



APPENDIX E

Storm Water Details



STORM WATER

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ADDITIONAL RELEVANT DOCUMENTS

[Group Input Summary](#)
[Action Plan](#)
[Naperville Storm Water Viewer](#)
[Naperville Storm Water Ordinance Page](#)



MEETING AGENDA & NOTES

SUBJECT: Stormwater Working Group #1
LOCATION: Ryan Offices

START TIME 4 PM
END TIME: 5:30 PM
DATE: 4/2/18

FROM: 5th Avenue Development Team
PHONE: 630-328-1105
EMAIL: 5th.Ave@ryancompanies.com

TO	Russ Alber	Bill Novak	Curt Pascoe
	Christopher Drew	Ray Fano	Kyle Schott
	Dominic Nugent	Andy Hynes	Councilwoman Gustin
	Greg Scalia	Councilman Coyne	

Introductions

- Councilwoman Gustin joined the Group

Background Information

- Reviewed Storm Water Map of Resident Complaints (Group Input). Group noted that all complaints were north of the tracks.
- Reviewed City's Storm Water Infrastructure Online. This interactive maps shows storm sewers and connection points throughout the City.
- Group discussed history of design and flooding in the area. Staff noted that through the 1970s, smaller pipes were often used to increase overland flows.
- Group reviewed existing topographic and discussion of different causes of flooding concerns.

Working Group Action Plan

- Group reviewed the goals and action plan

Update from City Staff

- Staff confirmed that WBK Engineering is studying the Park and Pilgrim Addition drainage areas, and potential improvements and locations for stormwater infrastructure improvements
- City is currently TVing pipes in the Park and Pilgrim neighborhoods, looking for obstructions or broken/collapsed structures. To date, none have been found.

Box Site Training Session

Open Discussion

Ryan Companies US, Inc.
111 Shuman Boulevard, Suite 400
Naperville, IL 60563

p: 630-328-1100
ryancompanies.com



Next Meeting Focus:

- Review and identify storm water design requirements for new development
- City Consultant update
- Overland Flow Map



MEETING AGENDA & NOTES

SUBJECT: Stormwater Working Group #2
LOCATION: Ryan Offices

START TIME 2 PM
END TIME: 3:30 PM
DATE: 4/18/18

FROM: 5th Avenue Development Team
PHONE: 630-328-1105
EMAIL: 5th.Ave@ryancompanies.com

TO	Russ Alber	Bill Novak	Curt Pascoe
	Christopher Drew	Ray Fano	Kyle Schott
	Dominic Nugent	Andy Hynes	Councilwoman Gustin
	Greg Scalia	Councilman Coyne	

Introductions

Review of Previous Meeting

Update Map of Resident Complaints

- Reviewed map of resident complaints against map of stormwater infrastructure and topography.
- Identified suspected reasons for localized flooding (sags, capacity, overland flows, etc.)

Outflow Routes

- Reviewed graphic of outflow routes; where each lot in the 5th Avenue development connects to the City infrastructure, and the routing of those pipes to their eventual discharge.

Development Requirements

- City staff gave an overview of the history of stormwater ordinances in the City of Naperville & DuPage County
- City noted that any new development is subject to the current stormwater ordinance
- Current ordinance considers both water quantity and water quality, each with separate triggers and requirements.
- City discussed the use of Adaptive Storm Water storage, its intended goals and relationship to the current ordinance

Update from City Staff

- Staff had received a draft report from WBK, but City staff had questions and additional research for the consultant to complete.



Open Discussion

- Group noted this is a complex and technical topic, with various causes and potential solutions.
- Care and time must be taken to communicate final designs and proposals to the community at large.

