An Urban Flooding Case Study: The Village of Bedford Park

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STORMWATER MASTER PLANNING

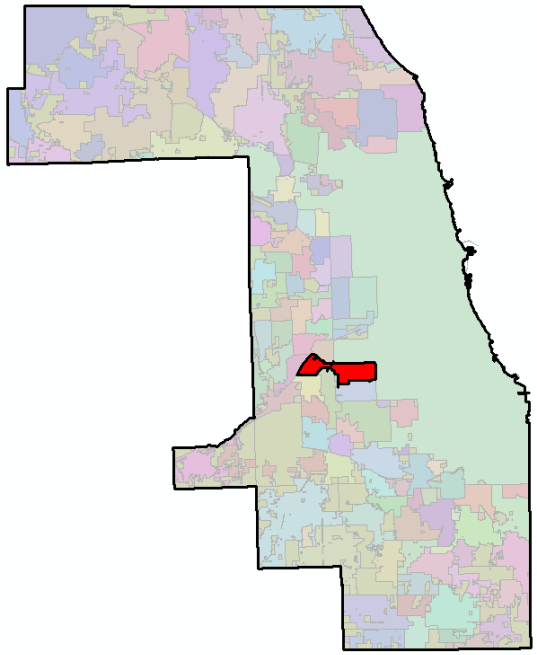
Agenda

1. Background: Bedford Park
2. Overview of Drainage Issues
3. Proposed Alternatives
4. Next Steps
5. Q&A

Background: Village of Bedford Park

Village of Bedford Park:

- Cook County
- 6 Square Miles

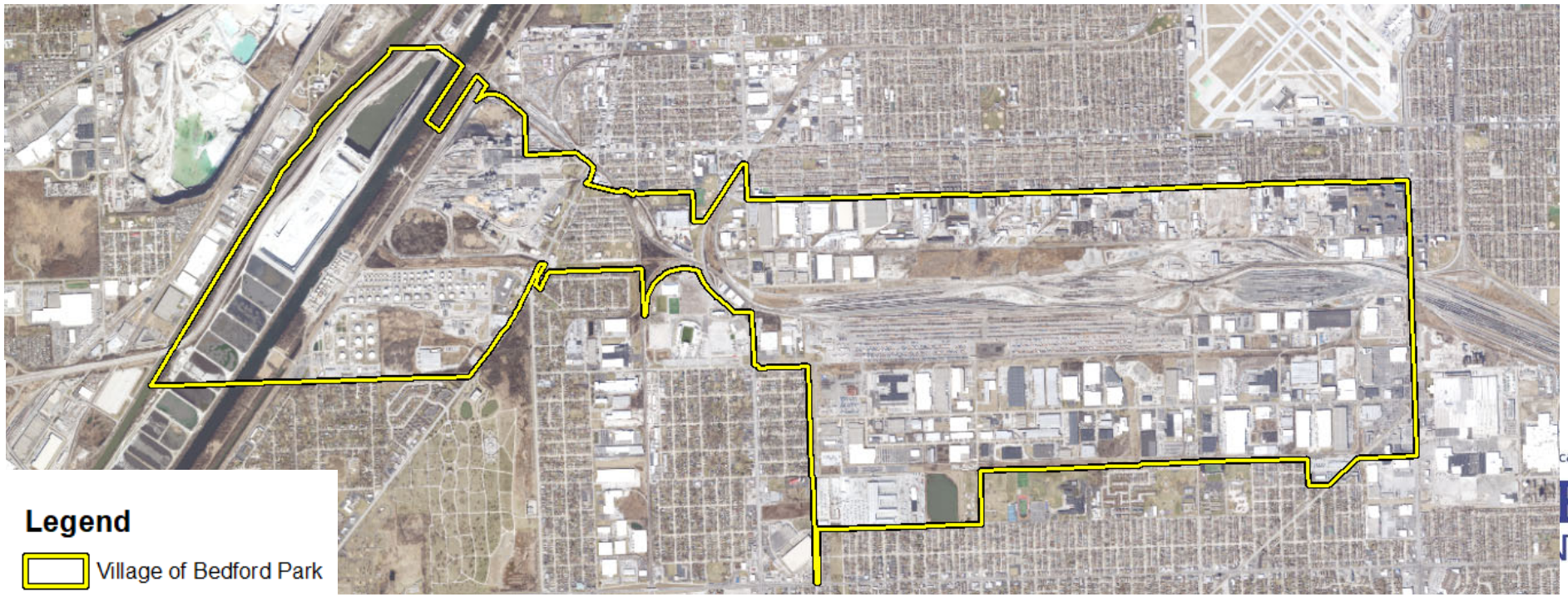


Background: Village of Bedford Park

Village of Bedford Park:

- Cook County
- 6 Square Miles
- Population: 602 People

- Primary Land Uses:
  - Industrial (50%)
  - Transportation/Other (40%)

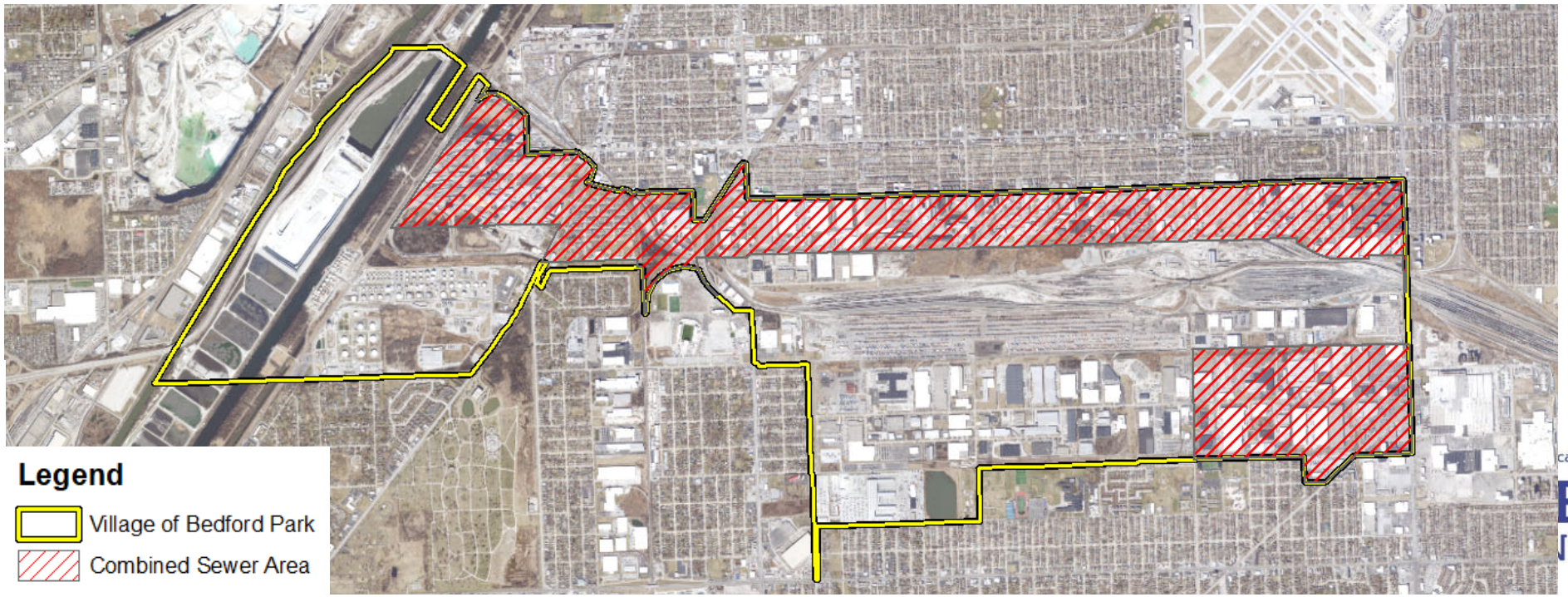


Background: Village of Bedford Park

Village of Bedford Park:

