Ground Rules

- Remember why you're here:
 - Review and monitor the development of the Final Plan
 - Provide input and insight from your communities
 - Share progress with your communities
- Be respectful of others
- Be present and focused during meetings
- Be additive, not repetitive, during discussions
- Everyone should participate and no one should dominate
- Be clear when you're speaking if you're sharing your own thoughts or input provided by those you represent
- There are no stupid questions! Ask!
- Be open to new ideas
- Don't talk over people or interrupt
- Moderator will make note of group members who raise their hands to speak; or, wait to speak
- If there are 7 seconds of silence, we can move on from a discussion topic



Today's Agenda: Public Stakeholder Group Meeting #6

- Solutions
 - Southside
 - Manchester
 - Shockoe
- Next Meetings





The Process: Developing the Final Plan

WE ARE HERE





Solutions Discussion



A Review of Initial Evaluation Criteria

Identify good solutions to further evaluate (cost & performance)

□ Technical Feasibility

- Can we build it?
- Will it work?

Community Benefits/Impacts

- Will this impact daily activities of citizens?
- Can this be paired with a project to improve the community?

□ Regulatory and 3rd Party Impacts

- Can the construction be permitted?
- Does land need to be bought?

Operation and Maintenance Impacts

• Are additional equipment/employees needed to run and maintain the project?



Setting the Stage: Southside / Manchester

Events to Control: 40-50 per year

Volume to Control: 90-200 MG/year

Criteria		CSO Outfall							
		014	015	016	017	018	021	040	Total
Council District		5, 6, 8	5, 8	5	4, 5	4	6.8	4, 5	
Drainage Area (acres)		400	590	110	50	60	530	810	1,740
2021	Overflow Volume (MG)	15	2	0	4	0	120	60	202
	Overflow Events (#)	25	5	0	4	0	75	51	
2022	Overflow Volume (MG)	5	0.4	0	1	0	45	38	89
	Overflow Events (#)	18	5	0	8	0	30	45	



Solutions in Our Toolbox













CSO 019 (Northside) Wet Weather Regulator Construction



- Enough space for sufficiently-sized pipe to reduce overflow events to 0 – 6 per year
- A lot of obstacles to avoid (buildings, floodwall, etc.)

□ Community Benefits/Impacts

- Construction in very busy area (Manchester)
- Potential for Manchester Canal Improvements

□ Regulatory and 3rd Party Impacts

- Significant permitting
- Minimal land and easement acquisition

Operation and Maintenance Impacts

Minimal (maintenance of a new pipe)







 Enough space for a sufficiently-sized tank to reduce overflow events to 4-10 per year

Community Benefits & Impacts

- Impacts to Canoe Run Park at 22nd Street during construction
- Odor control will be required
- Opportunity to improve park after construction

□ Regulatory and 3rd Party Impacts

• Moderate permitting

□ Operation and Maintenance Impacts

• Moderate (cleaning and maintenance of tank)







- Enough space for sufficiently-sized tank to reduce overflow events to 4 – 6 per year
- Result in higher discharged nutrients, solids, etc.

Community Benefits & Impacts

- Impacts to Canoe Run Park during/after construction
- Odor control will be required

□ Regulatory and 3rd Party Impacts

• Significant permitting

Operation and Maintenance Impacts

• Very significant (operation of a treatment facility)



 Very invasive construction would occur at every home and in every street

Community Benefits & Impacts

• Noise and traffic impacts along all streets

Regulatory and 3rd Party Impacts

- Minimal permitting
- Minimal land and easement acquisition

Operation and Maintenance Impacts

• Minimal (maintenance of new pipes)





Would need 50 acres of permeable pavement for volume reduction (15 Canoe Run Parks)

Community Benefits/Impacts

- Beautification of the area
- Provide additional greenspace

Regulatory and 3rd Party Impacts

- Minimal permitting
- Minimal land/easement acquisition

Operation and Maintenance Impacts

 Moderate (regular maintenance is required for green infrastructure to continue to perform as intended)



West End Branch Library – 1st City Council District

Summary of South Side Solutions





Zooming in on Manchester

Events to Control: 30 per year

Volume to Control: 50-150 MG/year

		CSO Outfall			
	Criteria	014	021	Total	
Council District		5, 6, 8	6, 8		
Drainage Area (acres)		400	530	930	
2021	Overflow Volume (MG)	15	120	135	
	Overflow Events (#)	25	75*		
2022	Overflow Volume (MG)	5	45	50	
	Overflow Events (#)	18	30		









- Enough space for sufficiently-size tank to reduce overflow events to 4 – 10 per year
- Would still need to install new pipe from Outfall #14

□ Community Benefits & Impacts

- Traffic impacts in Manchester during construction
- Odor control will be required
- Improve flooding issues

- □ Regulatory and 3rd Party Impacts
 - Moderate permitting (work around railroads)

Operation and Maintenance Impacts

• Moderate (cleaning and maintenance of tank)





- Enough space for sufficiently-sized treatment facility to reduce overflow events to 4 - 6 per year
- Result in higher discharged nutrients, solids, etc.

