City of Alexandria
Department of Transportation &
Environmental Services

Pitt and Gibbon Combined Sewer Surcharging Mitigation Project Resident Focus Group Meeting

October 22, 2025
Alexandria City Hall

Agenda

1. Existing Conditions
2. Study Overview and Findings
3. Alternatives Studied
4. Next Steps
5. Questions

Existing Conditions

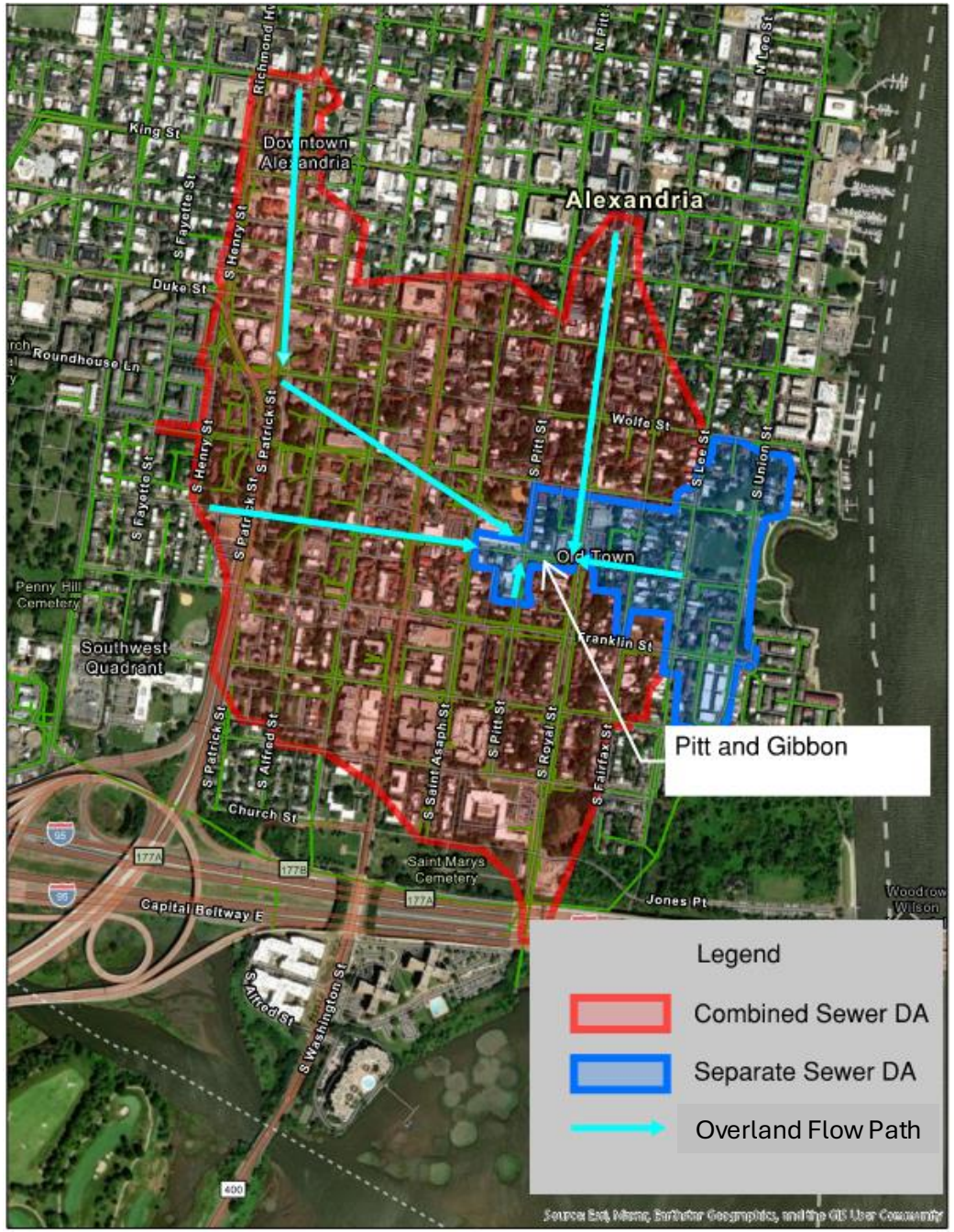
- Combined sewer begins to overflow during relatively frequent, small storms
- Project area located in a local low point in watershed
- Project area inundated by combined sewer overflows

