

2023 Storm Sewer Improvements – Preliminary Alignments Presentation

August 17, 2022

Agenda

- Introductions
- Background of problem condition
- Concept development
- Preliminary alignments
- Project challenges
- Next steps
- Questions and answers period
- Closing

Introductions

Project Team

- Minerva Park
 - Village administration
 - Village streets committee with council support
 - Residents and property owners
- Jacobs
 - Project manager: Mike Flickinger
 - Project engineer: Randall Berkley
- Frost Brown Todd
 - Legal counsel
- Additional consultants

Background of Problem Condition

Resultant Condition to be Addressed

- Problem condition: storm flow no longer contained to closed (piped) storm sewer system



July 6, 2022



Contributing Factors causing Problem Condition

- 4 key factors contributing to the observed surface flow
 - Development of Ivywood apartments and surrounding area
 - Deficient sewer: “WPA tile” behind properties on north side of Jordan Road
 - Deficient sewer: 15” sewer between 5454 Cleveland Avenue and 5444 Cleveland Avenue
 - Unplanned overflow: Privately-installed overflow from drainage structure near northeast corner of 5444 Cleveland Avenue

Contributing Factor No. 1 – Flow from west of Cleveland Avenue

- Development of Ivywood apartments and surrounding area



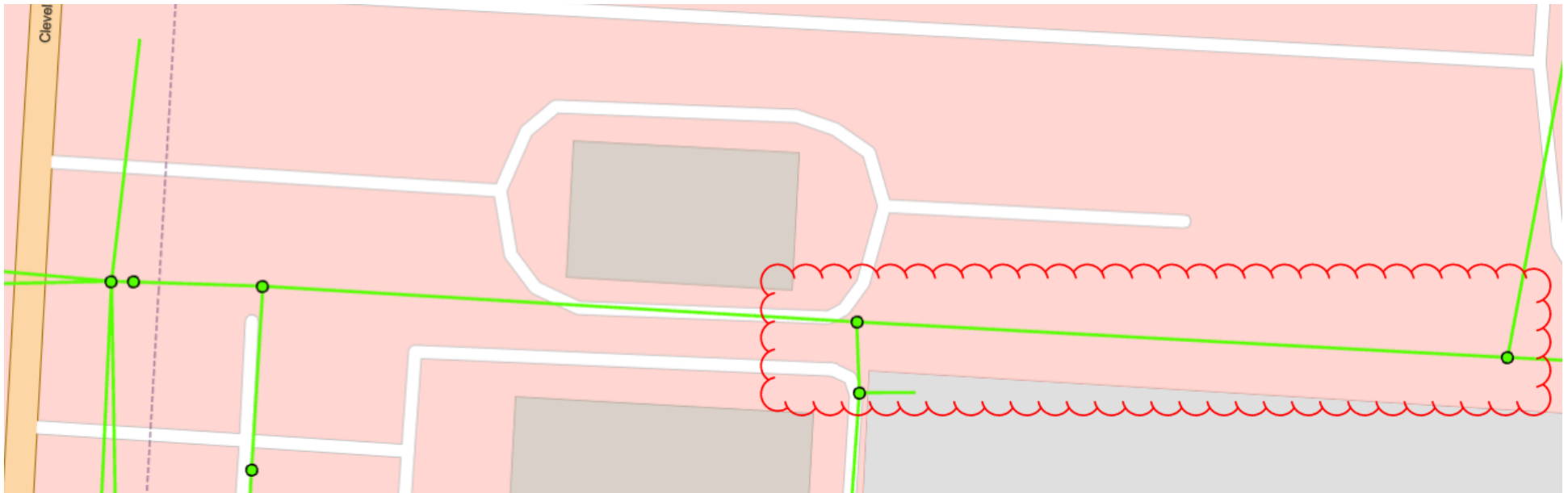
Contributing Factor No. 2 – Condition of Existing Public Sewer

