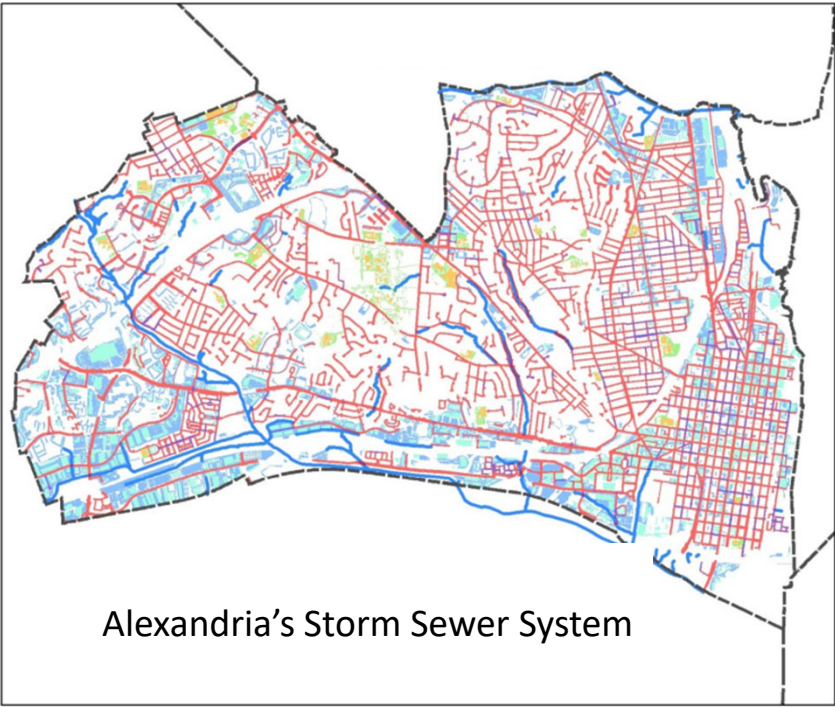
September 10<sup>th</sup>, 2020

August 15<sup>th</sup>, 2021

September 16<sup>th</sup>, 2021

# CASSCA Report Findings

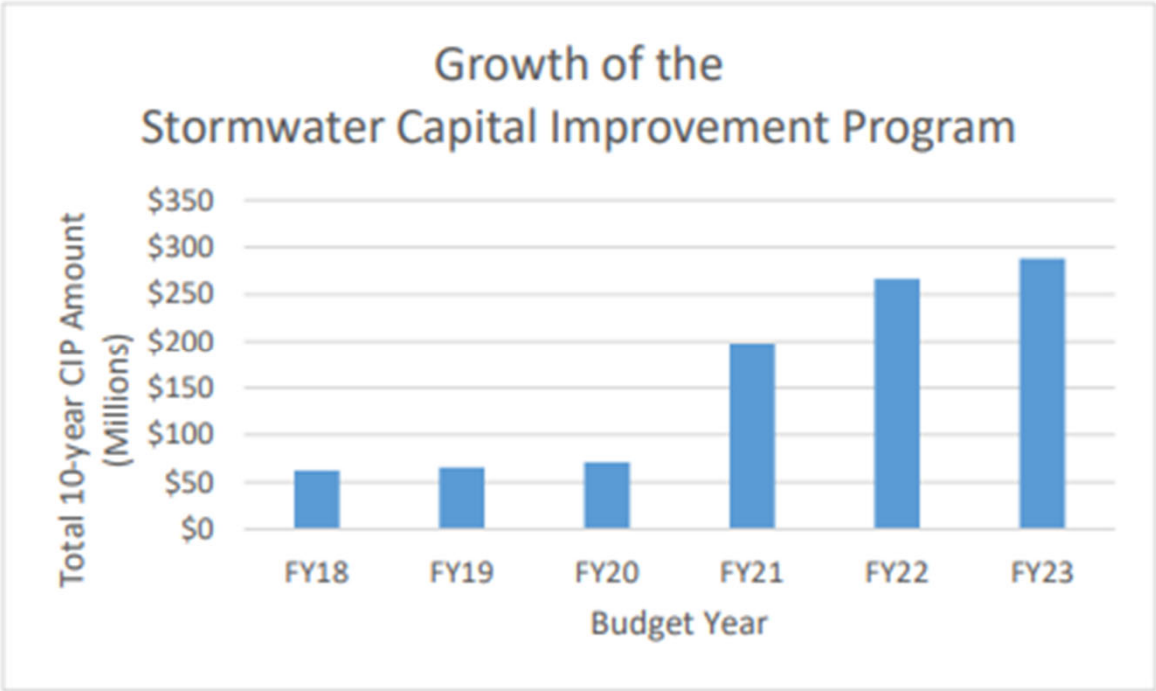
- There are 130 miles of storm sewers
- 69 miles of them are of inadequate diameter