- Cook County
- 6 Square Miles
- Population: 602 People

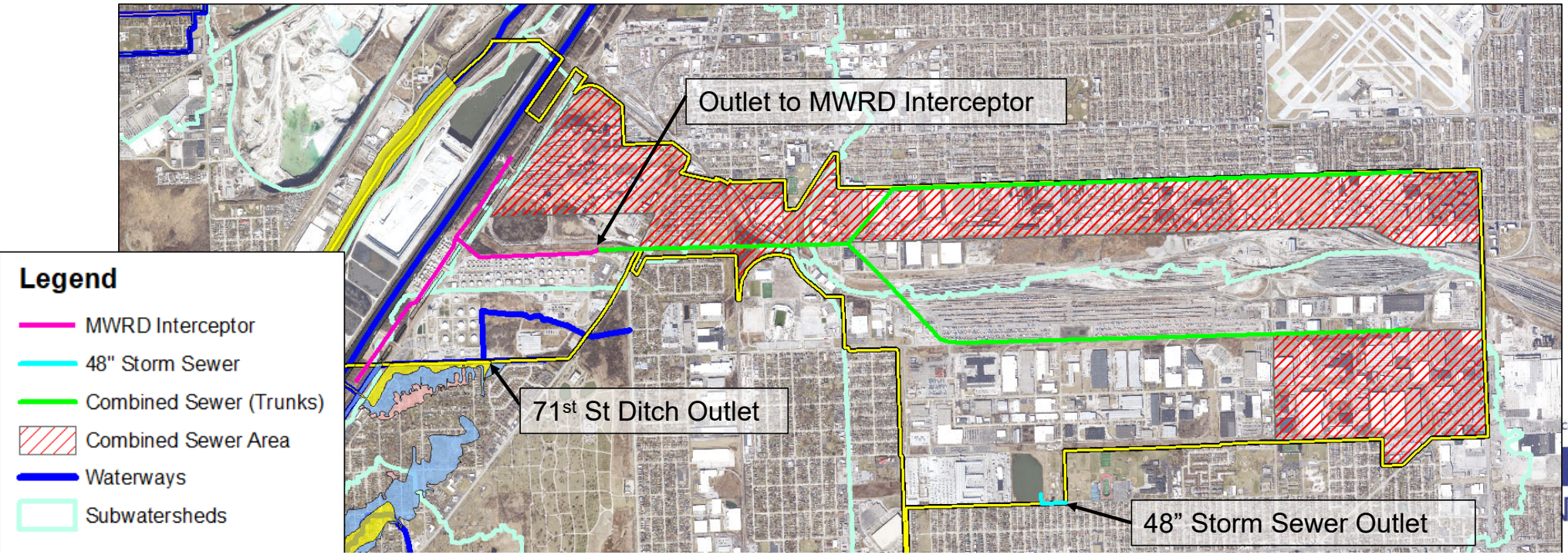
- Primary Land Uses:
  - Industrial (50%)
  - Transportation/Other (40%)
- 33% Combined Sewer



Background: Village of Bedford Park

Drainage Outlets and Subwatersheds:

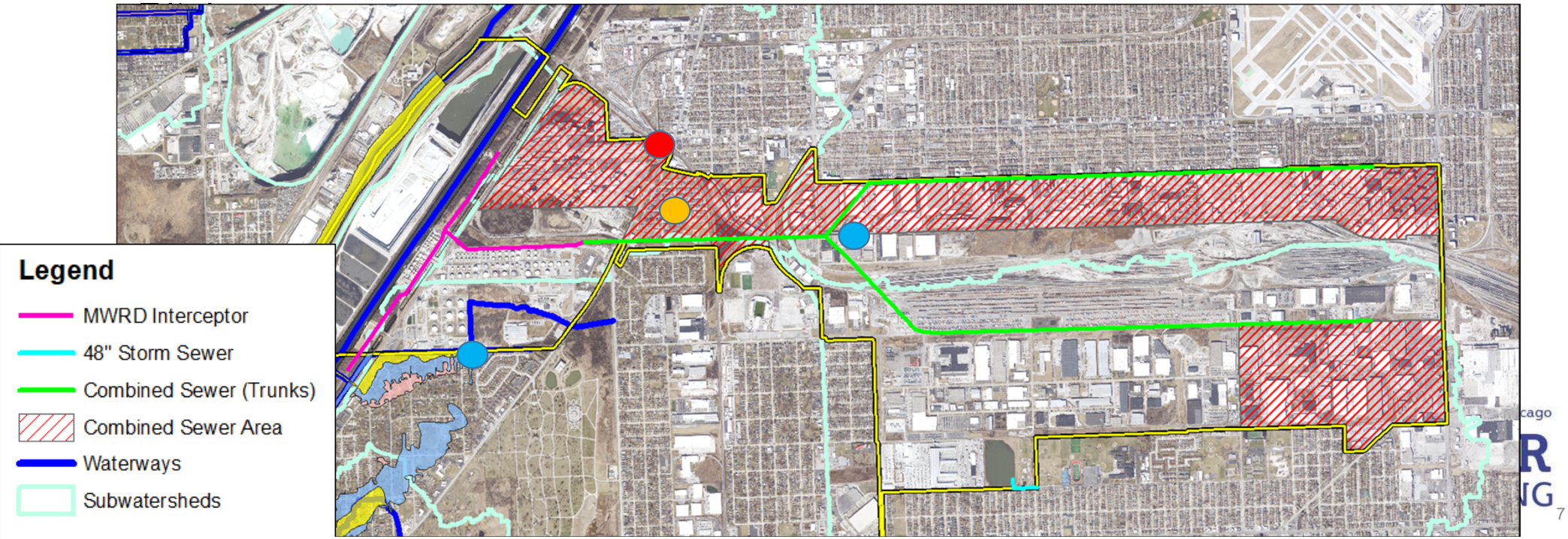
- Interceptor Sewer (CSSC and I&M Canal Subwatersheds)
- 71st St Ditch (71st Street Ditch Subwatershed)
- 48” Storm Sewer (Melvina Ditch Subwatershed)



Overview of Drainage Issues

Drainage Issues:

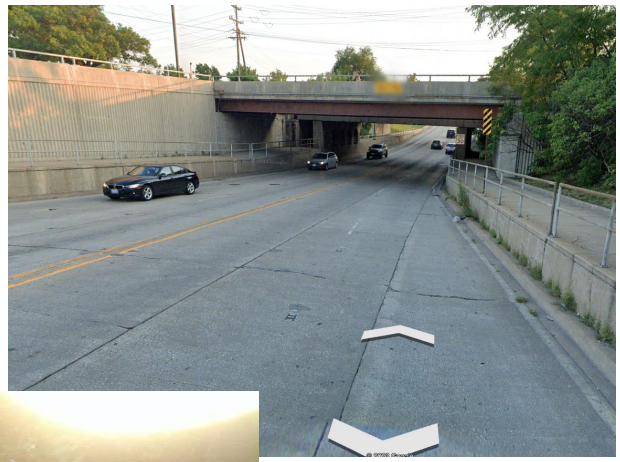
- Flooding at Archer Rd Viaduct under Railroad near 63rd St
- Desire to Separate Sewers, but no Outlet for Storm Sewer
- Limitations and Restrictions on New Drainage Outfalls to Comb Sewer, 71st St



