

## MEMORANDUM

**TO:** The Honorable Mayor and City Council  
**FROM:** Joseph E. Tebrugge, Director of Engineering  
**DATE:** May 13, 2024  
**SUBJECT:** **Stormwater Update 2024 Presentation**

Staff will be presenting an update of current progress on the general topic of storm water management with the goal of decreasing overland flooding of primary structures. This presentation is a continuation of the **City of Wheaton Flood Resiliency Investigation Series**.

The last formal presentation about overland flooding was in August of 2021. Since that time the City has progressed with improvement projects and obtained significant grants. City Staff has Public Feedback to report to City Council from three additional Flood Prone Areas which will be presented.

Additionally, City Staff is requesting input from City Council on the next planned Flood Prone Area Flood Improvement Project which is for the Glendale Avenue Floodprone Area.

Lastly, based on current progress, there is a need to start a discussion on Stormwater Funding. As such a broad overview of the current overview of the Stormwater Programming and current funding is provided to provide City Council the beginning of a basis for future funding discussions preliminarily planned for the fourth quarter of 2024.



# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

## Stormwater Update 2024

Joseph Tebrugge – Director of Engineering

Department of Engineering

May 13<sup>th</sup>, 2024



# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

- Review of What has been accomplished
- Provide City Council Feedback from Public Meetings
- Request determination on Glendale Project
- Discuss broad stormwater programming/funding



# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

## PART 1 (March 9<sup>th</sup>, 2020)

- Why does Wheaton FLOOD
- Where is the FLOODING

## PART 2 (August 31<sup>st</sup>, 2020)

- What can be done to increase FLOOD RESILIENCY
- Continue Discussion towards the creation of a FLOOD PROTECTION PROGRAM

## PART 3 (December 8<sup>th</sup>, 2020)

- Grant Funding
- Structure Elevation

## PART 4 (February 22<sup>nd</sup>, 2021)

- Stormwater Decision Solution Framework



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# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

## PART 1

- Why does Wheaton FLOOD
- Where is the FLOODING

Flood damages occur because development happened into areas that already Flooded BEFORE there were regulations to prevent that development from occurring.

2020 Confirmed Results	Floodplain	Flood Prone	Site Specific Flooding
Confirmed <b>Overland</b> Flooding	69	246	145
Percent of Total	15.0%	53.5%	31.5%



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# CITY OF WHEATON

# FLOOD RESILIENCY INVESTIGATION

## PART 2 (August 31<sup>st</sup>, 2020)

- What can be done to increase FLOOD RESILIENCY
- Continue Discussion towards the creation of a FLOOD PROTECTION PROGRAM



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### IN CONCLUSION

2020 Confirmed Results	Floodplain	Flood Prone	Site Specific Flooding
Confirmed Overland Flooding	69	246	145

### GENERAL RESULTS FOR FLOODPLAIN AREAS

Buyouts	Floodproofing
\$24,500,000	\$4,500,000

### GENERAL RESULTS FOR FLOOD PRONE AREAS WHEN LOOKING AT THE BCA DATA

Buyouts	Floodproofing	Capital Improvement Project
\$83,010,708	\$15,560,440	\$41,591,700

### GENERAL RESULTS FOR SITE SPECIFIC AREAS

Total	Total	Total
\$107,510,708	\$21,510,440	\$42,316,700

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# CITY OF WHEATON

# FLOOD RESILIENCY INVESTIGATION

## PART 3 (December 8<sup>th</sup>, 2020)

- Grant Funding
- Structure Elevation



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*Prepared by: Shauna Urlacher, PE, CFM  
UrbanHydro Engineering, Inc.  
[Shauna@UrbanHydroEng.com](mailto:Shauna@UrbanHydroEng.com)*

## SUMMARY

Project Types	Disaster Declaration	Flood Insured	Water Quality			
	HMGP	FMA	BRIC	319	GIGO	IDNR
Buyouts	✓	✓	!	X	X	✓
Floodproofing	!	!	!	X	!	X
Infrastructure Projects	!	!	✓	✓	✓	X

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# CITY OF WHEATON

# FLOOD RESILIENCY INVESTIGATION

## Results

- Eliminate Structure Elevation from the Floodproofing Option



Combines Buyout and Floodproofing options into Buyout/Floodproofing

(Homes with flooding higher than the Top of Foundation must be Buyouts)

### PART 3

- Grant Funding
- Structure Elevation

- Keep Program Investigation to 100-year storm level
- Do not use BCA as focus of program



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Combines Buyout and Floodproofing options into Buyout/Floodproofing  
(Homes with flooding higher than the Top of Foundation must be Buyouts)



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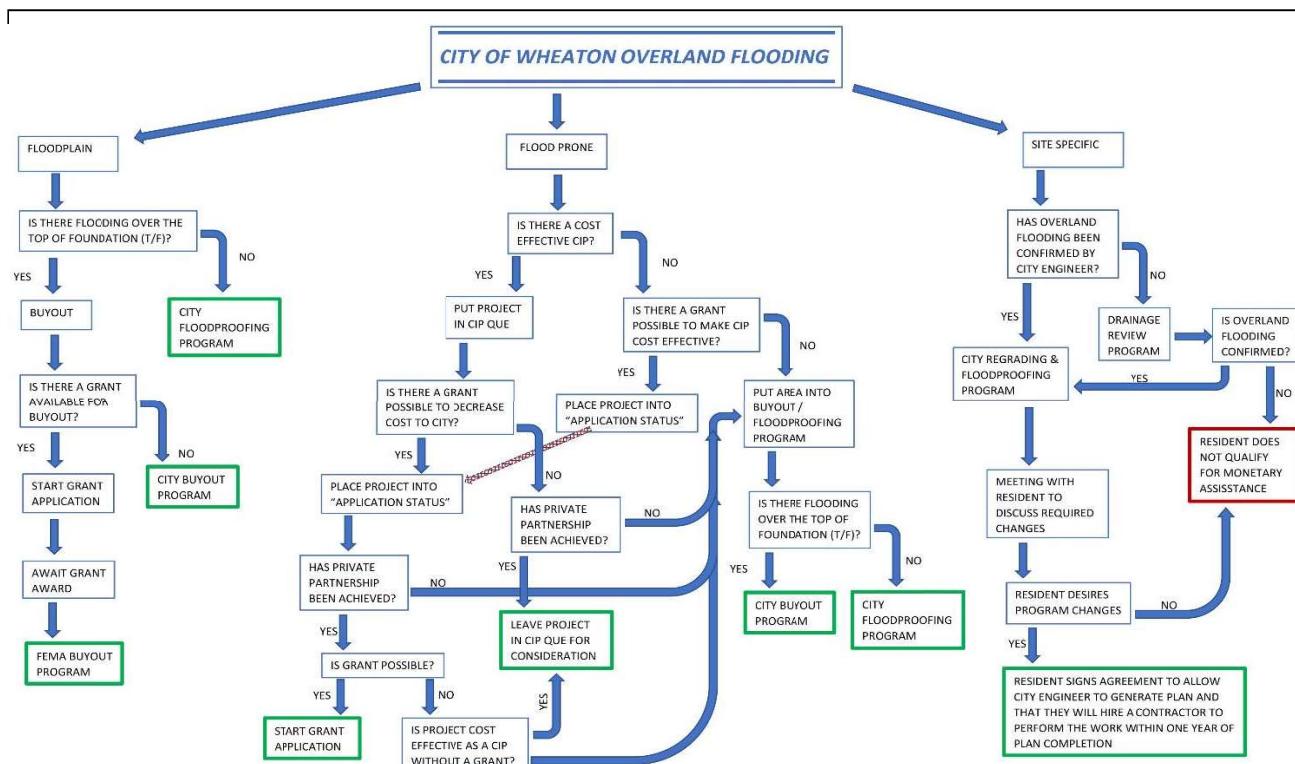
# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