**Two watersheds have 50% of the inadequate pipes**

- **Hoofts Run (18 miles)**
- **Four Mile Run (16 miles)**

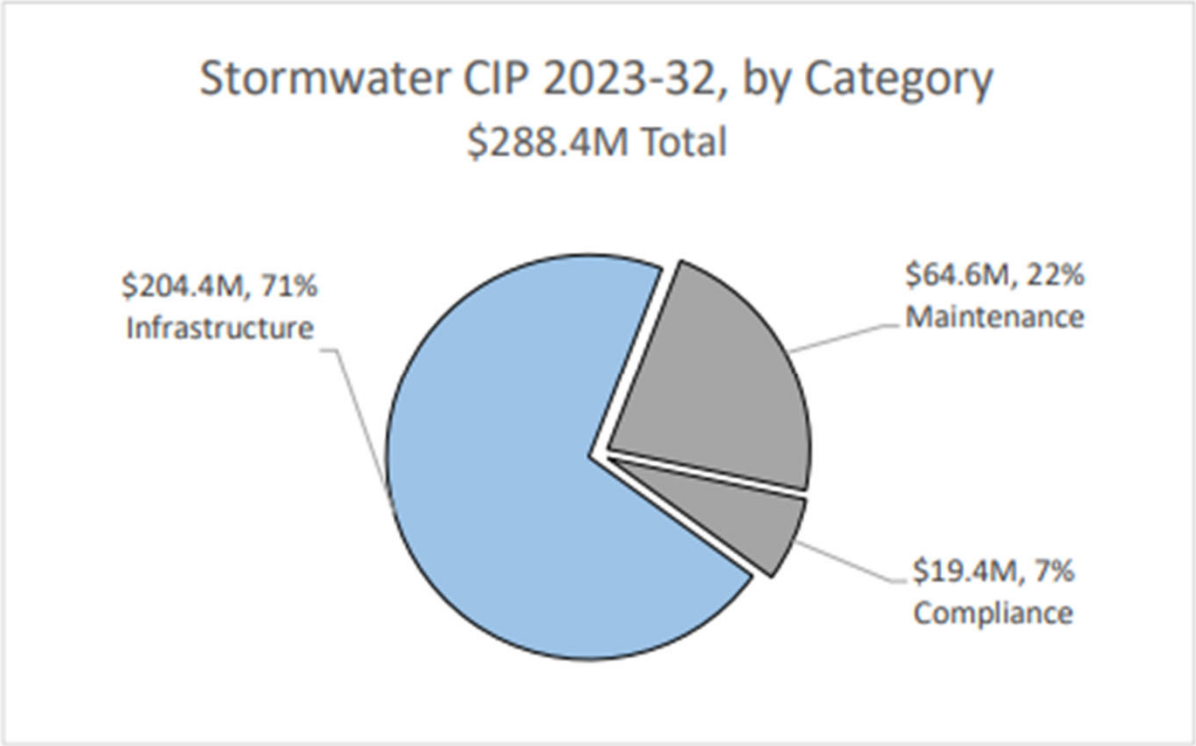
# Alexandria’s Investment in Stormwater Mitigation



**Since 2020,  
City Council has quadrupled  
Alexandria’s planned investment  
in stormwater mitigation  
(\$71M to \$288M)**

