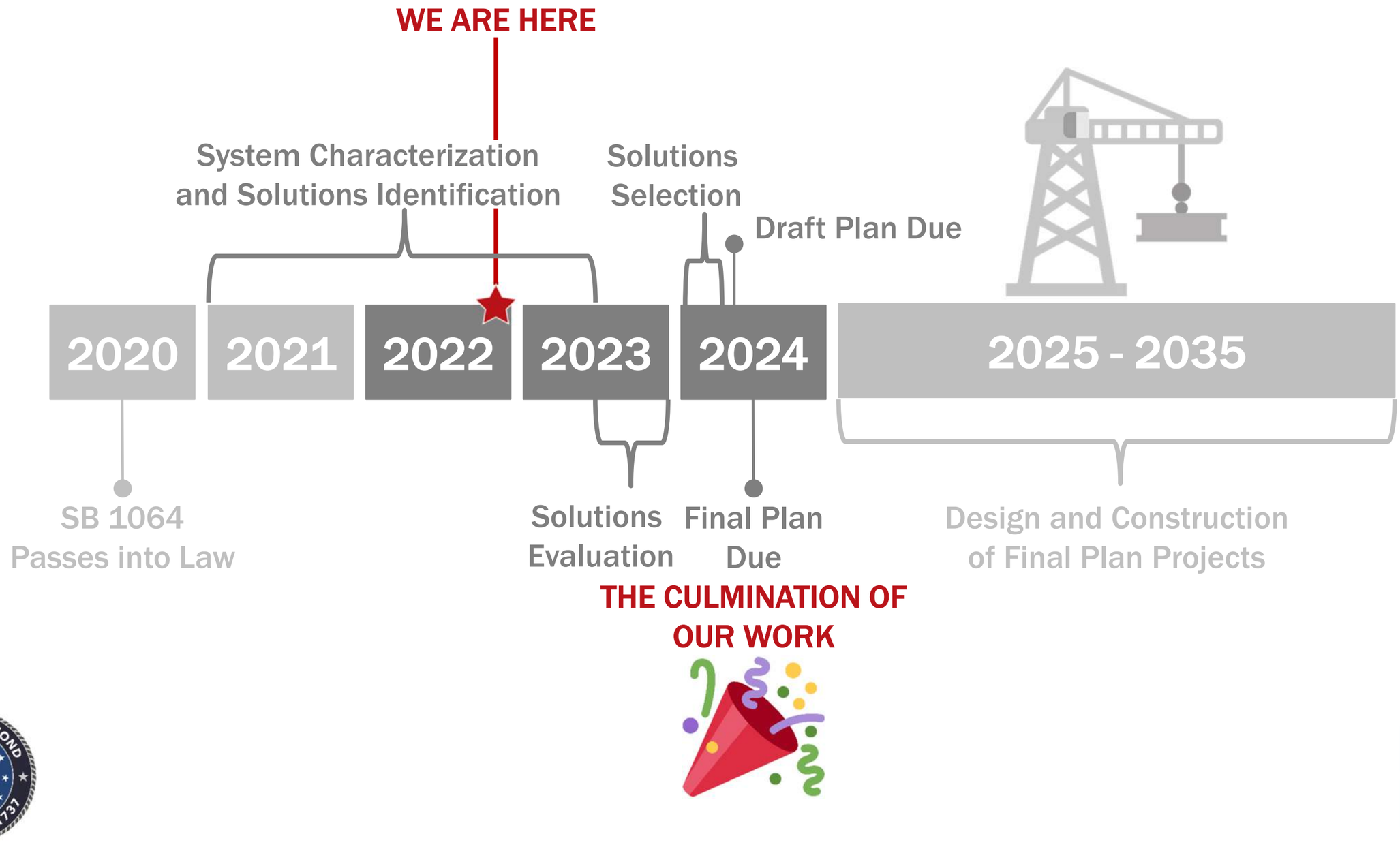
Ground Rules

- 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

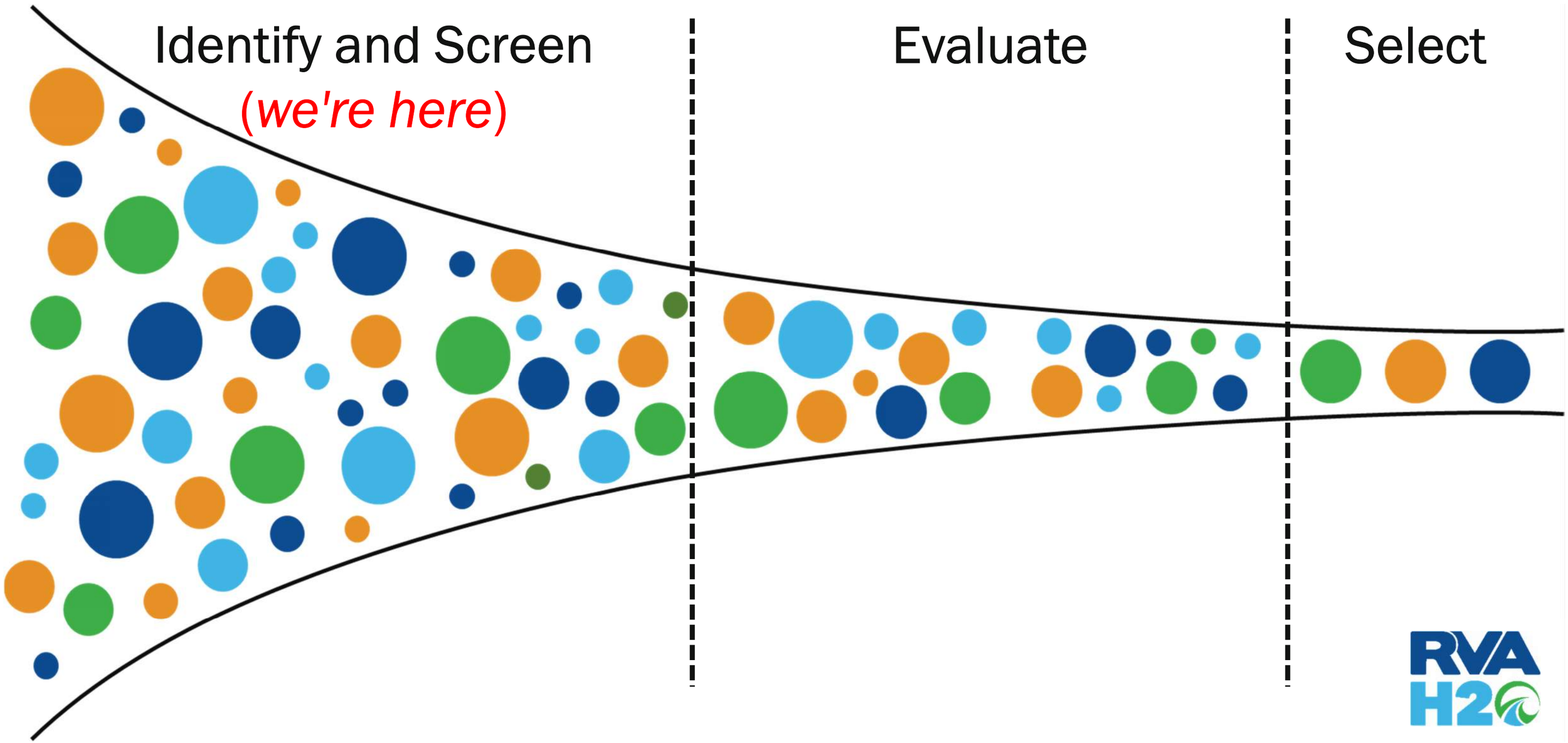
Today's Agenda: Public Stakeholder Group Meeting #4

- Final Plan Timeline
- Solutions Discussion
  - Upper Shockoe Creek
  - Hilton Street
- Next Meetings