- Deficient sewer: “WPA tile” behind properties on north side of Jordan Road



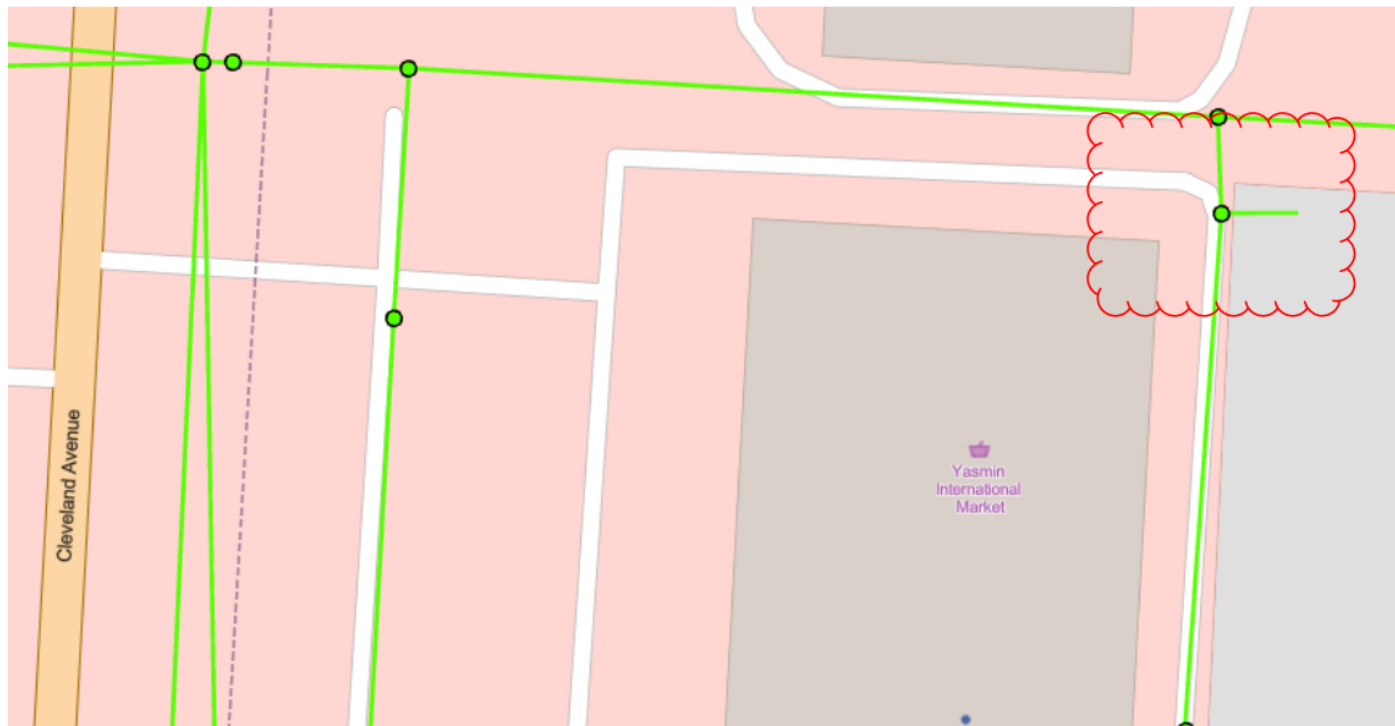
Contributing Factor No. 3 – Condition of Existing Private Sewer

- Deficient sewer: 15" sewer between 5454 Cleveland Avenue and 5444 Cleveland Avenue