Next Meeting Focus:

- Review Draft Storm Water Matrix
- Review City consultant deliverable



MEETING NOTES

SUBJECT: Stormwater Working Group #3
LOCATION: Ryan Offices

START TIME 2 PM
END TIME: 3:30 PM
DATE: 4/30/18

FROM: 5th Avenue Development Team
PHONE: 630-328-1105
EMAIL: 5th.Ave@ryancompanies.com

TO	Russ Alber	Bill Novak	Curt Pascoe
	Christopher Drew	Ray Fano	Kyle Schott
	Dominic Nugent	Andy Hynes	Councilwoman Gustin
	Greg Scalia	Councilman Coyne	

Review of Previous Meeting

Update Map of Resident Complaints

Overflow Routes

Development Requirements

Update from City Staff – Bill Novak provided clarification of two areas overland flow direction. Curt to update map.

Stormwater Matrix – Potential Improvements inside and outside the Development were reviewed.

- Narrative and map of each location and it's ability to help storm water was explained and reviewed. Edits made based on group discussion.
- Questioned to the group if this deliverable was appropriate for public consumption. Response of the group was yes.
- Bill Novak provided some additional direction of other options to be placed into the matrix.
- Model Shows crossover of resident comment and model flooding at Sleight Sag, Ellsworth Sag, Main St. Sag, 5th and Eagle.
- Does the city have a definition of flooding? – Bill Novak commented that any flooding into the structure. Habitable structures take higher priorities.
- One solution may not provide relief for all areas.
- Bill Novak will get a ball park storage requirement (1, 10, 20 acre feet?) for 5th and Eagle improvement. It is a very large volume and improvements at Burlington and Kendall park may benefit the area slightly but will not solve the issue. Cost is close to \$250K per acre foot for vault storage (Kyle/Curt to review).
- Outflow Map was reviewed during the discussion
- Viable Solutions include



- Kroehler Lot – 8th and Sleight (Vault or Pond)
- Burlington Lot – Ellsworth and possible 5th/Eagle if there were maybe 10-20 acre feet of storage. (Vault)
- Kendall Park – 5th/Eagle and Possibly the Main sag (Vault or Pond)
- 5th/Eagle and Main St. Sag are the hardest areas to solve.

100 Year Flood Map – Was reviewed as part of the Stormwater Matrix

Consultant Update / Interim Results – Results are still pending

Consultant Deliverables – **NEXT MEETING DATE WILL BE BASED ON THE CITY CONSULTANT'S DATE FOR DELIVERABLE RESULTS. DATE PENDING.**

Open Discussion

- Conceptual Vault Design at various lots was discussed.
- Reviewed parking fit test to identify effect of parking on the “viable solution” lots.
- Reviewed North and Washington intersection options to further understand the impact of parking on the Children’s Museum lot.
- Team to start cost estimates for various options.

Next Meeting Focus:

- Review City consultant deliverable
- Discussion of cost estimates



MEETING AGENDA & NOTES

SUBJECT: Storm Water Working Group #4
LOCATION: Ryan Offices

START TIME 10 AM
END TIME: 11:30 AM
DATE: 5/25/18

FROM: 5th Avenue Development Team
PHONE: 630-328-1105
EMAIL: 5th.Ave@ryancompanies.com

TO	Russ Alber	Bill Novak	Curt Pascoe
	Christopher Drew	Ray Fano	Kyle Schott
	Dominic Nugent	Andy Hynes	Councilwoman Gustin
	Greg Scalia	Councilman Coyne	

Storm Water Conceptual Analysis

- Reviewed the conceptual analysis & findings by WBK
 - Kroehler lot, Burlington lots, Kendall Park, Mill St. soccer fields
 - Noted Kendall Park is too small to address the concerns around 5th and Eagle
- Discussed proposed options (pond vs vault) and impacts to concept and existing land uses
- Compared costs of various options
- Reviewed deliverables for the Working Group product

Next Steps

- Review storm water working group narrative
- Review final planning-level budgets