The Process: Developing the Final Plan



Solutions Discussion



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

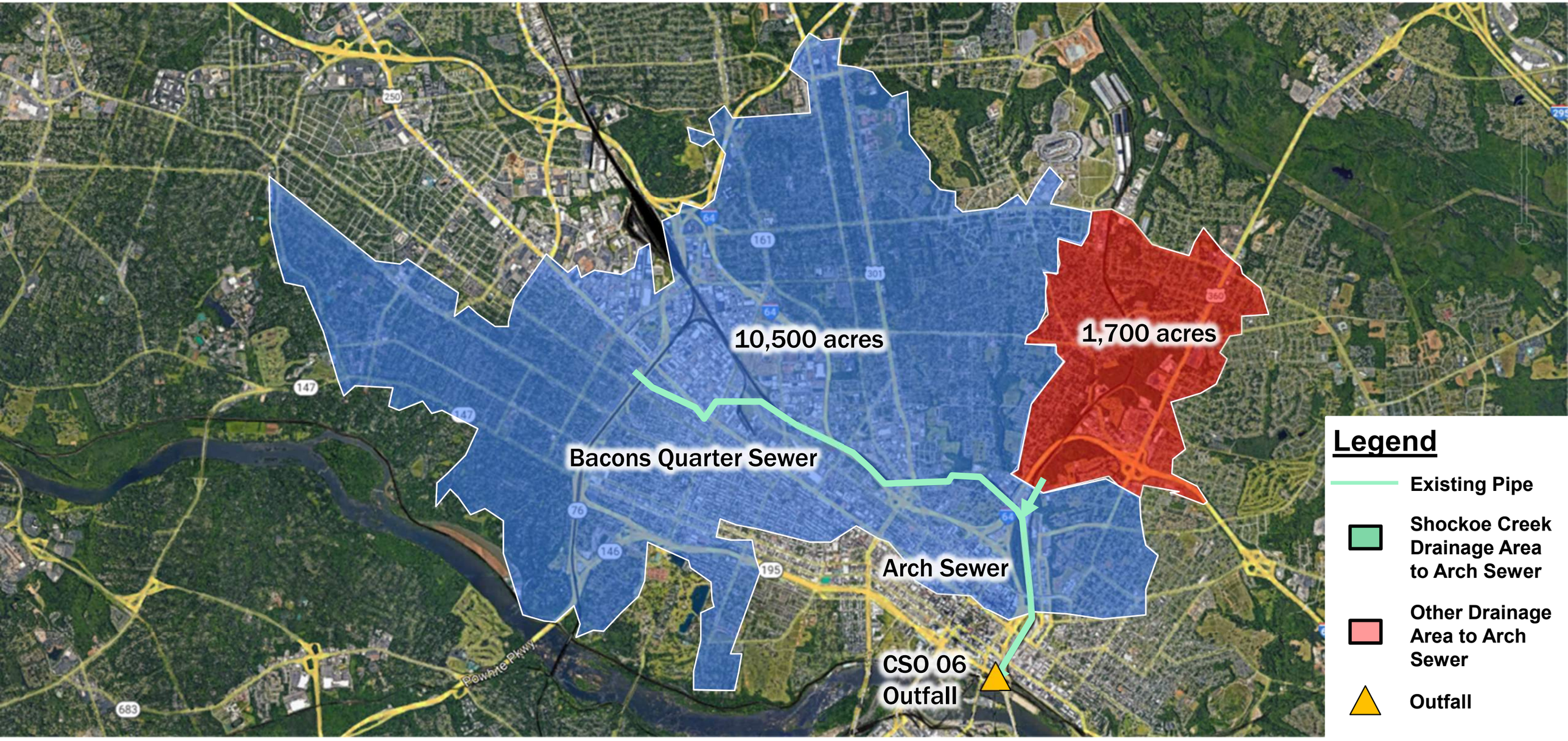
- Can the construction be permitted?
- Does land need to be bought?

❑ Operation and Maintenance Impacts

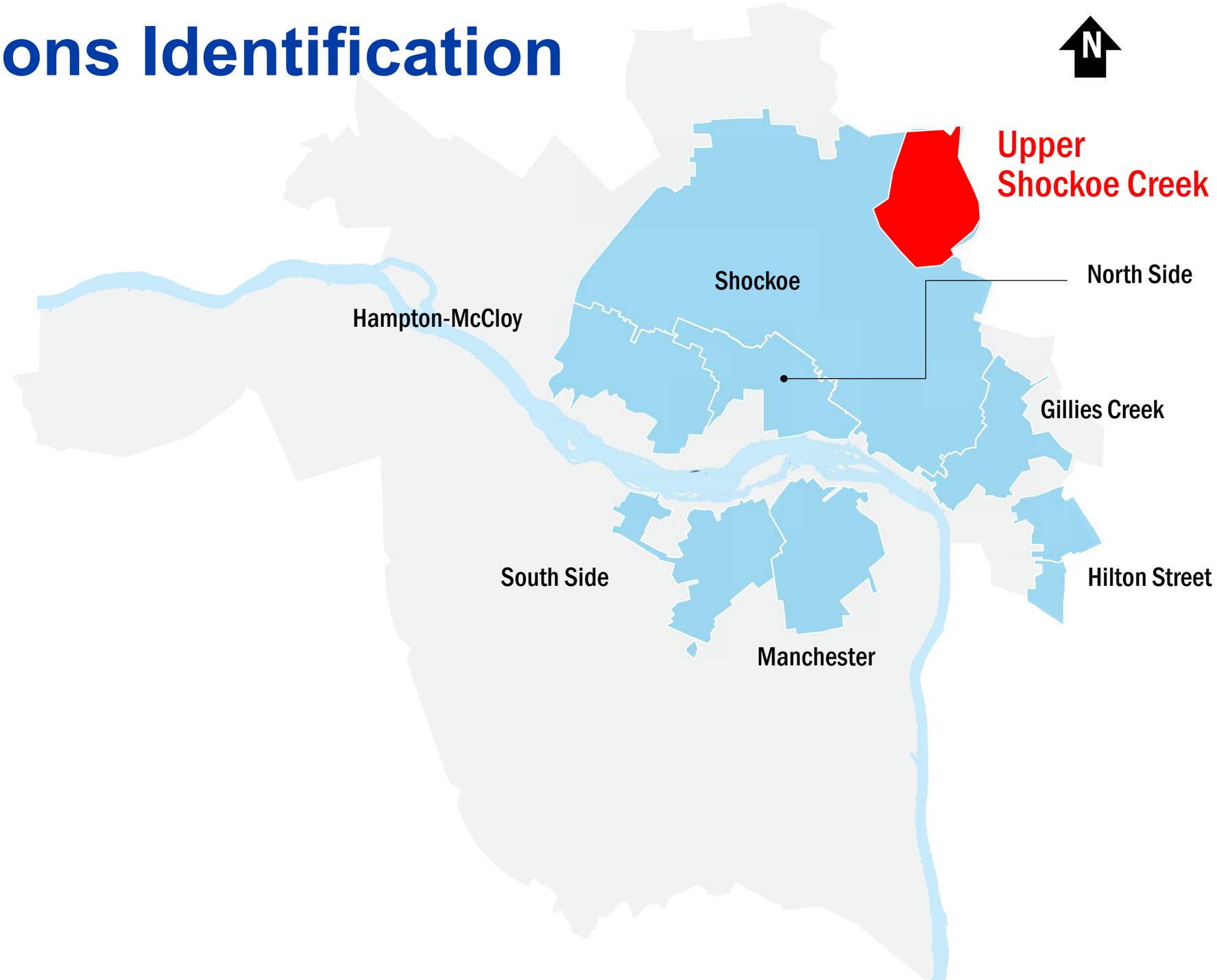
- Are additional equipment/employees needed to run and maintain the project?

