

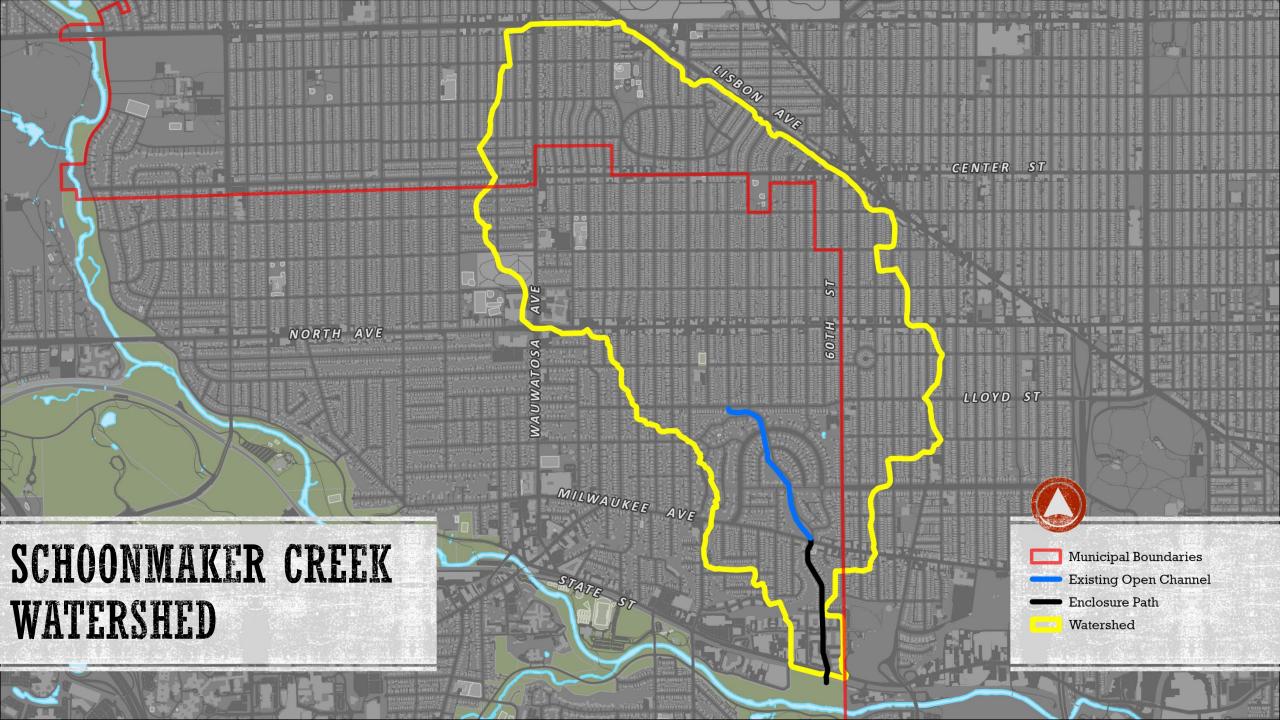
Initial Alternative Analysis Selection Community Affairs Committee July 26<sup>th</sup>, 2022





#### Project History

- Schoonmaker Creek Watershed has experienced numerous heavy storm events since 1986.
- In many portions of this area flooding has occurred in streets, homes, and businesses due to undersized storm sewer capacity, a confined open channel, and inadequate enclosure capacity at the downstream end of the watershed.
- In 2014, the Milwaukee Metropolitan Sewerage District (MMSD) requested that Southeastern Wisconsin Regional Planning Commission (SEWRPC) perform a planning study of alternative approaches to mitigate flooding within the Schoonmaker Creek watershed. Many years of work followed the request, including stakeholder and public input, which resulted in a final comprehensive report which was finalized in December of 2020. You can view that report here: www.wauwatosa.net/Schoonmaker.