Viaduct Flooding: Existing Conditions

Flooding at Archer Rd Viaduct under Railroad at 63rd St

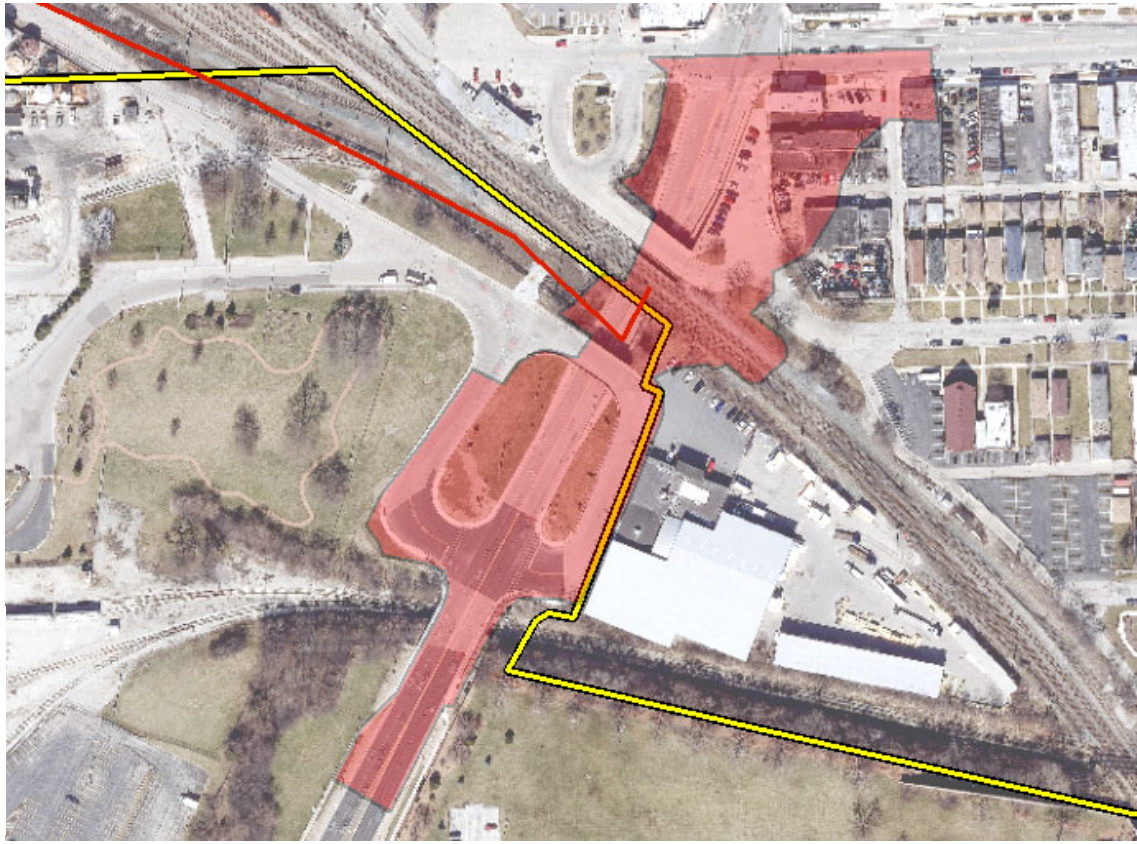
- Highest Priority Drainage Issue in Bedford Park
- Highest Priority Drainage Issue in Summit
- Identified by CMAP in Transportation Resiliency Plan



Viaduct Flooding: Existing Conditions

Sewer Capacities and Tributary Areas

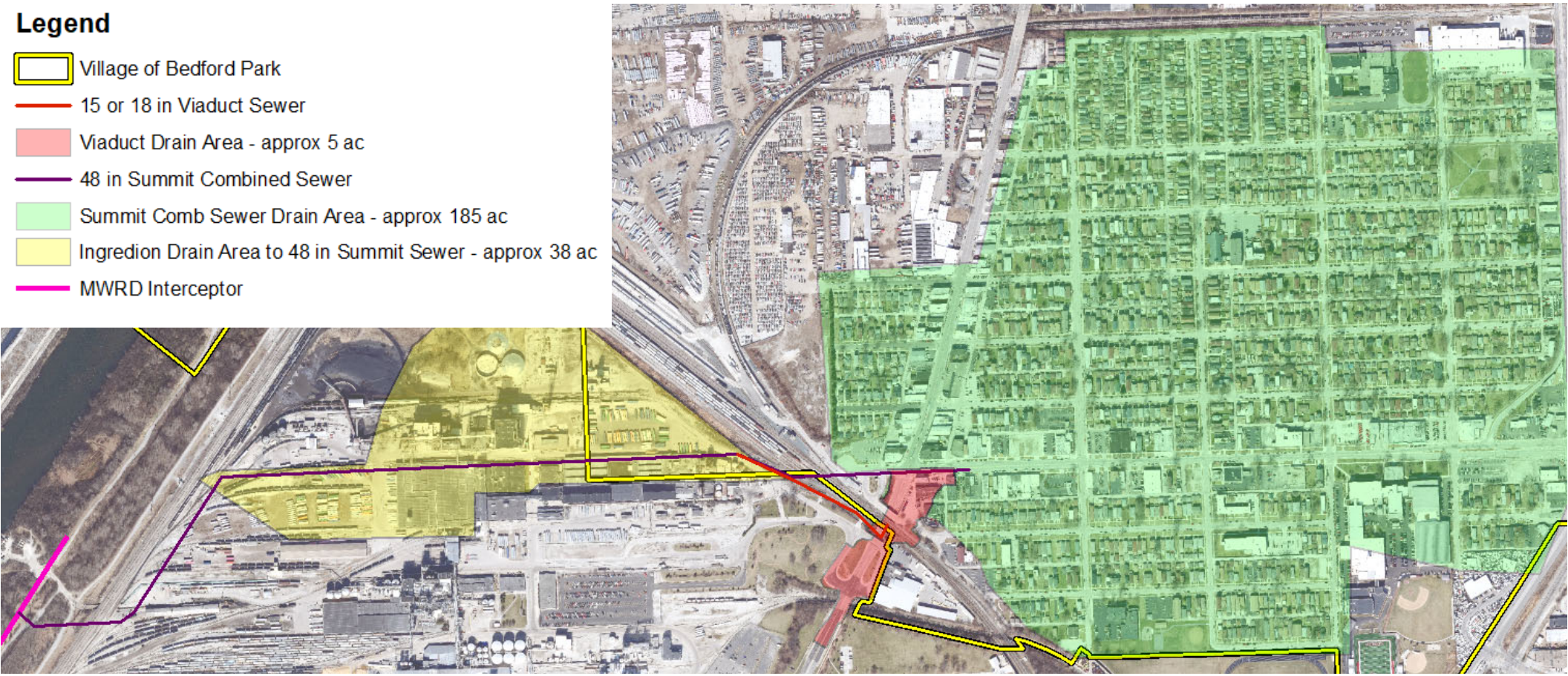
- Sewer Draining Viaduct:
  - 15” or 18” sewer
  - Constructed ~1939
  - Capacity = 5 - 8 cfs
  - Expected flow: 50yr Q = 40 cfs



Viaduct Flooding: Existing Conditions

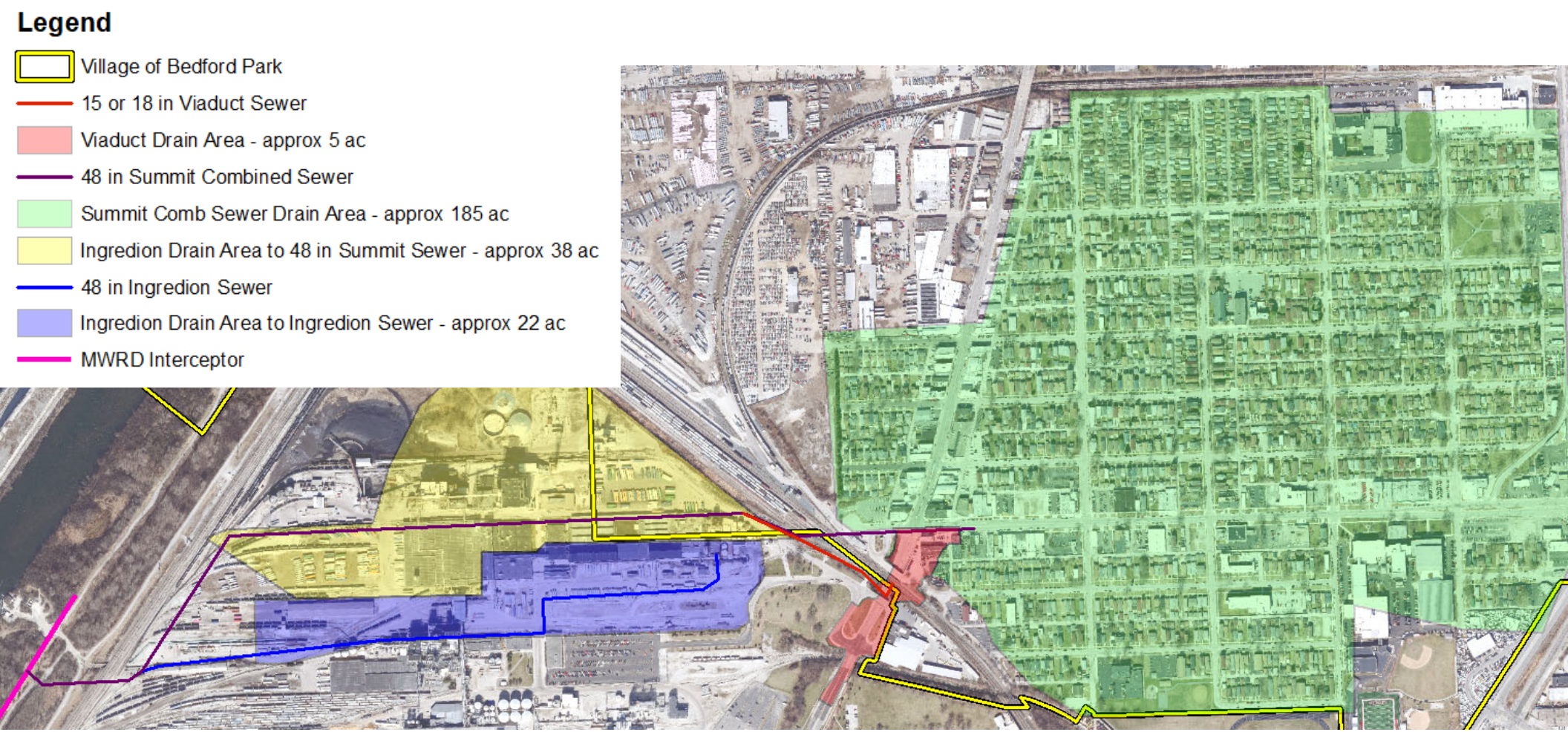
It is believed the Viaduct Sewer drains into 48” Summit Combined Sewer