## PART 4 (February 22<sup>nd</sup>, 2021)

- Stormwater Decision Solution Framework



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Stormwater Decision Solution Framework



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# Stormwater Decision Solution Framework

## FLOOD PROTECTION PROGRAM COST - 100 YEAR STORM



2/22/2021

### FLOODPLAIN

Buyout / Floodproofing
\$12,004,090

### FLOOD PRONE AREAS

Buyout / Floodproofing / CIP
\$35,727,042

### SITE SPECIFIC AREAS

Floodproofing / Regrading
\$1,450,000

Total
\$49,181,132



### Total with Grants

\$37,005,102

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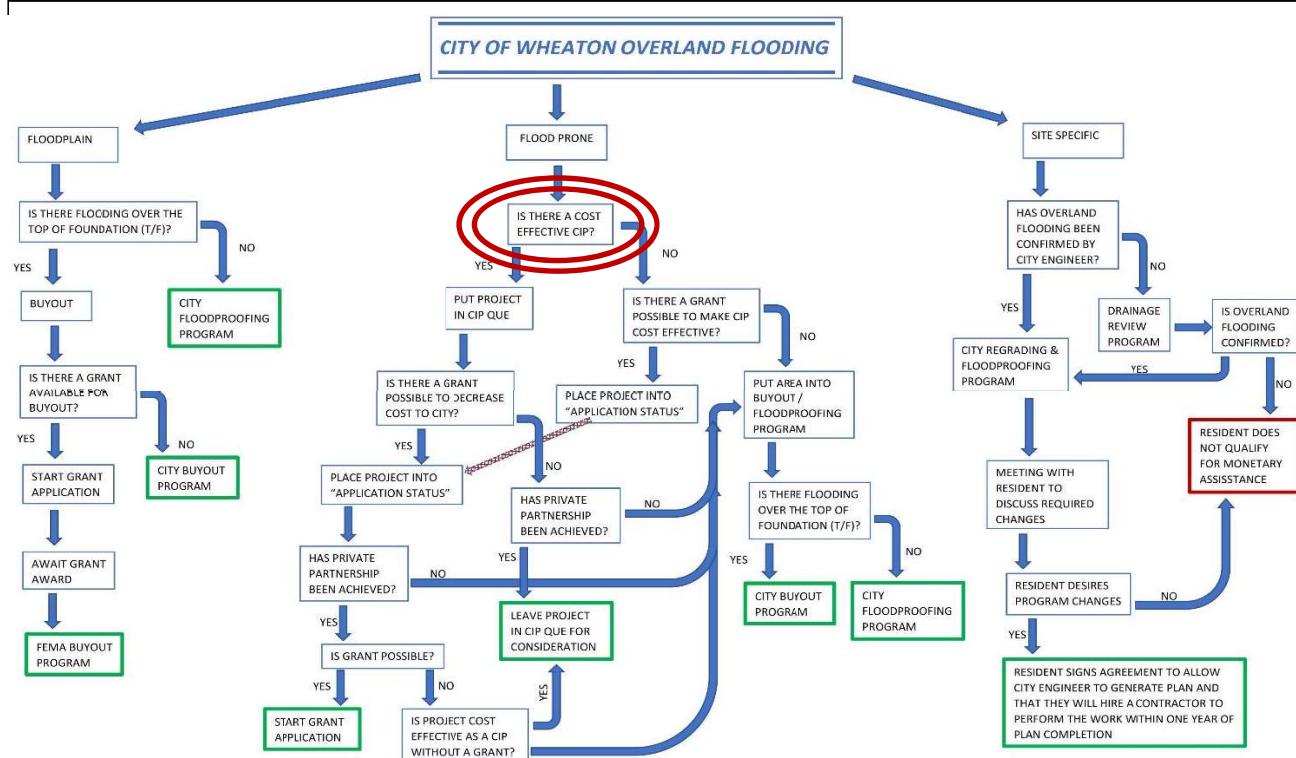
# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

## PART 5 (June 14<sup>th</sup>, 2021)

- Evaluation of Capital Project  
Ancillary Benefits



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# Stormwater Decision Solution Framework



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“COST EFFECTIVE” HAS NOT TAKEN INTO ACCOUNT ANCILLARY BENEFITS UP TO THIS POINT