Setting the Stage: Upper Shockoe Creek

Shockoe Creek accounts for 1/6 of drainage area to the Arch Sewer



Solutions Identification

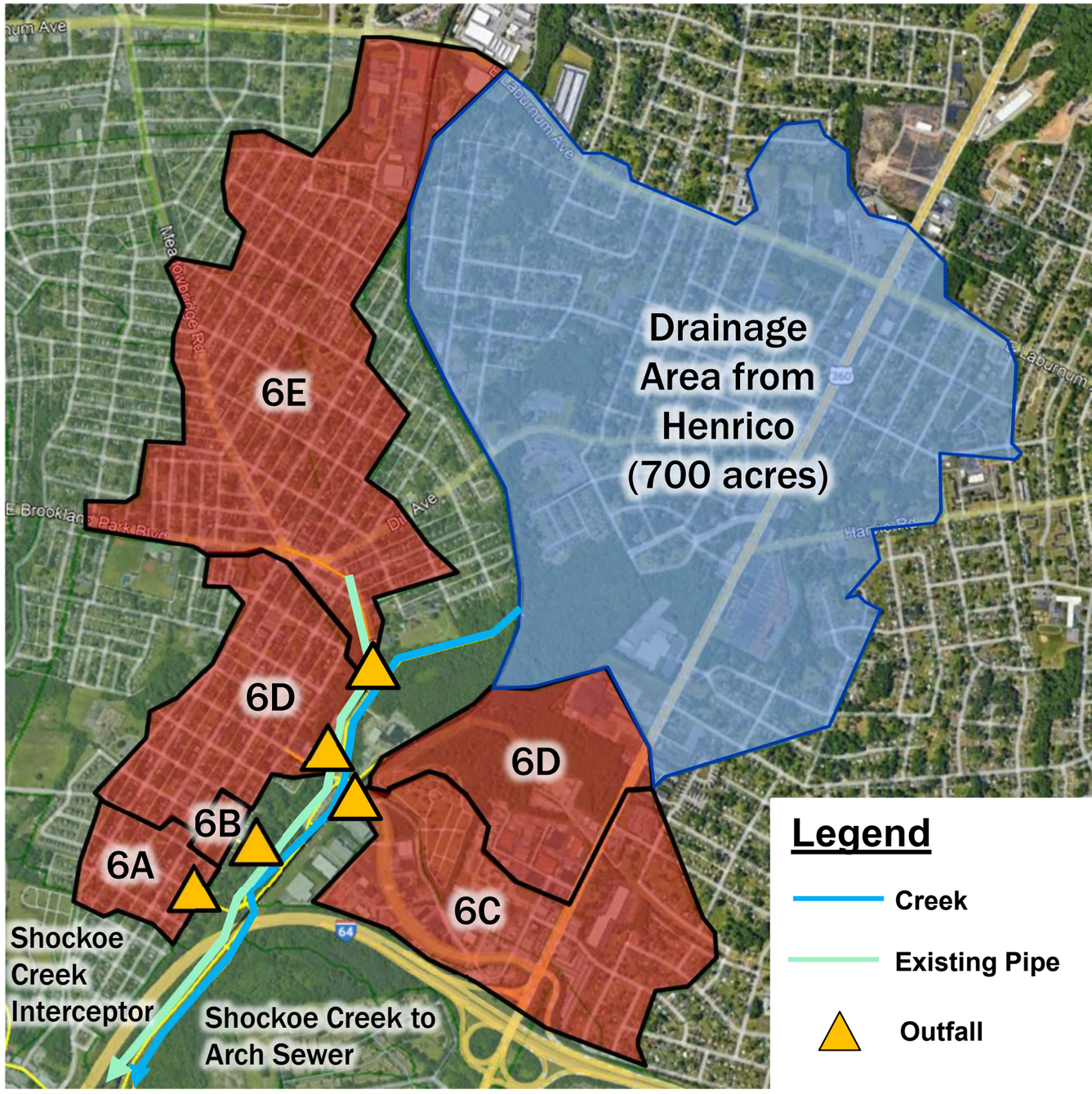


Setting the Stage: Upper Shockoe Creek

Events to Control: 50-60/year

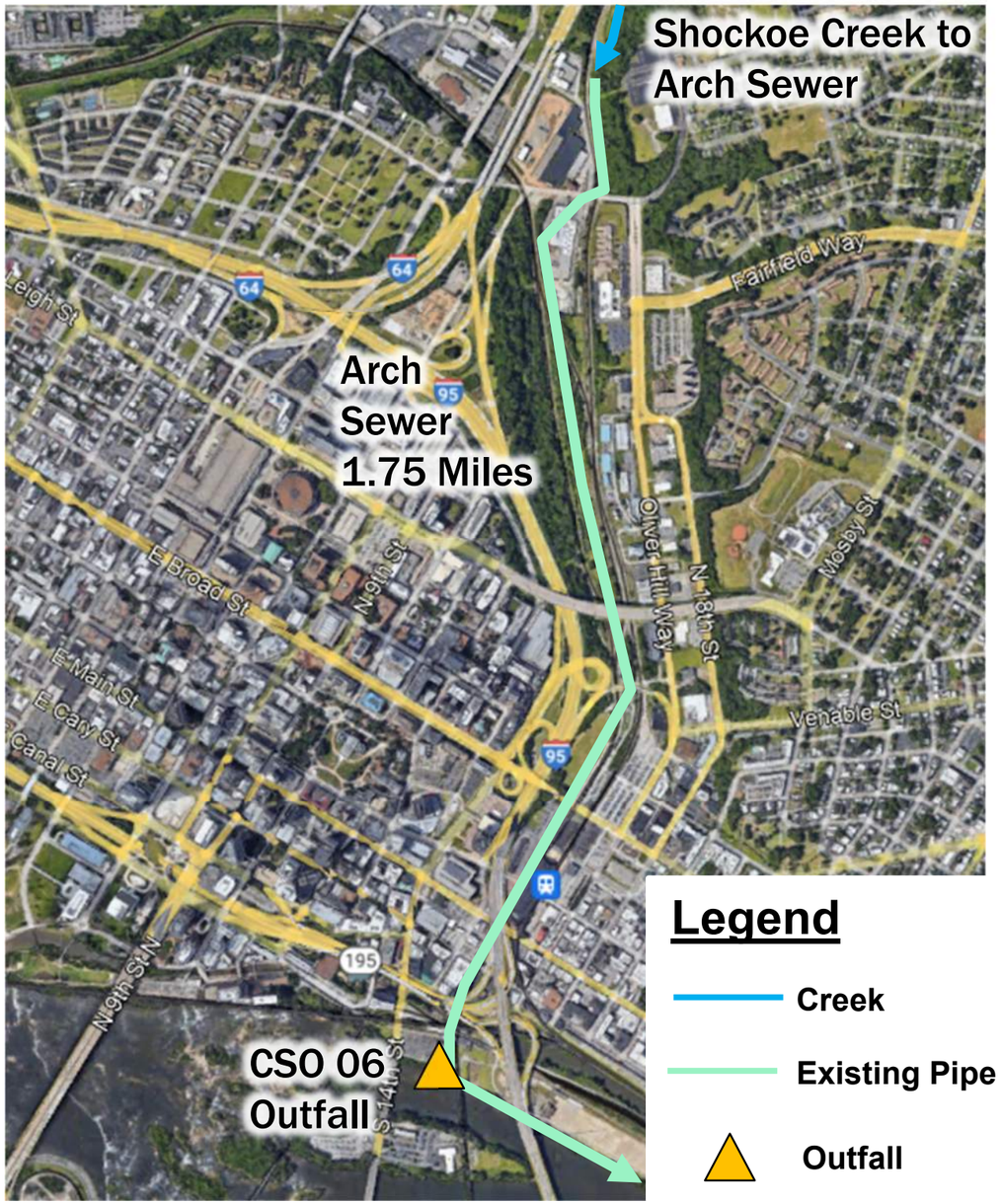
Volume to Control: 70-140 MG/year

Criteria		CSO Outfall					
		6A	6B	6C	6D	6E	Total
Drainage Area (acres)		30	5	130	190	290	
2019	Overflow Volume (MG)	3.3	0.3	37.2	13.3	16.5	70.6
	Overflow Events (#)	31	6	53	42	30	
2020	Overflow Volume (MG)	6.5	0.4	74.9	27.3	29.3	138.4
	Overflow Events (#)	44	9	58	51	44	