#### Alternatives

- The final SEWRPC report includes sixteen alternatives which have varying costs, benefits, and community impacts.
- City staff has evaluated all sixteen alternatives and is recommending a detailed alternative analysis of a reduced number of alternatives.
- A detailed alternative analysis would include hiring an engineering consulting firm to prepare detailed engineering feasibility designs as well as full construction cost estimates for each alternative that would include all construction costs that will likely include impacts and costs to roadways, storm sewers, sanitary sewers, water mains, street lights, street trees, etc.
- This process will include a public input process that will allow all property owners to have direct conversations with the City regarding the proposed alternatives and their potential impacts.

Table 4.3 Schoonmaker Creek Alternative Summary

			Implementability		100-year	
Alternative	100-year Recurrence Interval Peak Flow to Open Channel	Disruption During Construction	Utility Conflict Potential	Property Acquisitions Required	Recurrence Interval Storm Ponding Reduction in the Wauwatosa Sewer Area	Total Capital Cost <sup>a</sup> (millions)
Enclosure Alternatives						
Alternative 1 – Relief Pipe at Enclosure	No change	Medium	Medium	No	None	5.6
Alternative 2 – Relief Pipe at Enclosure with Storage	No change	Medium	Medium	No	None	6.7
Alternative 3 – Inline Storage <sup>b</sup>	No change	Medium	Medium	Yes	None	5.9
Enclosure and Sewer Area Alternatives						
Alternative 4 – 25-Year Sewer	Increase	High	High	No	Medium	22.8
Alternative 5 – 100-Year Sewer	Increase	High	High	No	High	30.1
Alternative 6 – 100-Year Sewer Extended	Increase	High	High	No	High	31.3
Alternative 7 – East Milwaukee Sewer Additional Pipe	NAc	Medium	Medium	No	Low <sup>d</sup>	3.2
Alternative 8 – East Milwaukee Sewer New Pipe	NA	Medium	Medium	No	Low <sup>d</sup>	5.8
Alternative 9 – Open Channel	Increase	High	High	Yes	Medium	69.2
Alternative 10 – North Storage	Decrease	Low	Low	Yes	Medium	28.2
Alternative 11 – South Storage	Decrease	Low	Low	Yes	Low	20.4
Alternative 12 – North and South Storage	Decrease	Low	Low	Yes	High	42.8
Alternative 13 – 25-Year Sewer and Tunnel	Decrease	High	High	No	Medium	35.2
Alternative 14 – 100-Year Sewer and Tunnel	Decrease	High	High	No	High	39.0
Alternative 15 – 100-Year Sewer Extended and Tunnel	Decrease	High	High	No	High	40.4
Alternative 16 – 100-Year Sewer and Open Channel Bypass	Decrease	High	High	No	High	29.3

<sup>&</sup>lt;sup>a</sup> Based on 2019 dollars and includes construction, materials, property buyouts, and a 35% contingency. Does not include utility relocation, annual operation and maintenance costs, and assumes no contaminated soils.



<sup>&</sup>lt;sup>b</sup> Alternative 3 would most likely be designated a High Hazard dam which would be a significant issue if this alternative were implemented.

<sup>&</sup>lt;sup>c</sup> NA means not applicable for this alternative.

<sup>&</sup>lt;sup>d</sup> Alternatives 7 and 8 only eliminate flooding from the City of Milwaukee N. 60<sup>th</sup> St. sewer to the Wauwatosa sewer area.