## Evaluation of Ancillary Benefits of CIP Projects

## CIP PROJECTS : MOVE WATER AWAY FROM STRUCTURES

## DON'T LEAVE STRUCTURES IN THE INUNDATION AREAS

## MAKE STREETS MORE PASSABLE DURING FLOODS

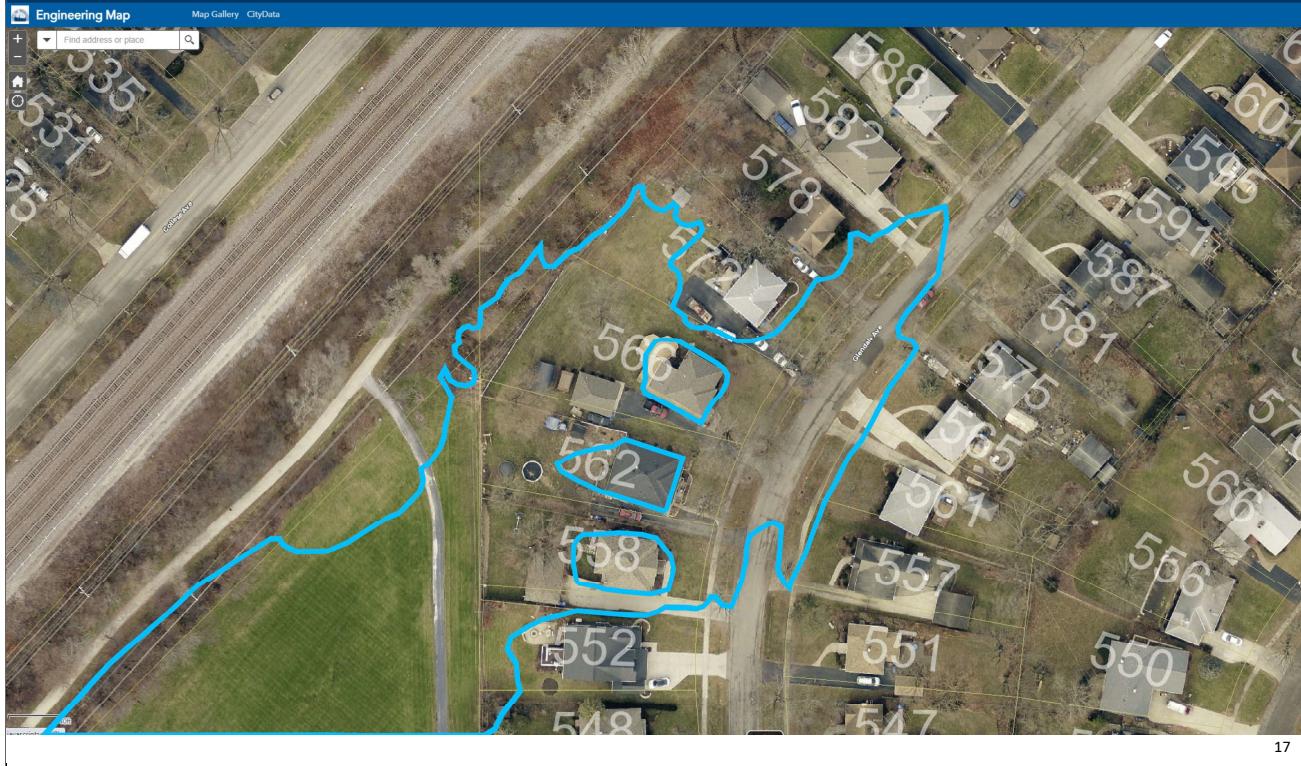
## DON'T ELIMINATE NEIGHBORHOODS & TAX BASE