- Capacity of 48” Summit Sewer: less than a 2-month storm



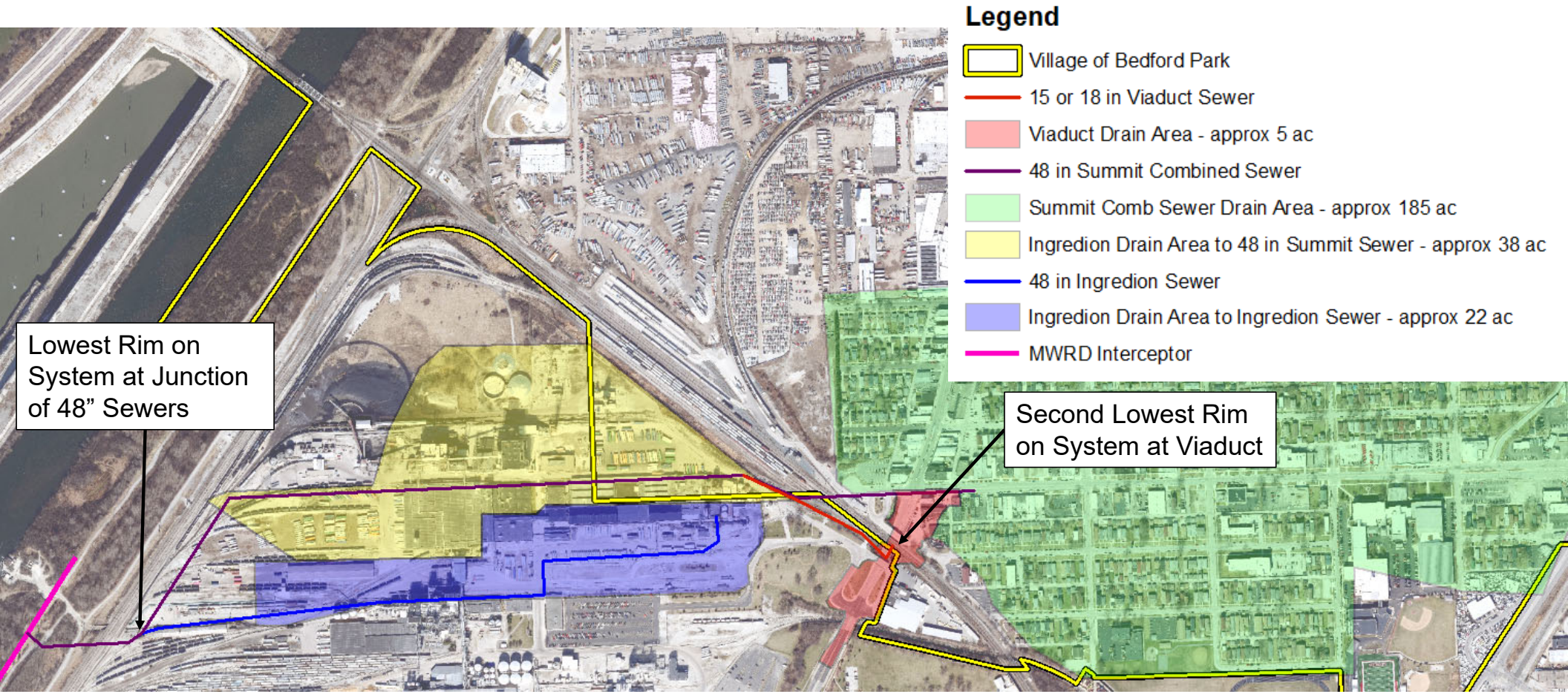
Viaduct Flooding: Existing Conditions

48” Summit Sewer joins w/48” Ingredion Sewer, continues as 48” to Interceptor



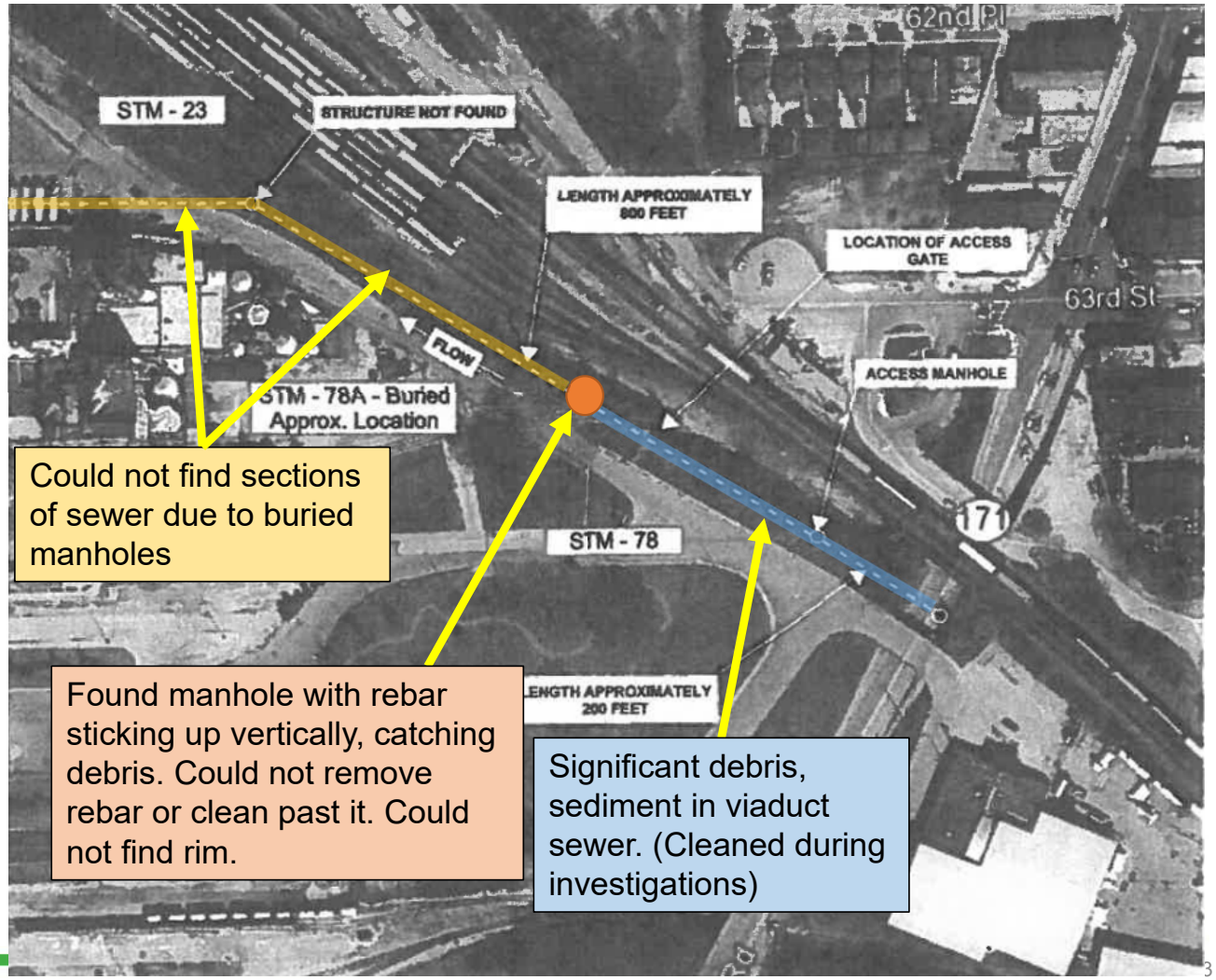
Viaduct Flooding: Existing Conditions

Lowest Points (lowest rims) on the entire system at 48” Junction and at Viaduct