MEETING AGENDA & NOTES

SUBJECT: Storm Water Working Group #5
LOCATION: Ryan Offices

START TIME 2 PM
END TIME: 3:30 PM
DATE: 5/31/18

FROM: 5th Avenue Development Team
PHONE: 630-328-1105
EMAIL: 5th.Ave@ryancompanies.com

TO	Russ Alber	Bill Novak	Curt Pascoe
	Christopher Drew	Ray Fano	Kyle Schott
	Dominic Nugent	Andy Hynes	Councilwoman Gustin
	Greg Scalia	Councilman Coyne	

Storm Water Improvement Budgets

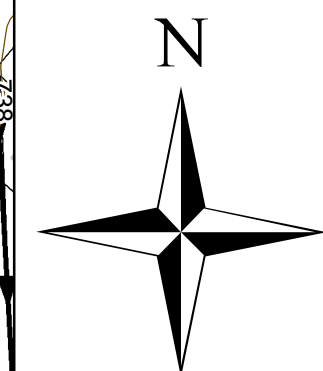
- Reviewed the storm water improvement planning-level budgets
- Compared costs between surface detention and underground vaults
- Discussed operation of proposed storm water improvements; multi-purposes uses, etc.
- Discussed use of 10-year storm event for conceptual analysis

Working Group Narrative

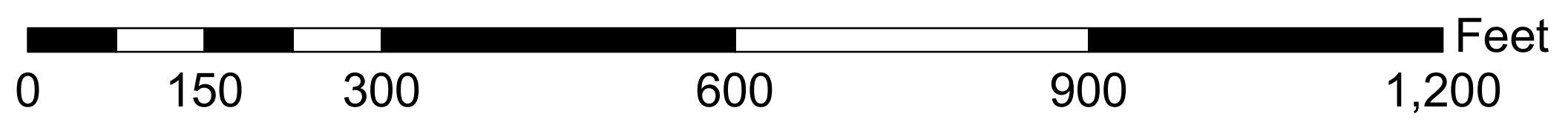
- Reviewed and modified the storm water working group narrative
- Discussed the Concept Principals, and added Additional Considerations to the narrative

Next Steps

- Discussed format and intention of the June 4th Combined Working Group meeting
- Brainstormed key topics to share during the panel session



- Contours**
 - Contours
- Discharge Point**
 - FES Outlet
 - Headwall
 - NPDES Outfall
 - Other
 - Outlet Box
 - Standard Outlet
 - Unknown
- Structures**
 - Catch Basin
 - FES Inlet
 - Inlet
 - Inlet Box
 - Manhole Closed Lid
 - Manhole Open Lid
 - Roof Drain Inlet
 - Headwall
 - Unknown
- Fitting**
 - Bend
 - Connector
 - Cross
 - L
 - Other
 - T
 - Y
- Weirs**
 - Weirs
- Channels**
 - Ditch
 - Paved
 - Stream
- Conduit**
 - Below-Grade
- Culverts**
 - Below-Grade
- Storm Hookups**
 - Storm Hookups
- Reservoirs**
 - Wet
 - Dry
 - Tank
 - Water Quality
- Overflow**
 - Overflow