# Stormwater Decision Solution Framework

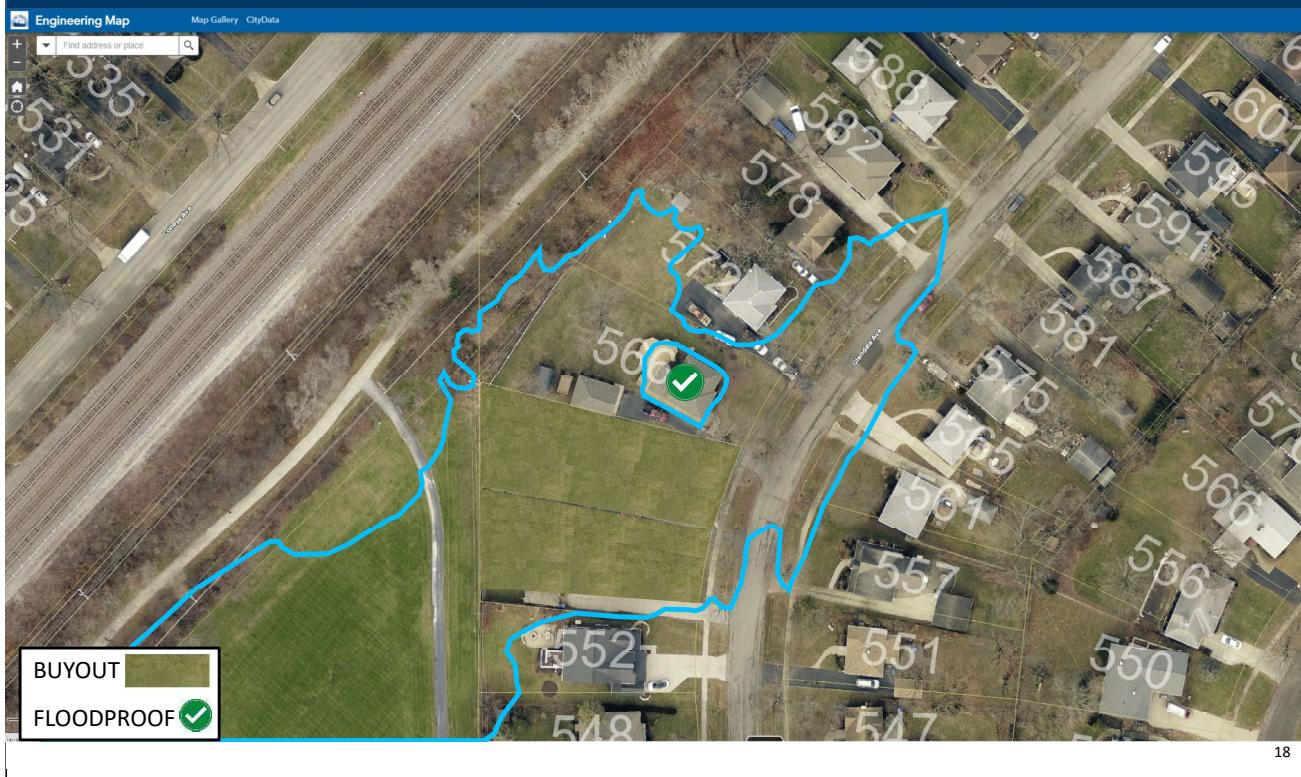


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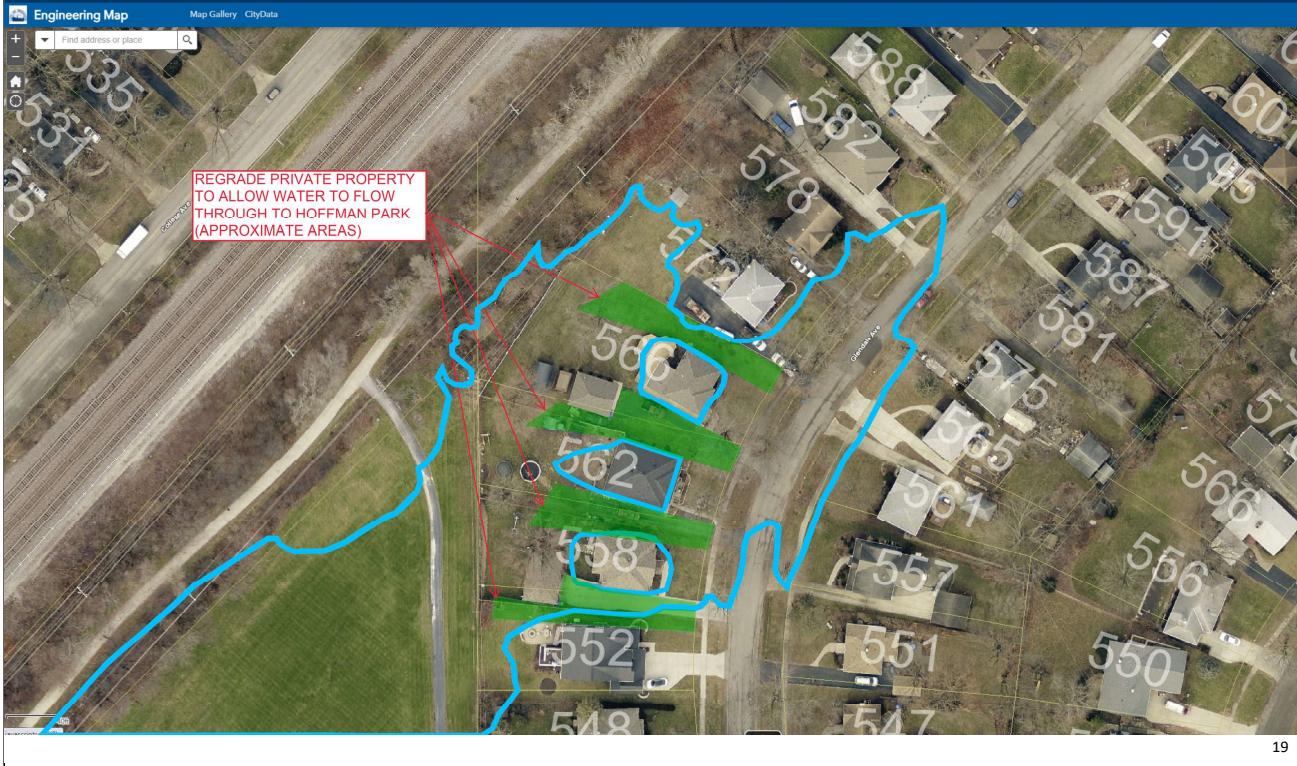
## Glendale Avenue Overland Flow Path Existing Condition



## Glendale Avenue Overland Flow Path Buyout / Floodproofing - \$925,060



# Glendale Avenue Overland Flow Path Capital Project - \$132,600



## Glendale Avenue Overland Flow Path



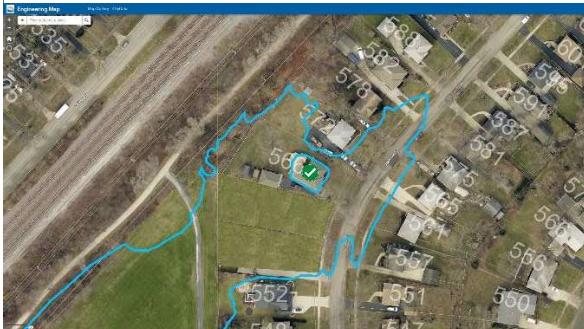
### Buyout / Floodproofing - \$925,060

- Buyout – 2 Homes
- Floodproof – 1 Homes

## Capital Project - \$132,600

- Buyout – 0 Homes
- Floodproof – 0 Homes

Ancillary Benefit : HIGH



# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

## Next Steps (June 14<sup>th</sup>, 2021)

- 1) Funding Discussion
- 2) Initiate Public Meetings



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# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

## PART 6 (August 23<sup>rd</sup>, 2021)

- Flood Prone Area Capital Project Ranking



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# Flood Prone Area Capital Project Ranking



STAFF HAS CREATED A POINT SYSTEM TO WEIGH ALL OF OUR FLOOD PRONE AREA CAPITAL PROJECTS

## 1) Benefits to City of Wheaton residents

- COST PER STRUCTURE PROTECTED (0 to 10 Points)
- ANCILLARY BENEFITS (-5 to 10 Points)
- FEMA BCA FOR PROJECT (Used as Tie Breaker)

## 2) Expediency to Construct Projects

- PROJECT LOCATED ON CITY PROPERTY (0 or 10 Points)
- PROJECTED EASE OF CONSTRUCTION (0 to 10 Points)
- GRANT POSSIBILITY (-5 or 0 Points)

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# Flood Prone Area Capital Project Ranking



- COST PER STRUCTURE PROTECTED (0 to 10 Points)

Cost / Structure Protected	10000	50000	100000	150000	200000	250000	300000	350000	400000	450000	500000
Points	10	9	8	7	6	5	4	3	2	1	0

- ANCILLARY BENEFITS (-5 to 10 Points)

Ancillary Benefits	High	Medium	Low	Very Low
Points	10	5	1	-5

- FEMA BCA FOR PROJECT (Used as Tie Breaker)

- PROJECT LOCATED ON CITY PROPERTY (0 or 10 Points)

Project on City Property	No	Yes
Points	0	10

- PROJECTED EASE OF CONSTRUCTION (0 to 10 Points)

Public Cooperation Difficulty	1	2	3	4	5
Points	10	7	5	3	0

- GRANT POSSIBILITY (-5 or 0 Points)

Grant Possible	No	Yes
Points	0	-5

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# Flood Prone Area Capital Project Ranking