Table 4.3 **Schoonmaker Creek Alternative Summary** 

Alternative	100-year Recurrence Interval Peak Flow to Open Channel	Disruption During Construction	Utility Conflict Potential	Property Acquisitions Required	100-year Recurrence Interval Storm Ponding Reduction in the Wauwatosa Sewer Area	Total Capital Cost <sup>a</sup> (millions)
Enclosure Alternatives						
Alternative 1 – Relief Pipe at Enclosure	No change	Medium	Medium	No	None	5.6
Alternative 2 Relief Pipe at Enclosure with Storage	No change	Medium	Medium	No	None	6.7
Alternative 3 Inline Storage <sup>b</sup>	No change	Medium	Medium	Yes	None	5.9
Enclosure and Sewer Area Alternatives						
Alternative 4 – 25-Year Sewer	Increase	High	High	No	Medium	22.8
Alternative 5 – 100-Year Sewer	Increase	High	High	No	High	30.1
Alternative 6 – 100-Year Sewer Extended	Increase	High	High	No	High	31.3
Alternative 7 – East Milwaukee Sewer Additional Pipe	NA <sup>c</sup>					
Alternative 8 – East Milwaukee Sewer New Pipe	NA	Enclosure a	lternatives:	from Milwa	aukee Avenu	e to the
Alternative 9 – Open Channel	Increase				her the MMC	

Alternative 10 - North Storage

Alternative 11 - South Storage

Alternative 12 - North and South Storage

Alternative 13 – 25-Year Sewer and Tunnel

Alternative 14 – 100-Year Sewer and Tunnel

Alternative 15 - 100-Year Sewer Extended and Tunnel

Alternative 16 – 100-Year Sewer and Open Channel Bypass

Menomonee River to be funded by the MMSD (or an Decrease equivalent amount of funding contributed to the project if enclosure Decrease improvements are not made). City staff is recommending Decrease Decrease that the MMSD eliminate Alternative 2 due to land Decrease Decrease acquisition needs and Alternative 3 due to the Decrease creation of a dam and property acquisition. This decision relies upon decisions made upstream of this point so this decision will be made after upstream decisions are made.

<sup>&</sup>lt;sup>a</sup> Based on 2019 dollars and includes construction, materials, property buyouts, and contaminated soils

b Alternative 3 would most likely be designated a High Hazard dam which would be a sign

<sup>&</sup>lt;sup>c</sup> NA means not applicable for this alternative.

Alternatives 7 and 8 only eliminate flooding from the City of Milwaukee N. 60<sup>th</sup> St. sewer to the Wauwatosa sewer area.

Table 4.3 Schoonmaker Creek Alternative Summary

			Implementability			
Alternative	100-year Recurrence Interval Peak Flow to Open Channel	Disruption During Construction	Utility Conflict Potential	Property Acquisitions Required	Recurrence Interval Storm Ponding Reduction in the Wauwatosa Sewer Area	Total Capital Cost <sup>a</sup> (millions)
Enclosure Alternatives						
Alternative 1 – Relief Pipe at Enclosure	No change	Medium	Medium	No	None	5.6
Alternative 2 - Relief Pipe at Enclosure with Storage	No change	Medium	Medium	No	None	6.7
Alternative 3 Inline Storage <sup>b</sup>	No change	Medium	Medium	Yes	None	5.9
Enclosure and Sewer Area Alternatives						
-Alternative 4 – 25-Year Sewer	Increase	High	High	No No	Medium	22.8
Alternative 5 – 100-Year Sewer	Increase	High	High	No	High	30.1
					ed level of p flood mitiga	
Alternative 12 – North and South Storage	Decrease	Low	Low	Yes	High	42.8
Alternative 13 – 25-Year Sewer and Tunnel	Decrease	High	High	No	Medium	35.2
Alternative 14 – 100-Year Sewer and Tunnel	Decrease	High	High	No	High	20.0
			_		_	39.0
Alternative 15 – 100-Year Sewer Extended and Tunnel	Decrease	High	High	No	High	39.0 40.4

<sup>&</sup>lt;sup>a</sup> Based on 2019 dollars and includes construction, materials, property buyouts, and a 35% contingency. Does not include utility relocation, annual operation and maintenance costs, and assumes no contaminated soils.



<sup>&</sup>lt;sup>b</sup> Alternative 3 would most likely be designated a High Hazard dam which would be a significant issue if this alternative were implemented.

<sup>&</sup>lt;sup>c</sup> NA means not applicable for this alternative.