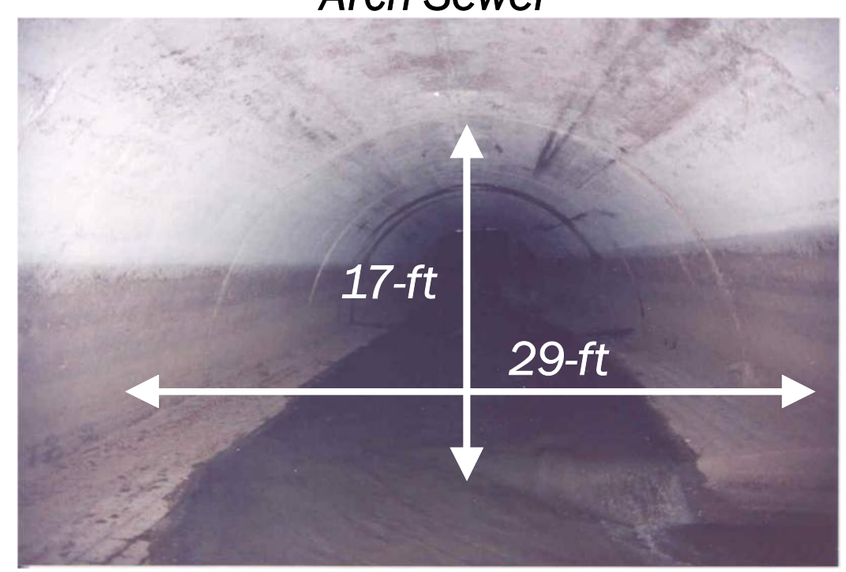
Setting the Stage: Upper Shockoe Creek

Shockoe Creek enters the Arch Sewer and gets treated at the WWTP



Shockoe Creek Entrance to the Arch Sewer

Arch Sewer

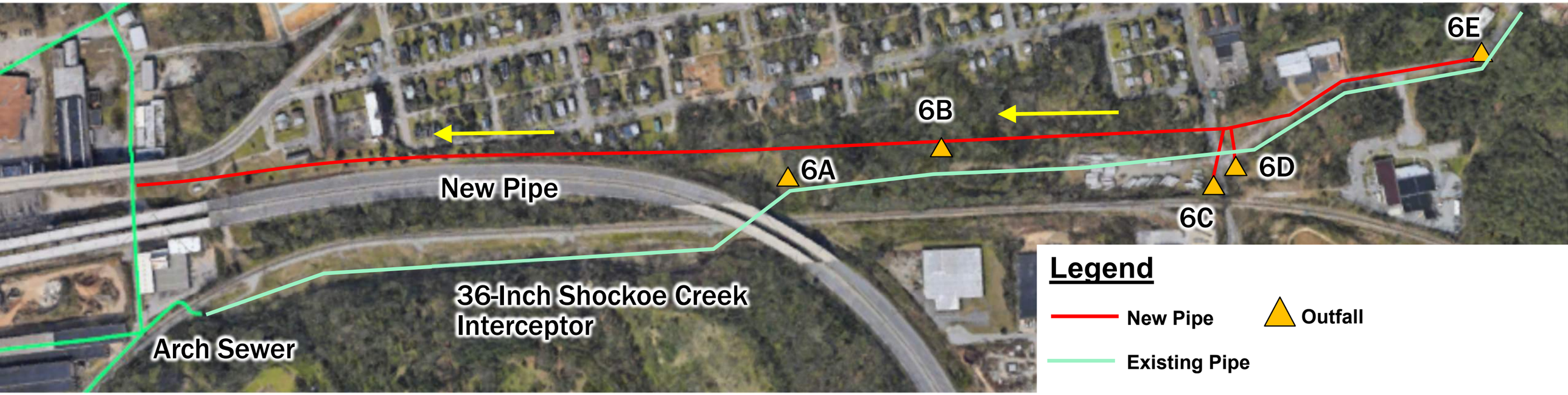


Solutions in Our Toolbox

- Bigger Pipes
- Storage
- Treatment
- Separation
- Green Infrastructure

CSO 03's 90" Diameter Pipe

Bigger Sewer Pipe



- **Technical Feasibility**
  - Enough space for sufficiently-sized pipe to reduce overflow events to 0 – 6 per year
- **Community Benefits/Impacts**
  - Opportunity to install with pedestrian pathway to improve access to Shockoe Creek
- **Regulatory and 3rd Party Impacts**
  - Minimal permitting
  - Minimal land and easement acquisition
- **Operation and Maintenance Impacts**
  - Minimal (maintenance of a new pipe)

Storage

- **Technical Feasibility**
  - Storage tank can store flow from 6C, D and E, but not from 6A or B
  - Largest storage tank that could be built is 3 MG
  - Would still result in 6-8 overflow events / year
- **Community Benefits & Impacts**
  - Construction traffic impacts along Rady Road and Magnolia Street (busy roads)
  - Odor control will be required
- **Regulatory and 3rd Party Impacts**
  - Significant permitting
  - Land acquisition is required
- **Operation and Maintenance Impacts**
  - Moderate (cleaning and maintenance of tank)

Treatment

- **Technical Feasibility**
  - Treated wastewater will be discharged back into Shockoe Creek where it will re-enter the combined sewer system (no improvement downstream)
  - Treatment facility can get flow from 6C, D and E, but not from 6A or B
  - Largest treatment facility could be 50 MGD
  - Would still result in approximately 4 overflow events / year

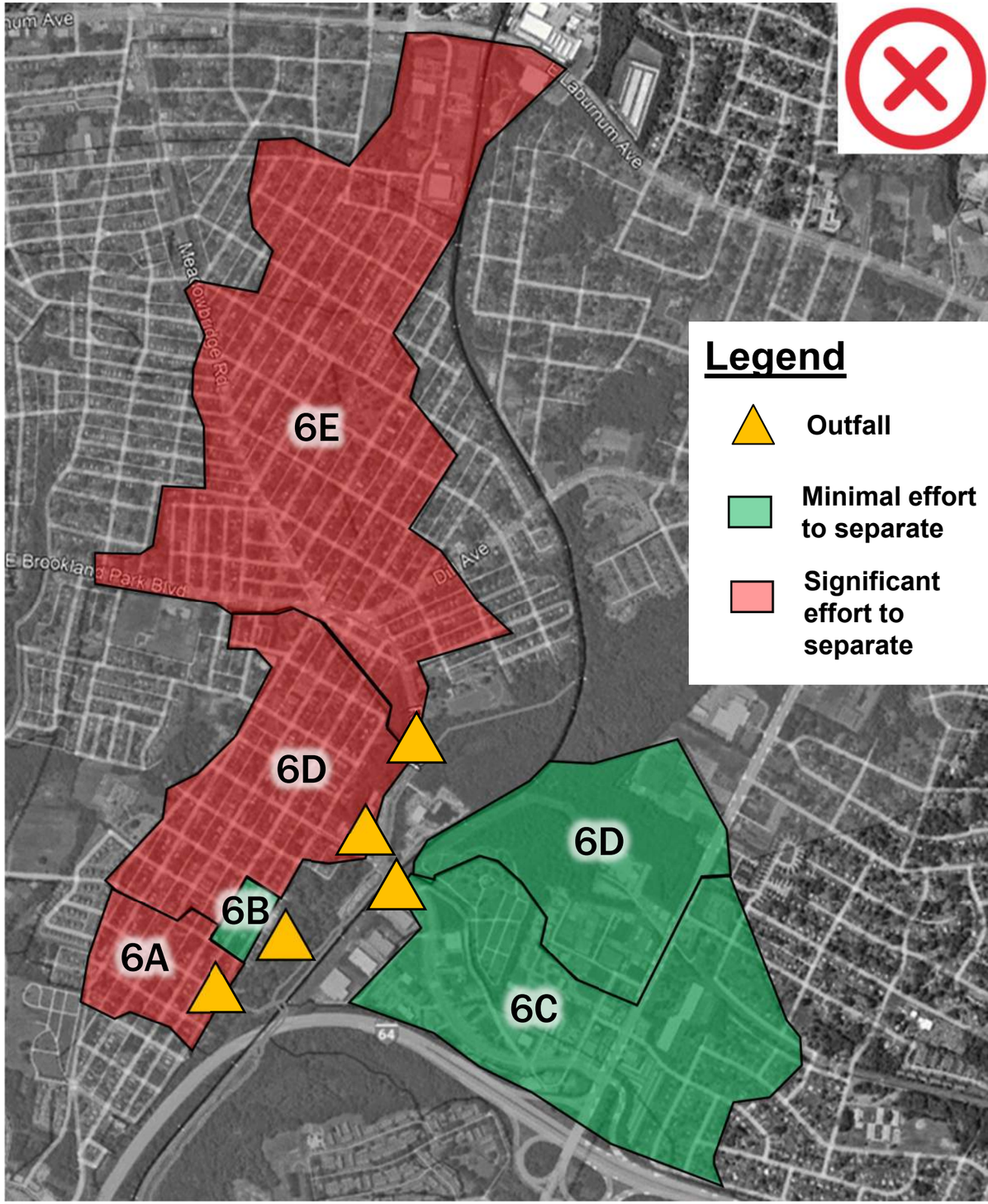
- **Community Benefits & Impacts**
  - Construction traffic impacts along Rady Road and Magnolia Street

- **Regulatory and 3rd Party Impacts**
  - Very significant permitting
  - Land acquisition is required

- **Operation and Maintenance Impacts**
  - Very significant (operation of a treatment facility)

Separation

- **Technical Feasibility**
  - 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)