## PLANNED PATH FORWARD

Preliminarily Planned for ARPA funds ->  
Starting Grant Writing Process ->

Preliminarily Planned for ARPA funds ->

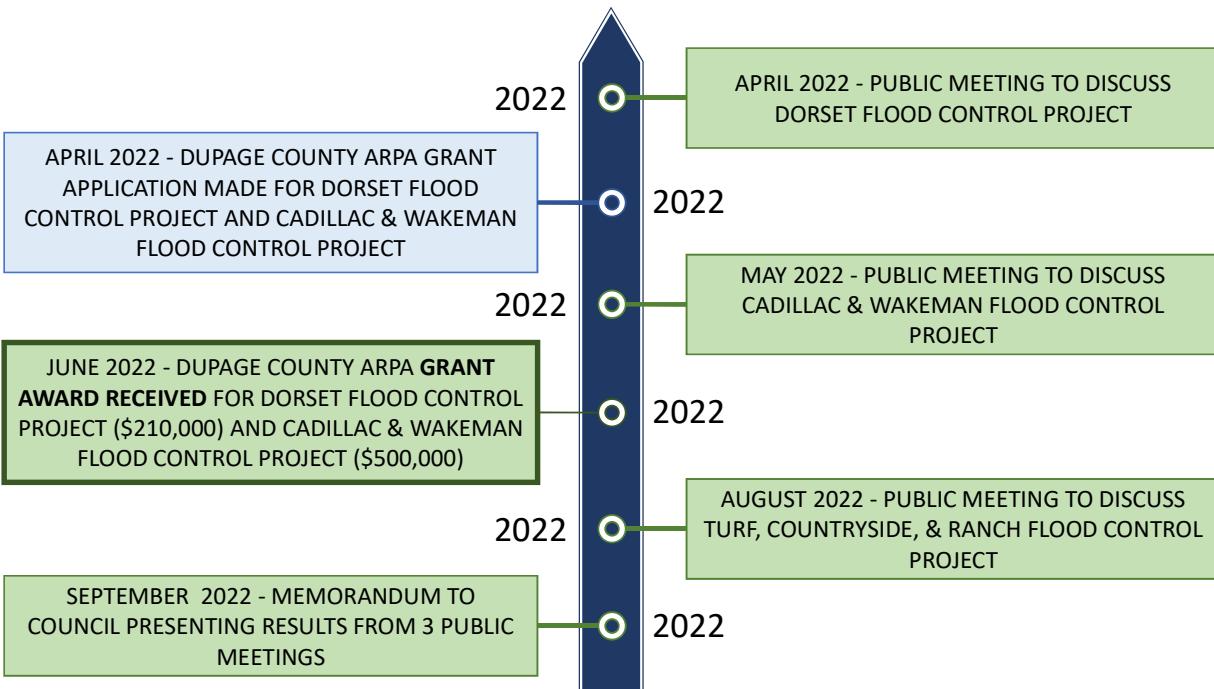
FLOODPRONE AREA RANKING		
TOTAL POINTS	FLOODPRONE AREA	BCA
36	Wakeman & Cadillac	
34	Turf, Countryside, & Ranch	
33	Pershing East	
31	Dorset Drive	
27	Glendale Avenue	
21	TCR Localized	
18	Thomas and Summit	
15	Mayo Avenue	2.92
15	Jefferson Avenue	1.10
15	Briarcliffe Lakes	0.96
13	Erie Street	
11	Cherry Street	
11	Harrison Avenue	
8	Delles - Prairie Path Park	
2	Pershing West	
1	Williston Basin	
#N/A	Ridge Park	
#N/A	Madison Avenue	

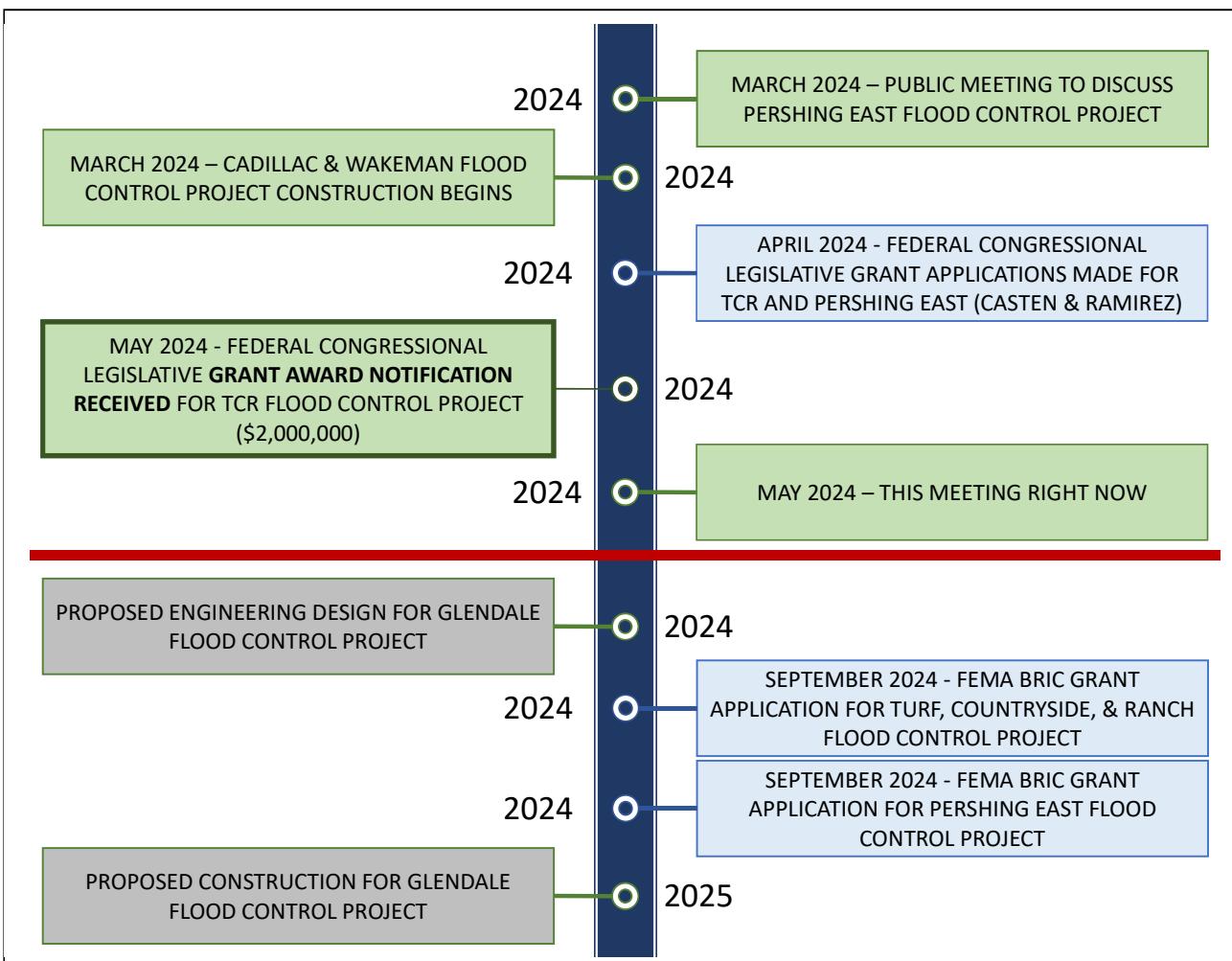
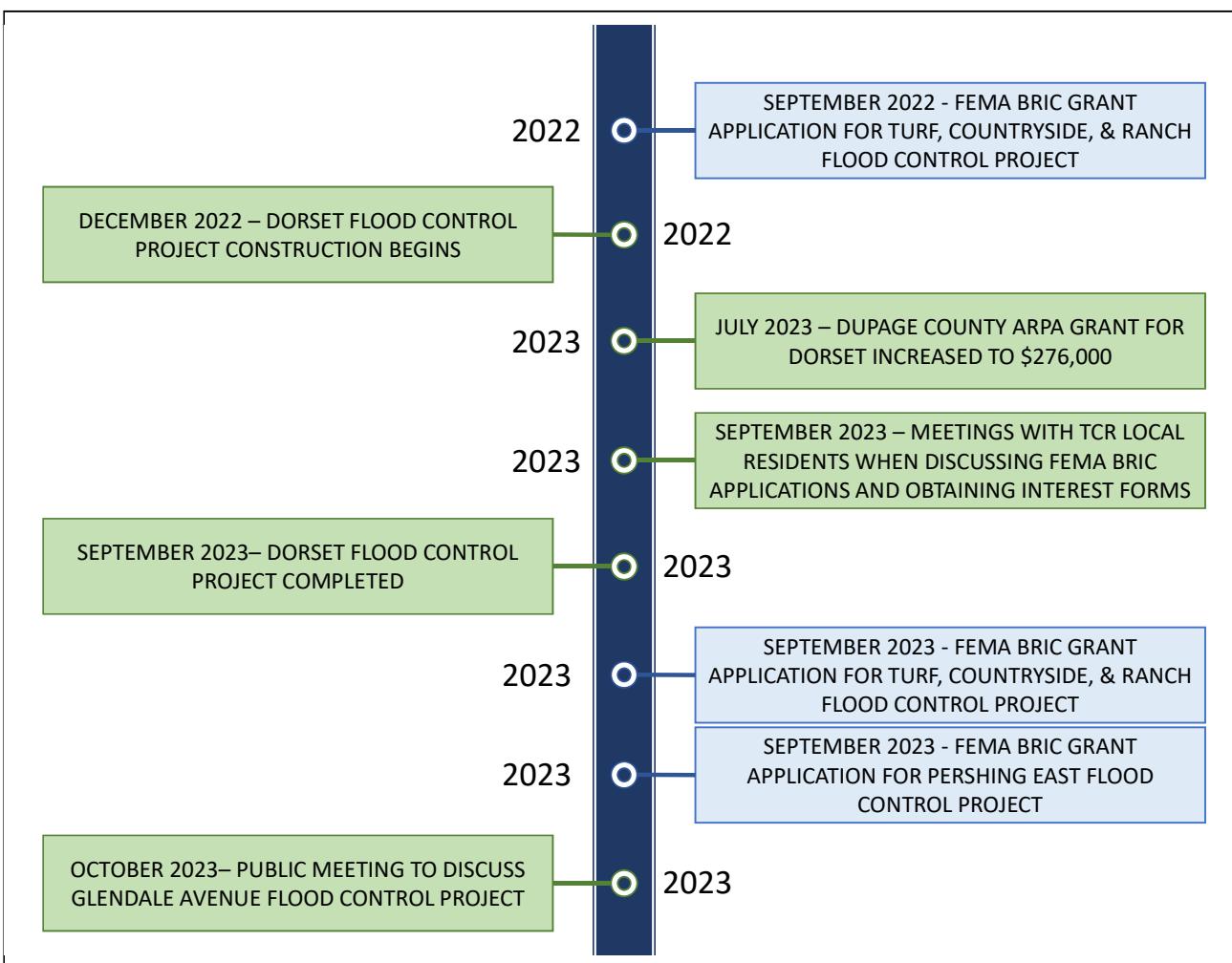
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## STORMWATER UPDATE 2024