<sup>&</sup>lt;sup>d</sup> Alternatives 7 and 8 only eliminate flooding from the City of Milwaukee N. 60<sup>th</sup> St. sewer to the Wauwatosa sewer area.

Table 4.3
Schoonmaker Creek Alternative Summary

		Implementability			100-year Recurrence	
	100-year Recurrence Interval Peak Flow to Open	Disruption During	Utility Conflict	Property Acquisitions	Interval Storm Ponding Reduction in the Wauwatosa	Total Capital
Alternative	Channel	Construction	Potential	Required	Sewer Area	Costa (millions)
Enclosure Alternatives Alternative 1 – Relief Pipe at Enclosure	No change	Medium	Medium	No	None	5.6
-Alternative 2 - Relief Pipe at Enclosure with Storage	No change	Medium	Medium	No	None	6.7
-Alternative 3 Inline Storage <sup>b</sup>	No change	Medium	Medium	Yes	None	5.9
Enclosure and Sewer Area Alternatives	Increase	High	High	No	Modium	22.8
Alternative 5 – 100-Year Sewer	Increase	High	High	No	High	30.1
Alternative 6 – 100-Year Sewer Extended	Increase	High	High	No	High	31.3
Alternative 7 - East Milwaukee Sewer Additional Pipe	ΜVc	Medium	Modium	No	Low <sup>d</sup>	3.2
Alternative 8 East Milwaukee Sewer New Pipe	NA	Medium	Medium	No	Lowd	5.8
Alternative 9 – Open Channel	Increase	High	High	Yes	Medium	69.2
Alternative 10 – North Storage			<u>'</u>	V	1.	20.2

Eliminate alternatives 7 & 8 because the City of Milwaukee will not be participating in the project and the reduction in storm ponding in Wauwatosa would be low and not meet the flood reduction goals of the project.

Alternative 11 - South Storage

Alternative 12 - North and South Storage

Alternative 14 - 100-Year Sewer and Tunnel

Alternative 15 – 100-Year Sewer Extended and Alternative 16 – 100-Year Sewer and Open Cha



<sup>&</sup>lt;sup>a</sup> Based on 2019 dollars and includes construction, materials, property buyouts, and a 35% contingency. Does not include utility relocation, annual operation and maintenance costs, and assumes no contaminated soils.

<sup>&</sup>lt;sup>b</sup> Alternative 3 would most likely be designated a High Hazard dam which would be a significant issue if this alternative were implemented.

<sup>&</sup>lt;sup>c</sup> NA means not applicable for this alternative.

<sup>&</sup>lt;sup>d</sup> Alternatives 7 and 8 only eliminate flooding from the City of Milwaukee N. 60<sup>th</sup> St. sewer to the Wauwatosa sewer area.

Table 4.3 Schoonmaker Creek Alternative Summary

			Implementability		100-year	
Reco Inter Flow	100-year Recurrence Interval Peak Flow to Open Channel	Disruption During Construction	Utility Conflict Potential	Property Acquisitions Required	Recurrence Interval Storm Ponding Reduction in the Wauwatosa Sewer Area	Total Capital Cost <sup>a</sup> (millions)
Enclosure Alternatives						
Alternative 1 – Relief Pipe at Enclosure	No change	Medium	Medium	No	None	5.6
- Alternative 2 - Relief Pipe at Enclosure with Storage	No change	Medium	Medium	No	None	6.7
-Alternative 3 Inline Storage <sup>b</sup>	No change	Medium	Medium	Yes	None	5.9
Enclosure and Sewer Area Alternatives						
Alternative 4 – 25-Year Sewer	Increase	High	High	No No	Medium	22.8
Alternative 5 – 100-Year Sewer	Increase	High	High	No	High	30.1
Alternative 6 – 100-Year Sewer Extended	Increase	High	High	No	High	31.3
Alternative 7 – East Milwaukee Sewer Additional Pipe	NA°	Medium	Medium	No	Low	3.2
-Alternative 8 East Milwaukee Sewer New Pipe	NA	Medium	Medium	No	Low <sup>d</sup>	5.8
Alternative 9 Open Channel	Increase	High	High	Yes	Medium	69.2
-Alternative 10 North Storage	Decrease	Low	Low	Yes	Medium	20.2
- Alternative 11 South Storage	Decrease	Low	Low	Yes	Low	20.4
Alternative 12 North and South Storage	Decrease	Low	Low	Yes	High	42.8
Alternative 13 – 25-Year Sewer and Tunner	Decrease	High	High	No	Medium	35.2
Alternative 14 – 100-Year Sewer and Tunnel	Decrease	High	High	No	High	39.0
Alternative 15 – 100-Year Sewer Extended and Junnel	Decrease	High	High	No	High	40.4
Alternative 16 – 100-Year Sewer and Open Channel Bypa						