Viaduct Flooding: Existing Conditions

Per IDOT Investigations: Maintenance issues likely contribute to flooding



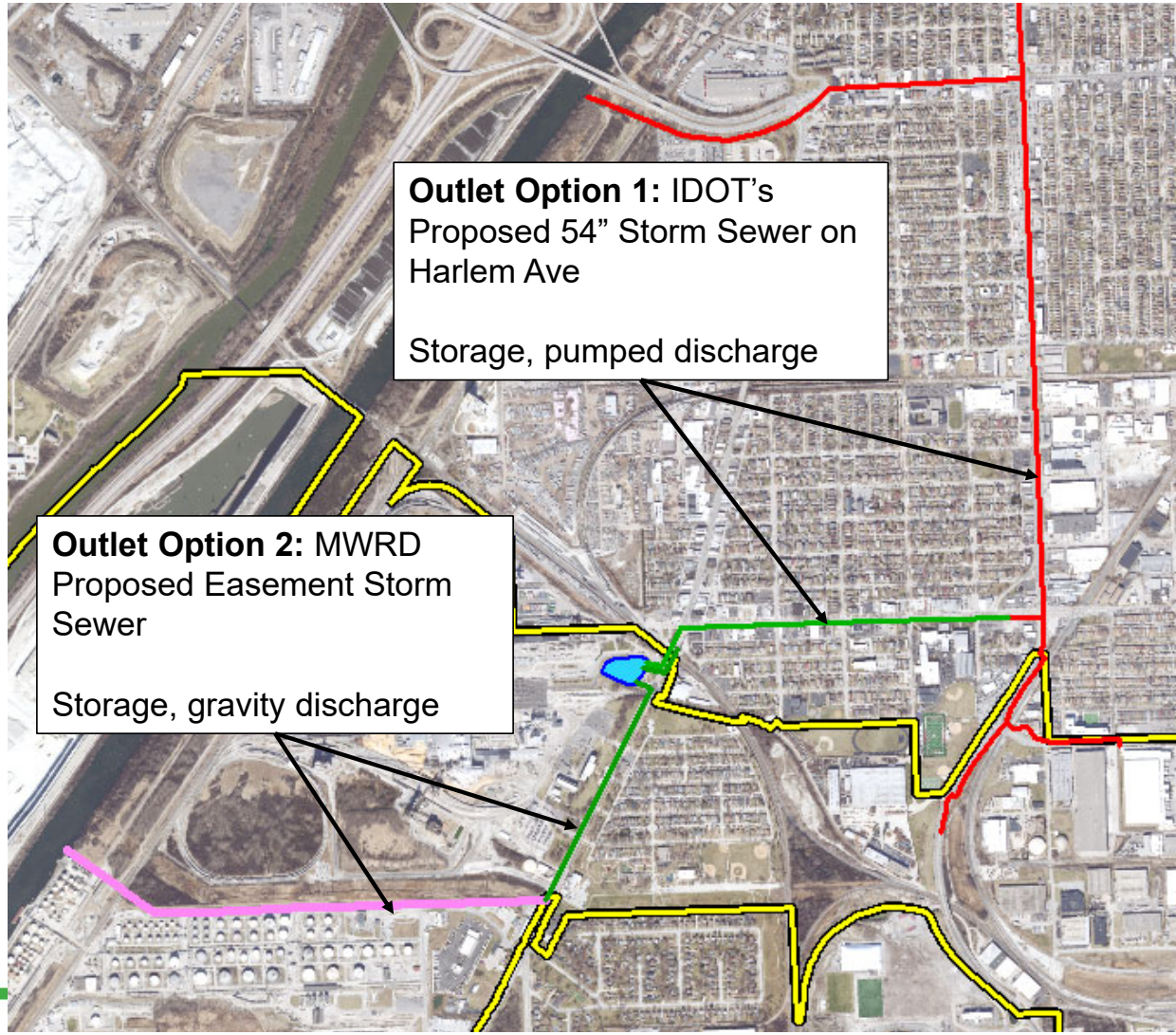
Viaduct Flooding: Proposed Alternatives

Short-term:

- Improved maintenance

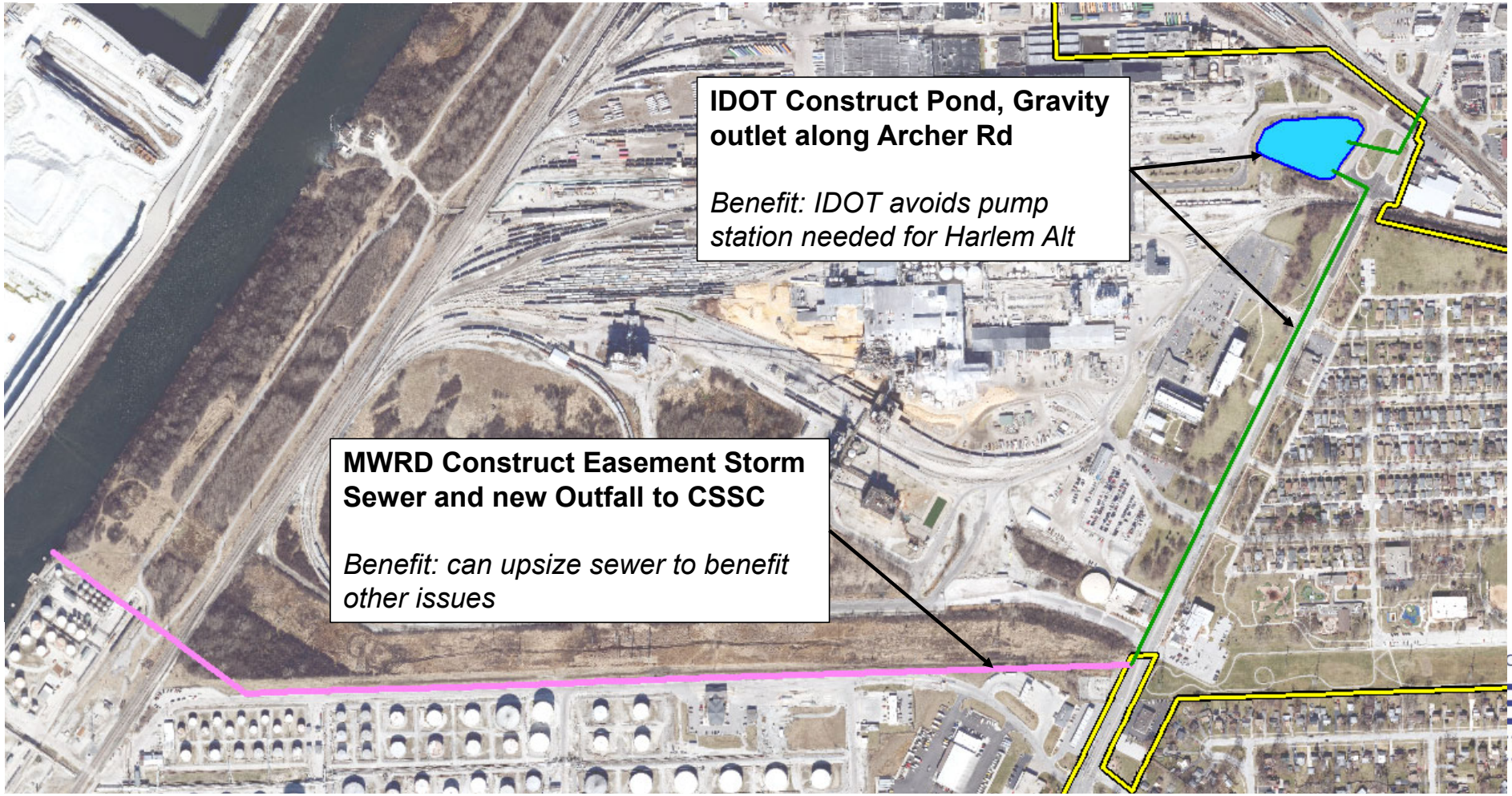
Long-term:

- Disconnect viaduct from 48” sewer
- Two identified feasible outlets:
  - IDOT prop Storm Sewer
  - MWRD prop Storm Sewer