Contributing Factor No. 4 – Relief Discharging to Surface

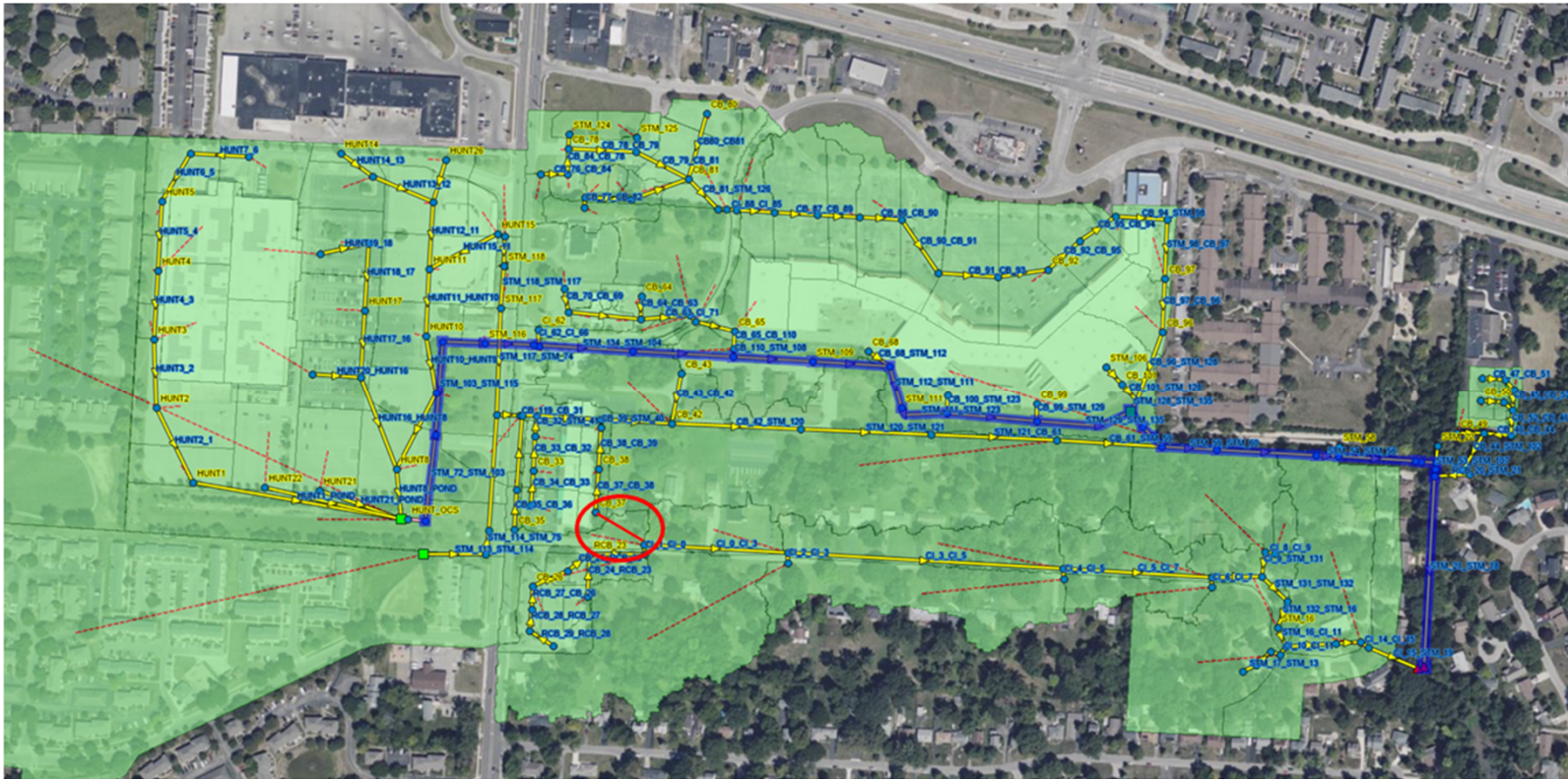
- Unplanned overflow: Privately-installed overflow from drainage structure near northeast corner of 5444 Cleveland Avenue



Concept Development

Determining the Storm Flow to be Conveyed

- Hydraulic modeling to confirm flow rates and potential pipe sizes



Conceptual Design – What Concepts are Possible and Practicable

- Closed (pipe) system over entire length, gravity flow
- Closed system over entire length, pumped flow with new pump station
- Open (channel) system over entire length, trapezoidal shape
- Open system over entire length, rectangular shape with vertical retaining walls
- Detention basin with closed system, gravity flow
- Combination closed and open system (similar to a French drain concept)
- Redirecting flow to Northland Plaza storm sewer system
- Redirecting flow to Jordan Road storm sewer system
- Splitting flow between improved storm sewer behind Jordan Road properties and Jordan Road storm sewer system