Eliminate alternatives 9 through 12 because property acquisitions would

be required to complete these alternatives.



<sup>&</sup>lt;sup>a</sup> Based on 2019 dollars and includes construction, materials, contaminated soils.

ь Alternative 3 would most likely be designated a High Hazard da

<sup>&</sup>lt;sup>c</sup> NA means not applicable for this alternative.

<sup>&</sup>lt;sup>d</sup> Alternatives 7 and 8 only eliminate flooding from the City of Milwaukee N. 60<sup>th</sup> St. sewer to the Wauwatosa sewer area.

Table 4.3 Schoonmaker Creek Alternative Summary

			Implementability		100-year	
Alternative	100-year Recurrence Interval Peak Flow to Open Channel	Disruption During Construction	Utility Conflict Potential	Property Acquisitions Required		Total Capital Cost <sup>a</sup> (millions)
Enclosure Alternatives						
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Alternative 3 Inline Storage <sup>b</sup>	No change	Medium	Medium	Yes	None	5.9
Enclosure and Sewer Area Alternatives						
Alternative 4 – 25-Year Sewer	Increase	High	High	No No	Medium	22.8
Alternative 5 100 Year Sewer	Increase	High	High	No	High	30.1
Alternative 6 – 100-Year Sewer Extended	Increase	High	High	No	High	31.3
Alternative 7 – East Milwaukee Sewer Additional Pipe	NAS	Medium	Medium	No	Low	3.2
Alternative 8 East Milwaukee Sewer New Pipe	NA	Medium	Medium	No	Low <sup>d</sup>	5.8
-Alternative 9 - Open Channel	Increase	High	High	Yes	Medium	69.2
Alternative 10 North Storage	Decrease	Low	Low	Yes	Medium	28.2
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Alternative 15 – 100-Year Sewer Extended and Tunnel	Decrease	High	High	No	High	40.4
Alternative 16 – 100-Year Sewer and Open Channel Bypa						

<sup>&</sup>lt;sup>a</sup> Based on 2019 dollars and includes construction, materials, contaminated soils.

Source: SEWRPC

Eliminate alternatives 5 and 14 because flooding would still occur on Center Street. The intention of this project is to address all affected areas.



b Alternative 3 would most likely be designated a High Hazard da

<sup>&</sup>lt;sup>c</sup> NA means not applicable for this alternative.