**During the same period,  
the Residential Stormwater Fee  
has doubled  
(\$140 to \$297 per year)**

# Stormwater Capital Improvement Program



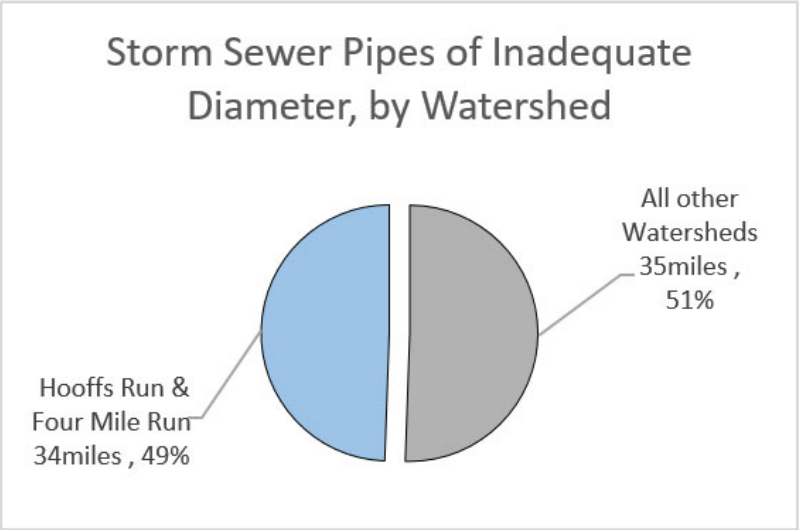
**Over 70% of the latest Stormwater CIP is directed toward capacity-building infrastructure.**

**That’s a big change for Alexandria.**

**Prior to 2021, only about 30% of the Stormwater CIP was expended on infrastructure.**

# Comparing CASSCA Findings with the Stormwater CIP

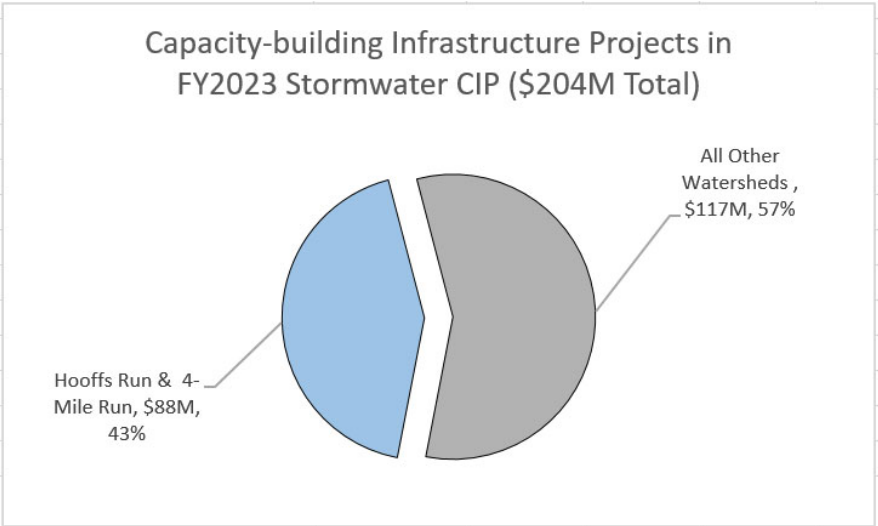
**CASSCA: About 50% of the ‘problem’ is in two watersheds**



**Preliminary Finding:**

*The FY 2023 CIP appears to be directed to the watersheds with the greatest need – and in the right proportion.*

**CIP: About 50% of the capacity-building ‘investment’ is in these two watersheds**



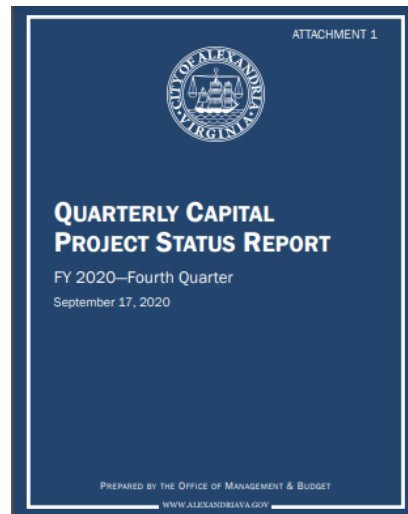
**Future Analysis:**

*If the \$88M investment actually ‘solves’ the flooding problem – and fixes 34 miles of inadequate storm sewer pipes in the two watersheds -- can we estimate the total cost of ‘fixing’ the other watersheds?*

## An Annual Role for the Ad Hoc Committee



*FY 2021 year-end  
expenditure data not yet  
available*



Using financial data published by the City, prepare an annual report:

- Is capacity-building infrastructure planned for the most flood-prone areas?
- Are these investments actually being made?
- Are we increasing the capacity of Alexandria's Storm Sewer system?
- Ultimately, are we reducing flooding during extreme rain events?