Conceptual Design – Which Concepts Merit Further Development

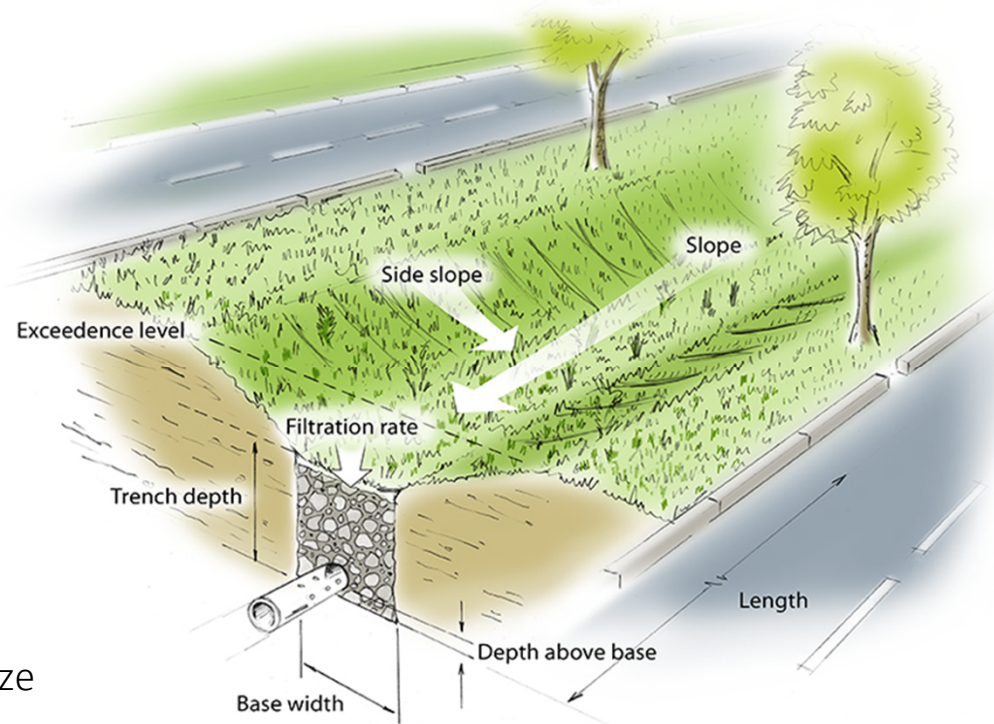
- Closed (pipe) system over entire length, gravity flow
- ~~Closed system over entire length, pumped flow with new pump station~~
- ~~Open (channel) system over entire length, trapezoidal shape~~
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Summary of Options Developed for Village Consideration

- Option No. 1 – Closed (pipe) system
 - 2,850 LF of 36" sewer with drainage structures as required
 - Limits: 5454 Cleveland Avenue to new pipe installed as part of 2021 Storm Sewer Improvements project
 - Installed via open cut
 - Opinion of probable construction cost: \$1,100,000 (July 2022, -30% - +50%)
- Option No. 2 – Combination closed and open (channel system)
 - 1,450 LF of 18" sewer with open channel above and drainage structures as required
 - Channel dimensions: 2' wide at base, 12' wide at top, 1'-3" deep
 - Limits: 5454 Cleveland Avenue to one of two locations to be determined during detailed design, generally at discharge from Northland Plaza detention pond
 - Opinion of probable construction cost: \$550,000 (July 2022, -30% - +50%)