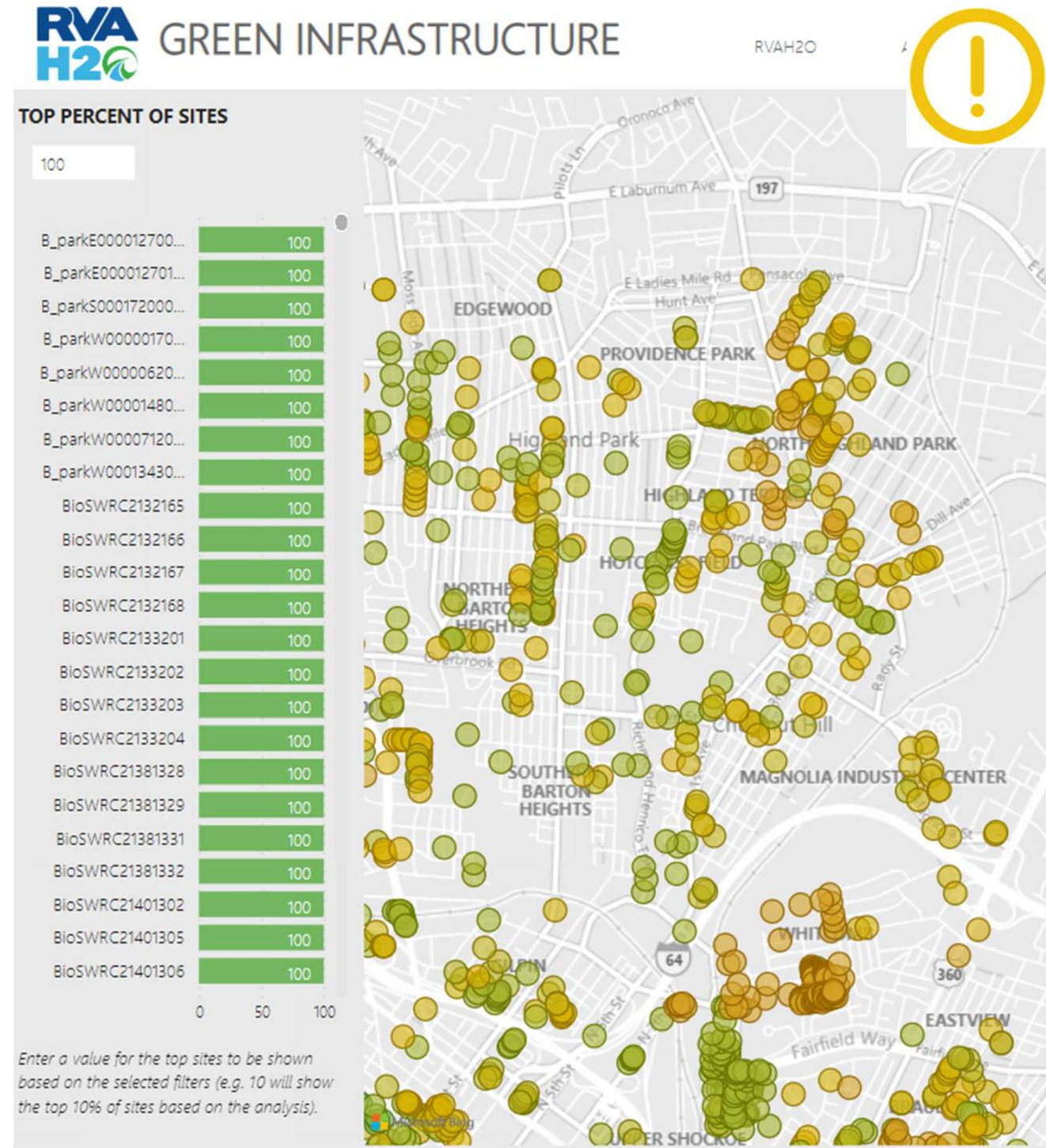
Green Infrastructure

- **Technical Feasibility**
  - Would need 15 acres of permeable pavement for volume reduction (6 street miles or 20% of drainage area streets)

- **Community Benefits & Impacts**
  - Beautification of the area
  - Provide additional greenspace

- **Regulatory and 3rd Party Impacts**
  - Minimal permitting
  - Minimal land and easement acquisition

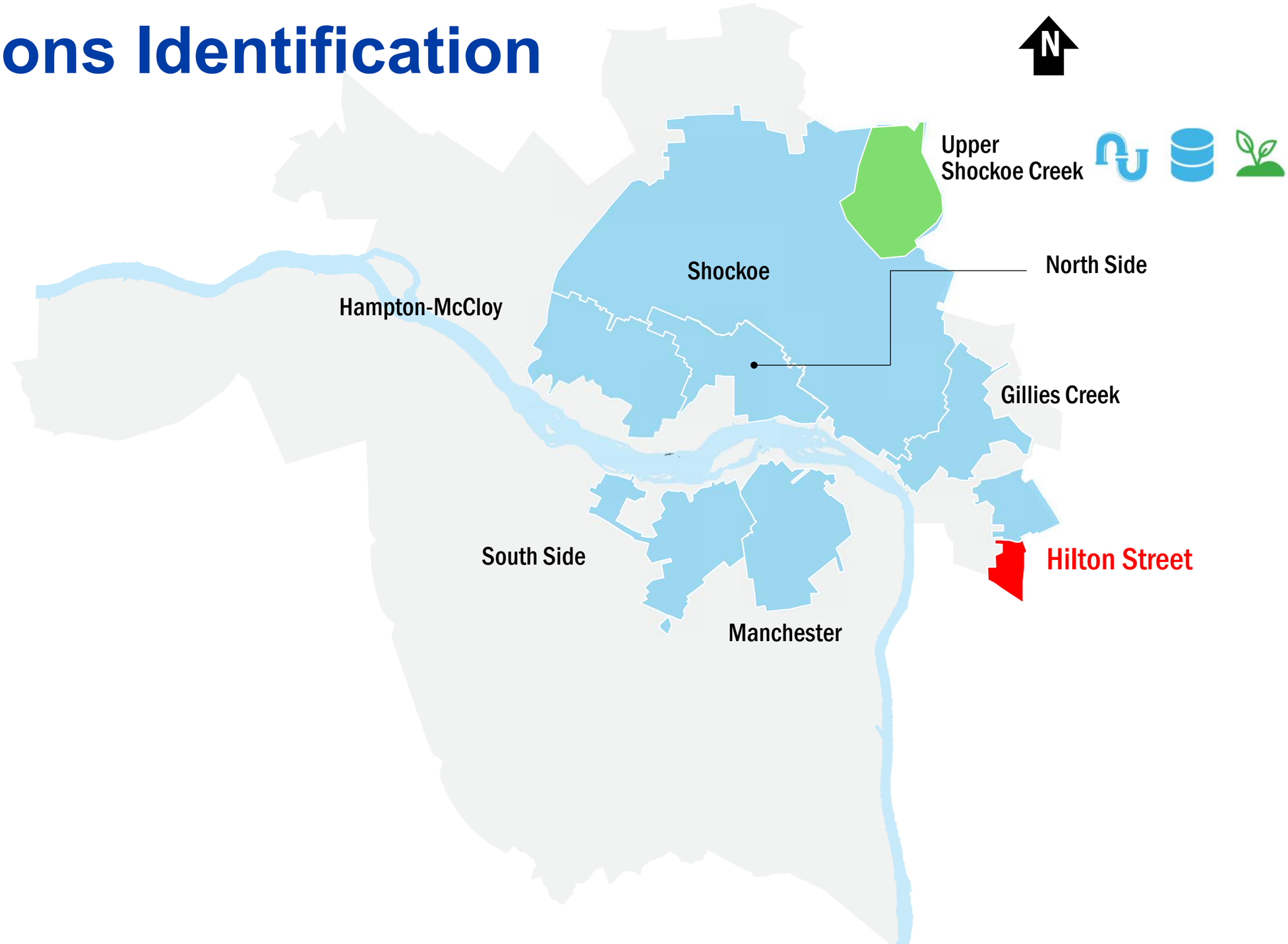
- **Operation and Maintenance Impacts**
  - Moderate (regular maintenance is required for GI to continue to perform as designed)



Summary of Upper Shockoe Creek Solutions

- ✓ **Bigger Pipes**
- ✓ **Storage**
- ✗ ~~Treatment~~
- ✗ ~~Separation~~
- ! **Green Infrastructure**