Since the last formal presentation in August of 2021





# STORMWATER UPDATE 2024



PROJECTS  
CONSTRUCTED  
(OR IN CONSTRUCTION)

## FLOODPRONE AREA RANKING

TOTAL POINTS	FLOODPRONE AREA	BCA
36	Wakeman & Cadillac	
34	Turf, Countryside, & Ranch	
33	Pershing East	
31	Dorset Drive	
27	Glendale Avenue	
21	TCR Localized	
18	Thomas and Summit	
15	Mayo Avenue	2.92
15	Jefferson Avenue	1.10
15	Briarcliffe Lakes	0.96
13	Erie Street	
11	Cherry Street	
11	Harrison Avenue	
8	Delles - Prairie Path Park	
2	Pershing West	
1	Williston Basin	
#N/A	Ridge Park	
#N/A	Madison Avenue	

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# STORMWATER UPDATE 2024

## PROVIDE PUBLIC COMMENT REPORT TO CITY COUNCIL



PUBLIC MEETINGS  
HAVE BEEN HELD  
FOR THESE AREAS

## FLOODPRONE AREA RANKING

TOTAL POINTS	FLOODPRONE AREA	BCA
36	Wakeman & Cadillac	
34	Turf, Countryside, & Ranch	
33	Pershing East	
31	Dorset Drive	
27	Glendale Avenue	
21	TCR Localized	
18	Thomas and Summit	
15	Mayo Avenue	2.92
15	Jefferson Avenue	1.10
15	Briarcliffe Lakes	0.96
13	Erie Street	
11	Cherry Street	
11	Harrison Avenue	
8	Delles - Prairie Path Park	
2	Pershing West	
1	Williston Basin	
#N/A	Ridge Park	
#N/A	Madison Avenue	

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# STORMWATER UPDATE 2024

PROVIDE PUBLIC COMMENT REPORT TO CITY COUNCIL



FIRST REPORT  
PROVIDED VIA  
MEMORANDUM  
(September 28, 2022)

## FLOODPRONE AREA RANKING

TOTAL POINTS	FLOODPRONE AREA	BCA
36	Wakeman & Cadillac	
34	Turf, Countryside, & Ranch	
33	Pershing East	
31	Dorset Drive	
27	Glendale Avenue	
21	TCR Localized	
18	Thomas and Summit	
15	Mayo Avenue	2.92
15	Jefferson Avenue	1.10
15	Briarcliffe Lakes	0.96
13	Erie Street	
11	Cherry Street	
11	Harrison Avenue	
8	Delles - Prairie Path Park	
2	Pershing West	
1	Williston Basin	
#N/A	Ridge Park	
#N/A	Madison Avenue	

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# STORMWATER UPDATE 2024

PROVIDE PUBLIC COMMENT REPORT TO CITY COUNCIL



FIRST REPORT  
PROVIDED VIA  
MEMORANDUM  
(September 28, 2022)

### GENERAL RESULT

PUBLIC SUPPORT AND  
RECOMMENDATION TO  
MOVE FORWARD WITH  
THESE PROJECTS

## FLOODPRONE AREA RANKING

TOTAL POINTS	FLOODPRONE AREA	BCA
36	Wakeman & Cadillac	
34	Turf, Countryside, & Ranch	
33	Pershing East	
31	Dorset Drive	
27	Glendale Avenue	
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15	Mayo Avenue	2.92
15	Jefferson Avenue	1.10
15	Briarcliffe Lakes	0.96
13	Erie Street	
11	Cherry Street	
11	Harrison Avenue	
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1	Williston Basin	
#N/A	Ridge Park	
#N/A	Madison Avenue	

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# STORMWATER UPDATE 2024

PROVIDE PUBLIC COMMENT REPORT TO CITY COUNCIL



SECOND REPORT

FLOODPRONE AREA RANKING		
TOTAL POINTS	FLOODPRONE AREA	BCA
36	Wakeman & Cadillac	
34	Turf, Countryside, & Ranch	
33	Pershing East	
31	Dorset Drive	
27	Glendale Avenue	
21	TCR Localized	
18	Thomas and Summit	
15	Mayo Avenue	2.92
15	Jefferson Avenue	1.10
15	Briarcliffe Lakes	0.96
13	Erie Street	
11	Cherry Street	
11	Harrison Avenue	
8	Delles - Prairie Path Park	
2	Pershing West	
1	Williston Basin	
#N/A	Ridge Park	
#N/A	Madison Avenue	