Option Selected for Detailed Design

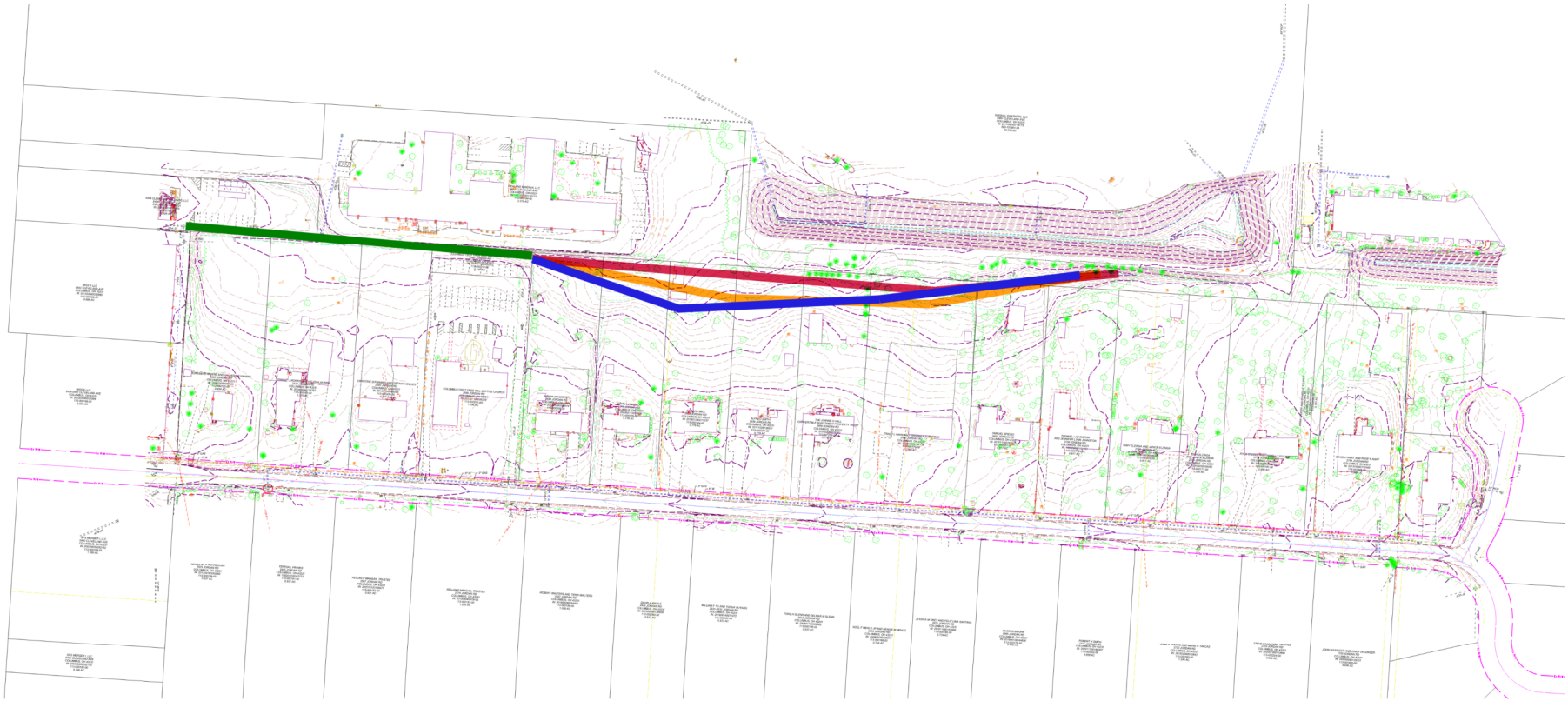
- Option No. 2 – Combination closed and open (channel system)