Existing Conditions

S. Pitt St., east of Lyles-Crouch Traditional Academy

400 Block of Gibbon St.

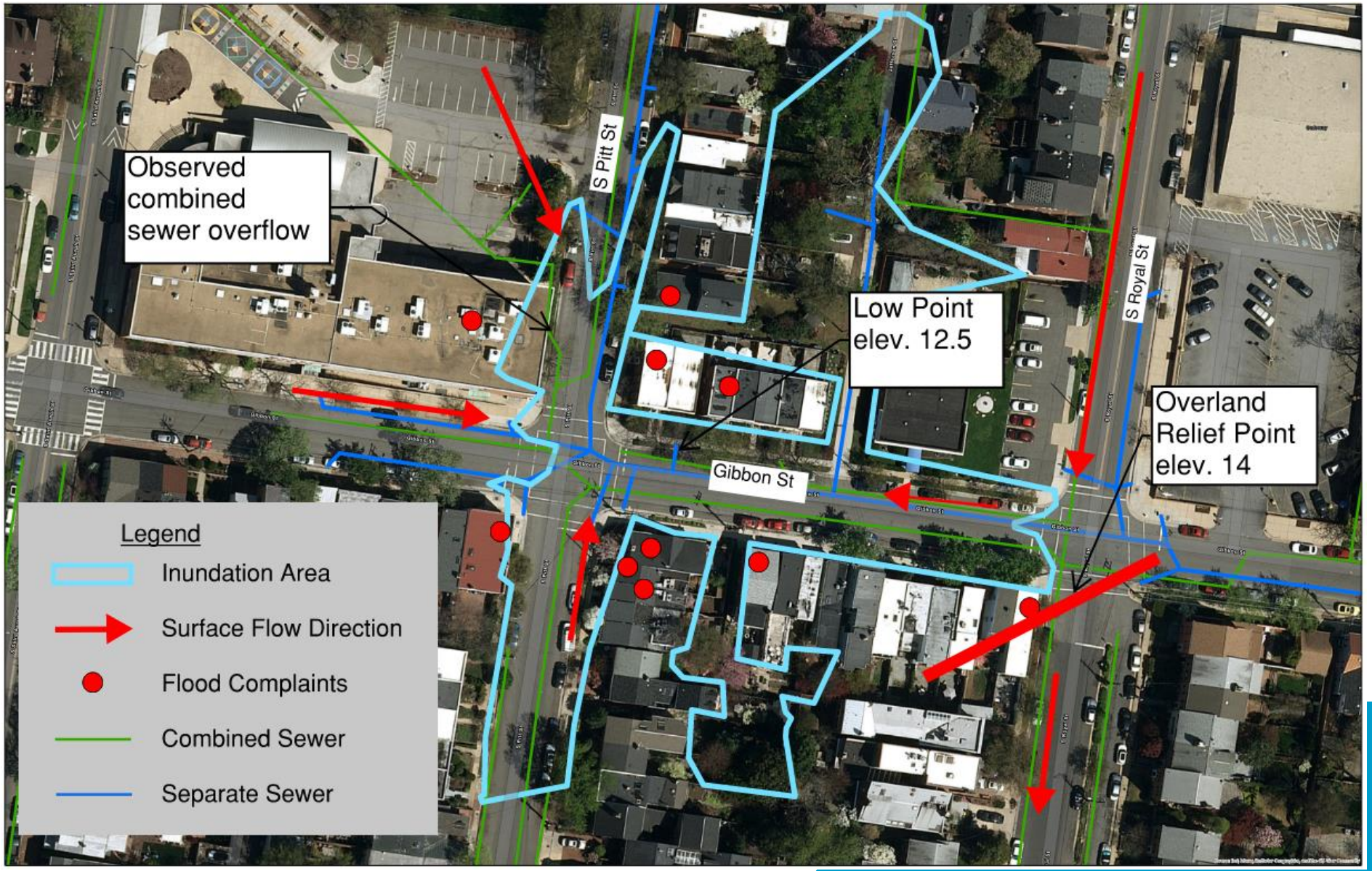
August 2021 Event

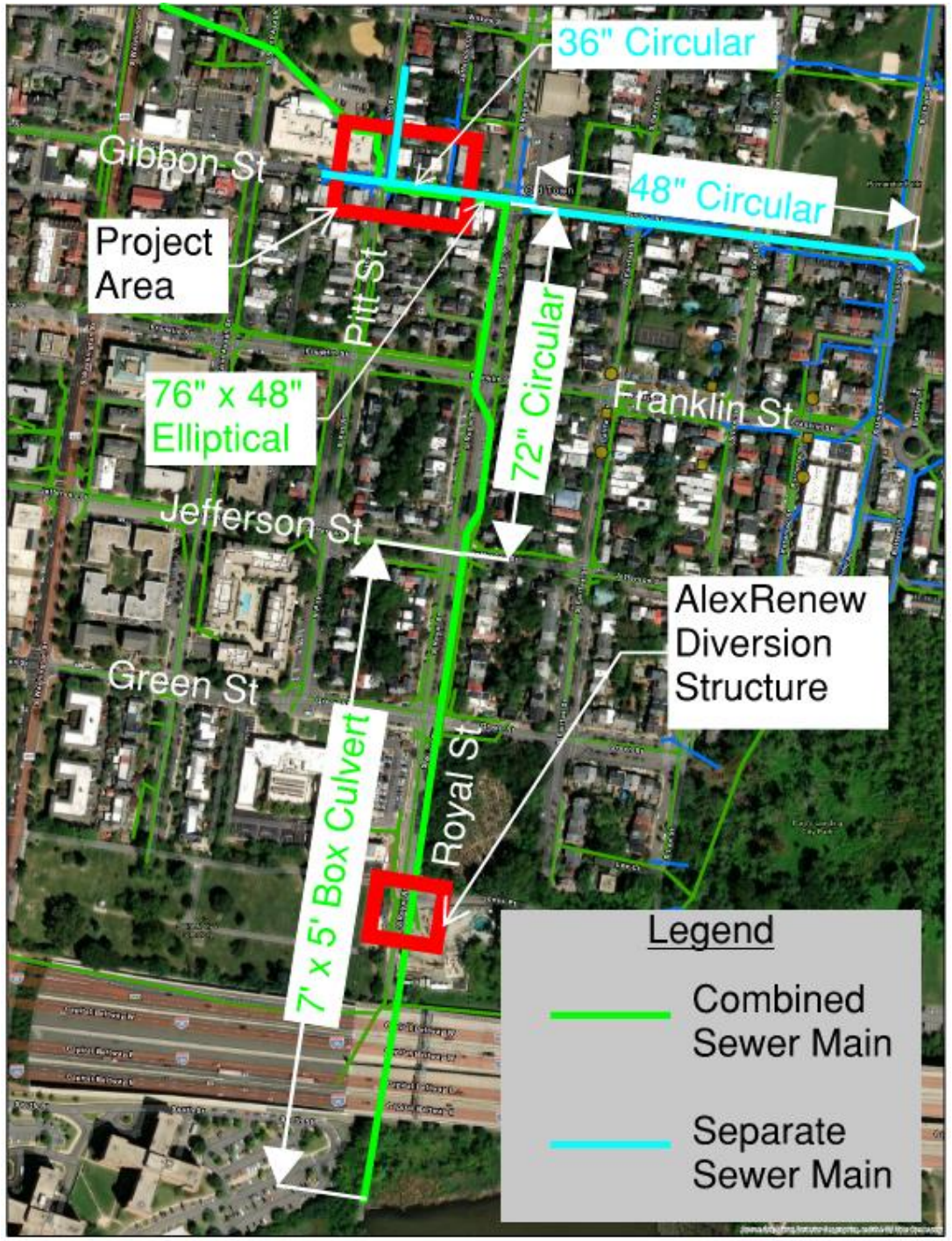


Existing Conditions

- Part of the combined sewer system (sanitary and storm)
- Large area contributing drainage to combined sewer:
  - 210 acres total system
  - 115 acres to project site
- Surface flooding is directed toward Pitt and Gibbon
- Entire combined sewer undersized