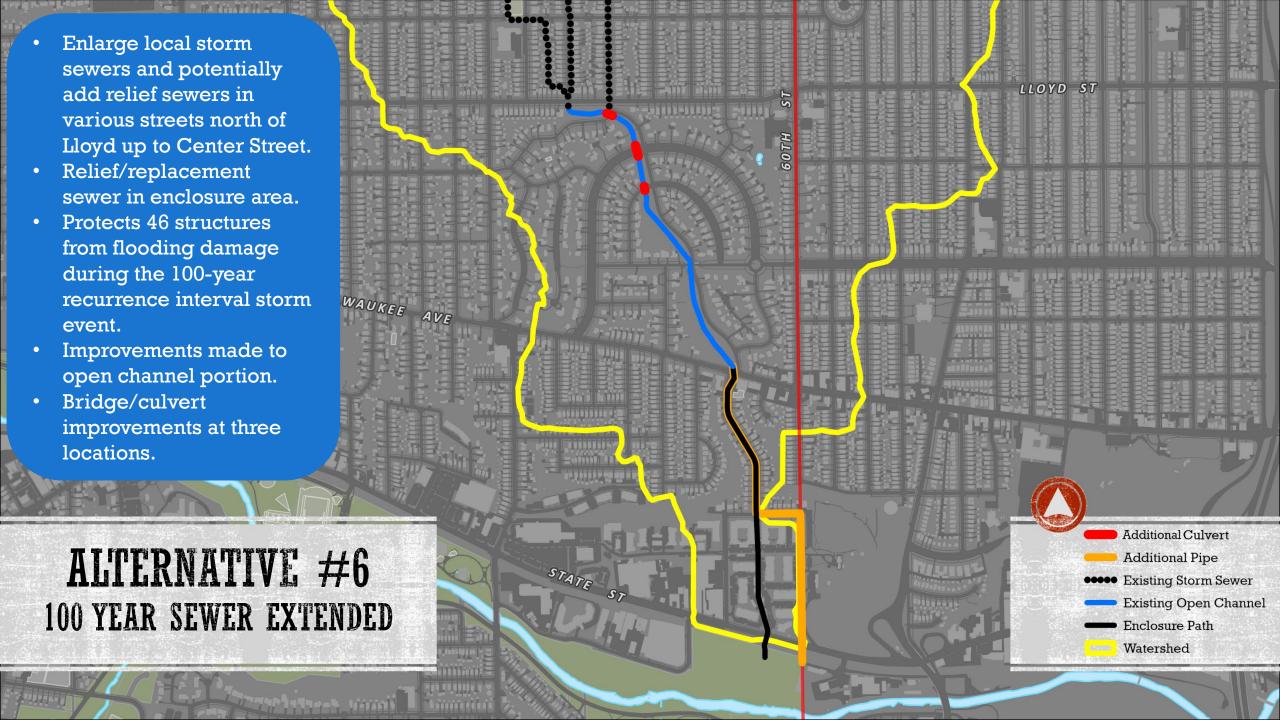
<sup>&</sup>lt;sup>d</sup> Alternatives 7 and 8 only eliminate flooding from the City of Milwaukee N. 60<sup>th</sup> St. sewer to the Wauwatosa sewer area.

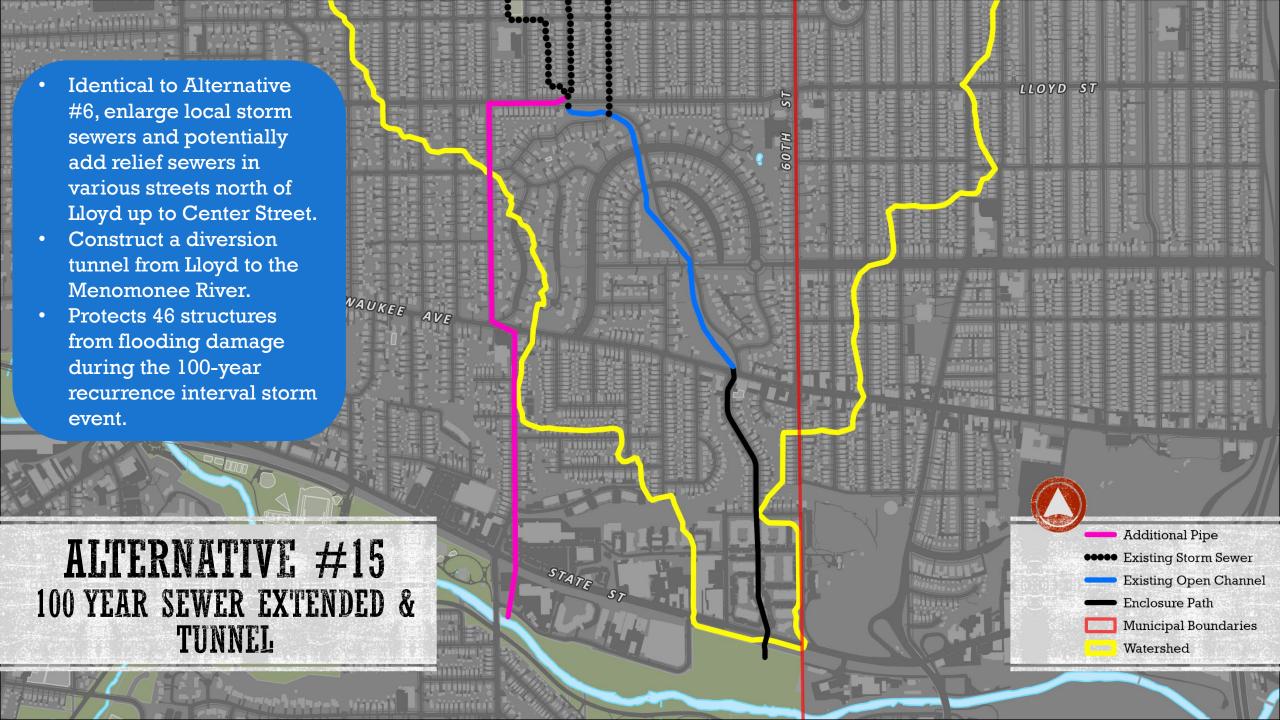
**Table 4.3 Schoonmaker Creek Alternative Summary** 