Solutions Identification



Setting the Stage: Hilton Street

Events to Control: 15-50/year

Volume to Control: 2-18 MG/year

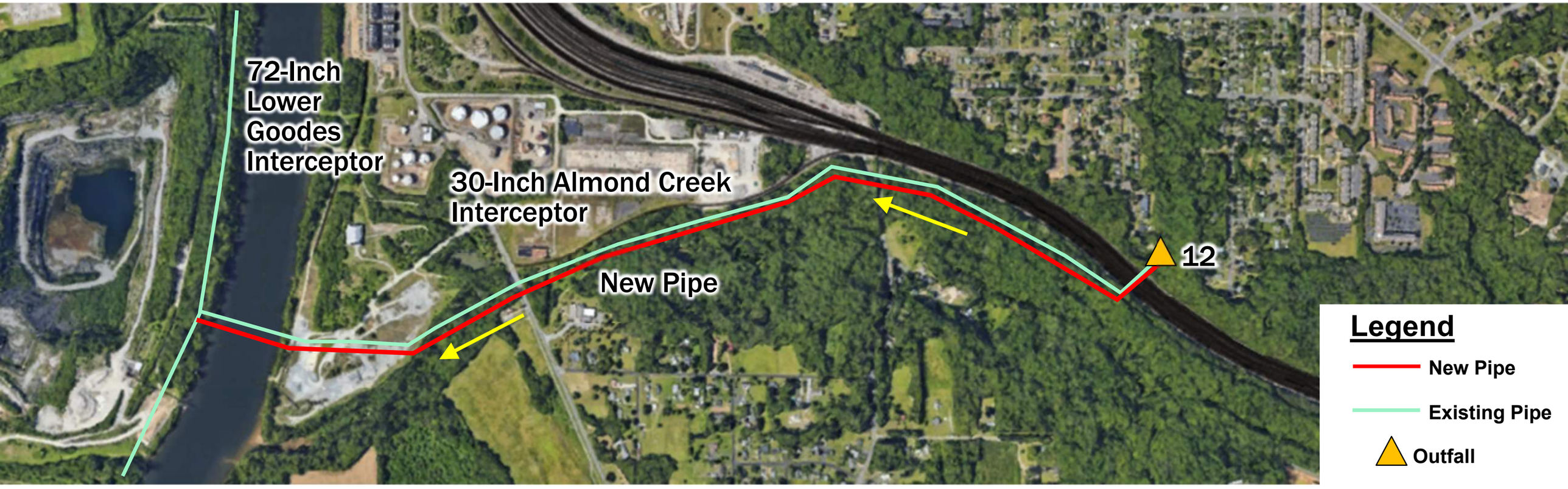
Criteria		CSO Outfall
		12
Drainage Area (acres)		90
2019	Overflow Volume (MG)	9.3
	Overflow Events (#)	37
2020	Overflow Volume (MG)	17.9
	Overflow Events (#)	46
2021	Overflow Volume (MG)	2.1
	Overflow Events (#)	15

Solutions in Our Toolbox

- Bigger Pipes
- Storage
- Treatment
- Separation
- Green Infrastructure

Storage Tank - Shockoe Retention Basin

Bigger Sewer Pipe



- **Technical Feasibility**
  - Enough space for sufficiently-sized pipe to reduce overflow events to 0 – 6 per year
  - Very long pipe (1.5 miles) and river crossing
- **Community Benefits/Impacts**
  - Minimal (most construction would be in Henrico County)
- **Regulatory and 3rd Party Impacts**
  - Very significant permitting
  - Significant easements (from Henrico County) would be required
- **Operation and Maintenance Impacts**
  - Minimal (maintenance of a new pipe)

Storage

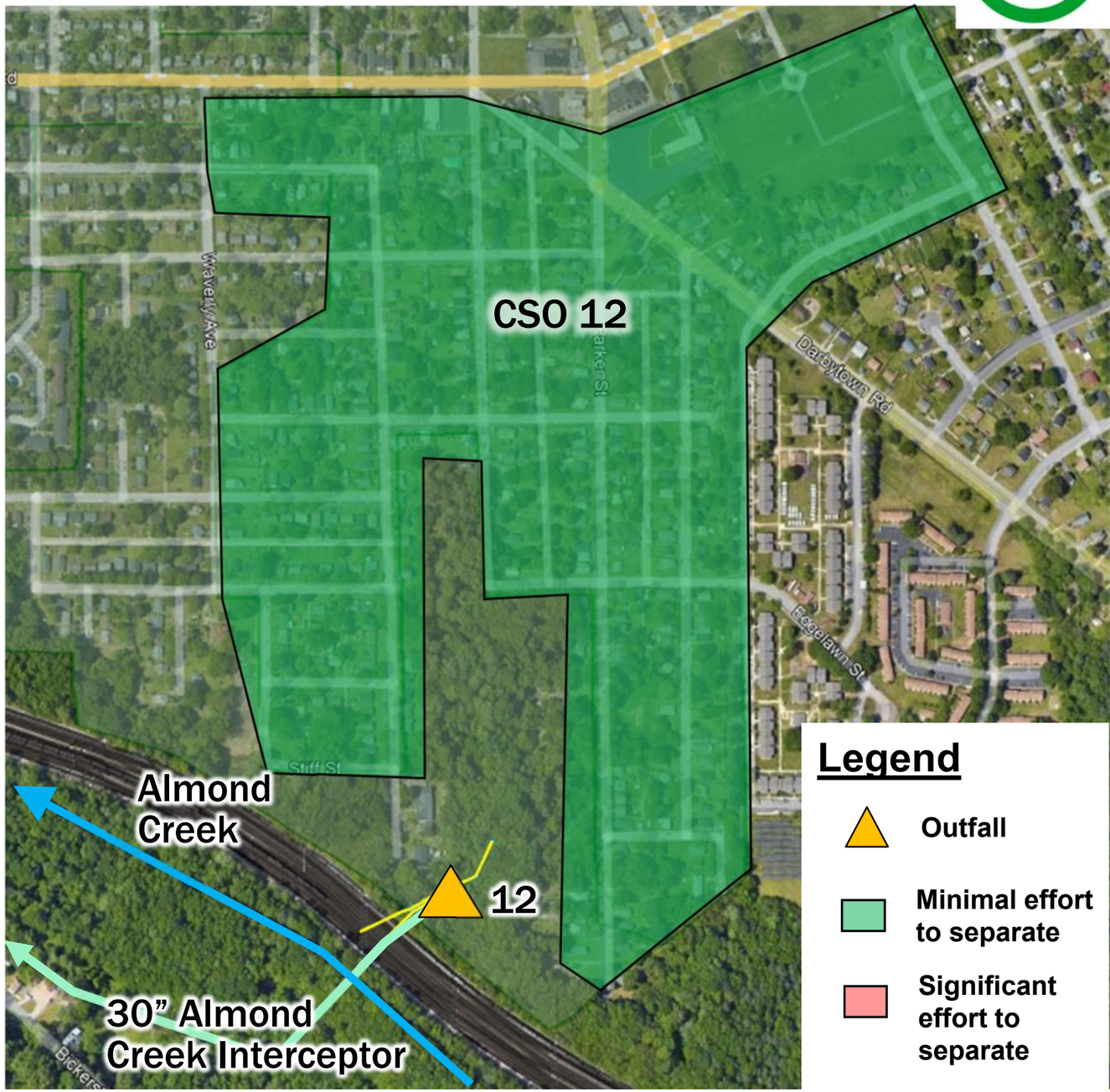
- **Technical Feasibility**
  - Largest storage tank that could be built is 1.5 MG
  - Would result in 4-6 overflow events / year
- **Community Benefits/Impacts**
  - Construction traffic along Campbell Ave.
  - Odor control will be required
- **Regulatory and 3rd Party Impacts**
  - Significant Permitting
  - Land acquisition is required
- **Operation and Maintenance Impacts**
  - Moderate (cleaning and maintenance tank)

Treatment

- **Technical Feasibility**
  - Not enough room to build a large enough treatment facility
  - Would still result in approximately +10 overflow events / year
- **Community Benefits/Impacts**
  - Construction traffic along Campbell Ave.
- **Regulatory and 3rd Party Impacts**
  - Very significant permitting
  - Land acquisition is required
- **Operation and Maintenance Impacts**
  - Very significant (operation of a treatment facility)

Separation

- **Technical Feasibility**
  - Remainder of the area can be separated with minimal effort
  - Construction could last approximately 1-1.5 years
- **Community Benefits/Impacts**
  - Noise and traffic impacts along all streets
- **Regulatory and 3rd Party Impacts**
  - Minimal Permitting
  - Minimal land/easement acquisition
- **Operation and Maintenance Impacts**
  - Minimal (maintenance of new pipes)