Existing Conditions





Existing Conditions

- Combined Sewer runs along Royal St and Outfalls to South
- Separate Storm Sewer System runs east along Gibbon St
- AlexRenew diversion structure at Royal St

Study Overview: Initial Study

Earlier Study (2022): Tanyard Ditch Modeling Update

The study tested five main alternatives:

1. Sewer separation and combined relief sewer
2. Standalone combined relief sewer
3. Underground storage at Lyles-Crouch school
4. Combination of sewer separation and storage
5. Short-term manhole sealing

Study Overview: Initial Study

Findings:

- Performance of above listed alternatives was overstated
- Model underestimated flows in the watershed
- Model was addressing local combined sewer overflows at Pitt and Gibbon, but did not consider upstream surface flow

Study Overview: Expanded Study

Study expanded to investigate additional alternatives:

- Increase combined sewer capacity
- Upsize existing separate storm sewers
- Separate storm and sanitary sewers
- Underground storage
- Pump Station

Result:

- None of the options adequately mitigate a 10-year storm

Study Overview: Expanded Study

Findings:

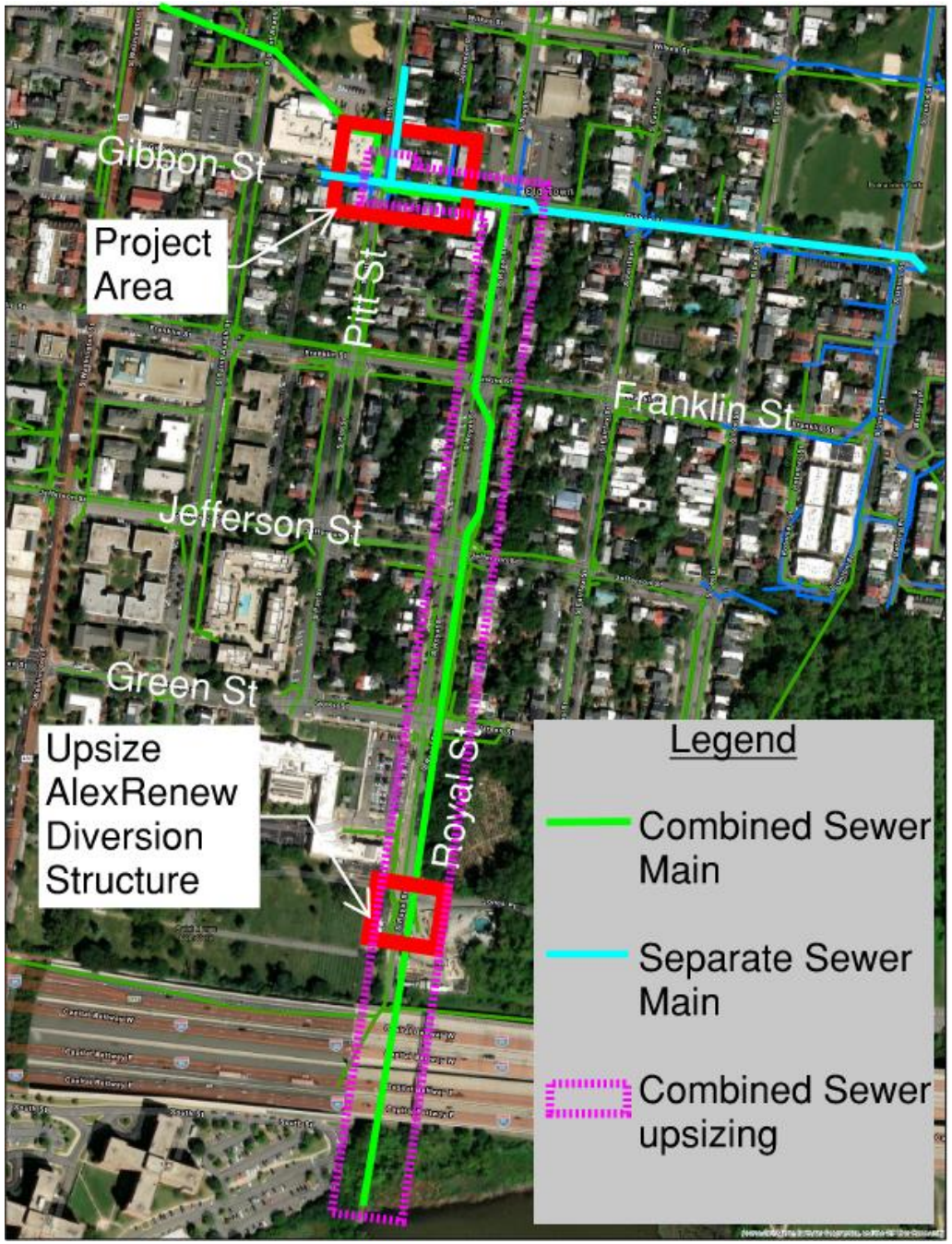
- Infrastructure upgrades provide only limited relief (2-year max)
- None of the options adequately mitigate a 10-year storm
- Area highly susceptible to flooding due to topography

Recommendations:

- Property-level floodproofing
- **Expansion of flood mitigation grant program under investigation**

Expanded Study: Alternatives

1. Increase Combined Sewer Capacity
2. Upsize Existing Separate Sewer
3. Full-Scale Sewer Separation
4. Detention Storage
5. Pumping Station



Alt 1: Increase Combined Sewer Capacity

- Scope: Upsize combined sewer with 12’ x 5’ box culvert to outfall (~2,800 LF)

- Goal: relieve bottleneck and provide capacity to keep runoff within system

Alt 1: Increase Combined Sewer Capacity

Constraints:

- System extremely flat (~0.2% slope)
- Shallow pipe system, limits allowable pipe height
- Alignment dense with utilities
  - Water: 6” and 12” mains on both sides of road
  - Sanitary Sewer: Mains on both sides of road
  - Other: Gas, telecom, electric
- AlexRenew diversion structure at Royal St.