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# STORMWATER UPDATE 2024

PROVIDE PUBLIC COMMENT REPORT TO CITY COUNCIL



GENERAL RESULT

PUBLIC SUPPORT AND RECOMMENDATION TO MOVE FORWARD WITH THE PROJECT

GENERAL RESULT

PUBLIC SUPPORT AND DESIRE FOR PROTECTION BUT REQUEST FOR ALTERNATE PROJECT

GENERAL RESULT

PUBLIC SUPPORT BUT SOME RELATED LACK OF INTEREST FOR THEIR PARCEL

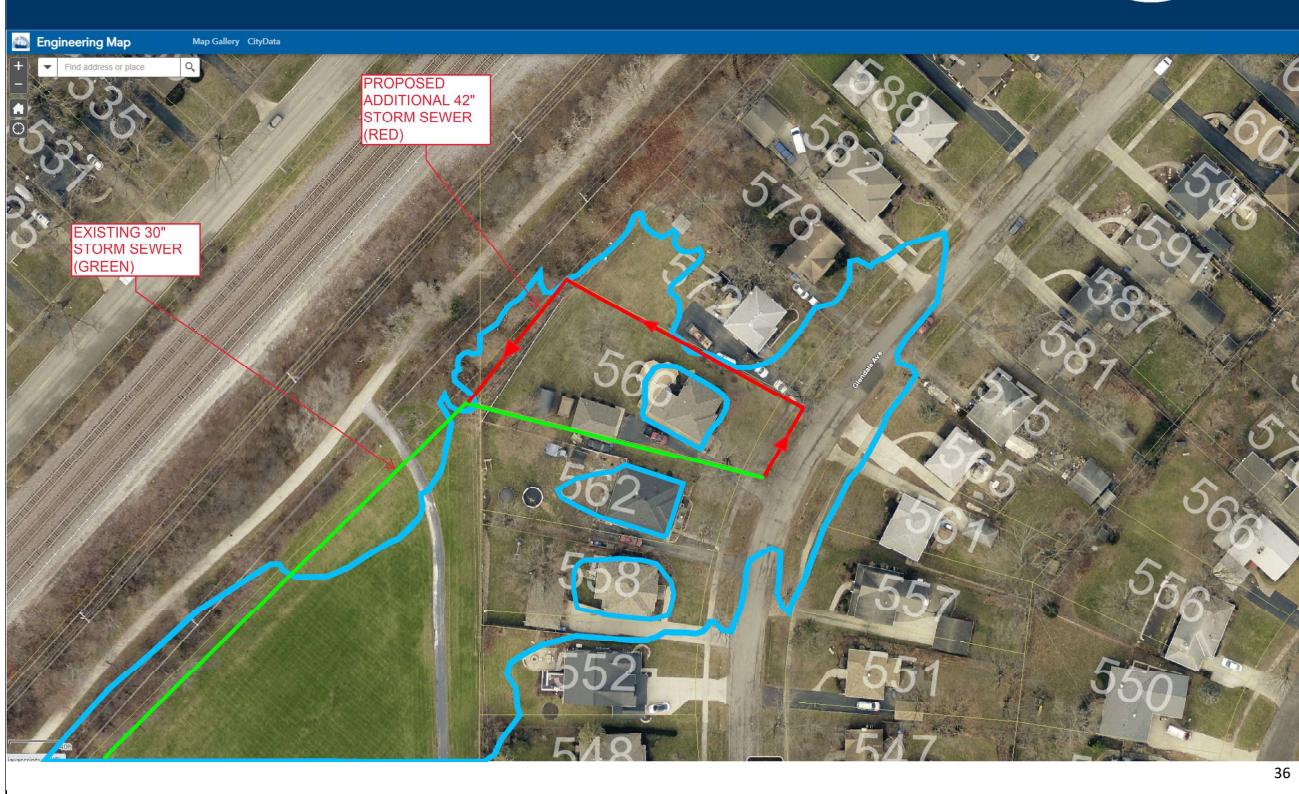
FLOODPRONE AREA RANKING		
TOTAL POINTS	FLOODPRONE AREA	BCA
36	Wakeman & Cadillac	
34	Turf, Countryside, & Ranch	
33	Pershing East	
31	Dorset Drive	
27	Glendale Avenue	
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## Glendale Avenue Overland Flow Path Capital Project - ~~\$132,600~~ \$170,000



## Glendale Avenue Overland Flow Path Capital Project 2 - ~~\$171,000~~ \$210,000



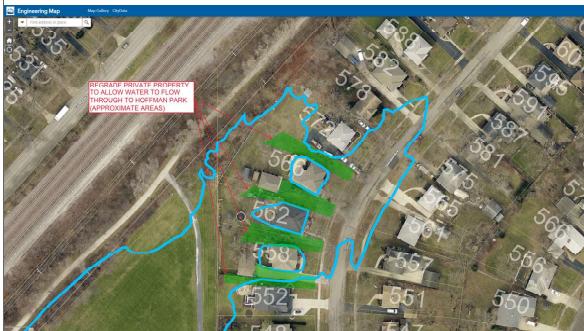
# STORMWATER UPDATE 2024

## Glendale Avenue Project Determination



### Capital Project 1 - \$170,000

- Install surface swales



### Capital Project 2 - \$210,000

- Install additional Storm Sewer



REQUEST COUNCIL DISCUSSION AND DIRECTION ON WHICH PROJECT TO ATTEMPT TO MOVE FORWARD WITH FOR DESIGN AND CONSTRUCTION

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# STORMWATER UPDATE 2024



FLOOD PRONE CAPITAL PROJECT RANKING GAVE POINTS FOR PROJECTED EASE OF CONSTRUCTION

(0 to 10 POINTS)