Graphic courtesy Innovyze
Resource Center

Preliminary Alignments

Preliminary Alignments – Overall



Preliminary Alignments – Alignment No. 1



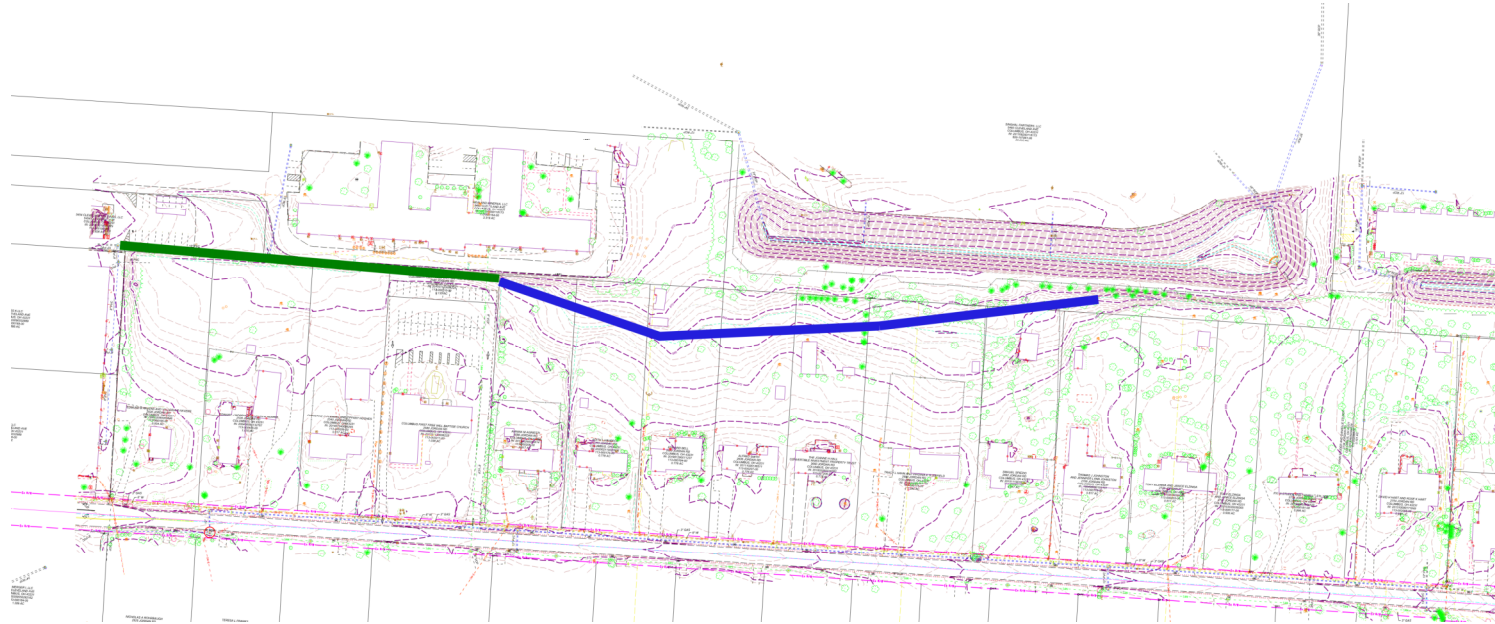
- Most direct route
- Conflict with one shed on Bell parcel
- Removes the most trees
- Requires the most grading

Preliminary Alignments – Alignment No. 2



- Follows existing grade better than Alignment No. 1 (steep segment at west)
- Conflict with two sheds on Bell parcel
- Removes the fewest trees
- Easements are "deeper" into the parcels

Preliminary Alignments – Alignment No. 3



- Follows existing grade better than Alignment No. 1
- Conflict with two sheds on Bell parcel
- Removes multiple large diameter trees
- Easements are "deeper" into the parcels