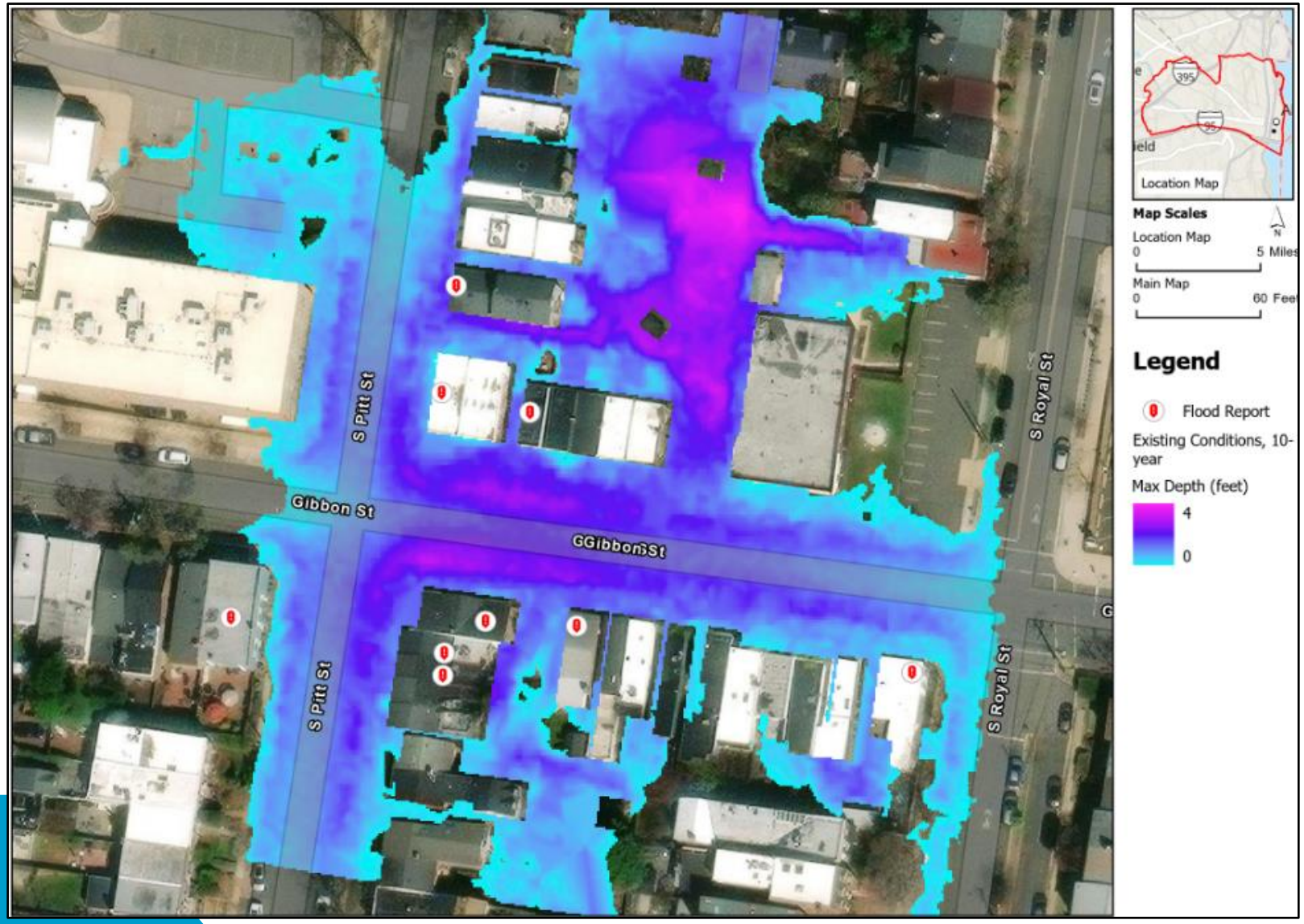
Alt 1: Increase Combined Sewer Capacity

Results:

- <2-year protection without upsizing AlexRenew diversion
- 2-year protection with upsizing AlexRenew diversion
- **Not feasible** to achieve meaningful (10-year) protection due to structural and spatial limitations
- Even with larger downstream pipes, stormwater from surrounding streets would continue to collect at this low point.