*Building public infrastructure  
requires a long-term commitment  
of resources and citizen support*

*Analysis of CASSCA Report and Alexandria's Stormwater Capital Improvement Program*

## Appendix – CASSCA Data

<b>Hydraulic Model Results by Watershed</b>	Total Conduit Length in Feet	Total Conduit Length in Miles	Percent Surcharged, Flooded, or No Freeboard	Total Conduit in Need of Mitigation (feet)	Total Conduit in Need of Mitigation (miles)	Percent of City-wide Total
Hooffs Run	140,095	27	68%	95,265	18	26%
Four Mile Run	158,758	30	54%	85,729	16	23%
Holmes Run	98,019	19	53%	51,950	10	14%
Taylor Run	58,308	11	63%	36,734	7	10%
Cameron Run	82,086	16	43%	35,297	7	10%
Backlick Run	57,255	11	52%	29,773	6	8%
Strawberry Run	25,038	5	46%	11,517	2	3%
Potomac River	66,060	13	30%	19,818	4	5%
<b>City-wide Total</b>	<b>685,619</b>	<b>130</b>		<b>366,083</b>	<b>69</b>	<b>100%</b>
* from Table 4.2, CASSCA Summary Report						

## Appendix – FY2023 Stormwater Capital Improvement Program

Project	CIP Page	Type	Watershed	Prior Approps	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY23 -32
Braddock & West	13.4	Infrastructure	Hooff's Run	\$0.000	\$0.198	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.198
Storm Sewer Spot Improvements	13.24	Infrastructure	City-wide	\$11.166	\$5.907	\$4.011	\$4.122	\$4.228	\$4.337	\$4.540	\$4.606	\$4.688	\$4.812	\$4.937	\$46.188
Large Capacity (Commnwith&Glebe)	13.12	Infrastructure	4-Mile Run	\$0.000	\$26.407	\$12.632	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$39.039
Large Capacity (Hoofs Run Culvert)	13.13	Infrastructure	Hooff's Run	\$0.000	\$0.000	\$16.176	\$32.352	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$48.528
Green Infrastructure	13.9	Infrastructure	City-wide	\$2.311	\$0.000	\$1.550	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$1.550
Storm Sewer Capacity Projects	13.22	Infrastructure	City-wide	\$26.686	\$0.000	\$0.000	\$0.000	\$15.950	\$15.200	\$13.675	\$6.700	\$6.350	\$4.000	\$7.000	\$68.875
Stormwater Utility Implementation (?)	13.26	Infrastructure	City-wide	\$1.673	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Spot Project - Hume Ave Bypass	13.20	Infrastructure	4-Mile Run	\$1.070	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Spot Project - Mt Vernon Cul-De-Sac	13.21	Infrastructure	Hooff's Run	\$0.830	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
<b>Sub-Total</b>				<b>\$43.736</b>	<b>\$32.512</b>	<b>\$34.369</b>	<b>\$36.474</b>	<b>\$20.178</b>	<b>\$19.537</b>	<b>\$18.215</b>	<b>\$11.306</b>	<b>\$11.038</b>	<b>\$8.812</b>	<b>\$11.937</b>	<b>\$204.378</b>
<b>Percent of CIP</b>				<b>53%</b>	<b>84%</b>	<b>84%</b>	<b>82%</b>	<b>67%</b>	<b>75%</b>	<b>68%</b>	<b>51%</b>	<b>60%</b>	<b>46%</b>	<b>54%</b>	<b>71%</b>
Stormwater BMP Maintnce CFMP	13.25	Maintenance		\$0.520	\$0.286	\$0.304	\$1.575	\$1.623	\$0.317	\$0.327	\$0.336	\$0.347	\$0.357	\$1.792	\$7.264