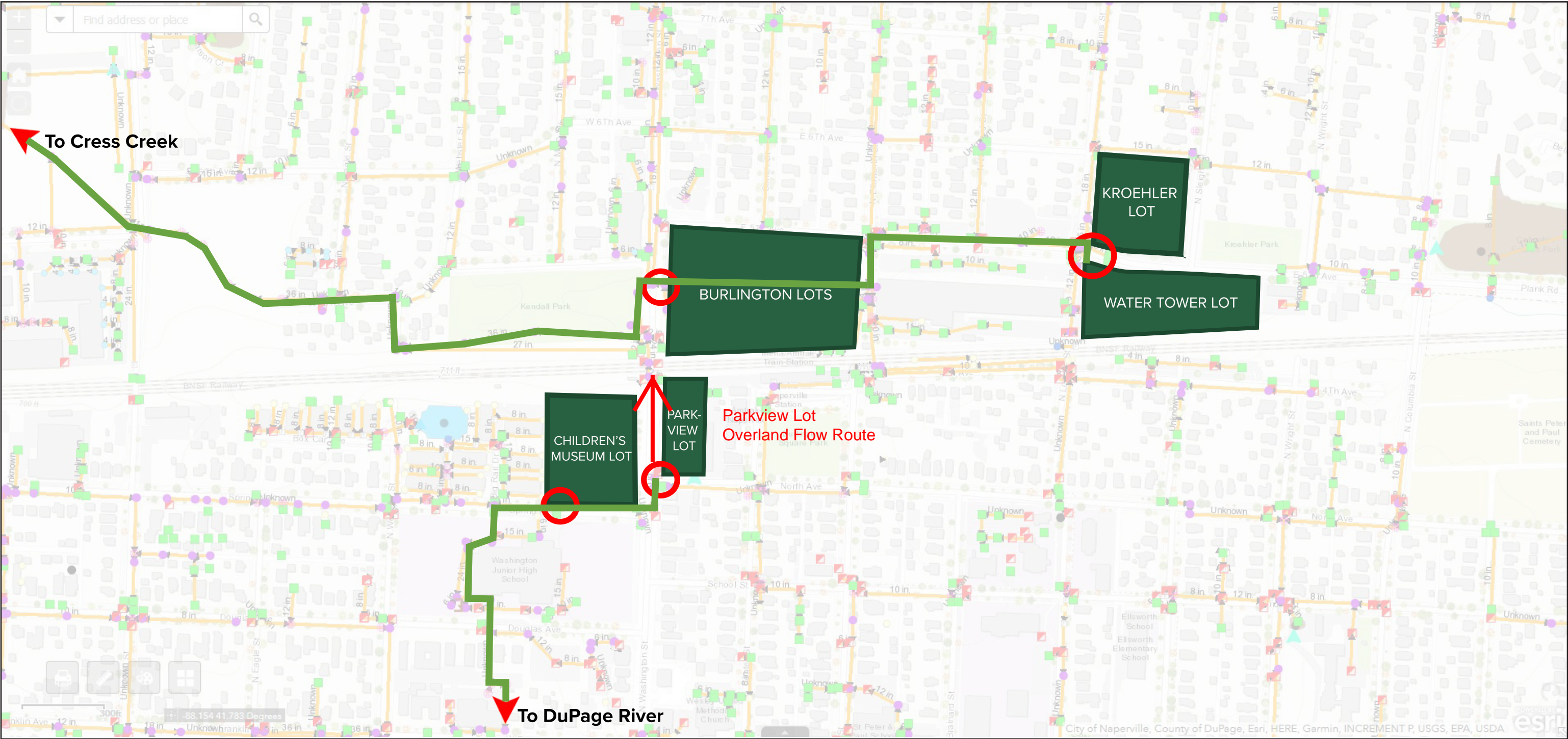
Potential Improvements Within Development