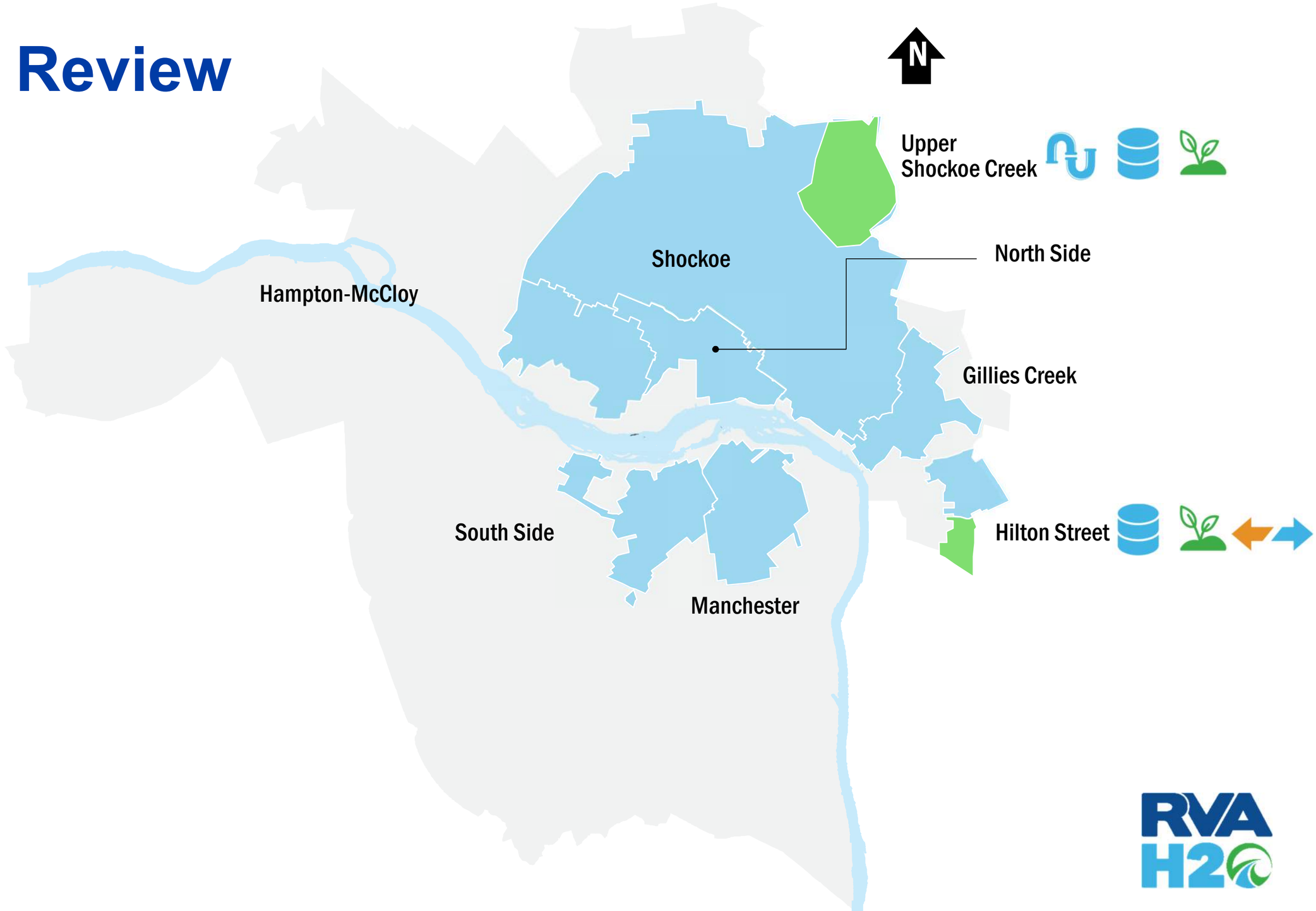
Green Infrastructure

- **Technical Feasibility**
  - Would need 7.5 acres of permeable pavement for volume reduction (3 street miles or 50% of drainage area streets)
- **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 GI to continue to perform as designed)

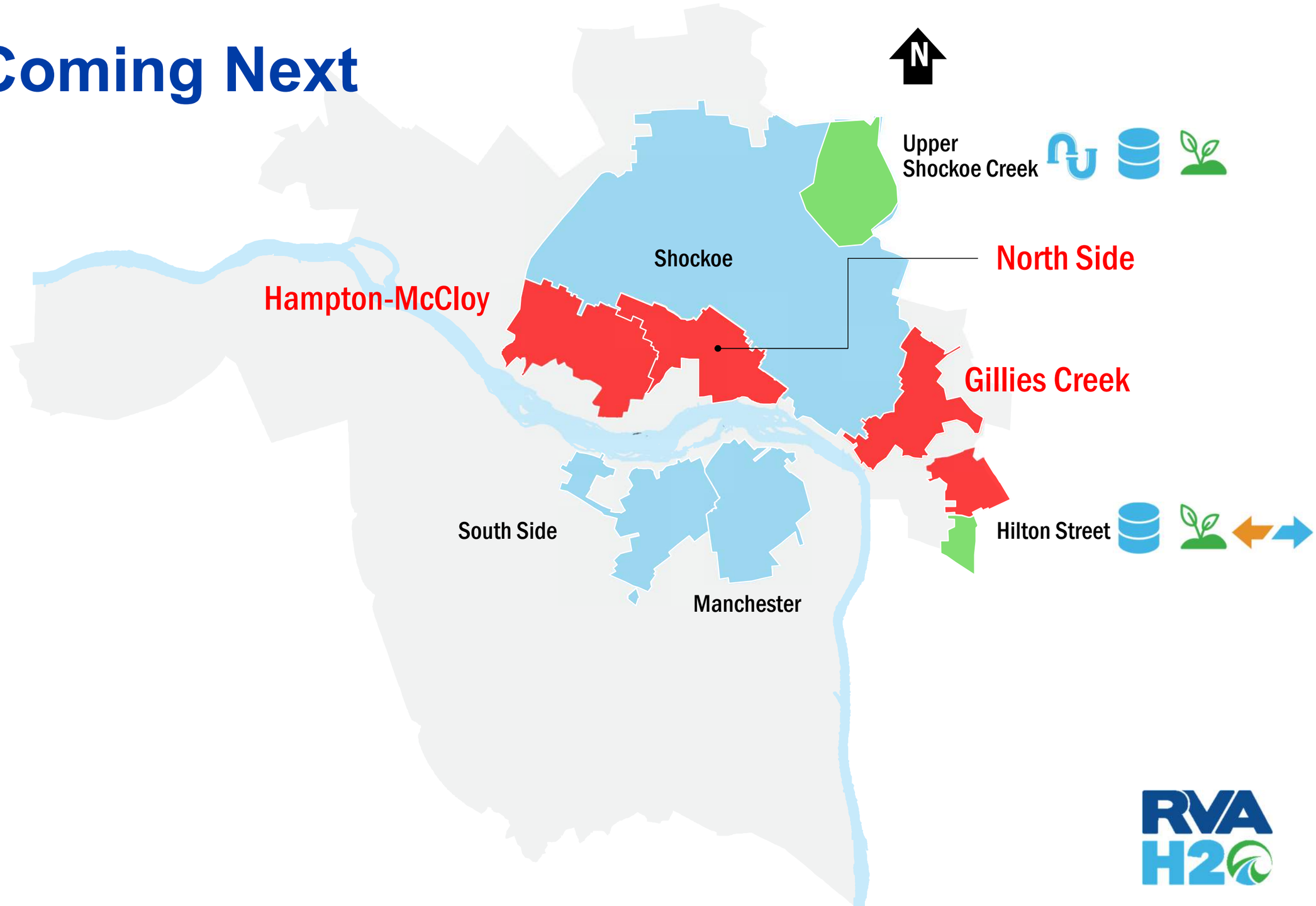
Summary of Hilton Street Solutions

- ~~Bigger Pipes~~
- **Storage**
- ~~Treatment~~
- **Separation**
- **Green Infrastructure**