Small-Midsize Stormwater Mntnce	13.19	Maintenance		\$0.000	\$0.581	\$0.614	\$0.649	\$0.686	\$0.724	\$0.766	\$0.809	\$0.854	\$0.901	\$0.923	\$7.507
Flood-proofing Grant Program	13.7	Maintenance		\$0.750	\$0.769	\$0.789	\$0.809	\$0.830	\$0.851	\$0.873	\$0.895	\$0.918	\$0.941	\$0.965	\$8.640
Stream & Channel Maintenance	13.28	Maintenance		\$7.429	\$0.881	\$0.908	\$0.935	\$0.963	\$0.992	\$1.021	\$1.052	\$1.084	\$1.116	\$1.150	\$10.102
Four Mile Run Channel Maintenance	13.8	Maintenance		\$3.475	\$0.936	\$0.000	\$0.300	\$0.300	\$0.000	\$1.251	\$2.900	\$0.000	\$0.300	\$0.300	\$6.287
Inspection & Cleaning CFMP	13.11	Maintenance		\$3.852	\$1.268	\$1.457	\$1.578	\$1.695	\$1.835	\$2.006	\$2.220	\$2.496	\$2.862	\$3.304	\$20.721
Hoofs Run Culvert Maintenance	13.10	Maintenance		\$0.000	\$0.000	\$0.000	\$0.000	\$1.616	\$0.000	\$0.000	\$0.000	\$0.000	\$2.510	\$0.000	\$4.126
Taylor Run Stream Restoration	13.29	Maintenance		\$4.540	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Cameron Station Pond Retrofit (?)	13.5	Maintenance		\$4.723	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
City Facilities Stormwater BPMs (?)	13.6	Maintenance		\$1.633	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Strawberry Run Stream Restoration	13.27	Maintenance		\$1.645	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
Lucky Run Stream Restoration	13.14	Maintenance		\$2.853	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000
<b>Sub-Total</b>				<b>\$31.420</b>	<b>\$4.721</b>	<b>\$4.072</b>	<b>\$5.846</b>	<b>\$7.713</b>	<b>\$4.719</b>	<b>\$6.244</b>	<b>\$8.212</b>	<b>\$5.699</b>	<b>\$8.987</b>	<b>\$8.434</b>	<b>\$64.647</b>
<b>Percent of CIP</b>				<b>38%</b>	<b>12%</b>	<b>10%</b>	<b>13%</b>	<b>26%</b>	<b>18%</b>	<b>23%</b>	<b>37%</b>	<b>31%</b>	<b>47%</b>	<b>38%</b>	<b>22%</b>
MS4 - TMDL Compliance Improvements	13.15	Compliance		\$5.605	\$1.300	\$2.100	\$1.800	\$2.050	\$1.750	\$2.000	\$2.575	\$1.500	\$1.000	\$1.750	\$17.825
NPDES/MS4 Permit	13.17	Compliance		\$1.150	\$0.000	\$0.170	\$0.172	\$0.174	\$0.175	\$0.177	\$0.179	\$0.181	\$0.182	\$0.186	\$1.596
<b>Sub-Total</b>				<b>\$6.755</b>	<b>\$1.300</b>	<b>\$2.270</b>	<b>\$1.972</b>	<b>\$2.224</b>	<b>\$1.925</b>	<b>\$2.177</b>	<b>\$2.754</b>	<b>\$1.681</b>	<b>\$1.182</b>	<b>\$1.936</b>	<b>\$19.421</b>
<b>Percent of CIP</b>				<b>8%</b>	<b>3%</b>	<b>6%</b>	<b>4%</b>	<b>7%</b>	<b>7%</b>	<b>8%</b>	<b>12%</b>	<b>9%</b>	<b>6%</b>	<b>9%</b>	<b>7%</b>
<b>Total CIP</b>				<b>\$81.911</b>	<b>\$38.533</b>	<b>\$40.711</b>	<b>\$44.292</b>	<b>\$30.115</b>	<b>\$26.181</b>	<b>\$26.636</b>	<b>\$22.272</b>	<b>\$18.418</b>	<b>\$18.981</b>	<b>\$22.307</b>	<b>\$288.446</b>

## Appendix – Expenditure Data

### Caution:

These are NOT annual expenditures.

They are CUMULATIVE , starting from the inception of each listed project.