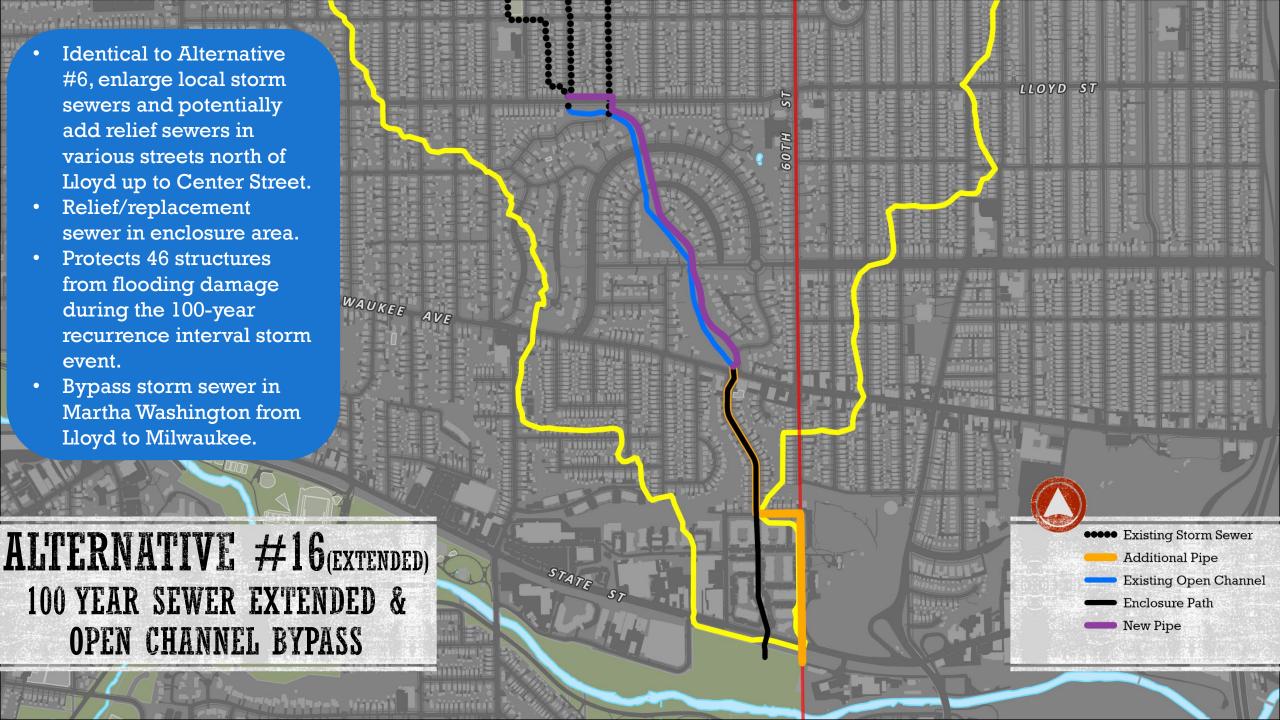
			Implementability		100-year	
Alternative	100-year Recurrence Interval Peak Flow to Open Channel	Disruption During Construction	Utility Conflict Potential	Property Acquisitions Required	Recurrence Interval Storm Ponding Reduction in the Wauwatosa Sewer Area	Total Capital Cost <sup>a</sup> (millions)
Enclosure Alternatives						
Alternative 1 – Relief Pipe at Enclosure	No change	Medium	Medium	No	None	5.6
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Enclosure and Sewer Area Alternatives						
Alternative 4 – 25-Year Sewer	Increase	High	High	No No	Medium	22.8
Alternative 5 100 Year Sewer	Increase	High	High	No	High	30.1
Alternative 6 – 100-Year Sewer Extended	Increase	High	High	No	High	31.3
Alternative 7 – East Milwaukee Sewer Additional Pipe	NAS	Medium	Medium	No	Low <sup>d</sup>	3.2
Alternative 8 East Milwaukee Sewer New Pipe	NA	Medium	Medium	No	Low <sup>d</sup>	5.8
Alternative 9 Open Channel	Increase	High	High	Yes	Medium	69.2
Alternative 10 North Storage	Decrease	Low	Low	Yes	Medium	20.2
Alternative 11 South Storage	Decrease	Low	Low	Yes	Low	20.4
Alternative 12 North and South Storage	Decrease	Low	Low	Yes	High	42.8
Alternative 13 – 25-Year Sewer and Tunnel	Decrease	High	High	No	Medium	35.2
-Alternative 14 - 100 Year Sewer and Tunnel	Decrease	High	High	No	High	39.0
Alternative 15 – 100-Year Sewer Extended and Tunnel	Decrease	High	High	No	High	40.4
Alternative 16 – 100-Year Sewer and Open Channel Bypass	Decrease	High	High	No	High	29.3