Viaduct Flooding: Proposed Alternatives

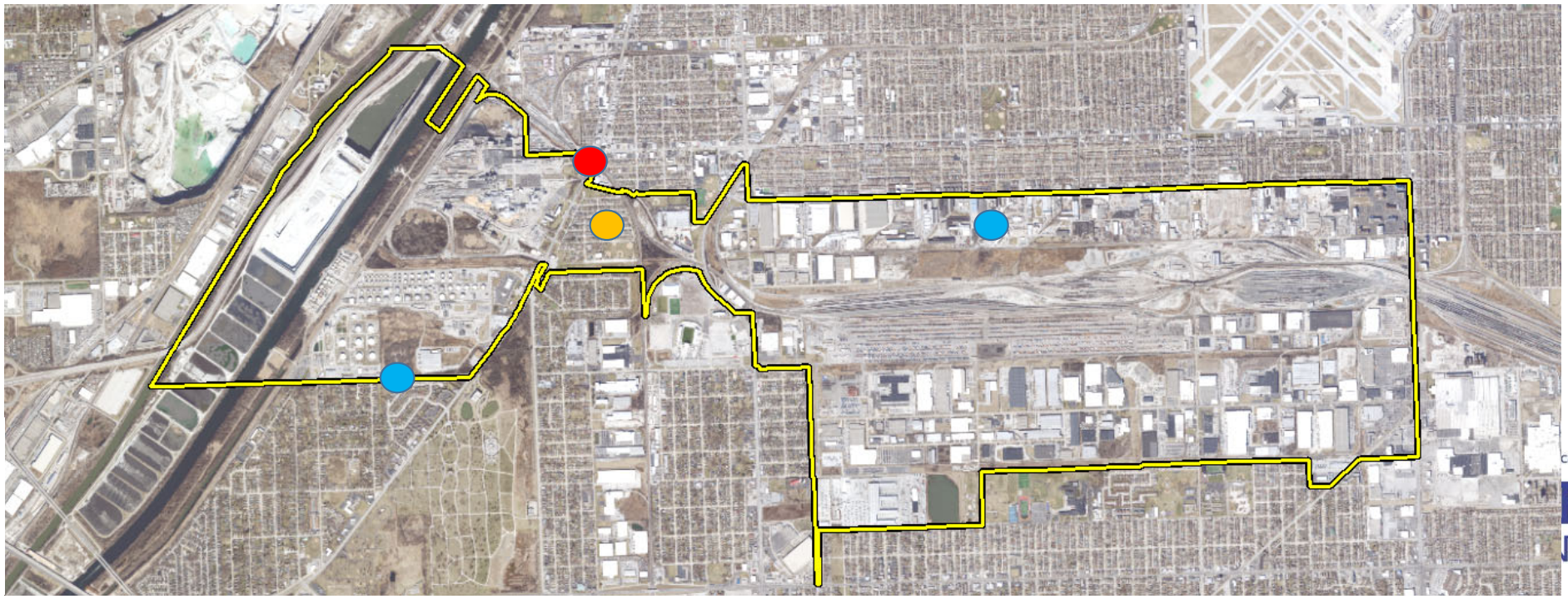
Recommendations



Benefits of a New Storm Sewer Outfall

Drainage Issues that Could Benefit from a New Storm Sewer Outfall:

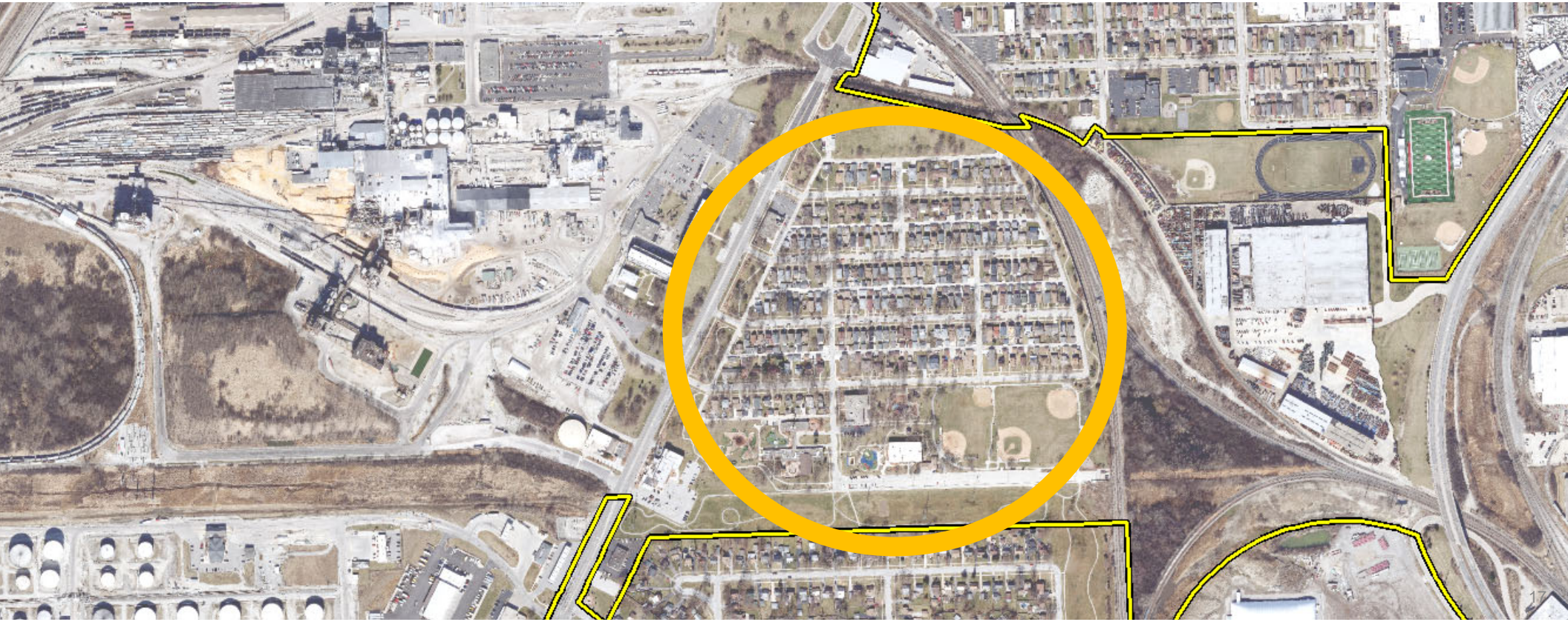
- Flooding at Archer Rd Viaduct under Railroad near 63rd St: ***reduced***
- Desire to Separate Sewers, but no outlet for Storm Sewer: ***outlet provided***
- Limitations and Restrictions on new drainage outfalls: ***restrictions reduced***



Drainage Issues that Benefit from Prop MWRD Sewer

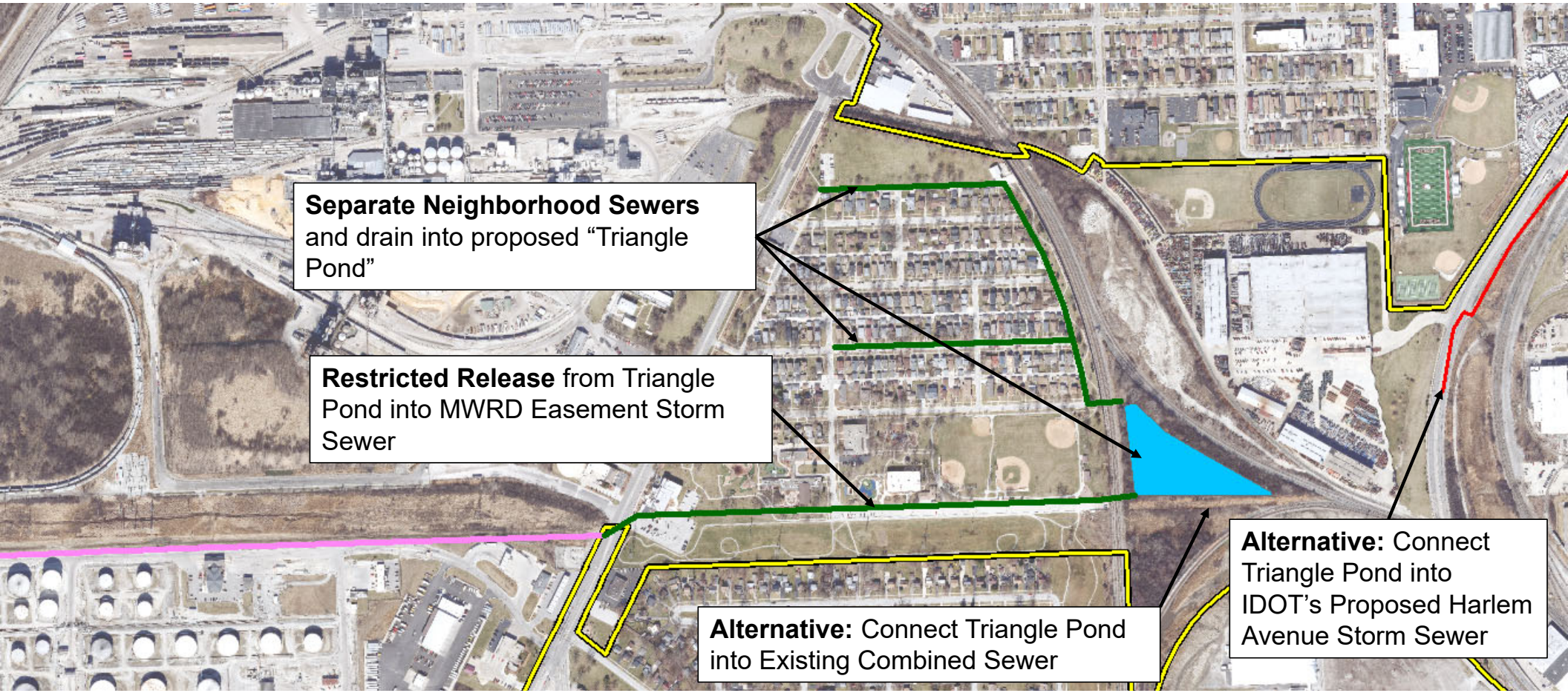
Neighborhood Sewer Separation: Existing Conditions