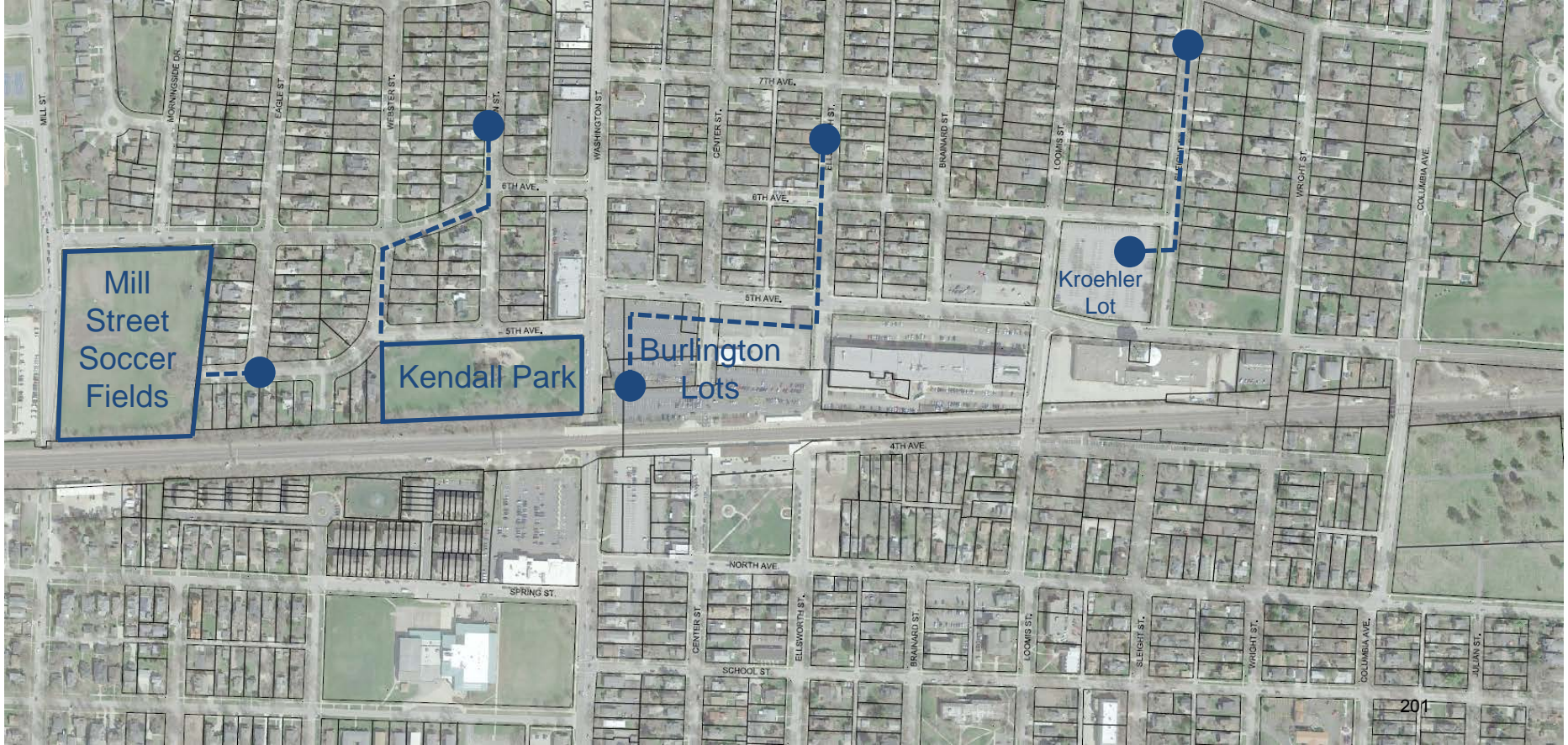
<u>Location</u>	<u>Potential Improvement</u>	<u>Downstream of Flooding</u>	<u>Land Owner</u>	<u>Topographic Limitations</u>	<u>Receiving Water</u>	<u>Potential Benefit to Park Addition</u>	<u>Potential Benefit to Pilgrim Addition</u>	<u>Notes</u>
A	Pond or vault on Burlington lot	Yes	City	Development would probably preclude a stormwater pond. A vault would be required.	Cress Creek	Most - Ellsworth Sag benefits	Very minimal; depends on size of storage of vault	Upsizing of pipes in Park Addition required. Up to 1.3 ac-ft there is no benefit to Pilgrim Addition.
B	Pond or vault on Kroehler lot	Downstream of Sleigh, not Ellsworth	City	None	Cress Creek	Most - Sleigh sag only	Very minimal	Will benefit 8th and Wright but not Ellsworth. New pipes from Kroehler to Sleigh sag required.
C	Pond or vault on water tower lot	Downstream of Sleigh, not Ellsworth	City	None	Cress Creek	Most - Sleigh sag only	Very minimal	Will benefit 8th and Wright but not Ellsworth. New pipes needed from Kroehler to Sleigh sag. Kroehler will be less expensive than the water tower lot.
D	Expand pond or vault on DCM lot	No	City	None	West Branch of DuPage River	None	None	Separate watershed from flooding concerns
E	Pond or vault on Parkview lot	No	City		Cress Creek and West Branch of DuPage River	None	None	Storm sewer drains to West Branch while the overland flow route goes to Cress Creek. Would only provide benefit in major storms and possibly an inefficient spend of dollars.