Cumulative Stormwater Capital Expenditures to-date (\$M)										
Project	FY23-32 CIP	Type	FY15	FY16	FY17*	FY18	FY19	FY20	FY21*	FY22*
Braddock & West	13.4	Infrastructure								
Storm Sewer Spot Improvements	13.24	Infrastructure	\$4.664	\$4.860	\$4.986	\$5.085	\$5.691	\$6.193	\$6.294	\$7.133
Large Capacity (Commonwealth & Glebe)	13.12	Infrastructure								
Large Capacity (Hoofs Run Culvert)	13.13	Infrastructure								
Green Infrastructure	13.9	Infrastructure	\$0.046	\$0.103	\$0.152	\$0.163	\$0.164	\$0.195	\$0.221	\$0.286
Storm Sewer Capacity Projects	13.22	Infrastructure								
Stormwater Utility Study & Implemntn	13.26	Infrastructure		\$0.344	\$0.791	\$0.928	\$1.000	\$1.059	\$1.114	\$1.161
Spot Project - Hume Ave Bypass	13.20	Infrastructure								
Spot Project - Mt Vernon Cul-De-Sac	13.21	Infrastructure								
<b>Sub-Total</b>			<b>\$4.710</b>	<b>\$5.307</b>	<b>\$5.929</b>	<b>\$6.176</b>	<b>\$6.855</b>	<b>\$7.447</b>	<b>\$7.629</b>	<b>\$8.580</b>
<b>Percent of Total Capital Expenditures</b>			<b>36%</b>	<b>34%</b>	<b>33%</b>	<b>30%</b>	<b>27%</b>	<b>27%</b>	<b>26%</b>	<b>26%</b>
Fort Ward Stormwater		Maintenance		\$0.101	\$0.148	\$0.148	\$0.148	\$0.148	\$0.148	\$0.148
Lake Cook Stormwater		Maintenance	\$0.176	\$0.274	\$1.239	\$3.222	\$4.433	\$4.434	\$4.437	\$4.437
Cameron Station Pond Retrofit	13.5	Maintenance		\$0.013	\$0.441	\$0.545	\$2.044	\$3.706	\$3.894	\$3.935
Taylor Run Stream Restoration	13.29	Maintenance					\$0.000	\$0.263	\$0.304	\$0.567
Strawberry Run Stream Restoration	13.27	Maintenance					\$0.000	\$0.180	\$0.234	\$0.426
Lucky Run Stream Restoration	13.14	Maintenance					\$0.326	\$0.333	\$0.439	\$0.494
Four Mile Run Channel Maintenance	13.8	Maintenance		\$0.292	\$0.292	\$0.292	\$0.489	\$0.489	\$0.502	\$0.535
Hoofs Run Culvert Maintenance	13.10	Maintenance							\$0.452	\$1.261
Stream & Channel Maintenance	13.28	Maintenance	\$3.442	\$4.511	\$4.538	\$5.006	\$5.146	\$5.210	\$5.210	\$5.210
Stormwater BMP Equipment		Maintenance	\$0.434	\$0.645	\$0.645	\$0.645	\$0.645	\$0.645	\$0.645	\$0.645
Stormwater BMP Maintenance CFMP	13.25	Maintenance						\$0.015	\$0.015	\$0.043
Small-Midsized Stormwater Mntnce	13.19	Maintenance								\$0.140
Inspection & Cleaning CFMP	13.11	Maintenance								\$0.018
City Facilities Stormwater BMPs (?)	13.6	Maintenance								\$0.032
Flood-proofing Grant Program	13.7	Maintenance								\$0.374
Storm Sewer Capacity Analysis		Maintenance	\$3.742	\$4.077	\$4.185	\$4.209	\$4.219	\$4.219	\$4.283	\$4.783
Trunk Sewer Flow Monitoring		Maintenance	\$0.409	\$0.409	\$0.409	\$0.409	\$0.409	\$0.409	\$0.409	\$0.409
<b>Sub-Total</b>			<b>\$8.203</b>	<b>\$10.322</b>	<b>\$11.897</b>	<b>\$14.476</b>	<b>\$17.859</b>	<b>\$20.051</b>	<b>\$20.972</b>	<b>\$23.457</b>
<b>Percent of Total Capital Expenditures</b>			<b>64%</b>	<b>65%</b>	<b>66%</b>	<b>69%</b>	<b>72%</b>	<b>72%</b>	<b>72%</b>	<b>72%</b>
MS4 - TMDL Compliance Improvements	13.15	Compliance								
NPDES/MS4 Permit	13.17	Compliance		\$0.180	\$0.203	\$0.203	\$0.253	\$0.327	\$0.377	\$0.390
<b>Sub-Total</b>			<b>\$0.000</b>	<b>\$0.180</b>	<b>\$0.203</b>	<b>\$0.203</b>	<b>\$0.253</b>	<b>\$0.327</b>	<b>\$0.377</b>	<b>\$0.390</b>
<b>Percent of Total Capital Expenditures</b>			<b>0%</b>	<b>1%</b>	<b>1%</b>	<b>1%</b>	<b>1%</b>	<b>1%</b>	<b>1%</b>	<b>1%</b>
<b>Total Capital Expenditures</b>			<b>\$12.913</b>	<b>\$15.809</b>	<b>\$18.029</b>	<b>\$20.855</b>	<b>\$24.967</b>	<b>\$27.825</b>	<b>\$28.978</b>	<b>\$32.427</b>