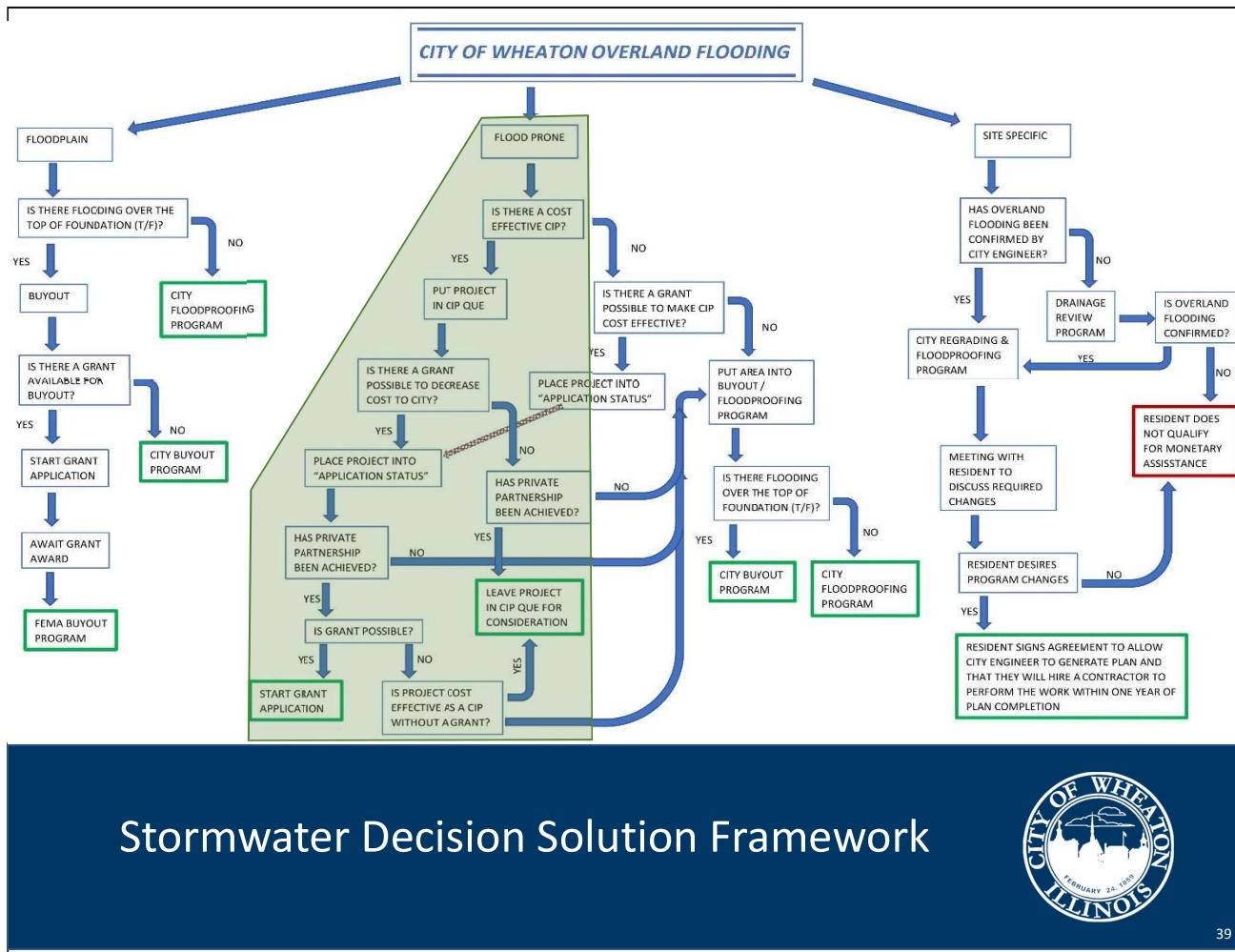
EASE OF CONSTRUCTION IS A MEASURE OF HOW DIFFICULT IT WILL BE TO OBTAIN PUBLIC SUPPORT

- EASEMENTS
- TYPE OF PROJECT

### FLOODPRONE AREA RANKING

	TOTAL POINTS	FLOODPRONE AREA	BCA
10	36	Wakeman & Cadillac	
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10	33	Pershing East	
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0	11	Cherry Street	
0	11	Harrison Avenue	
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0	1	Williston Basin	
#N/A		Ridge Park	
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## Stormwater Decision Solution Framework



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# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

## Next Steps (June 14<sup>th</sup>, 2021)

- 1) Funding Discussion
- 2) Initiate Public Meetings 



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# STORMWATER UPDATE 2024

## STORMWATER PROJECTS/PROGRAMS FOR CONSIDERATION



### OVERTLAND FLOODING PROJECTS

- Flood Prone Capital Projects
- Flood Prone Buyout/Floodproofing Program
- Site Specific Overland Flooding Program
- Floodplain Buyout/Floodproofing Program

### EARTHEN BASED DRAINAGE PROJECTS

- Streams Lakes Dredging
- Streams Lakes Meander Project
- Springbrook#1 Channel Rehabilitation
- Roadside Ditch Maintenance Program
- Existing Detention Basin Investigation Program
- Outfall Maintenance Program

### GENERAL INFRASTRUCTURE PROJECTS

- Lake A Pumping Station Rehab
- Thomas Road Drainage Improvement Project
- Park Avenue Storm Sewer Replacement

### EXISTING MAINTENANCE

- Road Program – Storm Sewers
- Storm Sewer Replacement Program
- Storm Sewer Lining Program
- Large Diameter Storm Sewer Cleaning

### RESIDENTIAL SUPPORT PROGRAMS

- Yard Flooding Cost Share Program

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# STORMWATER UPDATE 2024

## STORMWATER PROJECTS/PROGRAMS FOR CONSIDERATION



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### RESIDENTIAL SUPPORT PROGRAMS

- Yard Flooding Cost Share Program

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# STORMWATER UPDATE 2024

## STORMWATER PROJECTS/PROGRAMS FOR CONSIDERATION



### OVERLAND FLOODING PROJECTS

- [Flood Prone Capital Projects](#)
- Flood Prone Buyout/Floodproofing Program
- [Site Specific Overland Flooding Program](#)
- Floodplain Buyout/Floodproofing Program

### EARTHEN BASED DRAINAGE PROJECTS

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- [Streams Lakes Meander Project](#)
- Springbrook#1 Channel Rehabilitation
- Roadside Ditch Maintenance Program
- Existing Detention Basin Investigation Program
- Outfall Maintenance Program

### GENERAL INFRASTRUCTURE PROJECTS

- Lake A Pumping Station Rehab
- Thomas Road Drainage Improvement Project
- Park Avenue Storm Sewer Replacement

### EXISTING MAINTENANCE

- Road Program – Storm Sewers
- Storm Sewer Replacement Program
- Storm Sewer Lining Program
- Large Diameter Storm Sewer Cleaning

### RESIDENTIAL SUPPORT PROGRAMS

- [Yard Flooding Cost Share Program](#)

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# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

### Next Steps

- 1) Initiate Design of Glendale Avenue Flood Control Project as per Council Direction
- 2) Will continue Public Meetings on Flood Prone Projects After Prioritization and Funding Discussion has occurred
- 3) Funding Discussion in 4th quarter 2024
  - Staff recommends development of a prioritization of stormwater programs/projects for council consideration



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# CITY OF WHEATON FLOOD RESILIENCY INVESTIGATION

## Stormwater Update 2024

Joseph Tebrugge – Director of Engineering

Department of Engineering

May 13<sup>th</sup>, 2024

THANK YOU  
ANY QUESTIONS?