Potential Improvements Outside Development

	<u>Potential Improvement</u>	<u>Downstream of Flooding</u>	<u>Land Owner</u>	<u>Topographic Limitations</u>	<u>Receiving Water</u>	<u>Potential Benefit to Park Addition</u>	<u>Potential Benefit to Pilgrim Addition</u>	<u>Notes</u>
F	Pond or vault on Kendall Park	Yes	City	Pipes are very deep; extensive amount of earth cut required for a detention pond; an underground solution is also an option.	Cress Creek	Only if done in conjunction with storm sewer upsizing in Park Addition to Ellsworth sag	Most - 10-20 AC-FT estimate of volume to serve 5th and Eagle area. Would have to connect pipe to Main St sag to reduce flooding at that location.	This storage will not benefit the roadway sag areas on Main St and Webster Street without pipe upsizing, but could provide relief for the 5th Avenue and Eagle Street area. Separate storage and pipes to the Main St. sag would be required to remediate flooding in that area.
G	Pond or vault on Mill St. soccer fields	Yes	CSD 203	Shallow depth of pipes limit available storage; perhaps 3-4' deep. It will require significant earth export on the south side of soccer fields for a detention pond.	Cress Creek	None	Could provide storage if conveyance improvements are done upstream.	For this location to be an option, it has to be demonstrated that extra flow can be conveyed from Kendall Park to the soccer fields without impacting homes along 5th Avenue. The property would have to be acquired from CSD 203.
H	Upsize pipes west of Mill St. to Cress Creek	Yes	CSD 203	Pipes are very shallow and may not be able to be upsized.	Cress Creek	None	Minimal	Not compliant with DuPage County Stormwater Ordinance; Would increase flooding downstream.
I	Expand pond in Miledje Square (Morningside Dr.)	Yes	Naperville Park District	Overflow is to Morningside and 6th Avenue.	Cress Creek	None	Very minimal	This storm sewer does not discharge through the Mill St. soccer fields; the overflow route goes to Morningside and 6th.







Storm Water Improvement Cost Analysis

Area	Improvement Description	Volume (Acre-Feet)	Planning-level Budget	Notes
Ellsworth Street Sag	Stormwater detention vault on the Burlington lot	1.3	\$1.2 - \$1.7M	Assumes development above the vault
Sleight Street Sag	Stormwater detention vault on Kroehler lot	1.9	\$1.6 - \$2.2M	Assumes surface parking above the vault
Main Street Sag	Convert Kendall Park to surface detention pond	7.7	\$1.5 - \$2.0M	Permanent detention basin
Main Street Sag	Convert Kendall Park to stormwater detention vault	7.7	\$5.5 - \$6.5M	Assumes active recreation above the vault
5th & Eagle Convergence	Convert Mill St. soccer fields to surface detention pond	22.0	\$2.5 - \$3.5M	Excludes cost to purchase property from CSD203
5th & Eagle Convergence	Convert Mill St. soccer fields to stormwater detention vault	22.0	\$12.5 - \$13.5M	Excludes cost to purchase property from CSD203

Notes:

Assumes a reasonable level of dry utility conflict

Does not assume wholesale replacement of sanitary and watermain along storm sewer routes

Does not assume mill and overlay of streets

Assumes conveyance of 10-year storm for improvements