- No Structural Flooding, Poor Drainage, Desire to Separate Sewers
- No Available Outlet for Separated Sewer System



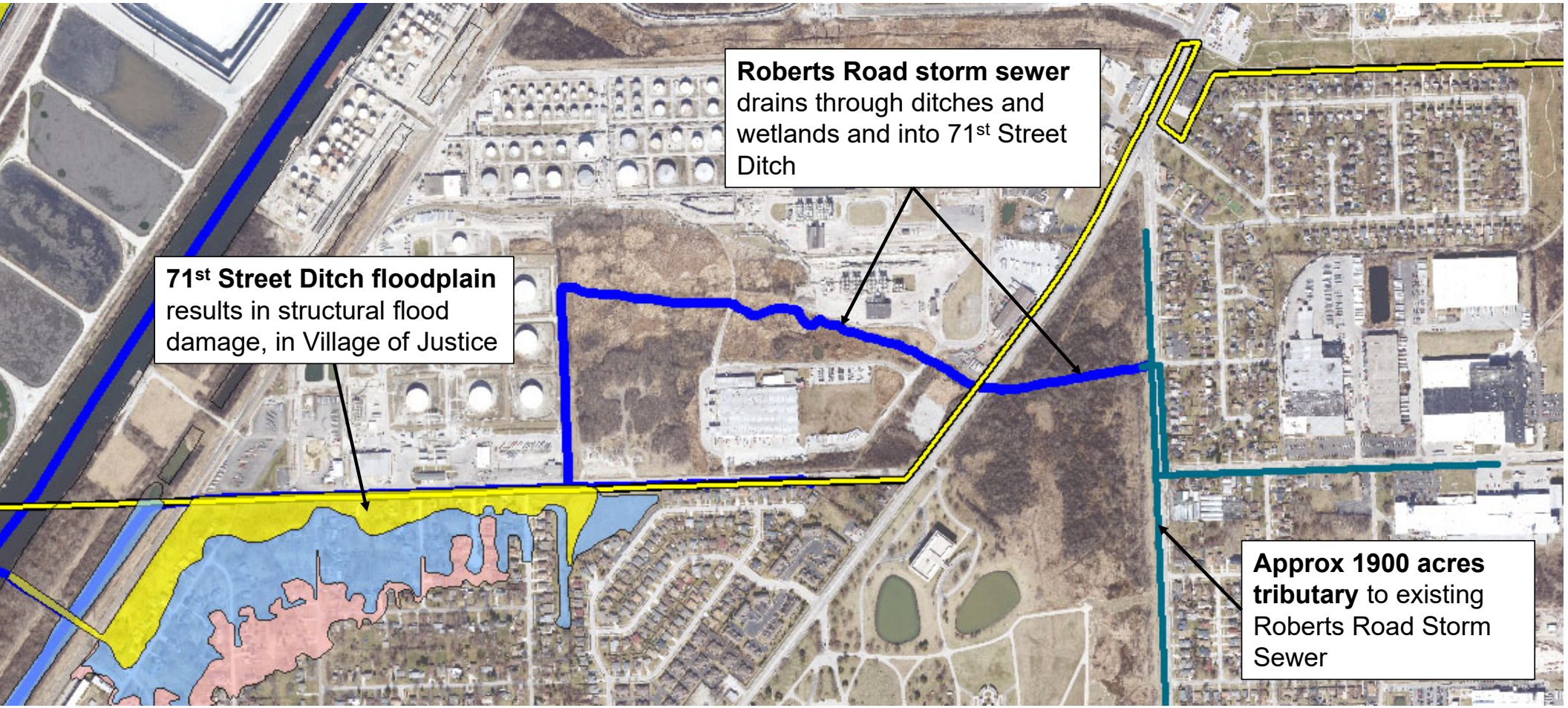
Drainage Issues that Benefit from Prop MWRD Sewer

Neighborhood Sewer Separation: Proposed Conditions



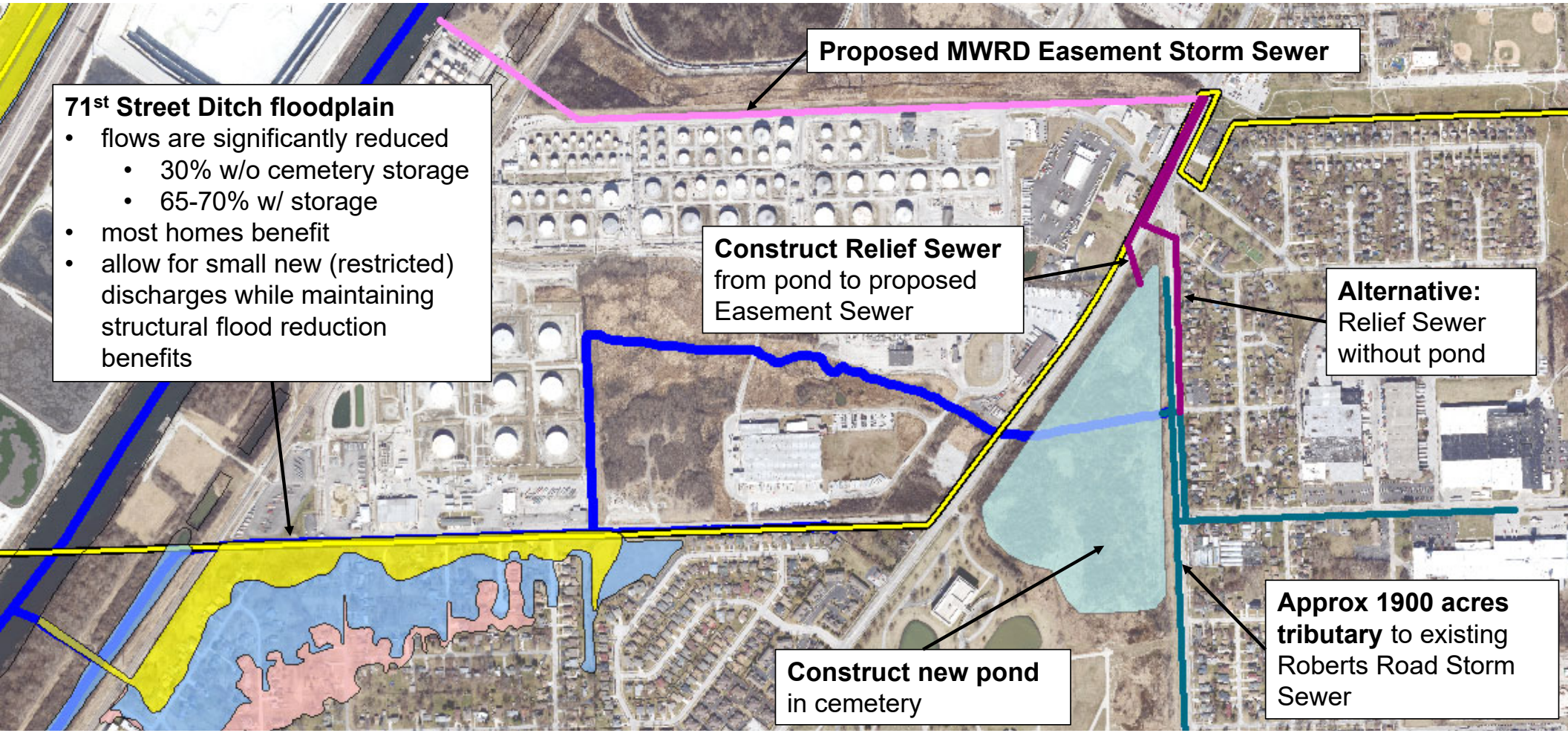
Drainage Issues that Benefit from Prop MWRD Sewer