Recommend a detailed alternative analysis be completed of alternatives 6, 15, & 16 (extended) as further described on the following slides.











- Recommendation Summary
  - Proceed with a detailed alternative analysis of:
    - Alternative #6- 100 Year Sewer Extended
    - Alternative #15- 100 Year Sewer Extended & Tunnel
    - Alternative #16 (extended)- 100 Year Sewer Extended & Open Channel Bypass
  - Recommend Alternative #1 to the MMSD if Alternative #6 or #16 is ultimately selected as the final proposed alternative.



#### Next Steps

- Community Affairs Committee & Common Council vote to determine which alternatives will move into the detailed alternative analysis phase.
- City staff would then begin work to draft and issue a Request for Proposals (RFP) to hire a consulting engineer to begin the detailed alternative analysis which will include engineering work, public outreach, and grant/funding research. Timing of the issuance will depend upon staff availability which is affected by vacancies as well as how much grant funding is obtained from the Bipartisan Infrastructure Law.
- Award of a contract with a consulting engineer will come to the Financial Affairs Committee and Common Council for approval.



#### Timing

- Once awarded it is anticipated that the detailed alternative analysis will take approximately one year to complete and will analyze the following components:
  - Impacts to existing City infrastructure -storm, sanitary, water, roads, trees, street lights
  - Incorporation of green infrastructure, Total Maximum Daily Load (TMDL) requirements
  - Construction costs and construction phasing options
- The Common Council will determine the final alternative which will then lead to funding decisions and construction schedule planning.



#### Thank you!



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