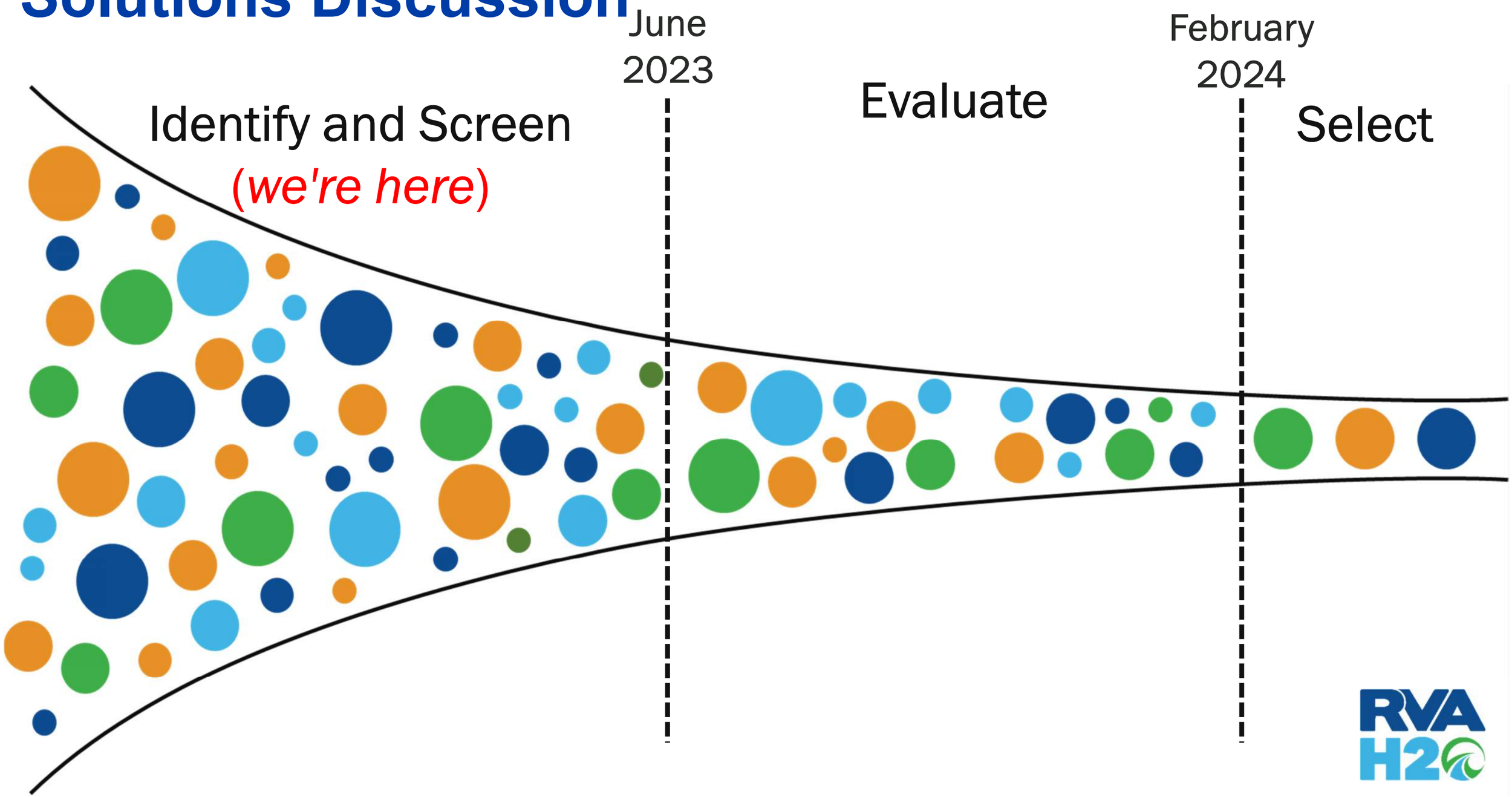
Solution Review



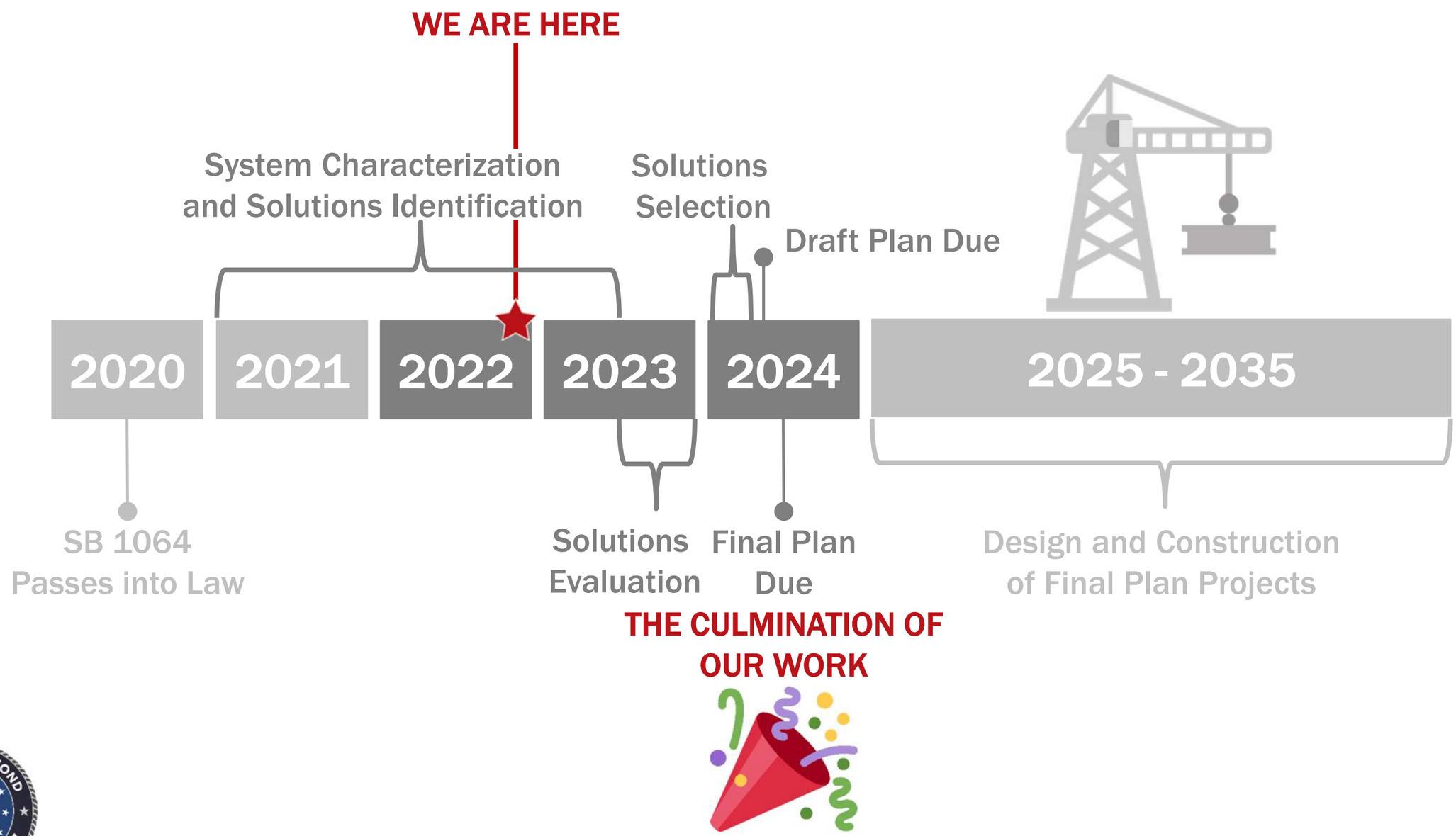
What's Coming Next



Solutions Discussion



Timeline


WE ARE HERE
System Characterization and Solutions Identification
Solutions Selection
Draft Plan Due
2020
2021
2022
2023
2024
2025 - 2035
SB 1064 Passes into Law
Solutions Evaluation
Final Plan Due
Design and Construction of Final Plan Projects
THE CULMINATION OF OUR WORK

Timeline

Solution Identification

1. December 2022 – Upper Shockoe Creek, Hilton Street
2. February 2023 – Hampton, North Side, and Gillies Creek
3. April 2023 – Manchester and Southside
4. June 2023 - Shockoe

Evaluation

5. August 2023 – Evaluation: Cost/Performance
6. October 2023 – Evaluation: Other
7. December 2023 – Feedback from Community

Selection

8. February 2024 – Solution Selection
9. April 2024 – Review of the Draft Final Plan

Next Meeting: February 2023

Grace.LeRose@rva.gov

Photo Credit:
CSO 03 Pipeline / Canal Walk Construction