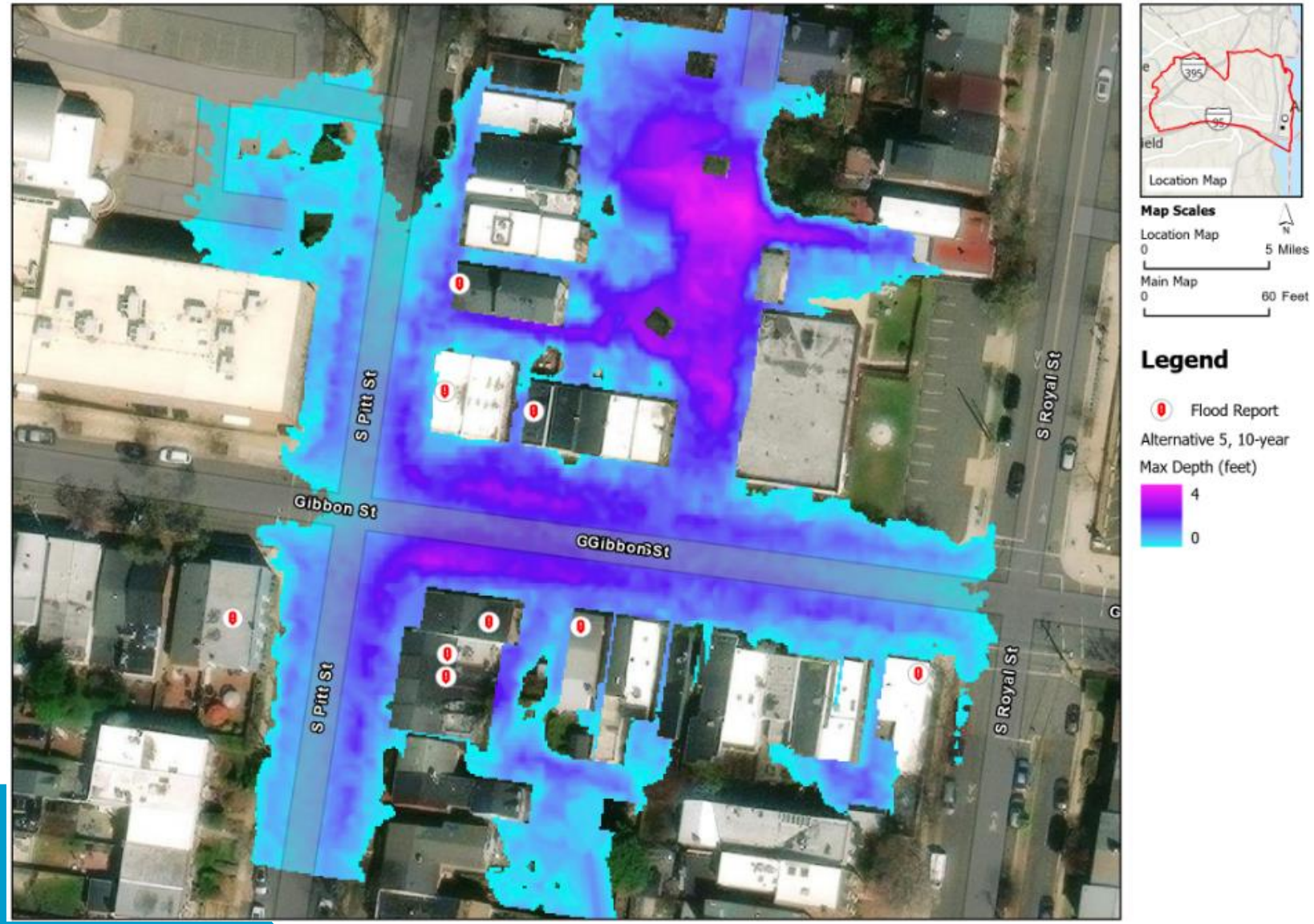
Alt 1: Increase Combined Sewer Capacity

Existing Conditions:
10-year Flood



Alt 1: Increase Combined Sewer Capacity

Alternative 1:
10-year Flood



Alt 2: Upsize Existing Separate Sewer

Description:

- Upsize the separate storm sewer along Gibbon St
- Intent is to relieve inundation at low point by increasing capacity
- Separate system constructed as part of Tanyard Ditch Conveyance project, constructed in 2007

Alt 2: Upsize Existing Separate Sewer

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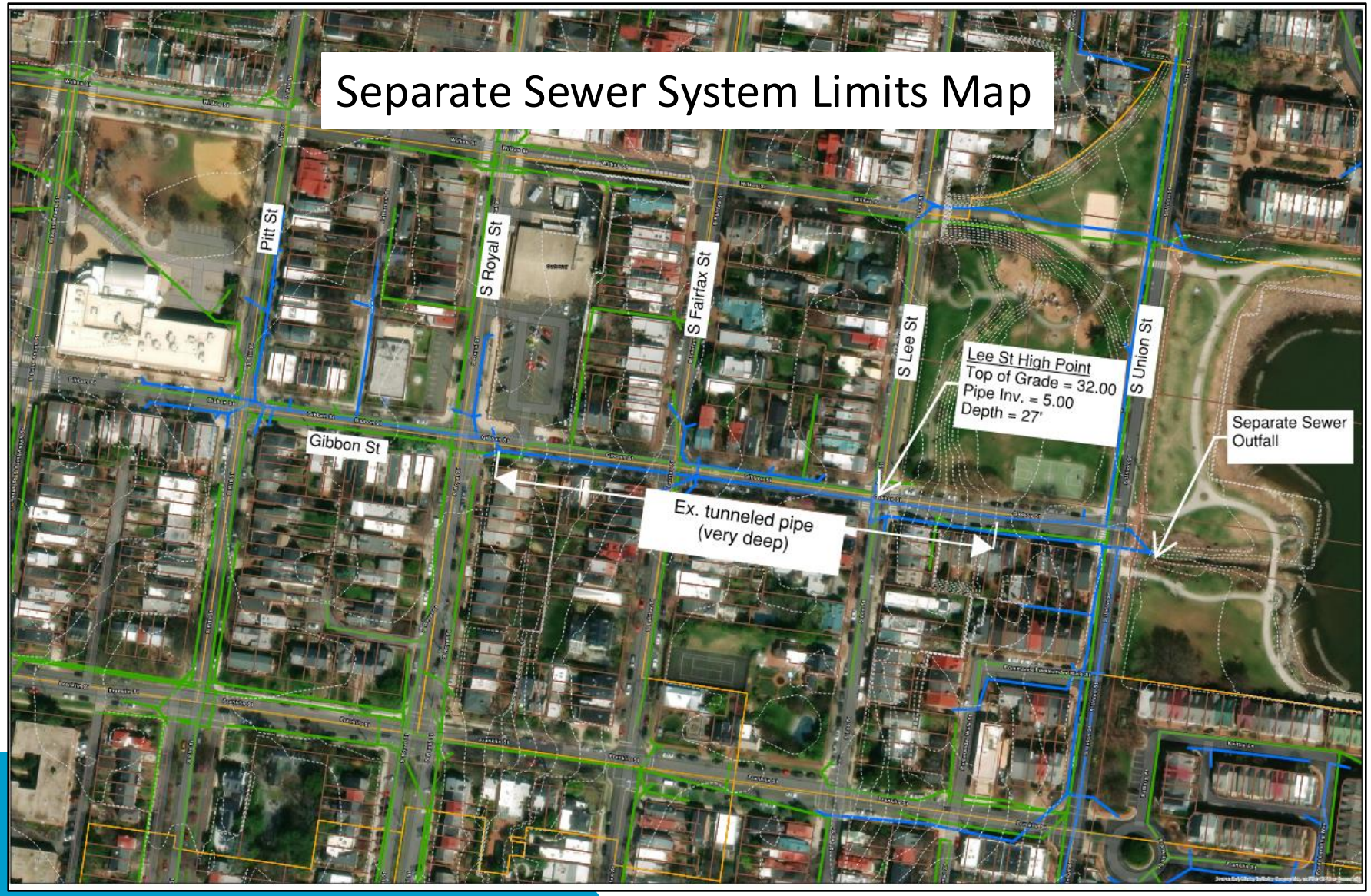