Limitations on New Discharges to 71st St Ditch: Existing Conditions



Drainage Issues that Benefit from Prop MWRD Sewer

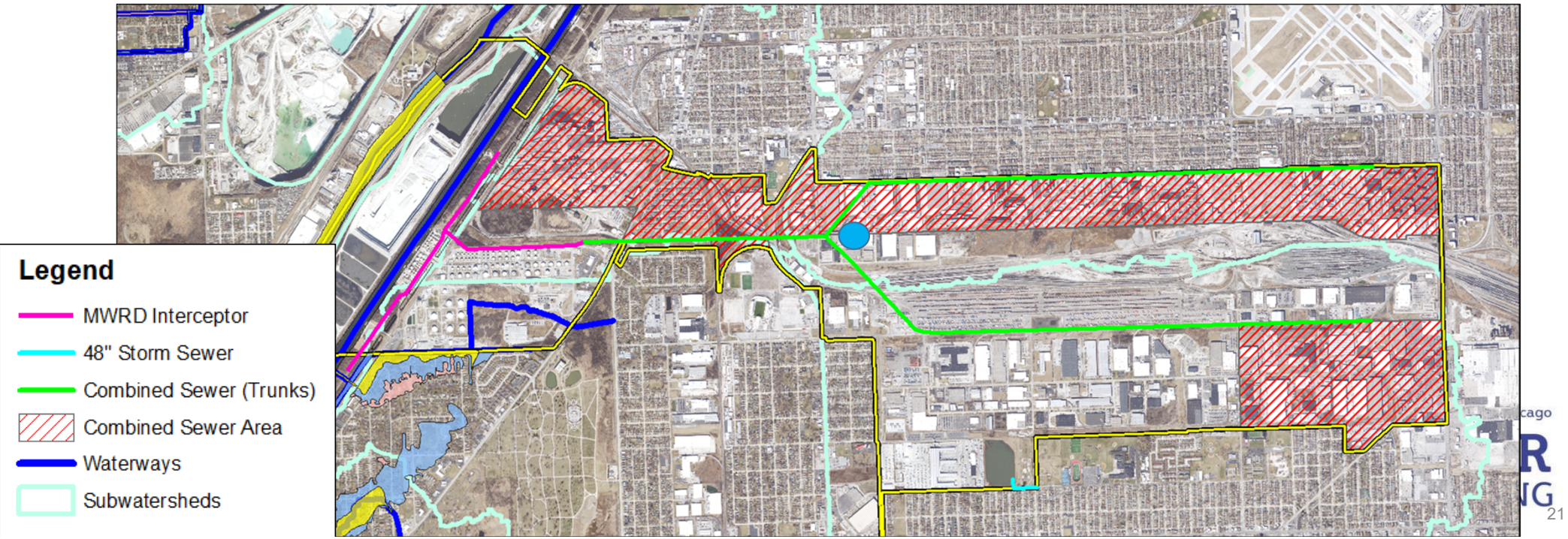
Limitations on New Discharges to 71st St Ditch: Proposed Conditions



Drainage Issues that Benefit from Prop MWRD Sewer

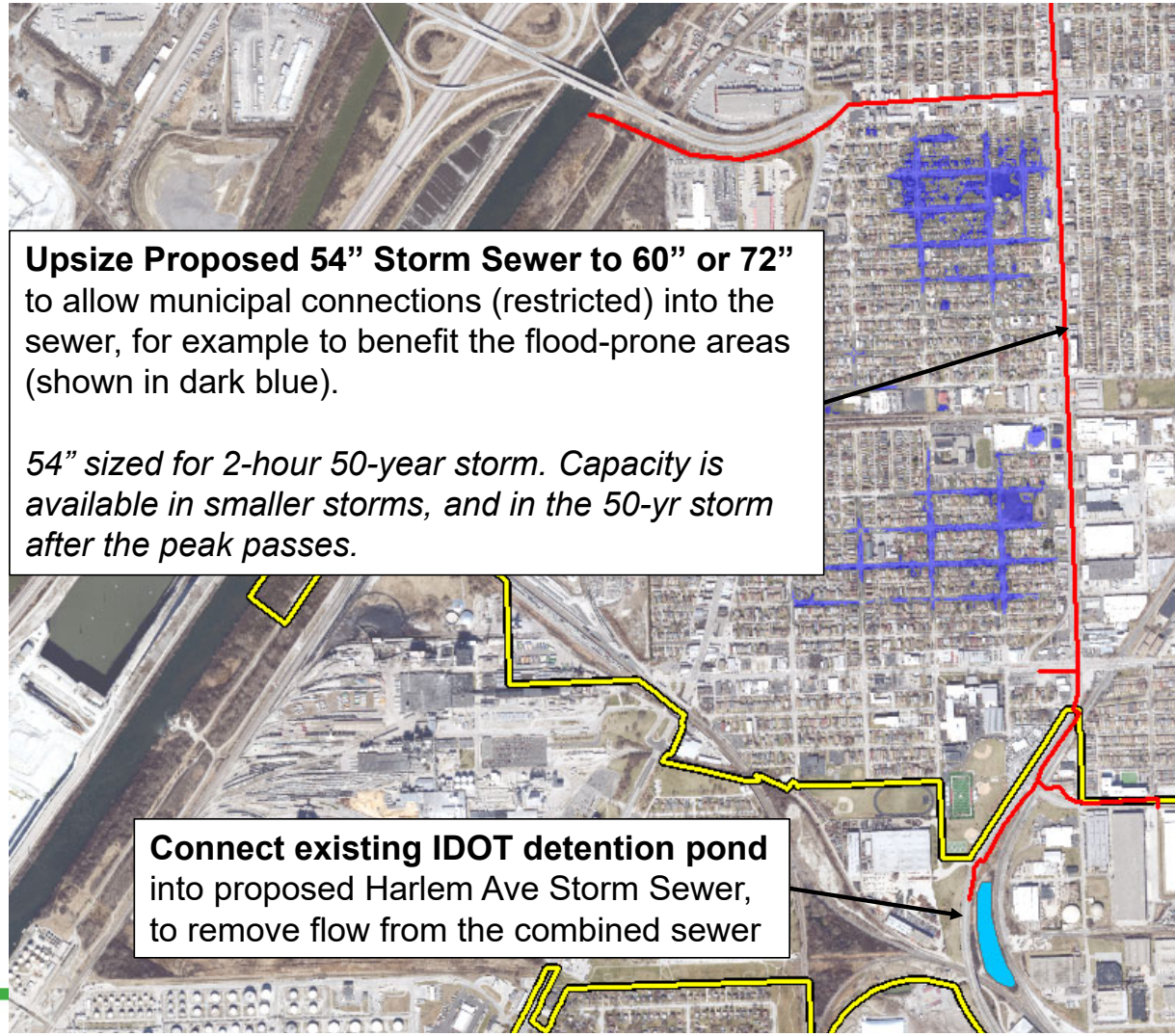
Limitations on New Outfalls into Existing Combined Sewer

- Previously described projects would reduce inflow to Combined Sewer
- Create new capacity for new connections



Additional Proposed Alternatives: IDOT

Additional Proposed Alternatives related to IDOT's Proposed Harlem Avenue Storm Sewer



Next Steps

Next Steps for Agencies:

- Continued meetings with IDOT regarding Viaduct solution
- Village participation (examples: funding, land acquisition, etc.)
- MWRD pursuing easement modifications

Next Steps for Project:

- Advance design from feasibility/15% to conceptual/30%, include survey, geotech, etc.
- MWRD will require new storage for any connection
  - All options presented herein have a storage component
  - Other (undefined future connections) will also require storage