*all data from CMAA Capital Project Status Reports*

*Analysis of CASSCA Report and Alexandria's Stormwater Capital Improvement Program*

## Appendix – Expenditure Analysis

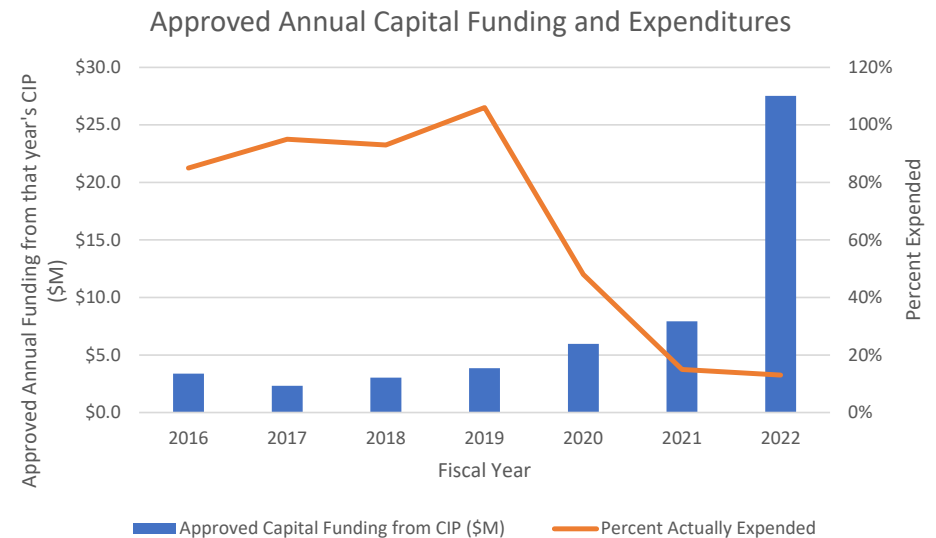
Annual Stormwater Capital Expenditures by Year (\$M)								
Type	FY15	FY16	FY17*	FY18	FY19	FY20	FY21*	FY22*
<b>Infrastructure</b>								
Sub-Total	n/a	\$0.597	\$0.622	\$0.247	\$0.679	\$0.592	\$0.182	\$0.951
Percent of Total Capital Expenditures		21%	28%	9%	17%	21%	16%	28%
<b>Maintenance</b>								
Sub-Total	n/a	\$2.119	\$1.575	\$2.579	\$3.383	\$2.192	\$0.921	\$2.485
Percent of Total Capital Expenditures		73%	71%	91%	82%	77%	80%	72%
<b>Compliance</b>								
Sub-Total	n/a	\$0.180	\$0.023	\$0.000	\$0.050	\$0.074	\$0.050	\$0.013
Percent of Total Capital Expenditures		6%	1%	0%	1%	3%	4%	0%
<b>Total Capital Expenditures</b>	<b>n/a</b>	<b>\$2.896</b>	<b>\$2.220</b>	<b>\$2.826</b>	<b>\$4.112</b>	<b>\$2.858</b>	<b>\$1.153</b>	<b>\$3.449</b>
<b>Approved Annual Capital Funding from that year's CIP*</b>		<b>\$3.390</b>	<b>\$2.331</b>	<b>\$3.030</b>	<b>\$3.862</b>	<b>\$5.970</b>	<b>\$7.935</b>	<b>\$27.525</b>
<b>Percent of Approved Annual Capital Funding Expended for that year</b>		<b>85%</b>	<b>95%</b>	<b>93%</b>	<b>106%</b>	<b>48%</b>	<b>15%</b>	<b>13%</b>

\*from page 2 of Stormwater CIP of that year (except for FY21, on page 4)

### Caution:

Year-end data is not available for FY 2021 or FY 2022 -- expenditures are as of end of third quarter

Therefore, 'Percent of Funds Expended' for these years is understated.





# Summary of draft annual report

by Skip Maginniss

AGENDA ITEM # 6

# Chair Succession

AGENDA ITEM # 7



# **Minutes of the February 16 and April 19 Meetings**

AGENDA ITEM # 8



# Public Comments

AGENDA ITEM #9

# Adjourn

AGENDA ITEM #10