Alt 2: Upsize Existing Separate Sewer

Constraints:

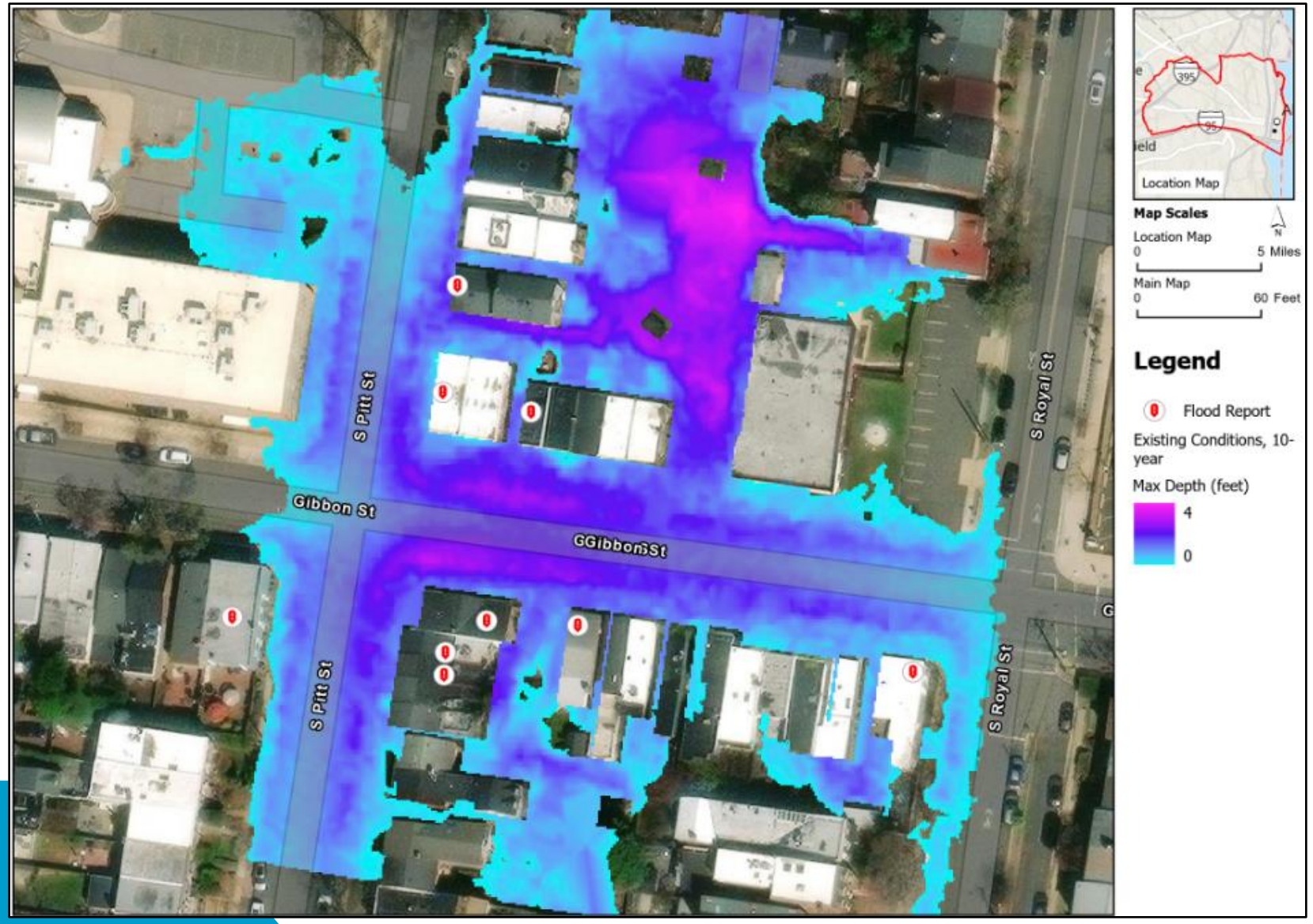
- Separate storm pipe has roughly 1/10th of the required capacity at bottleneck (48”) for 10-year combined sewer overflows
- Upsizing downstream of existing tunneled pipe would require major excavation and deep tunneling (beyond traditional methods)
- Dense utilities, and required depth of excavation, make this option infeasible

Results:

- Upsizing existing tunneled pipe not feasible
- No significant improvement unless 48” upsized