Community Benefits & Impacts

- Traffic impacts in Manchester during construction
- Potential improvements for flooding issues

- **Regulatory and 3rd Party Impacts**
 - Significant permitting •

Operation and Maintenance Impacts

Very significant (operation of a treatment facility)



- Very invasive construction would occur at every home and in every street
- Construction could last approximately 5 years

Community Benefits & Impacts

• Noise and traffic impacts along all streets

Regulatory and 3rd Party Impacts

- Minimal permitting
- Minimal land and easement acquisition

Operation and Maintenance Impacts

• Minimal (maintenance of new pipes)





Would need 50 acres of permeable pavement for volume reduction (5 Blackwell Parks)

□ Community Benefits/Impacts

- Beautification of the area
- Provide additional greenspace

□ Regulatory and 3rd Party Impacts

- Minimal permitting
- Minimal land/easement acquisition

Operation and Maintenance Impacts

 Moderate (regular maintenance is required for green infrastructure to continue to perform as intended)



Stormwater Utility Permeable Paver Parking Lot – 6th District

Summary of Manchester Solutions





Setting the Stage: Shockoe

Events to Control: 30 - 40 per year

Volume to Control: 1,000 - 3,000 MG/year

	CSO Outfall	6	
	006		
Co	1, 2, 3, 5, 6, 7		
Drair	8,000		
2021	Overflow Volume (MG)	1,720	and and a
	Overflow Events (#)	65*	
2022	Overflow Volume (MG)	803	
	Overflow Events (#)	54*	



Shockoe Overflow Volume



Setting the Stage: Shockoe

Additional Storage Volume Needed: ~100 Million Gallons

OR

~150 Olympic Sized Swimming Pools

OR

~3 Shockoe Retention Basins



Solutions in Our Toolbox

Bigger Pipes + Storage

Bigger Pipes + Treatment (WWTP Expansion)









- Enough space for sufficiently-sized improvements to reduce overflow events to 4 – 6 per year
- A tunnel (with complex construction) is required
- Flexibility for storage/treatment configurations

□ Community Benefits/Impacts

Potential improvements to Chapel Island

□ Regulatory and 3rd Party Impacts

- Significant permitting
- Minimal significant land and easement acquisition

Operation and Maintenance Impacts

• Significant (maintenance and operation of a new tunnel, storage facility, and pump station)



- Enough space for sufficiently-sized improvements to reduce overflow events to 4 – 6 per year
- A tunnel (with complex construction) is required
- Flexibility for storage/treatment configurations

□ Community Benefits/Impacts

Potential improvements to Chapel Island

□ Regulatory and 3rd Party Impacts

- Significant permitting
- Minimal significant land and easement acquisition

Operation and Maintenance Impacts

Significant (maintenance and operation of a new tunnel, and pump station)





- Enough space for sufficiently-sized pipe/treatment facility to reduce overflow events to 4 – 6 per year
- No additional large pipes or pumping

□ Community Benefits/Impacts

Potential improvements to Chapel Island

□ Regulatory and 3rd Party Impacts

- Significant permitting
- Minimal significant land and easement acquisition

Operation and Maintenance Impacts

 Significant (maintenance and operation of a new treatment facility)



- Very invasive construction would occur at every home and in every street
- Construction could last over 15
 years

□ Community Benefits & Impacts

 Noise and traffic impacts along all streets

Regulatory and 3rd Party Impacts

- Minimal permitting
- Minimal land and easement acquisition

Operation and Maintenance Impacts

• Minimal (maintenance of new pipes)





Would need 500 acres of permeable pavement for volume reduction (110 Brown's Islands)

□ Community Benefits/Impacts

- Beautification of the area
- Provide additional greenspace

□ Regulatory and 3rd Party Impacts

- Minimal permitting
- Minimal land/easement acquisition

Operation and Maintenance Impacts

• Moderate (regular maintenance is required for green infrastructure to continue to perform as intended)



Stormwater Utility Permeable Paver Parking Lot – 6th District

Summary of Shockoe Solutions





What's Coming Next

Purpose	Meeting Date	Key Topics		
Evoluction	June 2023	Solutions Summary and Review		
Evaluation	August 2023	Evaluation: Cost/Performance/Other		
	October 2023	Ranking Criteria Ranking of Solutions		
Selection	December 2023	Feedback from Community Solution Selection		
	February 2024	Implementation Schedule Financial Impacts Solution Benefits (water quality + community)		
Review	April 2024	Review Final Plan		





Next Meeting: June 2023

Grace.LeRose@rva.gov



CSO Outfall 003 Pipeline & Canal Walk Construction