Project Challenges

Project Challenges

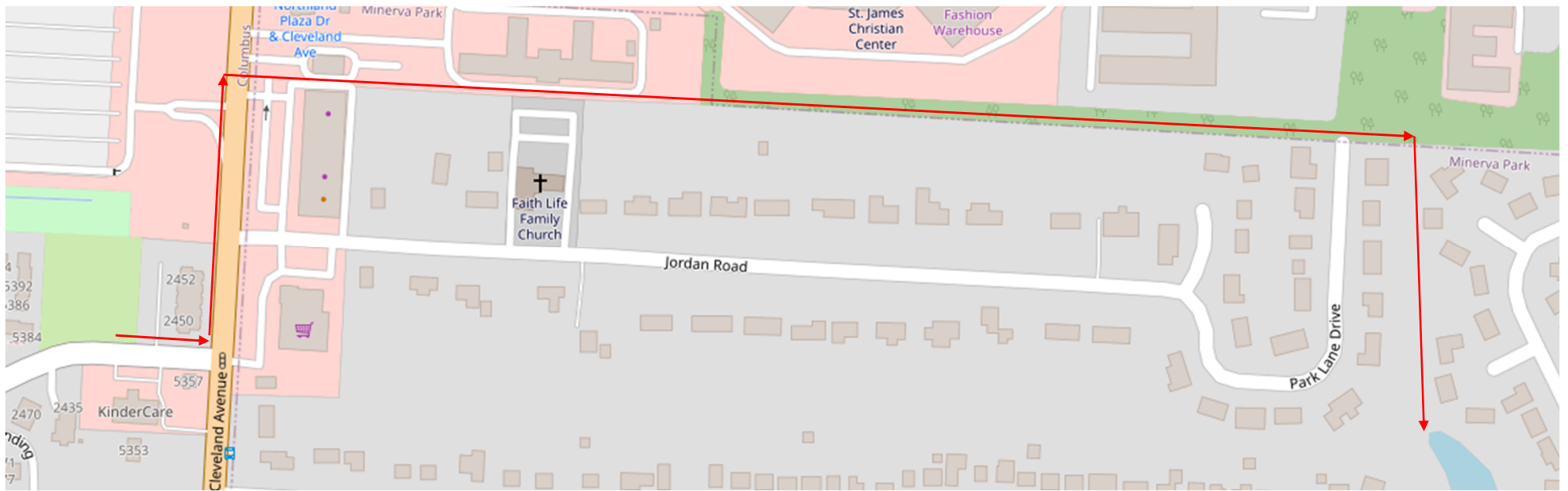
- Project funding
- Construction costs
- Multiple municipalities
- Ownership of storm sewers near 5454 Cleveland Avenue
- Lack of existing easements within project area
- Minimizing impacts to properties
- Potential need for bat survey

Project Challenges

- Project funding
 - Opinion of probable construction cost: \$550,000 as of July 2022 (Class 4 estimate, range of -30% to +50%)
 - Village is working with grant writer to investigate applicable and available funding sources
- Construction costs
 - Over last two years construction costs have increased 30% - 50%, depending on project specifics
 - Labor shortages, material shortages, wage increases, material cost escalation, fuel prices, “instability in Europe,” and contractors being more selective about bidding are general causes

Project Challenges

- Multiple municipalities and property owners
 - Flow path: Columbus into Minerva Park into Columbus into Minerva Park
 - Requires additional coordination and/or project area confined to Village limits



Project Challenges

- Ownership of storm sewers near 5454 Cleveland Avenue
 - Legal counsel's determination: storm sewer is privately-owned
 - Village working with property owner to take ownership of storm sewer and procure easement(s) to facilitate maintenance
- Lack of existing permanent easements within project area
 - After finalizing sewer alignment, proposed easements sent to professional surveyor
 - Surveyor prepares easement exhibits
 - Legal counsel prepares easement text
 - Village, parcel owner, and witnesses execute easements which then are to be recorded
 - Each parcel will require a separate easement
 - Depending on alignment, temporary easements might be necessary at certain parcels

Project Challenges

- Minimizing impacts to properties
 - Project touches up to 14 parcels
 - Surface impacts potentially include clearing and grubbing, tree removal, structure removal, fence removal, regrading
 - Inevitably, some parcels are affected more than others
- Potential need for bat survey
 - Ohio Division of Wildlife and U.S. Fish and Wildlife Service requirements for disturbances near potential/known bat hibernacula or tree cutting
 - Bats species include Indiana, northern long-eared, tricolored, and little brown
 - Ohio survey field season: June 1 – August 15
 - If bat presence is detected, tree cutting generally limited to October 1 – March 31

Next Steps

Remaining Tasks to be Completed

- Select final alignment and proceed with detailed design
- Coordinate with each parcel owner on site-specific issues and concerns
 - Clearing and grubbing and tree removal
 - Grading
 - Existing structures and fencing
 - Depressions and sink holes
- Coordinate with wildlife divisions on bat survey requirements
- Prepare and secure permanent and temporary (if needed) easements
- Finalize project funding
- Advertise and bid project (target: Spring 2023)

Questions and Answers Period

Closing

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2023 Storm Sewer Improvements

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