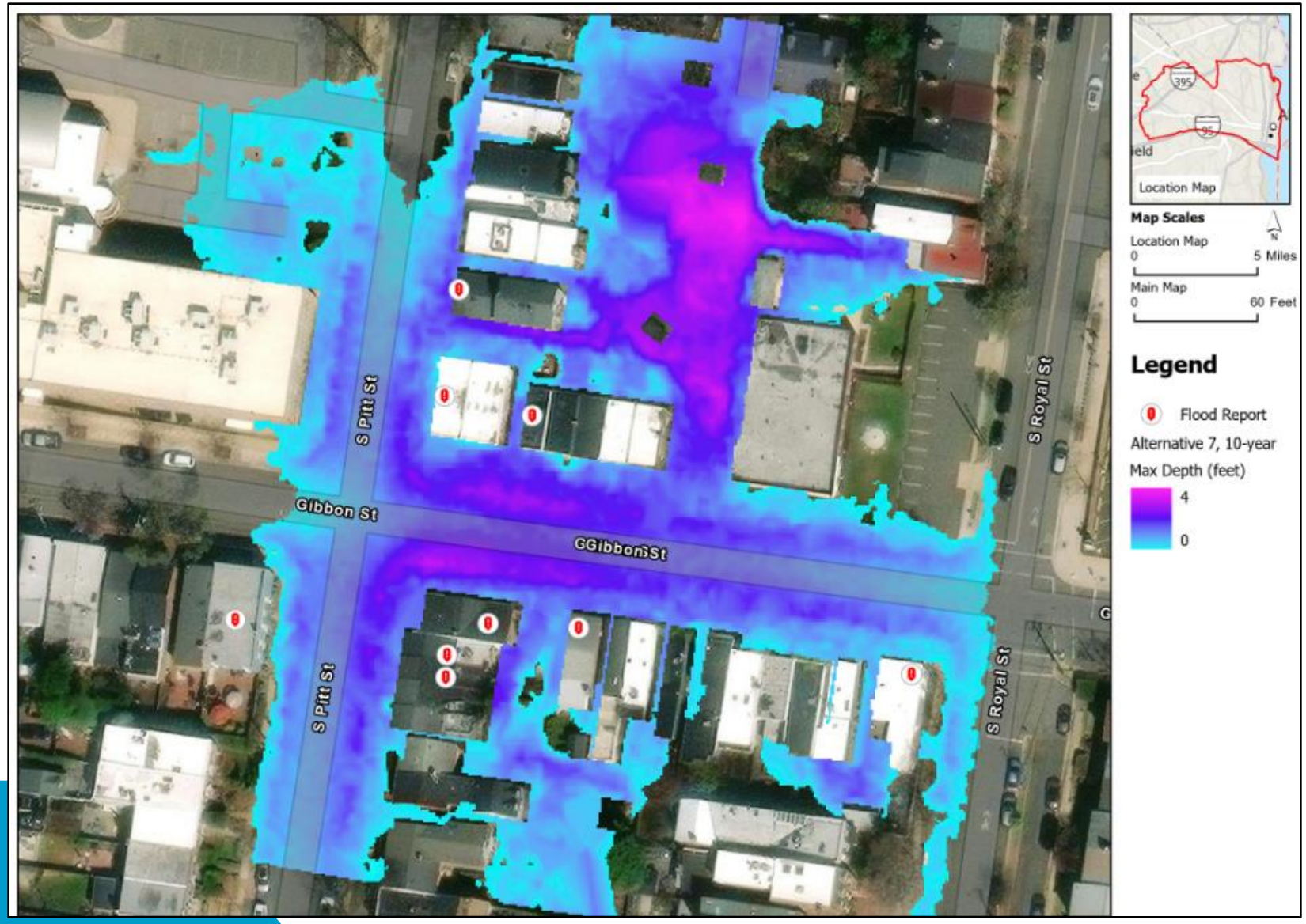
Alt 2: Upsize Existing Sewer

Existing Conditions:
10-year Flood



Alt 2: Upsize Existing Sewer

Alternative 2:
10-year Flood



Alt 3: Full-Scale Sewer Separation

Description:

- Separate storm and sanitary flows throughout combined watershed (Royal St. outfall)

Constraints:

- Above-mentioned constraints apply to this option as well
- Separation still requires a new pipe system
- Existing combined sewer alignment follows natural topography
- New outfalls would require multiple jack and bore excavations

Alt 4: Detention Storage

Description:

- Provide underground storage tank to hold excess flow
- Only viable location: Lyles-Crouch school field (~50,000 sf area, 6-ft depth).

Alt 4: Underground Storage

Constraints:

- Space available ~ 50,000 sf
- Storage needed for 10-year storm ~ 500,000 sf
- Restricts future school expansion
- Combined sewer flow adds maintenance concerns
- Alternative relies on upstream inlet capture

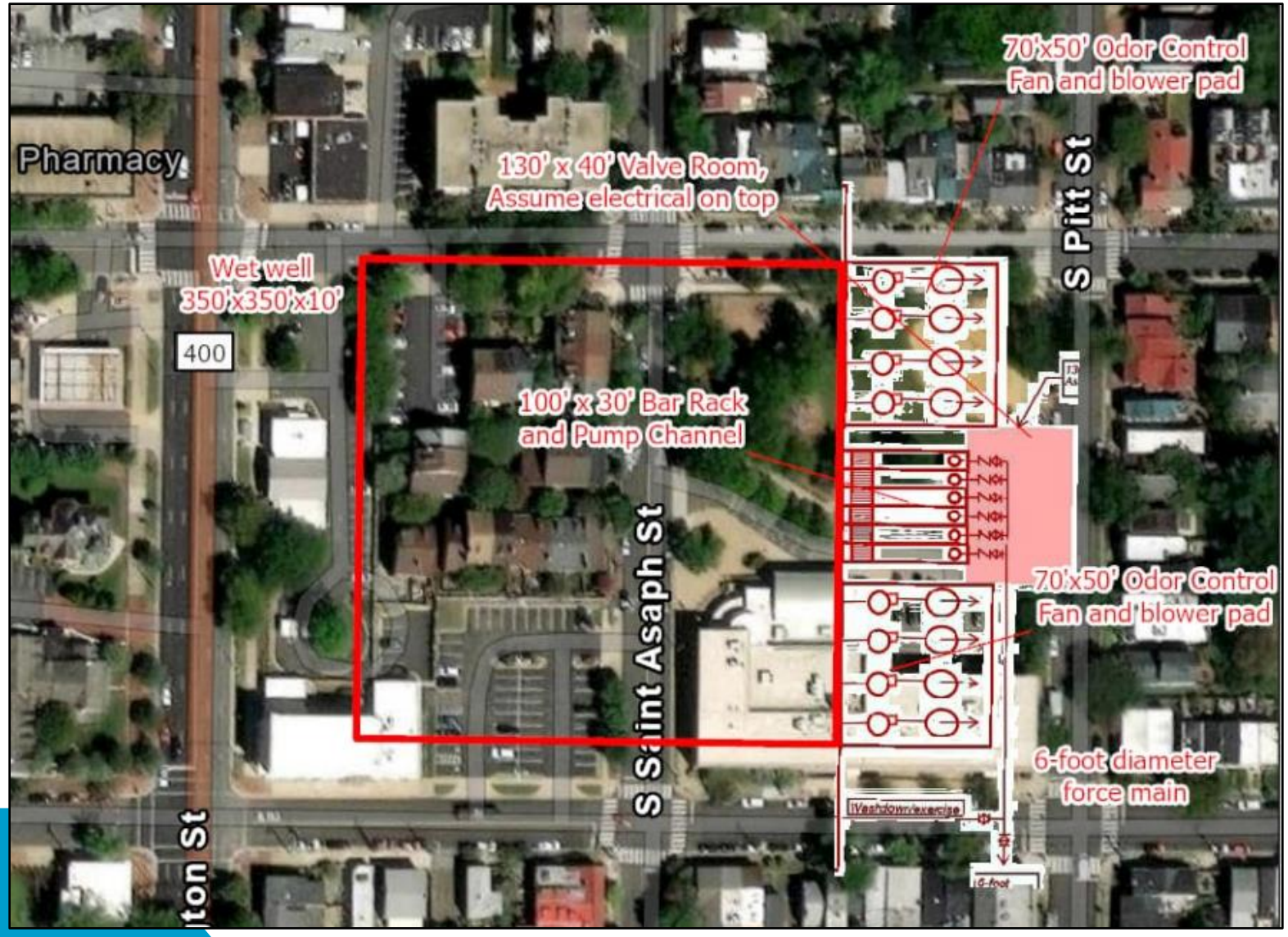
Results:

- <1-year protection at maximum feasible volume

Alt 5: Pumping Station

Description:

- Combined sewer pumping station to prevent overtopping



Alt 5: Pumping Station

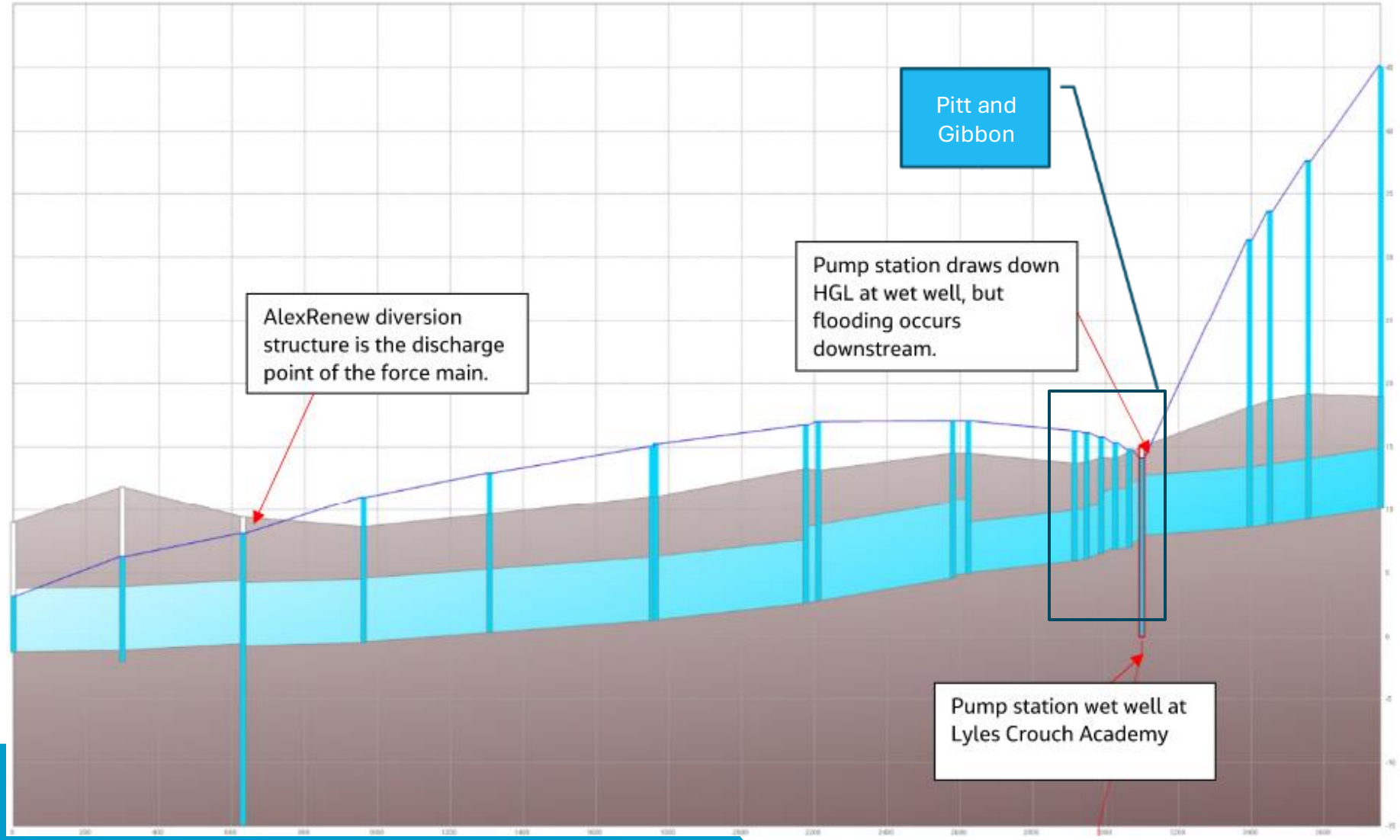
Constraints

- Downstream pipes are already full during major storms
- Limited space available for the pump station
- Large cost, power needs, and operational risk

Results

- Pump size required not feasible
- Does not mitigate upstream overflows
- Potential regulatory issues with respect to AlexRenew diversion

Alt 5: Pumping Station



Combined sewer profile with pump: 10-year Storm

Next Steps

- Evaluate floodproofing grant program expansion with consultant team:
  - Evaluate city-wide modeling for flood prone areas
  - Review programs from neighboring jurisdictions
  - Determine program structure
  - Determine eligibility of properties
  - Public update planned for Spring 2026
  - Options for technical assistance
- Pitt and Gibbon is a high priority area for this expansion

Next Steps

- Work with Board of Architectural Review (BAR) to streamline private upgrade approvals
- City of Alexandria Planning and Zoning staff helped identify potential flood proofing measures for at risk properties
  - Masonry walls with removable flood barriers (e.g., 421 Gibbon Street)
  - Removable flood barriers for identified points of entry
  - Waterproofing
  - Residents not limited to these measures

Open Discussion / Q&A

Questions?

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